

THE DEVELOPMENT OF THE CAMPUS COMMUNITY INDEX: CALLING CAMPUS
HOME OR CALLING IT QUILTS

A Dissertation

by

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This dissertation meets the standards for scope and quality of
Texas A&M University-Corpus Christi and is hereby approved.

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ABSTRACT

Student engagement on college campuses is a perennial concern among stakeholders at all levels. Existing survey instruments examine extrinsic factors accounting for engagement related to campus activities. Social psychology shows individuals tend to thrive when their intrinsic needs to matter and to connect with their environment are met. The purpose of the study was to develop an instrument, the Campus Community Index (CCI) to measure levels of mattering and connectedness among all students and their campus community, using an approach not previously seen in the literature.

The quantitative study examined students' perceptions of appreciation (mattering) and connection to campus community groups. Students' background included age, gender, year-in-college, ethnicity, transfer or not, enrollment status, and residency status. Campus community included other students, faculty, senior administrators, administrators, support services, and student organizations. Sample size included students from four U.S. universities, N = 1132. There were eight approaches to analyses: descriptive statistics, Cronbach's alpha, Bartlett Test of Sphericity, exploratory factor analysis, regression, chi-square goodness of fit, *t*-tests, and ANOVAs.

Results showed that survey items were statistically significant to establish the CCI with both the Perception of Appreciation and Depth of Connectedness subscales. Each subscale contains 10 items. Further analyses showed student interaction with other students and student organizations were key for perceptions of community. Less so were interactions with administrators, senior administrators, and support services. There were mixed views of interaction with faculty. Surprisingly, freshman and graduate students had similar views.

The CCI can stand alone to measure intrinsic values of student engagement or be used with other instruments to show relationships between intrinsic values and extrinsic activities. If students show higher levels of campus community, it should impact retention and graduation rates. Several recommendations for future research emerged. First, data should be gathered among all Carnegie classification institutions to see if results are similar. Second, the CCI should be correlated to students' total time on campus, as well as whether they are enjoying their experience. Third, similarities between freshmen and graduate students should be explored. Finally, it should be used in conjunction with other instruments to provide a more complete description of student engagement.

DEDICATION

I dedicate my dissertation first and foremost to almighty God, then to my husband, Joseph (Joey) Dávila and my son, Jaden. I also dedicate this study to my parents Joe and Irma Treviño. God, I thank you for your sovereignty and provision of all the resources I needed to sustain me through this challenging journey. Joey, I thank you for your sacrifice, love, on-going support and faith in my ability, as well as your patience for all the hours that I put into this program and study. Jaden, I thank you too, for your patience and your sacrifice, as you often had to hear me say, “not now, I’m doing school work”, when you wanted to play. Mom and Dad, I thank you for your encouragement and faith in my ability to accomplish this lofty goal.

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I thank the administration, staff, and students of the four universities who participated in this study. Without your efforts this project would not have been a success.

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CHAPTER I: BACKGROUND AND SETTING

Higher education in the United States is a perpetually evolving enterprise. Like all businesses, institutions of higher learning must attract and retain customers to remain viable (Meredith, 2004). In the midst of a recession, economic factors, including rising operating costs, considerable reductions in state and federal funding, and fluctuating endowment returns, have posed a major challenge for higher education administrators (Betts, Hartman, & Oxholm III, 2012). Under the pressures of financial constraints, colleges and universities are now focused on student retention and graduation rates, the basis for which legislatures grant funding (Shapiro & Bray, 2011; & Talbert, 2012). Studies conducted to examine the reasons why students decide to persist in, or depart from colleges and universities, indicate student engagement plays a major role in determining retention (Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008). As a result, mitigating attrition through thoughtfully designed programs, which seek to address student engagement from recruitment through graduation, remains at the forefront of national higher education strategic planning agendas.

While student drop out rates in higher education have become a leading source of concern for administrators (Earnest & Dwyer, 2010), the trend is not new to this arena (Astin, 1975; Nagda, Gregerman, Jonides, Von Hippel, & Lerner, 1998; Tinto, 1993). Launched by E.F. Lindquist in 1959, with the express intent of “helping students make better decisions for themselves while enabling institutions to improve student success,” (ACT, 2014, para. 1), the American College Testing (ACT) continues to play a major role in the nation’s assessment process of higher education institutions. According to the 2013 ACT National Collegiate Retention and Persistence to Degree Rates report, the first year to second year retention rate for public BA/BS awarding institutions stands at 64.9% (ACT, 2014). Studies also reported

graduation rates are notably lower for minority students (Aud, Hussar, Johnson, Kena, Roth, Manning, Wang, & Zhang, 2012). Specifically, the reported six-year completion rate in 2011 was 39% for blacks, and 50% for Hispanics (Aud et al., 2012). Using a macro-micro modeling framework grounded in macroeconomic analysis to make predictions about future job and education requirements, Carnevale, Smith, & Strohl (2010) reported that by 2018, more than 60% of jobs will require a college degree or a professional certificate. This places additional pressure on the nation's higher education leaders to perform.

The existing body of higher education research on student retention rates is substantial. While some researchers looked at developing theories, which explain student persistence and departure (Severiens, 2012), others examined the degree of effectiveness of an array of programs implemented at colleges and universities (ACT, 2013). Some studies looked at programs aimed at affecting completion rates for specific student populations such as student athletes (Seidman, 2005), while others investigated the retention rates of students majoring in specific areas of study, such as science, technology, engineering, and mathematics (STEM) programs (Watkins & Mazur, 2013).

Studies have indicated the greater the degree to which students settle into campus life, the less likely they are to depart, and thus retention and graduation goals are more likely to be met (Kuh 2003; Pascarella & Terenzini, 2005; Tinto, 1998). Specifically, studies suggested the faster students identify with peer groups, the faster they acculturate into university life, which in turn leads to their success (Engstrom & Tinto, 2008). Colleges and universities are responding to these findings by investing resources in programs, which address the student engagement process, including student orientations, summer transition programs, first-year learning communities (Englestrom & Tinto, 2008), and peer mentoring programs (Montero, 2009;

Murphy Clinton, 2011). While each of these programs has experienced varying degrees of success, the issue of retention continues to present considerable challenges for the nation's colleges and universities.

Statement of the Problem

Studies have indicated a college degree is a pivotal determinant in the economic success of individuals (Carnevale, Rose, & Cheah, 2011). Specifically, according to the United States Census Bureau, data collected in 2010 demonstrated that over a forty-year work life (ages 25-64), the average income for high school graduates is around \$1.2 million, while those with four-year degrees earn about \$2.1 million (Julian, 2012). Although this is a significant statistic, Symonds, Ferguson and Schwartz (2011) reported only 56% of college/university students complete a four-year degree within six years, putting the U.S in 14th place among the 34 member countries tracked by the Organization for Economic Co-Operation and Development (OECD, 2013).

There are significant costs to the nation associated with current college dropout rates. A study conducted by the American Institutes for Research (AIR) showed that out of the more than one million full-time, bachelor degree-seeking students who enrolled in college in 2002, approximately half a million did not graduate within six years, resulting in a combined cost of \$4.5 billion in lost federal and state revenue (American Institutes for Research, 2011). Although not all reasons for student departure are related to a lack of success, the literature indicated a majority of students enter colleges and universities with the express intention of attaining a degree (Komives & Woodard, 2003).

In efforts to measure their effectiveness in the area of student engagement, universities have participated in national survey programs such as the National Survey of Student

Engagement (NSSE), which measures student participation in academic support programs and extra-curricular activities. In addition to the NSSE, there are a number of instruments used by colleges and universities, which measure various aspects of student engagement. Among these are the following: Beginning College Survey of Student Engagement (BCSSE), Community College Student Survey of Engagement (CCSSE), College Senior Survey (CSS), College Student Experiences Questionnaire (CSEQ), and the Student Satisfaction Inventory (SSI).

Student engagement surveys could be broken down into categories based on the types of data collected and the time during which they are administered. Specifically, some instruments are designed to stand alone, while others are designed as companions to existing instruments, which are administered subsequently at a predefined time. Companion survey designs use data from the initial survey to predict or compare outcomes on/to the latter one.

The Beginning College Survey of Student Engagement (BCSSE) falls into the companion survey category. The purpose of the BCSSE is to gather information on the high school academic and co-curricular experiences of new college students. This survey was designed to be administered to first-year students at the beginning of the fall semester as a companion survey to the NSSE, which is administered at the end of the first year of college (BCSSE, 2008).

Surveys, which can either stand alone or accompany other instruments, include the Community College Survey of Student Engagement (CCSSE), the National Student Survey of Engagement (NSSE), the College Student Experiences Questionnaire (CSEQ), and the Student Satisfaction Inventory (SSI). The CCSSE is the equivalent of the NSSE, but designed for the community college student population. The CSEQ, as the name implies, is used to collect information geared toward measuring the student experience quality, campus environment perception, and educational goal progress (CSEQ, 2007). The SSI was designed to assess

student satisfaction based on the following elements: advising, campus environment, support services, instructional outcomes, safety and security, and student focus, and can be used in any category of higher education institutions (Noel-Levitz, 2013).

The College Senior Survey (CSS) was designed for exiting seniors. Survey items cover a comprehensive spectrum of college outcomes as well as student after college plans including: “academic achievement and engagement, student-faculty interaction, cognitive and affective development, student goals and values, satisfaction with the college experience, degree aspirations and career plans, post-college plans, and also includes space for up to 20 institution-specific questions” (Higher Education Research Institute, 2014, para.1).

Student retention issues are not just a domestic issue for the United States. Other nations, including Australia and South Africa, also use surveys to assess student engagement and success, in an effort to address retention shortfalls. Outcomes measured by the Australasian Survey of Student Engagement (AUSSE) include the time and energy students dedicate to activities related to their educational endeavors, and on the ways in which students qualify the caliber of other facets of their university experience (Australasian Survey of Student Engagement, 2013). Modeled after the NSSE, the South African Survey of Student Engagement (SASSE) measures five criterion determined to be requisite for the delivery of effective education practices. These include the following: academic challenges; learning engagement; student-staff interaction; educational enrichment; and supportive campus (UFS, 2000-2014).

Existing engagement instruments are primarily aimed at measuring student involvement based on self-reported behaviors. While the outcomes reported by all of the above listed survey instruments provide valuable information to participating colleges and universities, their main focus is on students’ answers to questions regarding their extrinsic responses to the campus

environment, including their academic and co-curricular experiences. What these instruments do not measure are students' intrinsic responses to the campus environment, such as their level of perceived sense of acceptance. The intent of this study is to develop and test an index titled the Campus Community Index (CCI), consisting of two subscales, which have been identified as major factors predictive of human perceived sense of community.

Warner, Kerwin, and Garner (2013) reported research involving the concept of sense of community is timely and gaining importance, as professionals in the fields of psychology and sociology reach for a more profound understanding of the ways in which humans interact with each other, for the purpose of explaining social engagement. The problem is that no instrument exists to measure student perceptions regarding how they feel about being part of a campus community, which takes an all-inclusive approach. For this reason, this study was aimed at developing an instrument titled the Campus Community Index (CCI).

Theoretical Framework

This study is based on two theoretical frameworks: Mattering Theory and Social Connectedness Theory, both of which share in the general idea of the human condition of needing to feel accepted. The first theoretical framework is Mattering. Specifically, the study is based on mattering as defined by Elliott, Kao, and Grant (2004), which stated mattering is “the perception, that to some degree and in a variety of ways, we are a significant part of the world around us” (p. 339). Mattering is linked to our sense of self, in that it determines who we are, and whether or not we belong in the environments we find ourselves in (Elliott, Kao, & Grant, 2004). Mattering theory has three elements. The first one is *awareness*, as it relates to the way others attend to us. The second is *importance*, which pertains to the ways others invest in us.

And the third is *reliance*, which applies to the perception that others look to us for resources (Elliot, Kao, & Grant, 2004).

The second theoretical framework is Social Connectedness. Social Connectedness theory is defined by Lee and Robins (2000) as “an aspect of the self that reflects subjective awareness of interpersonal closeness with the social world in toto” (p. 484). Lee and Robins (2000) further stated that this particular sense of closeness is essential to a person’s sense of belonging in that it is rooted in the combined experiences one has in their relationships with those they are close to, as well as with those with whom they associate on a more peripheral basis. This study is based on the description of the four components of Connectedness as discussed in Whitlock, Wyman, and Barreira (2012), which are as follows: (a) a perception of one’s level of identification with others and his or her environment; (b) dynamic and reciprocal; (c) setting-specific; and (d) intrapersonal experiences and interpersonal experiences.

The Campus Community Index (CCI) is an instrument developed to measure the level of community that college and universities students perceive to help them adjust to college life. The CCI looks at the level of interaction students have with other students, faculty, senior administrators, administrators, support services, and student organizations, which is considered valuable for their feeling they are an integral part of the campus environment. The CCI includes two subscales: (a) Perception of Appreciation, which looks at a student’s level of sense of acknowledgement, recognition, and self-value as they interact with other students, faculty, senior administrators, administrators, support services and student organizations, on their college campus; and (b) Depth of Connectedness, which considers a student’s sense of the level of their involvement with other students, faculty, senior administrators, administrators, support services,

and student organizations. Both Perception of Appreciation and Depth of Connectedness are grounded in previous research pertaining to a sense of community.

Purpose of the Study

The purpose of the study was to develop a survey instrument to measure campus community among college and university students. The design is such that it can stand alone or be used with other instruments for additional quantitative analyses. The name of the instrument is the Campus Community Index (CCI), and it employs the following two subscales: (a) Perception of Appreciation, and (b) Depth of Connectedness.

Research Questions

What is the sense of campus community among college and university students?

Research question one: What statements represent the Perception of Appreciation subscale among college and university students?

Research question two: What statements represent the Depth of Connectedness subscale among college and university students?

Research question three: How does student background relate to the Perception of Appreciation subscale regarding components pertaining to campus community?

Research question four: How does student background relate to the Depth of Connectedness subscale regarding components pertaining to campus community?

Definition of Terms

Perception of Appreciation – Perception of Appreciation is based on Mattering Theory as defined by Elliott, Kao, and Grant (2004), which stated mattering is “the perception, that to some degree and in a variety of ways, we are a significant part of the world around us” (p. 339).

Perception of Appreciation is operationally defined as a student’s sense of acknowledgement,

importance, and self-value as it relates to their interaction with groups that make up the campus community. A sample survey item is: “I sense...are concerned about my well-being.”

Participants will respond on a six-point scale: 1 = completely disagree; 2 = strongly disagree; 3 = disagree; 4 = agree; 5 = strongly agree; 6 = completely agree. Another option is provided for items that may not apply: 7 = not applicable.

Depth of Connectedness – Hagerty et al. (1993) defined connectedness as the state that occurs when there is “active involvement with another person that is accompanied by comfort and an increased sense of well being” (p. 296). Depth of Connectedness is operationally defined as the measure of college and university students’ perception of the level of their involvement with other students, faculty, senior administrators, administrators, support services, and student organizations. A sample survey item is: “I feel comfortable when I am around....” Participants will respond on a six-point scale: 1 = completely disagree; 2 = strongly disagree; 3 = disagree; 4 = agree; 5 = strongly agree; 6 = completely agree. Another option is provided for items that may not apply: 7 = not applicable.

Student Background - Student background is defined as demographic information characteristic of students in six areas: (a) age; (b) gender; (c) ethnicity; (d) year-in-college (freshman, sophomore, junior, senior, graduate student); (e) transfer student (yes/no); (e) enrollment status (full-time/part-time); (f) residency status (in-state/out-of-state).

Age – Age is operationally defined according to seven categories: (a) 18-24; (b) 25-34; (c) 35-44; (d) 45-54; (e) 55-64; (f) 65-74; (g) 75 or older. Participants selected one category.

Gender - Gender is operationally defined as male or female. Participants selected one category.

Ethnicity - Ethnicity is based on federal designation in eight categories: (a) Non-Hispanic White or Euro-American; (b) Black, Afro-Caribbean, or African American; (c) Latino or Hispanic American; (d) East Asian or Asian American; (e) Middle Eastern or Arab American; (f) Native American or Indian American; (g) other. Participants selected one category.

Year-in-college – Year-in-college is operationally defined according to four categories: (a) freshman, (b) sophomore; (c) junior; (d) senior; (d) graduate student. Participants selected one category.

Transfer Status – Transfer status is operationally defined whether or not a student transferred from another college or university (yes or no). Participants selected one category.

Enrollment Status - Enrollment status in college is operationally defined as full-time or part-time. Participants selected one category.

Residency Status - Residency status is operationally defined based on whether a student had a residency designation of in-state or out-of-state. Participants selected one category.

Campus Community - Campus community refers to the various groups of people with whom students interact on campus. There are six groups: (a) other students; (b) faculty; (c) senior administrators (president, provost, vice presidents); (d) administrators (college deans and chairs); (e) support services (housing, tutoring, health & counseling, library, recreational sports, tech support); and (f) student organizations. Campus community groups are operationally defined as independent categories by which students rate their interaction. For example, a student may rate his or her interaction with other students according to a six-point scale with the statement: I sense (other students) are concerned about my well-being, 1 = completely disagree; 2 = strongly disagree; 3 = disagree; 4 = agree; 5 = strongly agree; 6 = completely agree. Another option is provided for items that may not apply: 7 = not applicable. The same rating applies to

all categories: (a) other students; (b) faculty; (c) senior administrators (president, provost, vice presidents); (d) administrators (college deans and chairs); (e) support services (housing, tutoring, health & counseling, library, recreational sports, tech support); (f) student organizations.

Limitations

Due to the non-probability nature of sampling, external validity is limited to the four participating institutions. However, given the sample size and the purpose of the study, the data are important within the context of the theoretical framework and instrument design to examine the validity and reliability of the instrument. The study was further limited by the accuracy with which the participants self-reported their responses to the items on the survey. The literature indicated that self-reported data present a threat to an instrument's validity because there is no way to determine whether a respondent is being honest, whether they have introspective ability, whether they fully understand the question(s), whether they comprehend the rating scale, and whether they exercise response bias (Hoskin, 2012). Additional issues include the lack of precision in ordinal measures, and the inability to have control of the sample (Hoskin, 2012). Time constraints also limited the study, as the participants were given only three weeks to submit their responses. This, in part, was due to the need to collect data at a particular juncture in the semester. It is important to collect data as early as possible for understanding how students new to a campus feel like they are part of the campus community. The analyses, to a certain extent, are limited to responses. For example, there needs to be enough responses in various categories for analyses to be complete. Actual distribution of the survey may not be direct. Permission and distribution channels from participating institutions may be required. Finally, the sample is not representative of all colleges and universities. There are over 4,500 postsecondary institutions in the United States. It is not feasible to send surveys to all institutions. Private institutions are not

represented. Institutions across all Carnegie classifications are not represented. However, the assumption is that it does not matter what type of institution students attend. What matters is how much student feel like a part of a campus community.

Delimitations

The study was delimited to the four higher education institutions selected by the researcher. The rationale for the researcher's selection of institutions was to examine how the Campus Community Index (CCI) would perform at four distinct public four-year degree granting university campuses representing four geographic zones of the country with diverse student populations. The researcher's inclusion of literature pertaining to selected theories, and to specific instruments further delimited the study. A review of literature on the topic of sense of community revealed that Mattering theory (Elliott, Kao & Grant, 2004) and Social Connectedness Theory (Lee & Robins, 2000) captured the essence of this construct. The inclusion of the National Survey of Student Engagement (NSSE), the Community College Survey of Student Engagement (CCSSE), the Beginning College Student Survey of Engagement (BCSSE), the College Student Experiences Questionnaire (CSEQ), the College Senior Survey (CSS), and the Student Satisfaction Inventory (SSI) was based on the prevalence of their usage among colleges and universities. The development of the Campus Community Index (CCI) instrument and the timing of its distribution also delimited the study. The methods used to develop the survey, related to its design, as well as semantic interpretation of items, could have influenced participant responses. Since students are often under time constraints related to managing their academic, work and social schedules, the timing of distribution of the CCI could have influenced the number of completed survey submissions. Items on the instrument were developed specifically based on the theories chosen to help explain the phenomenon. Those

theories and items seem to best explain how students view their connection to campus groups. The methodological procedures were delimited because they followed specific procedures used to establish the validity and reliability of similar instruments.

Significance of the Study

The study adds a significant layer of information to the existing body of research available in the field of student engagement in higher education. Unlike other instruments used to measure student engagement on the basis of their extrinsic responses to their campus environment, the Campus Community Index (CCI) is aimed at measuring students' sense of community, on the basis of their intrinsic responses to their experiences, as they interact with the groups which make up the campus environment (other students, faculty, senior administrators, administrators, support services, and student organizations).

The CCI produced statistical significance in measuring the level of students' perceived sense of community on college campuses. Results of the study indicated the CCI is capable of providing higher education administrators, researchers and theorists an avenue for better understanding and predicting retention rates. Additionally, the CCI can aid in the development of more thoughtful ways of addressing students' basic need to connect with, and feel like they matter on their college campuses.

Summary

Despite financial constraints caused by a struggling national economy, colleges and universities are challenged with the goal of increasing retention and graduation rates. Research indicated those who attain a college degree will earn almost twice as much as high school graduates over a life time of earnings (Julian, 2012), making this goal even more important to attain for the sake of improving the nation's global economic standing. Student engagement

surveys have been used as a means to determine what needs to be done to improve student retention and success. Instruments, such as the National Student Survey of Engagement (NSSE) have been developed to predict reasons why students leave school before completing their degrees. Results of these surveys have provided colleges and universities with information, which has spawned the development of student engagement programs aimed at reducing attrition. Programs such as first-year learning communities, peer-mentoring programs, tutoring centers, and student organization initiatives have been used over the years to address student persistence. While these programs have had varying success rates, a high percentage of attrition remains a major issue for colleges and universities across the country.

In efforts to develop a more accurate and efficient way to predict student retention, the researcher developed the Campus Community Index (CCI). The CCI, which is based on two theoretical frameworks, which include theory of Mattering (Elliot, Kao & Grant, 2004) and Theory of Social Connectedness (Lee & Robins, 2000), is designed to measure students' sense of community on campus. Campus community is defined as the entities with which students interact on their college campuses, and includes other students, faculty, senior administrators, administrators, support services, and student organizations. The instrument consists of background and demographic items and two subscales, which include Perception of Appreciation and Depth of Connectedness.

Limitations of the study, including the accuracy of data analysis, and delimitations, including sample selection were covered. The significance of the study, including the potential of the Campus Community Index to aid educational leaders in addressing retention, was also outlined.

CHAPTER II: LITERATURE REVIEW

Higher education enrollment, retention, and graduation (ERG) rates have become a critical area of concern for the nation's government, and are therefore the central point of attention for college and university administrators (Shapiro & Bray, 2011; & Talbert, 2012). Although improving ERG rates has always been a matter of major importance to higher education institutions, the nation's declining position on the global scale, in number of postsecondary certificate, credential, or degree holding citizens, has triggered an even greater pressure to perform in this area. The nation's leaders have set a goal to bring the United States back to its preeminent standing by the year 2020 (Kanter, 2011). Higher education leaders are striving to reach this goal by dedicating resources to creating a climate where academic excellence can be fostered. Such an endeavor includes the development and implementation of programs that provide all students with the necessary tools for achieving academic success (Talbert, 2012).

The literature surrounding enrollment retention and graduation (ERG) rate issues covers a wide range of topics. They include, but are not limited to the investigation of factors influencing attrition (Georg, 2009), the effect of intervention programs, such as first-year learning communities (Corbo, 2010), and peer mentoring on retention (Sanchez, Bauer, & Paronto, 2006), and the role of gender and ethnicity in predicting retention rates (Laskey & Hetzel, 2011). Colleges and universities use data obtained from national surveys, such as the National Survey of Student Engagement (NSSE), the Beginning College Student Survey of Engagement (BCSSE), the Community College Survey of Student Engagement (CCSSE), the College Student Experiences Questionnaire (CSEQ), the College Senior Survey (CSS), and the Student

Satisfaction Inventory (SSI), to determine which direction to take when developing and implementing strategies aimed at improving ERG rates.

Review of Student Engagement Literature

The contemporary definition of the term *student engagement* is the result of the work of educational theorists over the past three decades. Although research in the area of student engagement has a foundation dating back to the 1960s (Barker & Gump, 1964; Yamamoto, Thomas, & Karns, 1969), modern application of the term has direct ties to the work of Astin (1984), whose Student Involvement Theory explained that student involvement is linked to “the quantity and quality of physical and psychological energy that students invest in the college experience” (p. 297). Axelson and Flick (2011) described student engagement as “how involved or interested students appear to be in their learning, and how connected they are to their classes, their institutions, and each other” (p. 38). Kuh, Kinzie, Buckley, Bridges, and Hayek (2007) defined student engagement as “the extent to which students take part in educationally effective practices” (p. 43). Finally, NSSE (2014) stated that student engagement is made of the following two key aspects: a) the time and effort students devote to their overall college activities; b) the ways colleges and universities deliver their resources and develop and formulate the curriculum to provide for learning opportunities geared toward inspiring student participation in those activities, which research demonstrates are connected to student learning (NSSE, 2014). This definition is characteristic of the current movement in student engagement and success research and literature.

The approach to measuring student success, based on the afore listed definitions of engagement, looks primarily at extrinsic behaviors of students as they engage in particular activities as part of their lives on campus. It assumes that as students participate in campus

activities, they will most likely stay in college and graduate. The concern, though, is that research, which considers the internal perspectives of students according to how well they perceive themselves as an integral part of the campus community, is limited. Stated another way, although students may participate in campus activities, events, and required programs, it is important for administrators, faculty and support services staff, to understand how well their students see themselves as integral members of the campus community.

Since the research and literature on the subject of how students perceive themselves as integral members of their college campuses, is limited, chapter two focuses on two major areas. First, it looks at how engagement instruments are used by colleges and universities. Second, it reviews literature surrounding mattering theory and related topics. Mattering theory suggests that “[m]attering is a motive: the feeling that others depend on us, are interested in us, are concerned with our fate, or experience us as an ego extension exercising a powerful influence on our actions” (Rosenberg & McCullough, 1981, p. 165). In general, research and literature are remiss in addressing how students view their sense of community on campuses. Hence, there is a need to develop an instrument to measure that sense. The foundation is that if students feel they are integral to a community, they will engage more.

Research indicated that the degree to which colleges and universities can positively affect the elements of student engagement, determines their level of institutional excellence (Kuh, Kinzie, Schuh, & Whitt, 2010), and thus their standing in the marketplace of higher education. While attention to student engagement has been an important part of higher education administration for several decades (Axelson & Flick, 2011), current pressure from the government to perform (Fain, 2009), coupled with challenging economic times, have brought it to the forefront of strategic planning agendas nationwide. With ERG rates at the forefront of the

issues faced by stakeholders and academic leaders, the need to understand these issues and assess them also raises to the forefront.

Due to the concerns listed above, colleges and universities take steps to engage their students. In efforts to measure their success, institutions use surveys, such as the National Survey of Student Engagement (NSSE), the Beginning College Survey of Student Engagement (BCSSE), the Community College Survey of Student Engagement (CCSSE), the College Student Experiences Questionnaire (CSEQ), the College Senior Survey (CSS), and the Student Satisfaction Inventory (SSI). Given the value that is ascribed to the data provided by these instruments, it is important to understand the foundations of their development.

Theoretical Frameworks: Basis of Student Engagement Instruments

The development of the Beginning College Student Survey of Engagement (BCSSE), the National Survey of Student Engagement (NSSE), and its community college counterpart, the Community College Survey of Engagement (CCSSE), is based on two theoretical frameworks. These include Alexander Astin's Theory of Student Involvement, and C. Robert Pace's Quality of Effort Theory. As previously stated, the principal tenet of Astin's Theory of Student Involvement (1984) is that student involvement is linked to “the quantity and quality of physical and psychological energy that students invest in the college experience” (p. 297). The core concepts of the theory are composed of the following three elements:

- (a) a student's demographics, their background, and previous experiences;
- (b) the student's "environment," which accounts for all of the experiences a student would have during college;
- (c) there are "outcomes" which cover a student's characteristics, knowledge, attitudes, beliefs, and values that exist after a student has graduated college (Student Development Theory, 2007, para.1).

Astin also created five basic assumptions to go along with his Student Involvement Theory. These are as follows:

(a) involvement requires an investment of psychosocial and physical energy; (b) involvement is continuous, and that the amount of energy invested varies from student to student; (c) aspects of involvement may be qualitative and quantitative; (d) what a student gains from being involved (or their development) is directly proportional to the extent to which they were involved (in both aspects of quality and quantity); and (e) academic performance is correlated with the student involvement (Student Development Theory, 2007, para. 2).

Also contributing to the development of the NSSE and CCSSE is Pace's (1999) Quality of Effort Theory, based on his assertion that "what students learn in college will depend to a considerable degree on the quality of effort they invest in the college experience" (pp. 1-2). Simply stated, the more time and effort they put into their academic pursuits, the greater the level of success they will attain.

Astin's Theory of Student Involvement is based upon students' extrinsic behaviors, as they participate in college related activities. The following eight-part questionnaire, taken from the 2013 NSSE survey, demonstrates how these two theoretical frameworks support the development of this instrument:

During the current school year, about how often have you done the following 1) Asked questions or contributed to course discussions in other ways, 2) Prepared two or more drafts of an assignment before turning it in, 3) Come to class without completing reading assignments, attended an arts exhibit, play, or other arts performance, (dance, music, etc.), 4) Asked another student to help you understand course material, 5) Explained

course material to one or more students, 6) Prepared for exams by discussing or working through course material with other students, 7) Worked with other students on course projects or assignments, 8) Gave a course presentation, with answer choices which include 1) very often, 2) often, 3) sometimes, 4) never (NSSE, 2013, p. 1).

The College Student Experiences Questionnaire (CSEQ) is the precursor to the NSSE. Developed in 1979 by C. Robert Pace, the instrument is based on his Quality of Effort Theory. The following question taken from the CSEQ questionnaire demonstrates how the theoretical framework supports its development in the instructions:

In your experience at this institution during the current school year, about how often have you done each of the following? Indicate your response by filling in one of the ovals to the right of each statement. a) Used a campus lounge to relax or study by yourself. b) Met other students at some campus location (campus center, etc.) for a discussion. c) Attended a cultural or social event in the campus center or other campus location. d) Went to a lecture or panel discussion. e) Used a campus learning lab or center to improve study or academic skills (reading, writing, etc.) f) Used campus recreational facilities (pool, fitness equipment, courts, etc.). g) Played a team sport (intramural, club, intercollegiate). h) Followed a regular schedule of exercise or practice for some recreational sporting activity with answer choices including 1) Very Often, 2) Often, 3) Occasionally, and 4) Never. (CSEQ, 1998, p. 5)

The College Senior Survey (CSS) is based on Astin's Input-Environment-Outputs (I-E-O) model of assessment (Silvia Hurtado, personal communication, February 6, 2014). Astin's I-E-O model takes into account the following three basic elements:

A student's *inputs* such as their demographics, their background, and any previous experiences, a student's *environment*, which accounts for all of the experiences a student would have during college, and *outcomes*, which cover a student's characteristics, knowledge, attitudes, beliefs, and values that exist after a student has graduated college (Student Development Theory, 2007, para. 1).

The CSS is meant to be longitudinal to assess student change in outcomes based on college experiences and is intended to be a companion survey, which should be paired with the Freshman Survey to assess student development (Silvia Hurtado, personal communication, February 6, 2014). It is also based on psychosocial development models in many of the items, which include Astin's Theory of Involvement (Silvia Hurtado, personal communication, February 5, 2014). The following is question number 9, including response choices, taken from the CSS instrument for 2014:

Since entering college, indicate how often you: 1) Worked on independent study projects, 2) Discussed course content with students outside of class, 3) Have been a guest in a professor's home, 4) Failed to complete homework on time, 5) Have been bored in class, 6) Came late to class, 7) Studied with other students Performed community service as part of a class, 8) Voted in a student election, 9) Posted on course-related on-line discussion board, 10) Used the library for research or homework, 11) Accessed your campus' library resources electronically, 12) Missed class due to employment, 13) Missed class for other reasons, 14) Tutored another college student, 15) Met with an advisor/counselor about your career plans, 15) Fell asleep in class, 16) Had difficulty getting the courses you needed, 17) Asked a professor for advice after class, 18) Demonstrated for a cause., boycott, rally, protest), 19) Challenged a professor's ideas in

class, 20) Worked on a professor's research project, 21) Communicated regularly with your professors, 22) Worked with classmates on group projects during class, 23) worked with classmates on group projects outside of class, 24) Took a class that required one or more 10+ page papers, 25) Took a class that required multiple short papers, 26) Made a presentation in class, 27) Contributed to class discussions, 18) Helped raise money for a cause or campaign, 19) Publicly communicated your opinion about a cause (e.g., blog, email, petition), with answers including the following response categories: 1) Frequently, 2) Occasionally, 4) Not at all (HERI, 2013b, p. 1).

The development of the Student Satisfaction Inventory (SSI) was based largely upon consumer theory. While consumer theory is complex, it basically explains how individuals are empowered consumers whose choices reflect their identity and relevance to the culture in which they interact (Dominici, Basile, & Palumbo, 2013). Mark (2013) reported that when consumer theory is applied to college students, they "are respected for their individuality and existing knowledge and are treated as though they are fully capable of setting specific specifications for the type of education they wish to receive" (p. 492). Dominici, Basile, and Palumbo (2013) explained, "Consumers have become more demanding, more informed, and, at the same time, more willing to supply information in exchange for more personalized products which better satisfy their desires, needs, and expectations" (p. 264). Developers of the SSI considered the role of students as consumers who have options regarding their education, including whether or not to pursue a degree, as well as where to enroll. This is evidenced in the items they chose to include in the instrument. The following are the instructions, sample questions and the response selection taken from the SSI.

Each item below describes an expectation about your experiences on this campus. On the *left*, tell us how important it is for your institution to meet this expectation. On the *right*, tell us how satisfied you are that your institution has met this expectation. 1) Most students feel a sense of belonging here. 2) The campus staff are caring and helpful. 3) Faculty care about me as an individual. 4) Admissions staff are knowledgeable. 5) Financial aid counselors are helpful. 6) My academic advisor is approachable. 7) The campus is safe and secure for all students. 8) The content of the courses within my major is valuable. 9) A variety of intramural activities are offered. 10) Administrators are approachable to students. Response selection: Importance to me..1) not important at all, 2) not very important, 3) somewhat unimportant, 4) neutral, 5) somewhat important, 6) important, 7) very important, N/A - Does not apply. Response selection: ...My level of satisfaction 1) not satisfied at all, 2) not very satisfied, 3) somewhat dissatisfied, 4) neutral, 5) somewhat satisfied, 6) satisfied, 7) very satisfied, N/A - not available/not used (Student Satisfaction Inventory, 2014, p. 1).

Engagement Instruments' Validity and Reliability

The literature will focus on student engagement and success measurement instruments, which have been commonly used by colleges and universities. These include the National Student Survey of Engagement (NSSE), the Community College Student Survey of Engagement (CCSSE), the Beginning College Student Survey of Engagement (BCSSE), the College Senior Survey (CSS), the College Student Experiences Questionnaire (CSEQ), and the Student Satisfaction Inventory (SSI). The following section describes the areas of focus for each of the instruments, and provides information on their psychometric properties.

National Survey of Student Engagement. The NSSE survey was launched in 2000 and updated in 2013. It examines the level of student educational engagement (NSSE, 2013). The questionnaire collects information in the following five categories:

(a) participation in dozens of educationally purposeful activities; (b) institutional requirements and the challenging nature of coursework; (c) perceptions of the college environment; (d) estimates of educational and personal growth since starting college; and (e) background and demographic information (NSSE, 2013).

The NSSE provides participating institutions a variety of reports that compare their students' responses among peer institutions (NSSE, 2013).

The psychometric properties of the NSSE have been established in a series of studies. Validity was established using the following seven forms: response process validity, content validity, construct validity, concurrent validity, predictive validity, known groups validity, consequential validity. First, response process validity was established through cognitive interviews and focus groups designed to assess whether the respondents' understood the constructs in accordance with the researchers' intended definition. For example, in the spring of 2005, data were collected at four Minority-Serving Institutions (MSI), and four Predominantly White Institutions (PWI) with both underrepresented and minority students. Respondents included a diverse group of students from a various ethnic backgrounds, for a total of 163 participants. The length of the individual student cognitive interviews was approximately 45 minutes. The length of the focus groups was approximately one hour. The overall results indicated that the NSSE survey performed successfully for racially diverse students across all participating institutions (NSSE, 2013).

Second, content validity is the degree to which a measure represents all aspects of a

specific scale or construct (NSSE, 2013). NSSE publishers stated, because there is no statistical test to measure content validity, they rely on experts to determine how well the instrument measures the construct (NSSE, 2013)

Third, construct validity examines the degree to which a scale correlates with the theorized construct that it intends to measure (NSSE, 2013). In 2009, using scales, subscales and component items created by Nelson, Laird, Shoup, and Kuh to represent facets of deep learning used in a previous study, the NSSE conducted a new study, which included a random sample of 160,755 first-year students and 175,936 seniors from 617 participating U.S. colleges and universities. Results indicated the reliability scores for the deep learning subscales and scales were .70 or higher.

Fourth, concurrent validity examines the degree to which a construct relates to similar constructs measured at approximately the same time (NSSE, 2013). Given the Beginning College Student Survey of Engagement (BCSSE) scales are highly related to the NSSE benchmarks, as they measure similar constructs, the NSSE used data from the 2008 administration of the BCSSE, and the 2009 administration of the NSSE, to determine the concurrent validity of the latter. Specifically, the study sought to examine the importance of pre-college student characteristics and college characteristics for student success in their first-year academic progress. Results indicated that student characteristics and their perceptions of success were important predictors of engagement, thus establishing the NSSE's concurrent validity (NSSE, 2013).

Fifth, “predictive validity is the extent to which a score on a scale or test predicts scores on some criterion measure in expected ways” (NSSE, 2013, para. 6). The NSSE designed a project, named Connect the Dots (CTD), in efforts to examine the relationship between NSSE

results and selected measures of success in college. Specifically, the project explored the relationships between multiple factors including, NSSE results, pre-college activities, college grades, and persistence to the second year for approximately 11,000 first-year and senior students from 18 undergraduate institutions. The study included data from NSSE responses, financial aid records, transcripts, and ACT/SAT score reports. Predictive validity was measured in three areas including first-year GPA, first-year persistence, and senior GPA. Results in the three areas are as follows:

For first-year GPA a one standard deviation increase in ‘engagement’ during the first year of college increased a student’s GPA by about .04 points (NSSE, 2013, para. 5). For first-year persistence, students who are engaged at a level that is one standard deviation below the average have a probability of returning of .85, whereas students who are engaged at a level that is one standard deviation above the average have a probability of returning of .91 (NSSE, 2013, para. 6). For senior GPA, students who studied for 21 or more hours per week had a senior year GPA that was .04 points higher than their peers who studied for five or fewer hours per week. For every one standard deviation increase in student engagement in educationally purposeful activities, senior year GPA increased by .03 points (NSSE, 2013, para. 7).

In another study, the NSSE examined the predictive validity of the instrument using data collected for a longitudinal study conducted by the Wabash National Study of Liberal Arts Education, whose goal it was to develop insights into the relationship between liberal arts outcomes and college experiences (NSSE, 2010). Data included NSSE survey results from approximately 4,000 first-year respondents, with the following demographic breakdown: 62% female, 19% underrepresented minorities, 99% traditionally aged, and 99.5% enrolled full-time.

Students were categorized as lowest quartile, middle at 50%, and upper. Next, line graphs plotted persistence rates and cumulative credit hours completed by the end of the second year. For both outcome measures under Level of Academic Challenge (LAC), a positive relationship appeared steady for all three groups. For Active and Collaborative Learning (ACL), data indicated the more students participated in active and collaborative learning, the greater their rate of persistence and the more credit hours they earned. For Student-Faculty Interaction (SFI), results indicated there does not seem to be a relationship between the frequency of faculty interactions and persistence. For Supportive Campus Environment (SCE), results indicated the greater the degree of first-year student perception of campus support, the greater the probability they will persist in their academic progress. For Enriching Educational Experiences (EEE), results indicated first-year students who experienced more enriching educational experiences had a greater probability of persisting and progressing toward degree completion. For Deep Approaches to Learning (DAL), results showed that students who practice deep approaches to learning frequently have “slightly greater retention rates and earn slightly more credit hours than others” (NSSE, 2010, p. 5).

Sixth, known groups validity measures the degree to which a measurement picks up on differences and similarities among groups (NSSE, 2013). In 2009, the NSSE examined whether or not survey scores differed according to group membership in a predictable way (NSSE, 2010). Data included all randomly sampled students from participating U.S. institutions. Using the five NSSE benchmarks, *t*-tests and ANOVAs were conducted to determine the degree of the differences between groups. Overall, the results of the analyses suggest that the NSSE benchmarks are able to detect differences between groups.

Seventh, consequential validity examines evidence to determine if the results of an

instrument with an intended purpose and consequence are acted upon accordingly. The NSSE was developed out of a need to assess valuable information about institutional quality and to obtain information relevant to student participation in activities related to their education (NSSE, 2010). Evidence of the NSSE's consequential validity can be found in the NSSE's searchable database, which contains over 500 examples of how participating institutions use survey results to affect critical areas of their educational practices including, but not limited to accreditation, accountability, strategic planning, and program assessment (NSSE, 2010).

Reliability was established in three areas including, internal consistency, temporal stability and equivalence. Internal consistency looks at how survey items perform when measuring the same construct or variable. Internal consistency for the NSSE was examined using three scales, which included, engagement indicators, deep learning scales with three subscales, and gains scales with three subscales. Using the Carnegie classification of class, NSSE results compare first-year students to seniors. Engagement indicators have four themes: academic challenge, learning with peers, experiences with faculty, and campus environment. Academic challenge has four engagement indicators. Cronbach's alphas for first-year students range from .77 to .87 and from .78 to .88 for seniors. Learning with Peers has two indicators. Cronbach's alphas for first-year students range from .81 to .89, and from .80 to .90 for seniors. Experiences with faculty have four indicators. Cronbach's alphas for first-year students range from .83 to .89, and from .81 to .90 for seniors.

A 2011 study reported Cronbach's alphas ranging from .70 to .86 for the Deep Learning scale, including three Deep Learning subscales. A 2011 study reported Cronbach's alphas of no lower than .70 for the overall *Gains scales*.

Temporal stability looks at whether an instrument produces similar results when

administered to different cohorts of students at the same institution across consecutive years. Temporal stability was established for the NSSE based on two levels: institutional level, and student level. For the institutional level, correlations were conducted using the five NSSE benchmarks for Effective Educational Practice, comparing the institution's benchmark scores in 2010 to their benchmark scores in 2011 (NSSE, 2015). Results indicated that there were no Pearson's r correlations lower than .70, thus establishing the instrument's temporal stability. For the student level, in 2009, the NSSE was administered to the same group of students within a short time span to determine if the survey would produce similar results. Overall results showed that students responded very similarly between the first and second survey administration, with Pearson's r correlations ranging from .621 to .675 for first-year students, and .658 to .760 for seniors (NSSE, 2015).

Finally, equivalence measures reliability by testing whether or not different versions of the same questions produce like results (NSSE, 2015). Equivalence for the NSSE was established on two levels: how often is often, co-curricular hours. First, in 2006, "how often is often", examined whether the use of vague quantifiers, such as "sometimes" and "often" yielded equivalent results when compared to quantifiable results such as "three times per week" and "six times per week". Two versions of the scales were created and administered to the participants, including one with vague quantifiers, and the other with quantifiers. Survey responses from 26,204 first-year and 36,263 seniors from 149 institutions with similar demographics were analyzed (NSSE, 2015). Results showed that generally there were small differences between subgroups of students or institutions (NSSE, 2015). Establishing equivalence for co-curricular hours is still under investigation and results have not yet been determined.

Community College Survey of Student Engagement (CCSSE). The CCSSE was

developed for community and technical colleges to measure and assess student engagement in good educational practices (Marti, 2009). Results obtained from the survey are intended to serve as an impetus for improving teaching and learning at participating institutions. Validity and reliability were established in a report by Marti (2009). Validity was examined by analyzing the ability of the benchmarks to predict other outcomes, such as GPA. Results of the study indicated that engagement benchmarks have the ability to predict outcomes to which they are related (Marti, 2009). Reliability was examined through Confirmatory Factor Analysis (CFA), which showed that when the data were modeled, it had the ability to proximately produce the same results, and remain steady year after year (Marti, 2009). The author suggested that given the strength of its validity and reliability, the CCSSE could be used to examine the relationship with other outcomes.

Beginning College Survey of Student Engagement (BCSSE). The BCSSE was designed to be paired with the NSSE. Colleges and universities administer the BCSSE before the beginning of students' first semester of college, and then administer the NSSE at the end of the year. BCSSE survey questions are designed to collect data about the student's academic and co-curricular experiences in high school, in addition to their expectations for participation in educational activities during their first year of college. When results of the BCSSE are compared to those of the NSSE, they provide good information for gauging first-year student engagement on campus (BCSSE, 2013). The BCSSE scales correlate greatly with the NSSE benchmarks and therefore the BCSSE is considered valid on the basis of the NSSE Psychometric Validity Framework (BCSSE, 2014).

College Senior Survey (CSS). The College Senior Survey (CSS), developed by the University of California Los Angeles' (UCLA) Higher Education Research Institute (HERI), is

administered to graduating seniors by the Cooperative Institutional Research Program (CIRP). The purpose of the CSS is to gather important feedback information on students' academic and campus life (HERI, 2013a). The literature did not reveal psychometric properties for the CSS. Although the CSS has been administered annually since 1993, a literature search did not reveal any documents pertaining to its psychometric properties.

College Student Experiences Questionnaire (CSEQ). The College Student Experiences Questionnaire (CSEQ) was developed by Dr. C. Robert Pace in the 1970s, and was launched in 1979. It is in its 35th and final year of service with plans to close after the spring 2013 administration (CSEQ, 2013). The CSEQ measures students' progress and the quality of their overall college experiences (Williams, 2007). It contains 151 items including background, activity scales, environment scales, and estimate of gains. Additional space is provided for colleges to add 20 questions at their discretion. Activity scales are used to measure the quality of effort students apply to a variety of activities related to all aspects of campus life, including academics, personal and social experiences, interaction with faculty, campus facilities and services, and the performing arts (Williams, 2007). There are ten scales to measure how students perceive their campus environment, including the level of emphasis their campus places on diverse aspects of student learning, personal development, and the relationships students have with faculty, administrators, and other students (Williams, 2007). The Estimate of Gains Scale measures students' ratings of their progress toward their achievement of important educational goals (Williams, 2007). Reported psychometric properties indicate reliabilities with Cronbach's alphas ranging from .73 to .92, with most alphas above .80 (Williams, 2007). Factor Analysis indicate 16 factors were obtained that closely relate the activities and environment scales on the instrument (Williams, 2007).

Student Satisfaction Inventory (SSI). The Student Satisfaction Inventory (SSI) is the first survey instrument in the Noel-Levitz Satisfaction-Priorities Surveys. It was designed to examine student satisfaction and priorities as they relate to issues including campus life, safety and security, and student focus. The SSI comes in different versions to accommodate for two-year and four-year public institutions, two-year and 4-year private institutions, two-year community, junior and technical colleges, and even offers two versions specific to Canadian two-year and four-year colleges. Each version includes two forms: a long form labeled Form A, and a short form labeled Form B. For the two-year version, both Form A and Form B contain 12 scales of measurement. The four-year version of Form A contains 12 scales, while Form B contains 9 scales. The following paragraphs describe the psychometric properties of each of these, as reported by Noel-Levitz (2013).

Noel-Levitz (2013) reported that both the two-year and four-year versions of the SSI indicated notably high internal reliability with Cronbach's alphas of .97 for the set of importance scores and .98 for the set of satisfaction scores (Noel-Levitz, 2013). Noel-Levitz (2013) reported the SSI also exhibits good score reliability over time with Cronbach's alphas on the three-week, test-retest reliability at .85 for importance scores and .84 for satisfaction scores (Noel-Levitz, 2013).

Noel-Levitz (2013) reported the SSI's convergent validity was established by correlating satisfaction scores from the SSI with satisfaction scores from the College Student Satisfaction Questionnaire (CSSQ).

The Pearson correlation between the SSI and the CSSQ instruments is high enough ($r = .71; p < .00001$) to indicate that the SSI's satisfaction scores measure the same satisfaction construct as the CSSQ's scores, and yet the correlation is low enough to

indicate that there are distinct differences between the two instruments (Noel-Levitz, 2013, p. 5).

Noel-Levitz (2013) reported analysis for the reliability of the SSI Form B demonstrated Cronbach's alphas above .70, for all but two values, which also came very close to .70. Factor analysis was conducted in all cases, to determine if there was any multidimensionality among scale items (Noel-Levitz, 2013). Noel-Levitz (2013) reported, that while multidimensionality was not identified, the results of the analysis indicate that reliability is present.

Although the SSI Form B did not have a comparable instrument with which to establish validity, Noel-Levitz (2013) reported, validity was examined by reviewing the correlation between the individual scales and the SSI Form B question regarding overall satisfaction. All Pearson r "correlations were positive and significant at the .01 level, which indicated that each of the scales are associated with overall satisfaction" (Noel-Levitz, 2013, p. 5).

Uses of NSSE, BCSSE, CCSSE, CSEQ, CSS, and SSI

The NSSE, BCSSE, CCSSE, CSS, CSEQ and SSI are used to obtain data, which can inform colleges and universities of areas where improvement is needed. Three primary areas of application include institutional improvement, enhancement of teaching and learning quality, and improvement of retention and graduation rates. Universities may use the results to address a single issue or a combination of issues, which need attention and consideration. In the case of the NSSE, the NSSE Institute for Effective institutional practices reports the results of the instrument are used for a number of purposes including assessment of educational practices for undergraduate students, including teaching and learning, educational effectiveness, and to determine what is needed to advance student success. For instance, Morehead State University is using NSSE results to drive multiple efforts (Kinzie, n.d.). First, Morehead uses key indicators

to set educational goals, as part of their initiative to revamp the overall education experience of its students. Second, Morehead also uses NSSE results in a continuing discussion to consider ways in which to increase student engagement, retention and learning. Finally, Morehead uses NSSE results for reporting purposes relative to meeting state agency imposed institutional goals (Kinzie, n.d.).

The BCSSE is an instrument, which provides data regarding the level of involvement in co-curricular activities incoming freshmen had in high school for the purpose of predicting their level of engagement in college (BCSSE). Like the NSSE, the BCSSE can be used to address a single issue or a combination of issues. For example, in the area of institutional improvement, Norfolk State University (NSU) applies BCSSE results to examine disparities between students' high school experiences, their expectations for college, and the actual ways in which they engage during the first year of college (BCSSE). In the area of retention and graduation, NSU also used BCSSE data to develop a comprehensive approach to assessment, centered on making improvements to academic advising, building more purposeful partnerships between students and academic affairs, and devising initiatives that target academic and social supports which positively impact persistence and success (BCSSE, 2014).

In the area of improving teaching and learning, Southern Connecticut State University (SCSU) used BCSSE and NSSE data in a panel discussion forum in which a group of upper-class students were asked to expound on some of the findings. Faculty claimed this encounter exposed the fact they did not know their students as well as they thought. Most importantly, faculty indicated the discussion revealed new insights into students' experiences and introduced compelling challenges for pedagogy (BCSSE, 2014).

The Community College Survey of Student Engagement (CCSSE) measures the same scales as the NSSE, however it is tailored to community colleges. Similar to the NSSE, it too can be used to address a single issue or a combination of issues. For example, in the area of teaching and learning, Northwest Vista College (NVC) uses survey results in the development of its Quality Enhancement Plan, which concentrates on assessing student learning outcomes in the core curriculum by serving as point of focus for NVC's Attitude, Skills, and Knowledge (ASK) model (Gonyea & Marti, 2006). CCSSE survey items directly and indirectly pertain to several of the 12 student learning outcomes, which NVC faculty determined to be important (Gonyea & Marti, 2006).

Since its initial launch in 1979, the College Student Experiences Questionnaire (CSEQ) has been employed by over 500 institutions, and completed by nearly half a million students (CSEQ, 2007). An exhaustive search through existing literature did not yield specific institutional examples from universities who were using the CSEQ and how they had applied the results. According to Gonyea (Robert Gonyea, personal communication, December 12, 2013), "Most often, the use of surveys is for local assessment and improvement purposes, and reports and results are kept internal to each college and university" and therefore "unfortunately, institutional use of survey instruments doesn't always get published in the literature." The literature indicated the CSEQ has been partnered with the College Student Expectations Questionnaire (CSXQ), to investigate the relationship between students' expectations of what college life is going to be like, and their actual experiences, for the purpose of identifying how expectations effect experiences and outcomes (Kuh, Gonyea, & Williams, 2005).

The Cooperative Institutional Research Program (CIRP) has administered the College Senior Survey (CSS) every year since 1993. According to the Higher Education Research

Institute (HERI) (HERI, 2013), 20,747 seniors graduating from 98 colleges responded to the CSS in 2012. The CSS can be used as a companion survey to the CIRP Freshman survey. Emmanuel College uses the College Senior Survey (CSS) every three years to measure student satisfaction with the academic, social, and service areas of the College. Results from the CSS are compared with results from the CIRP Freshman Survey.

Noel-Levitz (2014) reported colleges and universities use the Student Satisfaction Inventory (SSI) to provide support in “guiding strategic action planning, strengthening student retention initiatives, meeting accreditation requirements, identifying areas of strength for institutional marketing, and for charting institutional progress toward campus goals” (para.1). Noel-Levitz (2014) reported more than 4,900,000 students at 2,600 colleges and universities have used the SSI to help them better measure student satisfaction. The following are two case studies, describing specific ways in which SSI results have been used to address the items listed above.

Noel-Levitz (2014) reported Oral Roberts University (ORU) has administered the SSI since 2001. The primary purpose of this endeavor is to improve the quality of the first year of college for its incoming freshman students, in efforts to improve their satisfaction and increase retention rates. Noel-Levitz stated the retention tools have helped ORU, with recent reports demonstrating a fall-to-fall retention increase from 76.8 to 81.6% (Noel-Levitz, 2014).

In another case study, Noel-Levitz (2014) reported South Plains College (Texas) used the SSI to help them determine specific retention initiatives needed to satisfy Title III and Title V grant initiatives on campus. Specifically, they conducted research using an intrusive advising pilot program for students in the technical disciplines, which they developed, based SSI data for

their campus. Results showed that retention for the treatment group ranged from 80 - 88 percent compared to the control group of 46% (Noel-Levitz, 2014).

Theoretical Construct for the Campus Community Index (CCI)

This research relates to the development of the Campus Community Index (CCI). Campus community is defined as a level of attachment with persons, situations, and groups in a postsecondary environment and the concurrent association with needing to feel accepted within that involvement. The concept of campus community is based two theoretical frameworks, which include the theory of mattering and the theory of social connectedness. The CCI is comprised of two subscales: (a) Perception of Appreciation and (b) Depth of Connectedness. The two subscales measure individual perspectives of interaction within the campus environment. The following literature review addresses the development of the Campus Community Index (CCI), including the history of the theories, which support the two subscales.

Decker, Pierce, and White (1999) reported that unlike the previously held views of evolutionary psychologists, the human psyche cannot be likened to a blank slate or to a computer, awaiting its programming from our parents, cultures, and schools. Instead, evolutionary psychologists have developed an entirely new perspective, which relies on the premise that humans are born with psychological mechanisms, which form the basis of their behavioral responses (Buss & Malamuth, 1996). These “psychological mechanisms are not preprogrammed behaviors; rather, they are information processing programs that are activated by perceptions of our environment” (Decker, Pierce & White, 1999, p. 83). In the context of a university campus, this perception suggests that how students behave or act on campus is based largely upon their assessment of their campus environment. Actions such as whether or not they actively participate on campus or not, and ultimately, whether or not they will remain enrolled

hinge primarily on this assessment. In consideration of this perspective, this study sought to develop an instrument, which can measure how college and university students perceive their sense of community as members of the campus environment. This section provides the foundation for the development of the Campus Community Index (CCI).

College and university campus environments are made up of a number of elements. First, there is the physical element, which includes the facilities such as classroom buildings, libraries, athletic and recreational sports facilities, dining and performance halls, student housing and administration buildings, specialized laboratories, faculty and staff offices, parking lots, police and security offices, and a physical plant. Next, there is the people element, which includes students, faculty, senior administrators, administrators, support services, and student organization. Together these elements make up the campus community, and the ways in which students interact with this environment determines their sense of community. Specifically, this study considered the campus community according to how it is defined by Astin (1993):

In its broadest sense, 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 campus environment not only includes the programs, personnel, curricula, teaching practices, and facilities that we consider to be a part of any educational program, but it also includes the social and institutional climate in which the program operates (p. 81).

The literature indicated the construct of sense of community, as it relates to the higher education arena, has been examined in a variety of ways. Tebben (1995), Tinto (1997), and McKinney, McKinney, Franiuk, and Schweitzer (2006) studied how sense of community relates to college students' classroom experiences. Tebben (1995) explored the relationship between

students' sense of community in the classroom, and their overall satisfaction and success. Sense of community was defined as "feeling a part of the group in class" (p. 333). The results of the study showed the level of care demonstrated by their instructors, and the support of their classroom peers as being the primary contributing variables to students' overall satisfaction and success (Tebben, 1995).

Tinto (1997) conducted a longitudinal, multimethods study to explore the impact of a Coordinated Studies Program (CSP), on non-residential community college students. The CSP was a program in which students learned in groups, rather than on their own, by enrolling in several courses, which shared a common theme. The study was limited to a non-residential community college. Results indicated that participation in a learning group provides an opportunity for students to "develop a network of support among a small group of their peers, that helps bond students to the extensive social communities of the institution while engaging them more fully in the academic life of the institution" (Tinto, 1997, p. 613).

McKinney, McKinney, Franiuk, and Schweitzer (2006) also applied sense of community to the college classroom. The sense of community construct employed by the study consisted of six variables, which the researchers borrowed from studies conducted on neighborhood communities. These included (a) connection, (b) participation, (c) safety, (d) support, (e) belonging, and (f) empowerment. The sample for this study included students in a psychology class at a mid-size midwestern university. Participants were subjected to a program designed to increase sense of community. Test-retest measures were taken at the beginning and end of the semester. Throughout the semester, the instructor deliberately attended to the six variables listed above. Results indicated students' sense of community ratings were a significant predictor of

students' attitudes in the classroom, learning perceptions, and performance on coursework exams (McKinney et al., 2006).

Although the Campus Community Index (CCI) study considered the sense of community construct as it applies to a college campus, it is important to note that it has also been studied in a variety of contexts, and topic domains. Recent studies on sense of community can be found in the fields of clinical psychology (Townley & Kloos, 2011), social diversity (Neal, & Neal, 2014), human resources (McCole, Jacobs, Lindley, & McAvoy, 2012), social work (Boehm, & Moin, 2014), and sport psychology (Warner, Kerwin, & Walker, 2013).

Scales of Measurement for the Campus Community Index (CCI)

This Campus Community Index (CCI) study defines the construct of campus community on the basis of two scales of measurement, which include (a) Perception of Appreciation; and (b) Depth of Connectedness, both of which are grounded in the framework of social psychology. Due to its contribution to the development of these two subscales, it is important to provide information on the background of the field of social psychology.

The field of social psychology originated in the 20th Century. The literature revealed the specifics of its development are somewhat complex, as its roots lie in two social psychologies; one in psychology, and the other in sociology (Jones, 1998). Since social psychology is made up of a merger of disciplines, which occurred over time, Millstone (2012) explained that there is history in social psychology because its antecedent practices have a lengthy past. Social psychology was developed as a specialized discipline, in response to an emerging need to investigate issues of social life, which had not been sufficiently studied by psychology and sociology (LaPiere & Farnsworth, 1949). Lambert (1973) defined social psychology as the study of human behavior as it relates to their social and cultural settings. Moreover, Sears, Freedman,

and Peplau (1985) described it as a systematic investigation of how we perceive and respond to one another in social situations. The following paragraphs discuss the development of the Perception of Appreciation and Depth of Connectedness subscales in relation to their theoretical frameworks.

Perception of Appreciation

The first scale of measurement for the Campus Community Index (CCI) is Perception of Appreciation. This scale is based on the theory of mattering, a construct developed in the field of social psychology by Rosenburgh and McCullough (1981). Emanating from the area of the self-concept, mattering refers to the viewpoint that we are an important part of our world and that we contribute to it in some way. Rosenberg and McCullough (1981) argued that mattering has a serious impact on both the self and society, as we are innately inclined to feel that we are relevant to others, and ultimately to the society to which we belong. Josselson (1998) reported that mattering contributes to identity, as it relates to interpersonal relationships, in that as individuals seek validation from others, the connections they make create the framework for the emergence of their sense of self. Elliott, Kao, and Grant (2004) reported that “people matter simply because: others attend to them (awareness), invest themselves in them (importance), or look to them for resources (reliance)” (p. 339). Elliot, Colangelo, and Gelles (2005) posited, “Mattering implies that people invest in us because they are sincerely interested in furthering our welfare” (p. 224).

Elliott et al. (2004) further explained that the quest for mattering is inherent, and in fact in the absence of the feeling of mattering, some can be driven to behave in socially unacceptable

ways for the sole purpose of garnering the attention of others. Specifically, Elliot et al. (2004) described the absence of mattering in the following way:

If people do not share themselves meaningfully with us, if no one listens to what we have to say, if we are interesting to no one, then we must cope with the realization that we do not matter...The world not only can but does get along without us, and we are truly irrelevant (p. 339).

Both Rosenberg and McCullough (1981), and Elliot et al. (2004) asserted that whether or not an individual experiences mattering to others, is dependent on whether or not that individual has a internal sense that they matter, and not on the actions of others toward them.

Mattering studies have yielded significant results for the health field in general, with major implications for mental health practitioners. Studies have shown that there is a significant correlation between relationships in which care is clearly demonstrated, and the physical and psychological health of those involved in the relationship (Rosenberg & McCullough, 1981; Taylor & Turner, 2001; Elliott et al., 2004). Rayle (2006) reported patients who perceived they truly mattered to their therapists were more committed to their therapy, and benefited more from the therapeutic relationship relative to achieving positive outcomes. Outcomes of these studies provided a strong argument for applying mattering theory to the field of higher education, in that the more students perceive they benefit from the relationships they develop with their peers, faculty, support services, student organizations, and administrators, the more likely they are to thrive on their campus, and thus remain enrolled and graduate.

A review of the literature indicated the mattering construct has also been investigated in the field of higher education (Dixon Rayle, & Chung, 2007; Dixon & Robinson Kurpius 2008; France & Finney, 2010; Schlossberg, 1989; Schlossberg, Lasalle, & Golec, 1990; Tovar, Simon,

& Lee, 2009). The research demonstrated the application of mattering theory to college and university communities carries major implications for student retention and satisfaction outcomes. The following paragraphs provide an overview of how mattering theory has been explored in colleges and universities.

Schlossberg (1989) discussed the construct of mattering as it relates to college students transitioning into the college environment, from the perspective that students, as new members to the campus community, feel marginalized. Schlossberg (1989) explained that identifying evidence of marginality and mattering provides an avenue for understanding the resulting complex feelings that accompany these states, and can therefore aid in the development of coping strategies to address them. Further Schlossberg (1989) stated that regardless of background, all students are concerned about belonging and mattering.

Clearly, institutions that focus on mattering and greater student involvement will be more successful in creating campuses where students are motivated to learn, where their retention is high, and ultimately, where their institutional loyalty for the short- and long-term future is ensured (Schlossberg, 1989, p. 7)

Schlossberg, Lasalle, and Golec (1990), developed an instrument to assess the perceptions of adult learners (students 23 years and older) about their educational environment. The survey was developed as a means of identifying both institutional deficiencies as well as successes in serving this particular population of students. The instrument, which they named the Mattering Scales for Adult Students in Higher Education (MHE), consisted of five subscales, which covered the areas of advising, faculty, fellow students, and administrators. The overarching questions were: “Do I feel I matter to the institution? And, Do I feel noticed, appreciated, welcomed?” (Schlossberg, 1990). Construct validity was established by means of

confirmatory factor analysis. The MHE's reliability was established with the following Cronbach's Alpha scores for the five subscales: .85 for administration; .82 for advising; .86 for peers; .77 for multiple roles, and .82 for faculty.

France and Finney (2010) investigated mattering relative to students in a university through the development of the University Mattering Scale (UMS). Researchers adapted the 24 items from Elliott et al.'s (2004) General Mattering instrument to the university environment. The purpose of the study was to direct attention to the structure of factors and external stages of the validity process for the instrument (France & Finney, 2010). The study took place at a midsized southeastern university. Participants included students enrolled in psychology courses who were sophomore status or higher. The total sample, which included 291 students, was representative of the demographics of the institution. Participants were directed to consider the entire university community as they responded to the 24 item UMS. Participants were then asked to complete the 24 item General Mattering (Elliott et al., 2004) survey, and this time to consider all of the people in their lives besides those with whom they associated on campus. Results indicated UMS scores were valid (France & Finney, 2010)

Rayle and Chung (2007) examined predictors of mattering in 533 first-year undergraduates. They specifically looked at the relationship between the following variables: "gender, mattering to college friends and the college environment, and friend and family social support, and mattering and academic stress levels" (Rayle & Chung, 2007, p.). Results indicated that college friend social support was the strongest predictor of student mattering, and that mattering to the institution was the strongest predictor of students' levels of academic stress (Rayle & Chung, 2007).

Tovar, Simon and Lee (2009) developed the College Mattering Inventory (CMI) based on the work of Rosenberg and McCullough (1981) and Schlossberg (1989). The purpose of their efforts was to address the void in the retention and success literature, which they posited, had not yet investigated the impact of the psychosocial factors, namely the perceived experience of a more profound sense of mattering. Specifically, the researchers set out to measure the mattering construct with a group of students with diverse backgrounds, since previous research had only measured this construct in an older student population (Schlossberg, 1990; Tovar et al., 2009). Development of the 55-item CMI instrument was based on the following themes:

Being the object of attention of others (faculty, counselors/advisors, students), perception of support in various student endeavors by others (faculty, counselors/advisors, students), supportive learning environment, sense of fit within the college, and perceived marginality owing to personal characteristics (Tovar et al., 2009, p. 159).

The survey was disseminated to two Southern California institutions, which included a community college and a university. Confirmatory factor analysis of the data, led to the construction of six subscales. The final Total Mattering Scale consisted of 29 items. The following is the Cronbach's alpha coefficient for the internal consistency reliability of the scales:

Total Mattering Scale, $\alpha = .91$; General College Mattering, $\alpha = .89$; Mattering Versus Marginality, $\alpha = .83$; Mattering to Counselors, $\alpha = .84$; Mattering to Instructors, $\alpha = .76$; Mattering to Students, $\alpha = .77$; and Perception of Value, $\alpha = .72$ (Tovar et al., 2009, p. 171).

For the purpose of assessing convergent evidence of validity for the College Mattering Inventory (CMI), the researchers administered the Sense of Belonging scale to the university sample (Hoffman, Richmond, Morrow, & Salomone, 2002; Tovar et al., 2009). Results

indicated the overall pattern of correlations demonstrated convergent evidence of validity for the CMI with all correlations significant at $p < .01$, except one, which was significant at $p < .05$ (Tovar et al., 2009). In light of the following limitations of the study, Tovar et al. (2009), stated further research would be necessary to determine the instrument's generalizability:

(a) the study was limited to only two institutions; (b) the researchers were unable to determine the response rate, since the method of data collection was done exclusively online; (c) the researchers could not determine whether the intended student accessed and answered the survey; and (d) the incentive to participate could have resulted in selection bias (p. 171).

Depth of Connectedness

The second scale of measure in the Campus Community Index (CCI) is Depth of Connectedness. This construct fundamentally looks at those elements, which make us connect with other people, and is grounded in the framework of social psychology. Lee and Robbins (1998) define social connectedness as “the subjective awareness of being in close relationship with the social world” (p. 338). Duru and Poyrazli (2011), Andersen, Chen, & Carter, (2000), and Baumeister and Leary (1995) posited that social connectedness has a strong influence on human cognitions and emotions, and therefore affects the ways in which we behave within our social environments. Simply put, the more connected an individual feels to their social world, the more likely they are to thrive in it, whereas the opposite is true in the absence of this feeling. To better understand the development of the social connectedness construct, it is important to know its history.

Research in the field of social psychology indicated humans have a general need to belong, or connect and be accepted by others. Since belonging is a component of social

connectedness (Hill, 2006), it is important to discuss its role in this construct. In his hierarchy of needs, Maslow (1971) related five levels of human needs. In this hierarchy, belonging appears at the third level directly above safety at the second level and above physiology at the first level. Glasser (1986) argued that the human need to belong was one of the five basic needs, whose quest for being satisfied was genetically driven. In their review of literature on the construct of belonging, Baumeister and Leary (1995) reported studies had revealed “multiple connections between the human need to belong and cognitive processes, emotional patterns, behavioral responses, and health and well-being” (p. 522). Hafren, Karren, Frandsen, and Smith (1996) conducted a nine-year longitudinal study to examine the affects of social connections on longevity. Participants included 7,000 Alameda County, California residents. Findings indicated the more social contacts, including family, network of friends, affiliation with church and groups, a participant had, the better their health and the longer their life. In contrast, those participants reporting fewer social connections, died at a rate of two to five times higher (Hafren et al. 1996).

Sense of belonging has been a particularly notable construct in the field of education. Glasser (1986) reported the stimulus-response practices, which were driving pedagogical development, were not improving the state of the education system because they lacked attention to what was going on at the core of the student’s being. O’Keefe (2013) contended that a student’s sense of belonging on their college campus is a critical factor in determining whether they will persist on their educational track, regardless of their year-in-college (O’Keefe, 2013). However, no indication has been expressed as to the level or depth of the sense of belonging. While literature clearly identifies the need for students to connect (Glasser, 1986), there is a void in research regarding how strongly students connect to their institution. Depth of Connectedness

is important because it relates to how much a person is willing to invest in his or her environment in order to continue to participate (Hill, 2006).

The construct of connectedness appears as a major part of the Theory of Relatedness. Hagerty, Lynch-Sauer, Patusky (1993) developed the Theory of Relatedness to address the human need to establish and maintain relatedness to the elements of their environment, including how they relate to themselves. The Theory of Relatedness was "derived from a series of inductive and deductive strategies, views relatedness as a functional, behavioral system rooted in early attachment behaviors" (Hagerty et al., 1993, p. 291). This theory purports that people follow a path through different states of relatedness which include: "*connectedness, disconnectedness, parallelism, and enmeshment*" (Hagerty et al., 1993, p. 293) based upon the effects of four contributing social processes/competencies including "sense of belonging, reciprocity, mutuality, and synchrony" (Hagerty et al., 1993, p. 294). Hagerty et al. (1993) defined relatedness as "an individual's level of involvement with persons, objects, groups or natural environments and the concurrent level of comfort or discomfort associated with that involvement" (p. 296). The four states of relatedness are as follows:

Connectedness occurs when there is active involvement with another person that is accompanied by comfort and increased sense of well being. *Disconnection* occurs when lack of involvement is accompanied by anxiety, distress, and *lack of well-being* (p. 296). *Parallelism* occurs when a person experiences *noninvolvement with others* and this promotes *comfort and well-being* (p. 294). *Enmeshment* is characterized by *active involvement* accompanied by anxiety, distress, and *lack of well-being* (p. 293).

Hagerty et al. (1993) reported that establishing and promoting relatedness, involves four specific processes or social competencies. These processes include "sense of belonging,

reciprocity, mutuality, and synchronicity” (Hagerty et al., 1993, p. 294) and are explained as follows:

A sense of belonging is evident when people feel valued, needed, and important within relationships and perceive a “fit” with another person or environment. A process of cooperative interchange, or *reciprocity*, is observed in any single interaction or over a lengthy time frame. *Mutuality* is defined as the bona fide or symbolic perception of shared commonalities and shared acceptance of differences. A person’s experience of congruence with his or her internal rhythms has come to be known as *synchronicity* (Hagerty et al., 1993, p. 294).

The role of connectedness, as described by Hagerty et al. (1993), is important because it informs the relationship between students and their institutions. Eisen, Kushner, McLeod, Queen, Gordon, and Ford (2009) reported the education system itself could greatly influence students’ feelings of disconnectedness from the institution they are attending. Issues driven by budget constraints and the need to increase enrollments to bring in more revenue have pressured colleges and universities into allowing for larger class sizes with higher teacher-student ratios. This, coupled with the increased use of online learning resources has given way to an even greater disconnect between students and their respective lecturers. O’Keefe (2013) argued that if students are going to be successful, there is a need to create a caring environment that is supportive and welcoming, to increase students’ sense of belonging. Specifically, this environment would call for “the development of positive student/faculty relationships, the presence of a well resourced counseling center, and the encouragement of diversity and difference” (O’Keefe, 2012, p. 605).

Research focused on college students' need to belong has been conducted on a variety of subpopulations including first-year students (Freeman, 2007; Morrow & Ackermann, 2012), students with disabilities (Graham-Smith & Lafayette, 2004), various immigrant student groups (Stebbleton, Huesman, Kuzhabekova, & University of California, 2010), and some have specifically looked at differences among ethnic groups (Hausmann, Ye, Schofield, & Woods, 2009). While sense of belonging in college has been explored, research on students' depth of social connectedness in colleges and universities is limited. The following paragraphs discuss the studies available in the literature.

Using a sample of 229 Turkish international students, Duru and Poyrazli (2011) examined the role of several factors on student adjustment. Factors included "perceived discrimination, social connectedness, age, gender, number of years of study in the US, English language competency, and social contact patterns on difficulties related to adjustment" (Duru & Poyrazli, 2011, p. 446). Results of the study demonstrated a positive correlation existed between students' who reported higher levels of social connectedness, lower levels of perceived discrimination, increased duration of time attending school in the United States, higher levels of English proficiency, and a decrease in challenges associated with adjustment (Duru & Poyrazli, 2011).

Lee and Robbins (2000) investigated the differences between the ways in which women and men perceive their sense of connectedness in college. Their study included 198 women, 185 men, and 4 unidentified participants ranging in age from 17 to 48 years of age, from a large, urban southeastern university. Of these participants there were 190 freshman, 91 sophomores, 53 juniors, 32 seniors, and 21 unclassified students. Participants included 80 African Americans, 25 Asian Americans, 259 European Americans, 6 Hispanics, and 17 unidentified. Participants

included students enrolled in beginning and advanced college courses. The survey packet included student background questions, the Social Connectedness Scale (Lee & Robbins, 1995), The Social Provisions Scale (Russell & Cutrona, 1984), and the UCLA Loneliness Scale-Revised (Russell, Peplau, & Cutrona, 1980). Results of the study are as follows:

For women, relationships that were based on reliable alliance and not guidance contributed to their sense of social connectedness, while for men, relationships that focused on reassurance of worth but not reliable alliance or opportunity for nurturance contributed to their sense of social connectedness (Lee & Robbins, 2000, p. 486)

Statistical analyses of the data are as follows:

There were no significant differences between women and men on levels of social connectedness, $F(1,364) = .00, p = ns$. Women, on the other hand, reported significantly less loneliness than men, $F(1,364) = 39.97, p = .0001$. On the social provisions scale, women reported more attachment than men, $F(1,364) = 35.44, p = .0001$; guidance, $F(1,364) = 35.67, p = .0001$, opportunity for nurturance, $F(1,364) = 39.52, p = .0001$; reliable alliance $F(1,364) = 60.00, p = .0001$; reassurance of worth, $F(1,364) = 26.25, p = .0001$; and social integration, $F(1,354) = 62.07, p = .0001$ (Lee & Robbins, 2000, p. 486).

Whittaker (2008) investigated the relationship of social connectedness and perceived stress and health symptoms in a college population. Specifically, using a sample of 486 University of North Florida undergraduate members of Experiment Trak, the researcher looked at whether connectedness, support, and ethnicity had an effect on the stress and/or health symptoms. Experiment Trak is a program that allows for students to get extra credit for participating in research. For the study, the researcher administered four surveys, which

included the Social Connectedness Scale (Lee & Robbins, 1995), the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet, Dahlem, Zimet, & Farley, 1988), the Perceived Stress Scale 10 (Cohen, Karmarek, & Mermelstein, 1983), and the Patient Health Questionnaire 15 (PHQ15) (Kroenke, Spitzer, & Williams, 2002). Results indicated social connectedness had a positive correlation with support and a negative correlation with stress and health symptoms, suggesting that students with a greater sense of connectedness also have more support, less stress, and fewer somatic symptoms (Whittaker, 2008).

Whitlock, Wyman, and Barreira (2012) discussed how the concept of connectedness could be used as a framework for conceptualizing suicide prevention. Specifically Whitlock, et al. (2012), proposed a definition for connectedness, including a description of four core components, which make up a connectedness framework that could be used in addressing suicide prevention on college campuses. Whitlock, et al. (2012) defined connectedness as follows:

A psychological state of belonging in which individuals perceive that they are valued, cared for, trusted, and respected by the individuals and communities with whom they are in regular contact (e.g., peers, family, romantic relationships, groups) or in which they are socially or geographically embedded (such as a university, college, or fraternal community). (Whitlock, et al., 2012, p. 5)

The first of the four components of a connectedness framework proposed by Whitlock et al. (2012), is that connectedness is a perception of one's own state of connectedness. In other words, one may regularly observe someone in the company of others, however, that individual may not feel connected to any of them. The second of the four components listed in the proposed connectedness framework stated that connectedness is dynamic and reciprocal (Whitlock et al., 2012). It is established in the experience, which involves the mutual exchange

of trust, care and respect among individuals or groups. The third component stated connectedness is setting-specific (Whitlock et al., 2012). The level of connectedness experienced by an individual is determined by the specifics associated with the various social systems in which they interact. The fourth component stated connectedness emerges from both intrapersonal experiences and interpersonal experiences (Whitlock et al., 2012). The way in which one perceives themselves, including their core beliefs, has a significant impact in determining their level of connectedness with others.

Summary

The review of literature covered six areas. The first section provided an overview of retention and graduation rates. The second section is a review of student engagement literature, including a list of surveys used by colleges and universities to assess student engagement. The third section discussed the theoretical frameworks, which form the basis for the development of the student engagement surveys. The fourth section covered the validity and reliability of the existing instruments. The fifth section discussed the campus community theoretical construct, which guided the development of the Campus Community Index (CCI), and also introduces the two scales of measurement used in the CCI, which include Perception of Appreciation and Depth of Connectedness. Additionally, the final section provided an in depth discussion of the literature which influenced the development of the CCI.

CHAPTER III: METHODOLOGY

The purpose of the study was to develop a survey instrument to measure campus community among college and university students. The design is such that it can stand alone or be used with other instruments for additional quantitative analyses. The instrument development process followed previously established procedures for developing scales of measure, including item development, scale identification, and validation (Liden, Wayne, Zhao, & Henderson, 2008).

Research Questions

The general research question is: What is the sense of campus community among college and university students?

Research question one: What statements represent the Perception of Appreciation subscale among college and university students?

Research question two: What statements represent the Depth of Connectedness subscale among college and university students?

Research question three: How does student background relate to the Perception of Appreciation subscale regarding components pertaining to campus community?

Research question four: How does student background relate to the Depth of Connectedness subscale regarding components pertaining to campus community?

Research Design

An ex post facto design was used in this study to analyze students' sense of campus community among college students. A theory based instrument (Campus Community Index) was designed with two subscales (Perception of Appreciation & Depth of Connectedness) to evaluate how well college students identify with a campus community (other students; faculty;

senior administrators; administrators; support services; student organizations). The assumption is that the better students identify with their college campus, the more likely they will be to remain enrolled. Although this study did not measure retention, the Campus Community Index (CCI) can be used with other data for retention analyses, as well as other postsecondary concerns.

In efforts to determine how the Campus Community Index (CCI) performed with all types of students, four public four-year institutions were selected from three different states across the country using the list of institutions from the Carnegie Classification (Carnegie Foundation for the Advancement of Teaching, 2014). These included a Colorado metro area university, a west central Virginia university, a Texas gulf coast university, and a south Texas university.

First, the researcher contacted the Institutional Review Boards for each of the institutions to determine what was required to allow for the distribution of the Campus Community Index (CCI) survey instrument to their student databases. Second, the researcher emailed letters (see Appendix B for draft of Request for Participation to universities) to the Vice Presidents of Student Affairs at the Colorado metro area university, the west central Virginia university, the Texas gulf coast university, and to the Dean of Students at the south Texas university, requesting institutional participation in the study, in exchange for a full report of the results of the survey from their respective campus upon completion of the study. All four agreed to participate and a determination for the date of the survey administration was established by each of the institutions.

In efforts to streamline the CCI distribution process, the researcher drafted sample student participant recruitment email messages (see Appendix D for student participation request

email messages), which were modified accordingly for each of the campuses. The email messages contained unique links to designated surveys in the Qualtrics software system. The CCI started with an Online Consent Form (see Appendix C for Online Consent Form), which preceded the background questions and the twenty-four survey items (see Appendix E for CCI information details).

Human Subjects Approval

Written permission to conduct a multi-university, campus-wide study was obtained from the Texas A & M University Corpus Christi, Institutional Review Board (see Appendix A for approved IRB form). No personal identification data were collected or stored during the data collection phase. The researcher used the Qualtrics features to monitor the Campus Community Index (CCI) response rates for each institution. The CCI was completed anonymously, with no identifying information requested. Raw data entered into the Qualtrics online survey system was password protected. Results were presented in aggregate form, thereby protecting the anonymity of the respondents.

Participant Selection

Using the 2000 edition of the Carnegie Classification, the researcher selected four public undergraduate degree-granting institutions from around the United States. The study included students from the following four institutions: a Colorado metro area university; a west central Virginia university; a Texas gulf coast university, and a South Texas university.

A reasonable sample size is based on confidence level, confidence interval, and population size (Sample Size Calculator, n.d.). The following table provides information about sample size for this study.

Table 1

Enrollment by institution

University	Total Enrollment
Colorado metro area university	20,407
West central Virginia university	9,798
Texas Gulf Coast university	10,400
South Texas University	8,047

Instrumentation

Theory and Expert-Based

The development of the Campus Community Index (CCI) instrument was extensive and proceeded with two major steps. First, a thorough review of literature was conducted to assess what types of college student engagement scales are used to assess student involvement in various campus activities. It appears that no instrument is available that focuses on measuring exclusively on how well students identify with their surroundings on a college campus as it relates to other students, faculty, senior administrators, administrators, support services, and student organizations. These are the entities with which students may interact on a regular basis. An assumption about the CCI suggests that the more comfortable students feel about their surrounding, the more likely they are to remain enrolled.

Second, an extensive literature search ensued to examine theories relating to human internal motivation relative to the environments with which they interact. The question that governed this search was: Why would people continue to participate in an environment? Two theories emerged as most salient: *Mattering Theory* and *Social Connectedness Theory*.

Mattering relates to the human condition that people need to sense that others care for them and are concerned for their well-being (Elliott, Kao, & Grant, 2004). Social Connectedness Theory extends this concept as it relates to how people have an awareness of and need for an interpersonal closeness with their environment (Lee & Robins, 2000). This process resulted in two subscales for the CCI: (a) Perception of Appreciation; and (b) Depth of Connectedness. In addition to this, campus environment was developed based on the literature and expert input, which consisted of identifying the major elements of a campus environment with which students interact. Six categories resulted: (a) other students; (b) faculty; (c) senior administrators; (d) administrators; (e) support services; and (e) student organizations.

Third, using theory as a basis, statements were developed in conjunction with a faculty expert. Language from the literature and theories were used to develop items. The items were personalized using first person pronoun statements, such as I, my, and me. Initially, the Perception of Appreciation subscale had 26 items and the Depth of Connectedness subscale had 28 items. This was considered to be too many items since each subscale would have to be assessed across each aspect of campus community. In other words, a 28-item subscale across 6 campus aspects would be 168 items. In order to reduce this, a reduction in items was conducted independently. The faculty member and researcher rank ordered each item for each subscale. With the exception of one item, they arrived at the same items for the subscales. This included a total of 24; 12 for each subscale. The items were then randomized and were used as the basis for the Campus Community Index (CCI) instrument.

Based on statistical analyses all items may not be included in the final CCI instrument.

Scope of the Scale

The Campus Community Index (CCI) was then developed according to a Likert-type scale. This was done in order to provide statistical analyses. First, other student engagement scales utilize some type of Likert-type scale. Second, scaled items allow for variability for analyses, as well as relationships to other data collection instruments. Third, it was decided that a 6-point, Likert-type scope of scale would be used. There is no center point, that is, no unsure or neither agree nor disagree option for selection. Not allowing this option forces a response: 1 = completely disagree; 2 = strongly disagree; 3 = disagree; 4 = agree; 5 = strongly agree; 6 = completely agree. A final option was included since some items may not apply: 7 = not applicable. For example, if a student does not interact with a senior administrator, such as the president or provost, then the option of not applicable would apply.

Campus community was developed according to major aspects of a campus in which students would interact: (a) other students; (b) faculty; (c) senior administrators; (d) administrators; (e) support services; and (e) student organizations. Finally, student demographic information was added so the instrument could be analyzed: (a) age (18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75+); (b) gender; (c) ethnicity (non-Hispanic, white, Euro-American/Black, Afro-Caribbean, African-American/Latino or Hispanic American/East Asian or Asian-American/Middle Eastern or Arab American/Native American or Indian American/ other); (d) year-in-college (freshman; sophomore; junior; senior; graduate student); (e) transfer student (yes/no); (f) enrollment status (full-time/part-time); and (g) residency status (in-state/out-of-state).

All items were arranged to produce the Campus Community Index (CCI).

Data Collection

A determination to perform data collection was proposed for the 11th week of the 16 week semester. The proposed timing related to the administration of the survey was determined on the basis of allowing first semester freshman the opportunity to experience at least two months of life on their respective university campuses. Researchers who have conducted similar studies, have determined the 11th week, of a 16 week semester is a favorable time to perform data collection (Tovar, Simon & Lee, 2009). Due to issues of coordination, the proposed time frame could not be attained at all four institutions. The Texas gulf coast university was able to distribute the CCI in accordance with the proposed time frame, however, the Colorado metro area university, west central Virginia university, and the south Texas university, administered the survey on the second week of the spring 2015 semester. All four universities sent out reminders at various intervals from the initial distribution of the CCI, which prompted a significant increase in their response rates. The following table displays the response rates, including the number of completed surveys for each of the participating institutions.

Table 2

CCI Campus Response Rates

Campus	# of Surveys Initiated	# of Surveys Completed
Colorado metro area university	858	475
West central Virginia university	600	304
Texas Gulf Coast university	420	239
South Texas university	208	114
Total	2086	1132

Data Analysis

The data were carefully copied from the Qualtrics system into the IBM SPSS software application for the purpose of analyzing the results. Data collected from the surveys were used for eight types of analyses: (a) descriptive statistics; (b) Cronbach's alpha; (c) Bartlett Test of Sphericity; (d) exploratory factor analysis; (e) regression; (f) chi-square goodness of fit; (g) *t*-tests; (h) ANOVAs.

First, descriptive statistics provided a summary of the results. They related data in meaningful and convenient ways. Frequencies displayed data results according to useful associations. Second, Cronbach's alpha measured the internal consistency of survey items and provided an estimate of reliability. Cronbach's alpha is sample specific and was used to examine the reliability of items for both CCI subscales (Coladarci, Cobb, Minium, & Clark, 2008). Third, the Bartlett Test of Sphericity examined whether the data met the assumptions for factor analysis. Fourth, exploratory factor analysis were conducted to examine the strength of respective items. Analyses included total variance explained and varimax rotation to maximize loadings on one variable while minimizing it on others. The variance explained each components contribution to the model. Varimax rotation was used when factors were considered to be independent. Results of factor analysis were found in the eigenvalues. The number 1 is the default in SPSS, which identifies the factors, explaining the most variance. Fifth, multiple regression was performed to determine if multicollinearity was present (items were highly correlated). Linearity means that items can be linearly predicted with a degree of accuracy. Multicollinearity suggests predictive power is not necessarily reduced, but it affects individual predictors. Thus, if items in the subscales were highly correlated, they could be dropped from the instrument. Sixth, the chi-square was performed to examine goodness of fit. The chi-square

goodness of fit convention relates a chi-square ratio to degrees of freedom to be between 2 and 3 (Abell, Springer, & Kamata, 2009). Seventh, *t*-tests were performed to look at differences among two groups among the subscales. In accordance with previous literature, age was collapsed into two categories to distinguish traditional (18-24) from non-traditional students (25+)(Meuleman, Garrett, Wrench, & King, 2015). The following were the groups used in *t*-test analyses: (a) age (18-24/25+); (b) gender (male/female); (c) transfer student (yes/no); (d) college enrollment (full-time/part-time); and (e) residency status (in state/out of state). Eighth, ANOVA were performed to examine differences among three or more groups: (a) year-in-college (freshman, sophomore, junior, senior, graduate student); (b) ethnicity (non-Hispanic, white, Euro-American/Black, Afro-Caribbean, African-American/Latino or Hispanic American/East Asian, Asian-American/other). There were too few cases in the categories of Middle Eastern or Arab American and Native American or Indian American, so these results were collapsed into the “other” category. If statistical significance was found, follow up included Tukey post hoc analysis to determine where statistical significance occurred among specific variables (Coladarci, Cobb, Minium, & Clark, 2008).

Summary

Using Mattering and Social Connectedness theories, the researcher developed the Campus Community Index (CCI) to measure student sense of community on their college campuses. The purpose of the instrument was to identify factors, which are predictive of student success in college. A variety of demographic items were included in the survey to enhance the description of the sample.

The method involved a selection of public undergraduate degree-granting institutions according to the 2000 edition of the Carnegie Classification. The researcher used a sample size

calculator (Sample Size Calculator, n.d.) to determine the sample size. The researcher contacted the offices of student engagement of the four selected universities located throughout the United States, to request their participation in the study (see Appendix B for Request for Participation to universities letter). After receiving participation approval from the four universities, the researcher requested that they send their students an e-mail message describing the study and encouraging their participation (see Appendix D for student request for participation e-mail). The email message included a link to the CCI on the Qualtrics system. An Online Informed Consent Form (see Appendix C for Online Consent Form) and instructions preceded the survey items. Students were given approximately three weeks to complete the survey. Reminder email messages were sent out to the students after two weeks to increase response rates.

After three weeks, surveys were closed and data was downloaded from the Qualtrics system and imported into the IBM SPSS 22.0 statistical software package. Data analyses were conducted through a number of statistical calculations consistent with validation and reliability establishment for other instruments. Data collected from the surveys were used for eight types analyses: (a) descriptive statistics; (b) Cronbach's alpha; (c) Bartlett Test of Sphericity; (d) exploratory factor analysis; (e) regression; (f) chi-square goodness of fit; (g) *t*-tests; (h) ANOVAs.

CHAPTER IV: RESULTS

The purpose of the study was to develop a survey instrument to measure campus community among college and university students. A theory based instrument (Campus Community Index) was designed with two subscales (Perception of Appreciation & Depth of Connectedness) to evaluate how well college students identify with a campus community. The campus community included other students, faculty, senior administrators (president, provost, vice-presidents), administrators (deans and chairs), support services (admissions & records, financial aid, housing, tutoring, health and counseling services, library, recreational sports, technical support), and student organizations. The assumption was that the more students identify with their environment, the more likely they will be to remain enrolled. Although this study did not measure retention, the Campus Community Index (CCI) was designed so that it can be used with other data for other types of analyses, such as retention, engagement, interaction, as well as other postsecondary concerns.

Once the instrument was developed, the study also examined how it performed in relationship to demographic variables. These demographic variables included the following: (a) age (18-24; 25-34; 35-44; 45-54; 55-64; 65-74; 75+); (b) gender (male/female); (c) year-in-college (freshmen/sophomore/junior/senior/graduate student); (d) ethnicity (non-Hispanic, white, Euro-American/Black, Afro-Caribbean, African-American/Latino or Hispanic American/East Asian or Asian-American/Middle Eastern or Arab American/Native American or Indian American/other); (e) transfer student (yes/no); (f) enrollment status (part-time/full-time); and (g) residency status (in state/out of state).

For the purpose of data analyses, the age and ethnicity categories were collapsed. Since the literature revealed that higher education research generally uses two categories pertaining to

students' age (Meuleman, Garrett, Wrench, & King, 2015), age was collapsed into two categories, which included students between the ages of 18 and 24 (traditional students), and a second category, which included students ages 25 and older (non-traditional students). For ethnicity, there were too few cases in the categories of Middle Eastern/Arab and Native American, so these results were collapsed into the "other" category. Data were collected according to the following research questions.

Research question one: What statements represent the Perception of Appreciation subscale among college and university students?

Research question two: What statements represent the Depth of Connectedness subscale among college and university students?

Research question three: How does student background relate to the Perception of Appreciation subscale regarding components pertaining to campus community?

Research question four: How does student background relate to the Depth of Connectedness subscale regarding components pertaining to campus community?

Campus Community Index (CCI) response data were collected from four undergraduate degree granting universities, which included a Colorado metro area university, a west central Virginia university, a Texas gulf coast university, and a south Texas university using the Qualtrics online survey system. Data were downloaded from the Qualtrics system into the SPSS software application for the purpose of analyzing the results. Data collected from the surveys were used for eight types of analyses: (a) descriptive statistics; (b) Cronbach's alpha; (c) Bartlett Test of Sphericity; (d) exploratory factor analysis; (e) multiple regression; (f) chi-square goodness of fit; (g) *t*-tests; and (h) ANOVAs.

First, the SPSS software was used to produce descriptive analyses, which included frequency distributions, means, and standard errors when appropriate. Second, data were examined according to Cronbach's alpha as an estimate of reliability among the CCI items. Third, Bartlett Test of Sphericity examined whether the data met the assumptions for factor analysis. Fourth, exploratory factor analyses were conducted to examine the strength of the CCI items. Analyses included total variance explained and varimax rotation to maximize loadings on one variable while minimizing it on others. Fifth, multiple regression analyses were conducted to determine if multicollinearity was present that might skew the data. Sixth, chi-square was used to examine goodness of fit. Seventh, *t*-tests were conducted to look at differences among the demographics that had two categories: (a) age (18-24/25+); (b) gender (male/female); (c) transfer student (yes/no); (d) enrollment status (full-time/part-time); and (e) residency status (in-state/out-of-state). Eighth, ANOVA were conducted to examine differences among three or more groups among demographic categories: (a) year-in-college (freshman, sophomore, junior, senior, graduate student); and (b) ethnicity (White, Black, Hispanic, Asian, other). If ANOVA results showed statistical significance, Tukey post hoc analyses were conducted to determine where statistical significance occurred among specific categories (Coladarci, Cobb, Minium, & Clark, 2009).

Statistical Assumptions

There were a number of assumptions associated with statistical analysis. Assumptions address conditions that must be met in order to help ensure the accuracy of results (Glass & Hopkins, 1996). The first assumption was independence of observations. It assumed participants completed the survey on their own without depending on each other for responses, as there would be no enticement for them to collaborate. The study specified that the survey

instrument was distributed to each individual subject by the participating institutions. The second assumption related to normality. Evaluation of histograms, skewness, and kurtosis confirmed this assumption. A normal distribution of scores was expected. Data were examined for outliers. Cook's Distance was used to locate outliers that may influence data. Outliers identified by the value greater than one were considered influential. No outliers were reported. Within regression analysis, the Variance Inflation Factor (VIF) was examined to determine the existence of multicollinearity. Variance Inflation Factor is determined by results being $< 1-R^2$. In all analyses, the results showed VIFs less than 1, thus multicollinearity was not present.

Statistical Analysis

Descriptive Statistics

Tables 3 - 9 provide descriptive statistics. First, data were collected from the students according to age. There were too few cases in the 65-74 category, so it was collapsed into the 55-64 category. The new category is 55+. Table 3 presents a summary of the age ranges of the respondents. The age groups were later collapsed into two categories, which included a category for students from ages 18 to 24, and a second category of students from age 25 and older (25+). According to the literature, students between the ages of 18 to 24 are referred to as traditional students and students in the 25+ category are referred to as non-traditional (Meulan et al., 2015).

Table 3

Age ranges of Respondents, N = 1132

Grouping	Frequency	Percent
18-24	652	57.6
25-34	260	23.0
35-44	120	10.6
45-54	68	6.0
55+	32	2.9

Data were collected from the students according to their gender. Table 4 displays a summary of the results.

Table 4

Gender of Respondents, N = 1132

Gender	Frequency	Percent
Male	367	32.4
Female	765	67.6

Data were collected from the students according to year-in-college. Table 5 displays a summary of the year-in-college breakdown.

Table 5

Year-in-College (Class) of Respondents, N = 1132

Year-In-College	Frequency	Percent
Freshman	216	19.1
Sophomore	158	14.0
Junior	286	25.3
Senior	324	28.6
Grad Student	148	13.1

Data were collected from the students on the basis of ethnicity. There were too few cases in the categories of Middle Eastern/Arab and Native American, so these results were collapsed into the “other” category. Table 6 displays a summary of the results.

Table 6

Ethnicity of Respondents, N = 1132

Ethnicity	Frequency	Percent
White	657	62.8
Hispanic	274	24.2
Black	76	6.7
Asian	33	2.9
Other	92	8.2

Data were collected according to the transfer status of the students. Table 7 displays a summary of the results.

Table 7

Transfer status of Respondents, N = 1132

Transfer	Frequency	Percent
Yes	454	40.1
No	678	59.9

Data were collected according to the enrollment status (full-time/part-time) of the students. Table 8 displays a summary of the results.

Table 8

Enrollment Status, N = 1132

Enrollment Status	Frequency	Percent
Full-time	935	82.6
Part-time	195	17.2

Data were also collected according to residency status (in-state/out-of-state) of the students. Table 9 displays a summary of the results.

Table 9

Residency Status of Respondents, N = 1132

Residency Status	Frequency	Percent
In State	1078	95.2
Out-of-Sate	54	4.8

Instrument Items

The following analyses are the results based on research questions one and two.

Research question one: What statements represent the Perception of Appreciation subscale among college and university students? Research question two: What statements represent the Depth of Connectedness subscale among college and university students?

Table 10 provides a summary of the frequency distributions, means, and standard errors of the responses to the CCI.

Table 10

Instrument Items: 1=Completely Disagree to 6=Completely Agree

Items	N*	M	SE	SD
POA Students	1127	3.87	.02	.65
POA Faculty	1128	4.12	.018	.62
POA Senior Administrators	1061	3.62	.025	.82
POA Administrators	1076	3.73	.023	.78
POA Support Services	1116	3.84	.022	.75
POA Student Organizations	1062	3.88	.022	.74
DOC Students	1126	4.18	.021	.71
DOC Faculty	1129	4.22	.019	.65
DOC Senior Administrators	1052	3.63	.027	.87
DOC Administrators	1067	3.75	.025	.83
DOC Support Services	1113	3.90	.024	.79
DOC Student Organizations	1054	3.96	.025	.81

POA: *Perception of Appreciation*

DOC: *Depth of Connectedness*

*The N varies due to number of respondents selecting “not applicable”

Subscales, Variables, and Item Description

Table 11 provides a summary of the subscales, variables, and survey items included in the Campus Community Index (CCI) instrument.

Table 11

Description of subscales, variables, survey item labels and item numbers

Subscales	Variables	Items & Location on CCI	
		Perception of Appreciation	Depth of Connectedness
Perception of Appreciation	Students	Well Being/10	Number/12
	Faculty	Matter/11	Grateful/15
Depth of Connectedness	Senior Administrators	Respect/13	Sincere/16
	Administrators	Approval/14	Comfortable/18
	Support	Disregard/17	Get Along/20
	Orgs	Listen/19	Identity/22
		Support/21	Campus/24
		Interest/23	Content/27
		Acknowledge/25	Infringe/28
		Valued/26	Belong/29
Receptive/30	Acquaint/31		
Attention/33	Rapport/32		

Cronbach's Alpha

Cronbach's alpha measured the internal consistency of survey items and provided an estimate of reliability. Table 12 provides a summary of the Cronbach's alpha statistical analysis.

Table 12

Cronbach's Alpha of Campus Community Index Items

Items	N*	#of items	α
POA Students	944	12	.828
POA Faculty	966	12	.818
POA Senior Admin	626	12	.852
POA Admin	695	12	.840
POA Support	799	12	.837
POA Orgs	732	12	.843
DOC Students	961	12	.863
DOC Faculty	951	12	.847
DOC Senior Admin	581	12	.870
DOC Admin	657	12	.868
DOC Support	783	12	.868
DOC Orgs	716	12	.873

POA: *Perception of Appreciation*

DOC: *Depth of Connectedness*

*The N varies due to the number of respondents selecting "not applicable"

Although all items had high Cronbach's alpha, there were some items that if removed, Cronbach's alpha could be raised by approximately .05, which first appeared to be inconsequential. Further analyses would indicate whether items should be dropped from the

final instrument. These items were retained for further analyses, which led to Bartlett's test of sphericity. For all analyses, items 17 and 25 for Perception of Appreciation, items 12 and 28 for Depth of Connectedness if removed, would increase Cronbach's alpha. Table 13 provides a summary of the results.

Table 13

Cronbach's Alpha Change if Item Deleted

Variable	Perception of Appreciation Items	Depth of Connectedness Items
Students	17; 25	12; 28
Faculty	17; 25	12; 28
Senior Admin	17; 25	12; 28
Admin	17; 25	12; 28
Support	17; 25	12; 28
Orgs	17; 25	12; 28

Bartlett's Test of Sphericity

Bartlett's test of sphericity should be significant at a value of less than .05. This indicates a reasonable foundation for factor analysis (Leech, Barrett, & Morgan, 2007). Table 15 provides a summary of the Bartlett's test of sphericity results for the CCI items. The results showed that variance was equal and data can be used for further analyses. Table 14 provides a summary of the results.

Table 14

Bartlett's Test of Sphericity

Items	Perception of Appreciation sig.	Depth of Connectedness sig.
Students	.00	.00
Faculty	.00	.00
Senior Admin	.00	.00
Admin	.00	.00
Support	.00	.00
Orgs.	.00	.00

Exploratory Factor Analysis

Exploratory factor analyses were conducted to examine the strength of respective items. Analyses included total variance explained and varimax rotation to maximize loadings on one variable while minimizing it on others. The variance explained each components contribution to the model (instrument). Varimax rotation was used when factors were considered to be independent. Results of factor analysis were found in the eigenvalues. The number 1 is the default in SPSS, which identifies the factors, explaining the most variance.

The tables show where the item occurred on the instrument and the label of the item for analysis in SPSS. There were 12 items that measured Perception of Appreciation and 12 items that measured Depth of Connectedness. Participants rated those items according to how they perceived their interaction with six groups that represent of the campus community: (a) other students; (b) faculty; (c) senior administrators; (d) administrators; (e) support services; and (f) student organizations.

Tables 15 – 20 provide a summary of the results of the factor analyses for the interaction of each of the dependent variables with the Perception of Appreciation subscale items.

Table 15

Perception of Appreciation Factor Analysis: Interaction with other Students

Item#/Label	Eigenvalues	Component	% of Variance
23/Interest	7.76	.883	64.67
26/Valued	.97	.882	8.04
21/Support	.70	.872	5.79
14/Approval	.49	.844	4.06
19/Listen	.37	.837	3.05
30/Receptive	.32	.830	2.66
33/Attention	.28	.805	2.34
13/Respect	.27	.782	2.23
11/Matter	.25	.765	2.07
17/Disregard	.24	-.636	1.96
10/Well-being	.20	.627	1.64
25/Acknowledge	.18	-.591	1.49

Results of the factor analysis for Perception of Appreciation with interaction with other students showed items 17 and 25 had some of the lowest factor loadings. These are the same two items that if dropped from reliability analyses, Cronbach’s alpha would increase. Thus, the items can be considered for removal from the final instrument.

Table 16

Perception of Appreciation Factor Analysis: Interaction with Faculty

Item#/Label	Eigenvalues	Component	% of Variance
23/Interest	7.88	.895	65.64
21/Support	.81	.876	6.76
26/Valued	.63	.864	5.29
19/Listen	.53	.837	4.39
30/Receptive	.38	.834	3.14
14/Approval	.35	.830	2.92
11/Matter	.30	.799	2.54
13/Respect	.26	.774	2.14
33/Attention	.25	.759	2.10
10/Well-being	.23	.697	1.95
17/Disregard	.20	-.662	1.65
25/Acknowledge	.18	-.624	1.49

Results of the factor analysis for Perception of Appreciation with interaction with faculty showed items 17 and 25 had some of the lowest factor loadings. These are the same two items that if dropped from reliability analyses, Cronbach's alpha would increase. Thus, the items can be considered for removal from the final instrument.

Table 17

Perception of Appreciation Factor Analysis: Interaction with Senior Administrators

Item#/Label	Eigenvalues	Component	% of Variance
21/Support	8.55	.912	71.22
23/Interest	.76	.904	6.35
30/Receptive	.52	.890	4.33
11/Matter	.44	.864	3.69
26/Valued	.35	.864	2.91
14/Approval	.27	.860	2.21
19/Listen	.24	.860	2.00
33/Attention	.21	.827	1.73
13/Respect	.20	.819	1.66
10/Well-being	.18	.761	1.47
17/Disregard	.15	-.689	1.28
25/Acknowledge	.14	-.658	1.14

Results of the factor analysis for Perception of Appreciation with interaction with senior administrators showed items 17 and 25 had some of the lowest factor loadings. These are the same two items that if dropped from reliability analyses, Cronbach's alpha would increase. Thus, the items can be considered for removal from the final instrument.

Table 18

Perception of Appreciation Factor Analysis: Interaction with Administrators

Item#/Label	Eigenvalues	Component	% of Variance
21/Support	7.98	.906	66.51
23/Interest	.90	.901	7.50
26/Valued	.70	.874	5.86
30/Receptive	.49	.869	4.09
19/Listen	.44	.867	3.69
14/Approval	.32	.856	2.65
11/Matter	.25	.832	2.10
13/Respect	.21	.831	1.77
10/Well-being	.19	.730	1.61
17/Disregard	.18	-.690	1.53
25/Acknowledge	.18	-.652	1.47
33/Attention	.15	.464	1.21

Results of the factor analysis for Perception of Appreciation with interaction with administrators showed items 17 and 25 had some of the lowest factor loadings. These are the same two items that if dropped from reliability analyses, Cronbach's alpha would increase. Thus, the items can be considered for removal from the final instrument.

Table 19

Perception of Appreciation Factor Analysis: Interaction with Support Services

Item#/Label	Eigenvalues	Component	% of Variance
10/Well-being	8.37	.775	69.76
11/Matter	.73	.853	6.04
13/Respect	.58	.844	4.84
14/Approval	.44	.866	3.70
17/Disregard	.33	-.732	2.78
19/Listen	.31	.850	2.57
21/Support	.28	.894	2.35
23/Interest	.22	.887	1.80
25/Acknowledge	.21	-.711	1.71
26/Valued	.19	.886	1.57
30/Receptive	.18	.883	1.48
33/Attention	.17	.836	1.40

Results of the factor analysis for Perception of Appreciation with interaction with support services showed items 17 and 25 had some of the lowest factor loadings. These are the same two items that if dropped from reliability analyses, Cronbach's alpha would increase. Thus, the items can be considered for removal from the final instrument.

Table 20

Perception of Appreciation Factor Analysis: Interaction with Student Organizations

Item#/Label	Eigenvalues	Component	% of Variance
19/Listen	8.04	.890	66.96
23/Interest	.91	.879	7.57
26/Valued	.62	.879	5.16
21/Support	.50	.877	4.20
14/Approval	.35	.853	2.95
30/Receptive	.32	.850	2.63
33/Attention	.27	.814	2.25
11/Matter	.26	.812	2.14
13/Respect	.21	.796	1.74
10/Well-being	.19	.661	1.60
17/Disregard	.18	-.621	1.51
25/Acknowledge	.16	-.614	1.30

Results of the factor analysis for Perception of Appreciation with interaction with student organizations showed items 17 and 25 had some of the lowest factor loadings. These are the same two items that if dropped from reliability analyses, Cronbach's alpha would increase. Thus, the items can be considered for removal from the final CCI instrument.

Tables 21 - 26 provide a summary of the results of the factor analyses for the interaction of each of the dependent variables with the Depth of Connectedness subscale items.

Table 21

Depth of Connectedness Factor Analysis: Interaction with Other Students

Item#/Label	Eigenvalues	Component	% of Variance
24/Campus	7.62	.870	63.48
29/Belong	.99	.866	8.32
32/Rapport	.63	.866	5.22
22/Identify	.53	.861	4.43
18/Comfortable	.42	.858	3.51
20/Get along	.33	.855	2.78
31/Acquaintance	.32	.854	2.67
27/Content	.29	.831	2.39
15/Grateful	.26	.827	2.16
16/Sincere	.23	.774	1.88
28/Infringe	.20	-.587	1.67
12/Number	.18	-.325	1.50

Results of the factor analysis for Depth of Connectedness with interaction with students showed items 12 and 28 with the lowest factor loadings. These are the same two items that if dropped from the reliability analyses, Cronbach's alpha would increase. In addition, the factor analyses showed all items factored in a single category. Thus, the items can be considered accurate for measuring Depth of Connectedness with student interaction, however items 12 and 28 should be considered for removal from the final CCI instrument.

Table 22

Depth of Connectedness Factor Analysis: Interaction with Faculty

Item#/Label	Eigenvalues	Component	% of Variance
24/Campus	7.39	.858	61.57
29/Belong	1.02	.852	8.48
18/Comfortable	.62	.848	5.20
22/Identify	.53	.843	4.42
31/Acquaint	.47	.843	3.90
15/Grateful	.38	.828	3.16
32/Rapport	.33	.824	2.76
20/Get Along	.30	.823	2.48
27/Content	.28	.822	2.35
16/Sincere	.24	.782	1.99
28/Infringe	.24	-.564	1.96
12/Number	.21	-.373	1.74

Results of the factor analysis for Depth of Connectedness with interaction with faculty showed items 12 and 28 with the lowest factor loadings. These are two items that if dropped from reliability analyses, Cronbach's alpha would increase. In addition, the factor analyses showed all items factored in a single category. Thus, the items can be considered accurate for measuring Depth of Connectedness with faculty interaction, however items 12 and 28 should be considered for removal from the final CCI instrument.

Table 23

Depth of Connectedness Factor Analysis: Interaction with Senior Administrators

Item#/Label	Eigenvalues	Component	% of Variance
24/Campus	7.66	.842	63.87
15/Grateful	1.07	.806	8.93
29/Belong	.56	.797	4.70
18/Comfortable	.54	.796	4.49
20/Get Along	.37	.794	3.21
22/Identity	.37	.781	3.05
27/Content	.30	.774	2.48
31/Acquaint	.28	.768	2.30
32/Rapport	.26	.767	2.18
16/Sincere	.22	.728	1.79
28/Infringe	.20	-.673*	1.68
12/Number	.16	-.579*	1.32

Results of the factor analysis for Depth of Connectedness with interaction with senior administrators showed that items 12 and 28 factored out as a second factor with a negative loading. These are the same two items that if dropped from the reliability analyses, Cronbach's alpha would increase. Thus, the items can be considered for removal from the final CCI instrument. Items 18, 22, 24, 29 factored out as a second factor and had low loadings, however they also appeared in factor 1.

Table 24

Depth of Connectedness Factor Analysis: Interaction with Administrators

Item#/Label	Eigenvalues	Component	% of Variance
24/Campus	7.65	.899	63.75
29/Belong	1.07	.889	8.89
22/Identify	.56	.871	4.68
18/Comfortable	.54	.864	4.47
15/Grateful	.43	.849	3.61
27/Content	.37	.848	3.11
31/Acquaint	.31	.828	2.56
20/Get along	.28	.820	2.29
32/Rapport	.24	.815	1.97
16/Sincere	.22	.787	1.85
12/Number	.19	-.440	1.56
28/Infringe	.15	-.522	1.25

Results of the factor analysis for Depth of Connectedness with interaction with administrators showed items 12 and 28 with the lowest factor loadings. These are the same two items that if dropped from the reliability analyses, Cronbach's alpha would increase. Thus, the items can be considered for removal from the final CCI instrument.

Table 25

Depth of Connectedness Factor Analysis: Interaction with Support Services

Item#/Label	Eigenvalues	Component	% of Variance
29/Belong	7.78	.888	64.89
18/Comfortable	1.01	.883	8.38
24/Campus	.58	.883	4.83
15/Grateful	.50	.866	4.15
22/Identity	.42	.858	3.46
20/Get along	.34	.855	2.83
32/Rapport	.31	.848	2.55
27/Content	.26	.835	2.19
31/Acquaint	.25	.834	2.08
16/Sincere	.22	.785	1.86
28/Infringe	.17	-.578	1.45
12/Number	.16	-.397	1.34

Results of the factor analysis for Depth of Connectedness with interaction with support services showed items 12 and 28 with the lowest factor loadings. These are the same two items that if dropped from the reliability analyses, Cronbach's alpha would increase. Thus, the items can be considered for removal from the final CCI instrument.

Table 26

Depth of Connectedness Factor Analysis: Interaction with Student Organizations

Item#/Label	Eigenvalues	Component	% of Variance
22/Identify	7.72	.889	64.32
24/Campus	1.06	.884	8.84
18/Comfortable	.60	.875	4.99
20/Get along	.53	.861	4.40
29/Belong	.37	.860	3.10
15/Grateful	.32	.857	2.68
32/Rapport	.30	.853	2.52
27/Content	.27	.839	2.27
31/Acquaint	.25	.836	2.06
16/Sincere	.22	.766	1.80
12/Number	.19	-.396	1.58
28/Infringe	.17	-.537	1.44

Results of the factor analysis for Depth of Connectedness with interaction with student organizations showed items 12 and 28 with the lowest factor loadings. These are the same two items that if dropped from reliability analyses, Cronbach's alpha would increase. Thus, the items can be considered for removal from the final CCI instrument.

Multiple Regression

Multiple regression analyses examined multicollinearity, Cook's D for outliers that might skew data, and item variance from the CCI to provide insight into the contribution of

each item to explain an outcome. First, multicollinearity was examined with VIF scores. High VIF scores, such as greater than 5 corresponds to an increase in the variance of regression coefficients. Moderate VIF scores, such as between 1 and 5, and high VIF scores indicate unstable coefficients, making them difficult to interpret. A low score indicates little if any multicollinearity. There were no moderate or high VIF scores. Second, outliers were examined with Cook's D. A score of less than 1.0 indicated there were no scores that would skew the data.

Third, multiple regression can be used to explain the relationship of independent variables to explain how a dependent variable performs. Therefore, multiple regression requires a dependent variable. Dependent variables were created by transforming instrument items into single variables: Students; Faculty; Senior Administrators (Senior Admin); Administrators (Admin); Support Services (Support); Student Organizations (Orgs). This created a single mean score for each variable. (Refer to table 10 in the section on descriptives). For example, the analyses examined how the 12 items of Depth of Connectedness related to Perception of Appreciation as a single variable by collapsing the 12 Perception of Appreciation items into a single mean score. The reason Depth of Connectedness items were regressed on Perception of Appreciation as a single construct and vice versa, is because the analyses indicated the how the two subscales relate to each other. The assumption was that both constructs are necessary to help determine how students view their sense of community on a college or university campus. It suggests that the more they identify with a campus as a community, the more they will be willing to remain enrolled. Additionally, Cronbach's alpha results indicated a high reliability among items for them to be measured as a single construct.

Table 27 provides a summary of the regression of Depth of Connectedness items on Perception of Appreciation variables.

Table 27

Regression of Depth of Connectedness Items on Perception of Appreciation Variables:

1=Completely Disagree to 6=Completely Agree

Variable*	R ²	VIF	Cook's D	N	M	SD
POA Student	.75	.25	.002	961	3.89	.62
POA Faculty	.82	.18	.002	951	4.16	.60
POA Senior Admin	.88	.12	.003	581	3.72	.76
POA Admin	.87	.13	.003	657	3.82	.73
POA Support	.88	.12	.002	783	3.86	.73
POA Orgs	.85	.15	.003	716	3.98	.66

Table 28 provides a summary of the regression of Perception of Appreciation items on Depth of Connectedness variables.

Table 28

Regression of Perception of Appreciation Items on Depth of Connectedness Variables:

1=Completely Disagree – 6=Completely Agree

Variable*	R ²	VIF	Cook's D	N	M	SD
DOC Student	.81	.19	.002	944	4.19	.72
DOC Faculty	.83	.17	.002	966	4.23	.65

Table 28 continued

Regression of Perception of Appreciation Items on Depth of Connectedness Variables:

1=Completely Disagree – 6=Completely Agree

Variable*	R ²	VIF	Cook's D	N	M	SD
DOC Senior Admin	.84	.16	.002	627	3.68	.81
DOC Admin	.89	.11	.003	695	3.80	.82
DOC Support	.87	.13	.002	799	3.91	.81
DOC Orgs	.88	.12	.002	732	4.07	.77

The results of multiple regression showed items R² values exceeding 70%, which explains a high relationship. Thus, the explained variance (> .70 [70+%]) of Perception of Appreciation and Depth of Connectedness showed a strong relationship between the two constructs as representative of campus community. Items in the each of the subscales, Perception of Appreciation and Depth of Connectedness, can be considered for inclusion in the final instrument.

Chi-Square Goodness of Fit Test

Chi-square goodness of fit tested if the responses to the items differed at the .05 level. If the results are statistically significant at $p < .05$, the response is likely that there is a difference among groups (Kinnear & Gray, 2008). Since the study focused on instrument development, the results were examined according to how items were associated for each group based on statistical significance: (a) other students; (b) faculty; (c) senior administrators; (d) administrators; (e) student support; and (f) student organizations.

The focus of the study was on the development of an instrument to measure students' sense of community on their college or university campus. The premise of the study is that the greater their sense of community, the more likely they will remain enrolled. Therefore, students' year-in-college was identified as the primary demographic variable for chi-square analyses by which to examine how well Perception of Appreciation items were associated with freshman, sophomore, junior, senior, and graduate students and how well Depth of Connectedness items were associated with freshmen, sophomore, junior, senior, and graduate students.

Table 29 provides a summary of the results of chi-square goodness of fit results for Perception of Appreciation items with *year-in-college* (freshman, sophomore, junior, senior, graduate student) for the Students variable.

Table 29

Chi-square of Perception of Appreciation Items with Year-in-College (class): Students

Item #/Label	N	χ^2 value	df	sig.
10/Well-being	1093	39.75	20	.005**
11/Matter	1096	40.93	20	.004**
13/Respect	1108	22.97	20	.291
14/Approval	1073	23.55	20	.262
17/Disregard	1067	24.77	20	.211
19/Listen	1111	28.10	20	.107
21/Support	1086	28.20	20	.105
23/Interest	1080	36.59	20	.013*
25/Acknowledge	1091	14.43	20	.808
26/Valued	1095	35.10	20	.020*

Table 29 Continued

Chi-square of Perception of Appreciation Items with Year-in-College (class): Students

Item #/Label	N	χ^2 value	df	sig.
30/Receptive	1085	23.04	20	.287
33/Attention	1066	34.08	20	.026*

*Statistically significant at $p < .05$

**Statistically significant at $p < .01$

According to how the items performed in the *Students* variable, it can be determined how they clustered given this sample. Item questions 10, 11, 23, 26, and 33 were statistically significant, therefore items differ according to how freshman, sophomores, juniors, seniors, and graduate students view the concepts. Questions 13, 14, 17, 19, 21, 25, and 30 were not statistically significant, therefore can be considered more closely related among freshman, sophomores, juniors, seniors, and graduate students views.

Table 30 provides a summary of the results of chi-square goodness of fit of Perception of Appreciation items with *year-in-college* (freshman, sophomore, junior, senior, graduate student) with the Faculty variable.

Table 30

Chi-square of Perception of Appreciation Items with Year-in-College: Faculty

Item #/Label	N	χ^2 value	df	sig.
10/Well-being	1114	37.51	20	.010*
11/Matter	1118	33.18	20	.032*
19/Listen	1114	27.91	20	.111
21/Support	1102	28.68	20	.094

Table 30 Continued

Chi-square of Perception of Appreciation Items with Year-in-College: Faculty

Item #/Label	N	χ^2 value	df	sig.
23/Interest	1091	48.22	20	.001**
25/Acknowledge	1098	30.87	20	.057
26/Valued	1099	27.90	20	.112
30/Receptive	1084	29.07	20	.086
33/Attention	1072	32.91	20	.035*
13/Respect	1116	31.28	20	.052
14/Approval	1096	34.11	20	.025*
17/Disregard	1067	18.54	20	.552

*Statistically significant at $p < .05$

**Statistically significant at $p < .01$

According to how the items performed in the *Faculty* variable, it can be determined how they clustered given this sample. Item questions 10, 11, 14, 23, and 33 were statistically significant, therefore items differ according to how freshman, sophomores, juniors, seniors, and graduate students view the concepts. Questions 13, 17, 19, 21, 25, 26, and 30 were not statistically significant, therefore can be considered more closely related among freshman, sophomores, juniors, seniors, and graduate students' views.

Table 31 provides a summary of the results for chi-square goodness of fit for *Perception of Appreciation* items with *year-in-college* (freshman, sophomore, junior, senior, graduate student) for the *Senior Administrators* variable.

Table 31

Chi-square of Perception of Appreciation Items with Year-in-College: Senior Administrators

Item#/Label	N	χ^2	df	sig.
10/Well-being	989	54.31	20	.000**
11/Matter	1015	63.03	20	.000**
13/Respect	924	53.48	20	.000**
14/Approval	878	69.31	20	.000**
17/Disregard	849	52.81	20	.000**
19/Listen	802	49.44	20	.000**
21/Support	872	66.31	20	.000**
23/Interest	880	60.51	20	.000**
25/Acknowledge	910	38.43	20	.008*
26/Valued	886	62.70	20	.000**
30/Receptive	789	46.52	20	.001*
33/Attention	826	48.43	20	.000**

*Statistically significant at $p < .01$

**Statistically significant at $p < .001$

According to how the Perception of Appreciation items performed in the *Senior Administrators* variable, it can be determined how they clustered given this sample. All item questions were statistically significant, therefore they differ according to how freshman, sophomores, juniors, seniors, and graduate students view the concepts.

Table 32 provides a summary of the results of chi-square goodness of fit results for Perception of Appreciation items with *year-in-college* (freshman, sophomore, junior, senior, graduate student) for the *Administrators* variable.

Table 32

Chi-square of Perception of Appreciation items with Year-in-College: Administrators

Item#/Label	N	χ^2	df	sig.
10/Well-being	1022	34.46	20	.023*
11/Matter	1040	43.88	20	.002**
13/Respect	973	32.06	20	.043*
14/Approval	923	40.79	20	.004**
17/Disregard	903	30.63	20	.060
19/Listen	870	33.17	20	.032*
21/Support	927	42.51	20	.002**
23/Interest	925	44.71	20	.001**
25/Acknowledge	953	24.02	20	.242
26/Valued	926	44.13	20	.001*
33/Attention	874	35.66	20	.017*
30/Receptive	837	32.81	20	.035*

*Statistically significant at $p < .05$

**Statistically significant at $p < .01$

According to how the items performed in the *Administrators* variable, it can be determined how they clustered given this sample. Item questions 10, 11, 13, 14, 19, 21, 23, 26, 30 and 33 were statistically significant, therefore items differ according to how freshman,

sophomores, juniors, seniors, and graduate students view the concepts. Questions 17 and 25 were not statistically significant, therefore can be considered more closely related among freshman, sophomores, juniors, seniors, and graduate students' views.

Table 33 provides a summary of the results of chi-square goodness of fit results for Perception of Appreciation items with *year-in-college* (freshman, sophomore, junior, senior, graduate student) for the Support Services variable.

Table 33

Chi-square of Perception of Appreciation items with Year-in-College: Support Services

Item#/Label	N	χ^2	df	sig.
10/Well-being	1095	36.48	20	.013*
11/Matter	1086	49.90	20	.000***
14/Approval	996	42.31	20	.003**
17/Disregard	1012	34.19	20	.025*
19/Listen	1054	52.18	20	.000***
21/Support	1036	42.08	20	.003**
23/Interest	1023	47.48	20	.001**
25/Acknowledge	1054	34.78	20	.021*
26/Valued	1010	75.00	20	.000***
30/Receptive	944	35.52	20	.018*
13/Respect	1076	51.12	20	.000***
33/Attention	992	38.97	20	.007**

*Statistically significant at $p < .05$

**Statistically significant at $p < .01$

***Statistically significant at $p < .001$

According to how the items performed in the Support Services variable, it can be determined how they clustered given this sample. All item questions were statistically significant, therefore they differ according to how freshman, sophomores, juniors, seniors, and graduate students view the concepts.

Table 34 provides a summary of the results of chi-square goodness of fit results for Perception of Appreciation items with year-in-college (freshman, sophomore, junior, senior, graduate student) for the Student Organizations variable.

Table 34

Chi-square of Perception of Appreciation items with Year-in-College: Student Organizations

Item#/Label	N	χ^2	df	sig.
10/Well- being	1002	32.23	20	.041*
11/Matter	1001	36.61	20	.013*
13/Respect	972	18.60	20	.548
14/Approval	926	35.23	20	.019*
17/Disregard	896	14.91	20	.781
19/Listen	900	37.99	20	.009**
21/Support	920	35.22	20	.019*
23/Interest	950	40.25	20	.005**
25/Acknowledge	940	27.88	20	.112
26/Valued	923	34.06	20	.026*
30/Receptive	875	32.71	20	.036*
33/Orgs	901	22.47	20	.316

*Statistically significant at $p < .05$

**Statistically significant at $p < .01$

According to how the items performed in the Student Organizations variable, it can be determined how they clustered given this sample. Item questions 10, 11, 14, 19, 21, 23, 26, and 30 were statistically significant, therefore they differ among themselves according to how freshman, sophomores, juniors, seniors, and graduate students view the concepts. Questions 13, 17, 25, and 33 were not statistically significant, therefore can be considered more closely related among freshman, sophomores, juniors, seniors, and graduate students' views.

Table 35 provides a summary of the results of chi-square goodness of fit results for Depth of Connectedness items with year-in-college (freshman, sophomore, junior, senior, graduate student) for the Students variable.

Table 4

Chi-square Depth of Connectedness Items with Year-in-College: Students

Item #/Label	N	χ^2 value	df	sig.
12/Number	1101	28.02	20	.109
15/Grateful	1081	33.62	20	.029*
16/Sincere	1108	19.19	20	.510
18/Comfortable	1109	22.58	20	.310
20/Get along	1114	23.64	20	.258
22/Identify	1104	20.50	20	.427
24/Campus	1098	28.30	20	.103
27/Content	1066	28.94	20	.089
28/Infringe	1061	29.32	20	.082
29/Belong	1082	33.38	20	.031*
31/Acquaint	1112	26.84	20	.140

Table 35 Continued

Chi-square Depth of Connectedness Items with Year-in-College: Students

Item #/Label	N	χ^2 value	df	sig.
32/Rapport	1080	33.32	20	.031*

*Statistically significant at $p < .05$

According to how the items performed in the *Student* variable, it can be determined how they clustered given this sample. Item questions 15, 29, and 32 were statistically significant, therefore they differ among themselves according to how freshman, sophomores, juniors, seniors, and graduate students view the concepts. Questions 12, 16, 18, 20, 22, 24, 27, 28, and 31 were not statistically significant, therefore can be considered more closely related among freshman, sophomores, juniors, seniors, and graduate students' views.

Table 36 provides a summary of the results of chi-square goodness of fit results for Depth of Connectedness items with year-in-college (freshman, sophomore, junior, senior, graduate student) for the Faculty variable.

Table 36

Chi-square Depth of Connectedness Items with Year-in-College: Faculty

Item#/Label	N	χ^2 value	df	sig.
12/Number	1108	32.18	20	.041*
15/Grateful	1092	31.74	20	.046*
16/Sincere	1113	25.29	20	.119
18/Comfortable	1107	26.60	20	.147
20/Get along	1110	26.49	20	.150
22/Identify	1085	30.20	20	.067

Table 36 Continued

Chi-square Depth of Connectedness Items with Year-in-College: Faculty

Item#/Label	N	χ^2 value	df	sig.
24/Campus	1091	38.43	20	.008**
27/Content	1065	31.67	20	.047*
28/Infringe	1063	31.20	20	.053
29/Belong	1064	34.28	20	.024
31/Acquaint	1101	32.59	20	.037*
32/Rapport	1080	38.09	20	.009**

*Statistically significant at $p < .05$

**Statistically significant at $p < .01$

According to how the items performed in the *Faculty* variable, it can be determined how they clustered given this sample. Item questions 12, 15, 24, 27, 29, 31, and 32 were statistically significant, therefore they differ among themselves according to how freshman, sophomores, juniors, seniors, and graduate students view the concepts. Questions 16, 18, 20, 22 and 28 were not statistically significant, therefore can be considered more closely related among freshman, sophomores, juniors, seniors, and graduate students' views.

Table 37 provides a summary of the results of chi-square goodness of fit results for Depth of Connectedness items with year-in-college (freshman, sophomore, junior, senior, graduate student) for the Senior Administrators variable.

Table 37

Chi-square Depth of Connectedness Items with Year-in-College: Senior Administrators

Item#/Label	N	χ^2 value	df	sig.
12/Number	992	30.22	20	.066
15/Grateful	787	66.73	20	.000**
16/Sincere	833	45.28	20	.001*
18/Comfortable	882	45.57	20	.001*
20/Get along	778	40.71	20	.004*
22/Identify	855	54.23	20	.000**
24/Campus	842	53.73	20	.000**
27/Content	792	58.74	20	.000**
28/Infringe	841	38.34	20	.008**
29/Belong	795	58.08	20	.000***
31/Acquaint	885	47.69	20	.000***
32/Rapport	777	41.10	20	.004**

*Statistically significant at $p < .05$

**Statistically significant at $p < .01$

***Statistically significant at $p < .001$

According to how the items performed in the *Senior Administrators* variable, it can be determined how they clustered given this sample. Item questions 15, 16, 18, 20, 22, 24, 27, 28, 29, 31, and 32 were statistically significant, therefore they differ according to how freshman, sophomores, juniors, seniors, and graduate students view the concepts. Only question 12 was not statistically significant, therefore it can be considered more closely related among freshman, sophomores, juniors, seniors, and graduate students' views.

Table 38 provides a summary of the results of chi-square goodness of fit results for Depth of Connectedness items with year-in-college (freshman, sophomore, junior, senior, graduate student) for the *Administrators* variable.

Table 38

Chi-square Depth of Connectedness items with Year-in-College: Administrators

Item#/Label	N	χ^2 value	df	sig.
12/Number	1023	24.11	20	.238
15/Grateful	858	38.07	20	.009**
16/Sincere	905	29.37	20	.083
18/Comfortable	943	32.41	20	.039*
20/Get along	866	37.28	20	.011*
22/Identify	903	27.16	20	.131
24/Campus	896	33.42	20	.030*
27/Content	845	39.53	20	.006**
28/Infringe	895	36.49	20	.013*
29/Belong	854	42.37	20	.002**
31/Acquaint	933	34.47	20	.023*
32/Rapport	846	32.43	20	.039*

*Statistically significant at $p < .05$

**Statistically significant at $p < .01$

According to how the items performed in the *Administrators* variable, it can be determined how they clustered given this sample. Item questions 15, 18, 20, 24, 27, 28, 29, 31, and 32 were statistically significant; therefore they differ according to how freshman,

sophomores, juniors, seniors, and graduate students view the concepts. Questions 12, 16, and 22 were not statistically significant, therefore can be considered more closely related among freshman, sophomores, juniors, seniors, and graduate students' views.

Table 39 provides a summary of the results of chi-square goodness of fit results for Depth of Connectedness items with year-in-college (freshman, sophomore, junior, senior, graduate student) for the Support Services variable.

Table 39

Chi-square Depth of Connectedness items with Year-in-College: Support Services

Item#/Label	N	χ^2 value	df	sig.
12/Number	1087	25.96	20	.167
15/Grateful	972	47.39	20	.001**
16/Sincere	1044	29.01	20	.088
18/Comfortable	1058	36.23	20	.014*
20/Get along	1034	36.47	20	.008**
22/Identify	993	36.69	20	.013*
24/Campus	1012	45.70	20	.001**
27/Content	985	36.99	20	.012*
28/Infringe	1009	29.80	20	.073
29/Belong	984	57.32	20	.000***
31/Acquaint	1011	39.97	20	.005**
32/Rapport	980	29.43	20	.080

*Statistically significant at $p < .05$

**Statistically significant at $p < .01$

***Statistically significant at $p < .001$

According to how the items performed in the *Support Services* variable, it can be determined how they clustered given this sample. Item questions 15, 18, 20, 22, 24, 27, 29, and 31 were statistically significant, therefore they differ according to how freshman, sophomores, juniors, seniors, and graduate students view the concepts. Questions 12, 16, 28, and 32 were not statistically significant; therefore can be considered more closely related among freshman, sophomores, juniors, seniors, and graduate students' views.

Table 40 provides a summary of the results of chi-square goodness of fit results for Depth of Connectedness items with year-in-college (freshman, sophomore, junior, senior, graduate student) for the Student Organizations variable.

Table 40

Chi-square Depth of Connectedness items with Year-in-College: Student Organizations

Item#/Label	N	χ^2 value	df	sig.
12/Number	984	32.35	20	.041*
15/Grateful	887	34.84	20	.021*
16/Sincere	915	35.05	20	.020*
18/Comfortable	957	19.43	20	.494
20/Get along	915	29.10	20	.086
22/Identify	931	46.82	20	.001**
24/Campus	940	44.17	20	.001**
27/Content	889	32.44	20	.039*
28/Infringe	904	29.37	20	.081
29/Belong	907	36.06	20	.015*
31/Acquaint	946	44.92	20	.001**

Table 40 Continued

Chi-square Depth of Connectedness items with Year-in-College: Student Organizations

Item#/Label	N	χ^2 value	df	sig.
32/Rapport	838	26.97	20	.136

*Statistically significant at $p < .05$

**Statistically significant at $p < .01$

According to how the items performed in the *Student Organizations* variable, it can be determined how they clustered given this sample. Item questions 12, 15, 16, 22, 24, 27, 29, and 31 were statistically significant, therefore they differ according to how freshman, sophomores, juniors, seniors, and graduate students view the concepts. Questions 18, 20, 28, and 32 were not statistically significant, therefore can be considered more closely related among freshman, sophomores, juniors, seniors, and graduate students' views.

Chi-square results for Perception of Appreciation showed items 10 and 11 were statistically significant among all groups. They were the only two items that differed across all groups. Chi-square results for Depth of Connectedness showed items 15 and 29 were statistically significant among all groups. They were the only two items that differed across all groups. The results showed how the items clustered. Clustering suggests that the items could be used independent of the entire instrument to help assess students' sense of campus community with each group. Table 41 shows the clustering. Since items 12 and 28 were not included across all groups in Depth of Connectedness, it further suggests they can be deleted from the final instrument. Additionally, since items 17 and 25 were not included across all groups in Perception of Appreciation, suggests they can be deleted from the final instrument.

Table 41 provides a summary of how items clustered according to Perception of Appreciation. The table provides an overview of how items clustered across all groups when comparing students' year-in-college: (a) students; (b) faculty; (c) senior administrators; (d) administrators; (e) support services; and (f) student organizations.

Table 41

Chi-square item clustering according to Perception of Appreciation

Tables	30	31	32	33	34	35
Item sig.	10	10	10	10	10	10
	11	11	11	11	11	11
			13	13	13	
		14	14	14	14	14
			17		17	
			19	19	19	19
			21		21	21
	23	23	23		23	23
			25		25	
	26		26		26	26
			30		30	30
	33	33	33		33	

Table 42 provides a summary for how items clustered according to Depth of Connectedness. The table provides an overview of how items clustered across all groups when

comparing students' year-in-college: (a) students; (b) faculty; (c) senior administrators; (d) administrators; (e) support services; and (f) student organizations.

Table 42

Chi-square item clustering according to Depth of Connectedness

Tables	36	37	38	39	40	41
Item Sig.		12				12
	15	15	15	15	15	15
			16			16
			18	18	18	
			20	20	20	
			22		22	22
		24	24	24	24	24
		27	27	27	27	27
			28	28		
	29	29	29	29	29	29
		31	31	31	31	31
	32	32	32			

Revised Chronbach's Alpha

The previous analyses examined how the Campus Community Index (CCI) performed at the item level. Based on the results, the instrument was tested according to two separate formats and two statistical analyses. The first set of analyses included all 12 items per each subscale format. The second set of analyses was with 10 items per each subscale format.

Table 43 below shows the Cronbach’s alpha for the deleted items for the subscales: items 17 and 25 were deleted from Perception of Appreciation subscale, and items 12 and 28 were deleted from the Depth of Connectedness subscale.

Table 43

Cronbach’s alpha: 10 Item Perception of Appreciation and Depth of Connectedness subscales

Items	N*	#of items	α
POA Students	968	10	.951
POA Faculty	998	10	.952
POA Senior Admin	640	10	.965
POA Admin	711	10	.963
POA Support	815	10	.960
POA Orgs	754	10	.959
DOC Student	986	10	.957
DOC Faculty	974	10	.952
DOC Senior Admin	597	10	.959
DOC Admins	674	10	.959
DOC Support	800	10	.960
DOC Orgs	738	10	.962

POA: *Perception of Appreciation*

DOC: *Depth of Connectedness*

*The N varies due to the number of respondents selecting “not applicable”

Table 44 demonstrates the relationships for further analyses.

Table 44

CCI by Item by Statistical Test

	CCI 12 Items	CCI 10 Items	<i>t</i> -tests	ANOVAs
Perception of Appreciation Items	10, 11, 13, 14, 17, 21, 23, 25, 26, 30, 31, 33	10, 11, 13, 14, 21, 23, 26, 30, 31, 33	age; gender; transfer student; enrollment status; residency status	Year-in-college categories; ethnicity
Depth of Connectedness Items	12, 15, 16, 18, 19, 20, 22, 24, 27, 28, 29, 32,	15, 16, 18, 19, 20, 22, 24, 27, 29, 32	age; gender; transfer student; enrollment status; residency status	Year-in-college categories; ethnicity

***t*-Tests**

The previous sections of statistical analyses provided rationale for instrument development. Originally, there were 12 items in each subscale. After statistical analyses it is suggested that 2 items from each subscale should be removed. Thus, each subscale should contain 10 items. However, further analyses included both 10 item and 12 item analyses to understand how the instrument would perform. The development of the instrument pertained to research questions one and two: (a) What statements represent the Perception of Appreciation subscale among college and university students?; and (b) What statements represent the Depth of Connectedness subscale among college and university students? The following analyses relate to research question three and four.

Research question three: How does student background relate to the Perception of Appreciation subscale regarding components pertaining to campus community?

Research question four: How does student background relate to the Depth of Connectedness subscale regarding components pertaining to campus community?

The *t*-tests calculated whether there was a difference among demographic groups with two categories among subscales: (a) age (18-24/ 25+), (b) gender (male and female), (c) transfer student (yes/no), (d) enrollment status (full-time/part-time), (e) residency status (in-state/out-of-state).

Results of the Perception of Appreciation 12 item subscale *t*-test showed that as students rated their interaction with other students, faculty, senior administrators (Senior Admin), administrators (Admin), support services (Support), and student organizations (Orgs), there were a statistical differences according to age. Students who are 18 to 24 years old rated their interaction with other students, senior administrators (Senior Admin), administrators (Admin), support services (Support), and student organizations (Orgs) higher than those who are 25 years old and older: Students: $t(1125) = 2.05, p = .040$, (18-24, $M = 3.90$; 25+, $M = 3.82$); Senior Admin: $t(1059) = 2.65, p = .008$, (18-24, $M = 3.68$; 25+, $M = 3.54$); Administrators: $t(1074) = 2.84, p = .005$, (18-24, $M = 3.79$; 25+, $M = 3.65$); Support: $t(1114) = 4.10, p = .000$, (18-24, $M = 3.92$; 25+, $M = 3.73$); Organizations: $t(1060) = 5.32, p = .000$, (18-24, $M = 3.98$; 25+, $M = 3.73$). Table 45 provides a summary of the results.

Table 45

Perception of Appreciation t-tests: Age, 12 Item CCI Differences

Item	Age	N	df	Mean	SD	<i>t</i>	<i>p</i>
Students+	18-24	651	1125	3.90	.60	2.05	.040*
	25+	476		3.82	.70		
Faculty+	18-24	651	1126	4.14	.57	.89	.374
	25+	477		4.10	.67		
Senior Admin+	18-24	626	1059	3.68	.76	2.65	.008**
	25+	435		3.54	.89		
Admin+	18-24	630	1074	3.79	.72	2.84	.005**
	25+	446		3.65	.85		
Support+	18-24	645	1114	3.92	.70	4.10	.000**
	25+	471		3.73	.80		
Orgs+	18-24	630	1060	3.98	.64	5.32	.000***
	25+	432		3.73	.84		

*Statistically significant $p < .05$

**Statistically significant $p < .01$

***Statistically significant $p < .001$

+Levene's test for equality of variances was violated so results for equal variances not assumed are reported.

Results of the Perception of Appreciation 10 item subscale *t*-test showed that as students rated their interaction with other students (students), senior administrators (Senior Admin), administrators (Admin), support services (Support), and student organizations (Orgs), there were statistical difference according to age. Students who are 18 to 24 years old rated their interaction with other students, senior administrators (Senior Admin), administrators (Admin), support

services (Support), and student organizations (Orgs) higher than those who are 25 years old and older: Students: $t(1125) = 2.46, p = .014$, (18-24, $M = 4.12$; 25+, $M = 3.99$); Senior Admin: $t(1053) = 2.63, p = .009$, (18-24, $M = 3.68$; 25+, $M = 3.49$); Administrators: $t(1067) = 2.46, p = .014$, (18-24, $M = 3.84$ 25+, $M = 3.68$); Support: $t(1111) = 3.83, p = .00$, (18-24, $M = 4.03$; 25+, $M = 3.78$); Organizations: $t(1058) = 5.57, p = .000$, (18-24, $M = 4.18$; 25+, $M = 3.83$). Table 46 provides a summary of the results.

Table 46

Perception of Appreciation t-tests: Age, 10 Item CCI Differences

Item	Age	N	df	Mean	SD	<i>t</i>	<i>p</i>
Students	18-24	651	1125	4.12	.83	2.46	.014*
	25+	476		3.99	.95		
Faculty+	18-24	651	1126	4.39	.81	.75	.456
	25+	477		4.35	.92		
Senior Admin+	18-24	623	1053	3.68	1.03	2.63	.009**
	25+	432		3.49	1.18		
Admin+	18-24	627	1067	3.84	.98	2.46	.014*
	25+	442		3.68	1.15		
Support+	18-24	645	1111	4.03	.97	3.83	.000***
	25+	468		3.78	1.09		
Orgs+	18-24	629	1058	4.18	.88	5.57	.000***
	25+	431		3.83	1.07		

*Statistically significant $p < .05$

**Statistically significant $p < .01$

***Statistically significant $p < .001$

+Levene's test for equality of variances was violated so results for equal variances not assumed are reported.

Results of the Perception of Appreciation 12 item subscale *t*-test showed that as students rate their interaction with other students, faculty, senior administrators (Senior Admin),

administrators (Admin), support services (Support), and student organizations (Orgs), there was a statistical difference according to gender as it related to their interaction with other students. Male students rate their interaction with other students higher than females do. Students: $t(1125) = 2.23, p = .026$, (Males, $M = 3.93$; Females, $M = 3.84$). Table 47 provides a summary of the results.

Table 47

Perception of Appreciation t-tests: Gender, 12 Item CCI Differences

Item	Gender	N	df	Mean	SD	<i>t</i>	<i>p</i>
Students	Male	364	1125	3.93	.64	2.23	.026*
	Female	763		3.84	.65		
Faculty	Male	365	1126	4.13	.63	.13	.900
	Female	763		4.12	.61		
Senior Admin	Male	342	1059	3.60	.84	-.56	.576
	Female	719		3.63	.81		
Admin+	Male	346	1074	3.71	.82	-.60	.548
	Female	730		3.74	.76		
Support+	Male	357	1114	3.84	.79	.03	.979
	Female	759		3.84	.73		
Orgs	Male	340	1060	3.88	.78	.09	.925
	Female	722		3.88	.72		

*statistically significant $p < 05$

+Levene's test for equality of variances was violated so results for equal variances not assumed are reported.

Results of the Perception of Appreciation 10 item subscale *t*-test showed that as students rated their interaction with other students, faculty, senior administrators (Senior Admin),

administrators (Admin), support services (Support), and student organizations (Orgs), there was a statistical difference according to gender as it related to their interaction with other students.

Male students rated their interaction with other students higher than females do. Students:

$t(1125) = -1.17, p = .018$, (Males, $M = 4.15$; Females, $M = 4.02$). Table 48 provides a summary of the results.

Table 48

Perception of Appreciation t-tests: Gender, 10 Item CCI Differences

Item	Gender	N	df	Mean	SD	<i>t</i>	<i>p</i>
Students	Male	364	1125	4.15	.85	2.37	.018*
	Female	763		4.02	.90		
Faculty	Male	365	1126	4.38	.86	.18	.855
	Female	763		4.37	.86		
Senior Admin+	Male	342	1053	3.56	1.15	-.80	.425
	Female	713		3.62	1.07		
Admin+	Male	346	1067	3.73	1.12	-.91	.363
	Female	723		3.79	1.02		
Support	Male	357	1111	3.92	1.08	-.14	.890
	Female	756		3.93	1.00		
Orgs	Male	340	1058	4.05	1.02	.32	.748
	Female	720		4.03	.96		

*Statistically significant at the $p < .05$

+Levene's test for equality of variances was violated so results for equal variances not assumed are recorded.

Results of the Perception of Appreciation 12 item subscale *t*-test showed that as students rated their interaction with other students, faculty, senior administrators (Senior Admin),

administrators (Admin), support services (Support), and student organizations (Orgs), there were no statistical differences according to transfer status. Table 49 provides a summary of the results.

Table 49

Perception of Appreciation t-tests: Transfer, 12 Item CCI Differences

Item	Transfer	N	df	Mean	SD	<i>t</i>	<i>p</i>
Students	Yes	453	1125	3.84	.65	-1.30	.194
	No	674		3.89	.64		
Faculty	Yes	452	1126	4.11	.60	-.69	.492
	No	676		4.13	.63		
Senior Admin	Yes	414	1059	3.58	.85	-1.23	.218
	No	647		3.64	.80		
Admin	Yes	421	1074	3.67	.79	-1.93	.054
	No	655		3.77	.77		
Support	Yes	447	1114	3.80	.77	-1.31	.192
	No	669		3.86	.74		
Orgs+	Yes	414	1060	3.85	.78	-1.12	.265
	No	648		3.90	.71		

+Levene's test for equality of variances was violated so results for equal variances not assumed are recorded.

Results of the Perception of Appreciation 10 item subscale *t*-test showed that as students rated their interaction with other students, faculty, senior administrators (Senior Admin), administrators (Admin), support services (Support), and student organizations (Orgs), there were

no statistical differences according to transfer status. Table 50 provides a summary of the results.

Table 50

Perception of Appreciation t-tests: Transfer, 10 Item CCI Differences

Item	Transfer	N	df	Mean	SD	<i>t</i>	<i>p</i>
Student+	Yes	453	1125	4.02	.93	-1.14	.252
	No	674		4.09	.85		
Faculty	Yes	452	1126	4.36	.86	-.36	.722
	No	676		4.38	.85		
Senior Admin+	Yes	411	1053	3.54	1.16	-1.37	.170
	No	644		3.64	1.05		
Admin	Yes	417	1067	3.71	1.10	-1.60	.111
	No	652		3.81	1.03		
Support+	Yes	446	1111	3.89	1.09	-.99	.324
	No	667		3.95	.99		
Orgs+	Yes	413	1058	3.98	1.07	-1.44	.149
	No	647		4.08	.91		

+Levene's test for equality of variances was violated so results for equal variances not assumed are recorded

Results of the Perception of Appreciation 12 item subscale *t*-test showed that as students rated their interaction with other students, faculty, senior administrators (Senior Admin), administrators (Admin), support services (Support), and student organizations (Orgs), there were statistical differences according to enrollment status. Students who are enrolled full-time rated

their interaction with other students, faculty, administrators (Admin), support services (Support), and student organizations (Orgs) higher than those who are enrolled part-time: Students: $t(1123) = 3.52, p = .000$, (Full-time, $M = 3.90$; Part-time, $M = 3.72$); Faculty: $t(1124) = 3.74, p = .000$, (Full-time, $M = 4.16$; Part-time, $M = 3.97$); Administrators: $t(1072) = 2.57, p = .010$, (Full-time, $M = 3.76$, Part-time = 3.59); Support: $t(1112) = 2.54, p = .011$, (Full-time, $M = 3.86$; Part-time, $M = 3.71$); Organizations: $t(1058) = 3.00, p = .003$, (Full-time, $M = 3.91$; Part-time, $M = 3.73$).

Table 51 provides a summary of the results.

Table 51

Perception of Appreciation t-tests: Enrollment Status, 12 Item CCI Differences

Item	Enrollment	N	df	Mean	SD	<i>t</i>	<i>p</i>
Student	Full-time	932	1123	3.90	.64	3.52	.000***
	Part-time	193		3.72	.64		
Faculty	Full-time	932	1124	4.16	.61	3.74	.000***
	Part-time	194		3.97	.65		
Senior Admin	Full-time	882	1057	3.63	.81	1.22	.221
	Part-time	177		3.55	.85		
Admin	Full-time	894	1072	3.76	.77	2.57	.010*
	Part-time	180		3.59	.82		
Support	Full-time	925	1112	3.86	.74	2.54	.011*
	Part-time	189		3.71	.76		
Orgs	Full-time	886	1058	3.91	.73	3.00	.003**
	Part-time	174		3.73	.78		

*Statistically significant $p < .05$

**Statistically significant $p < .01$

***Statistically significant $p < .001$

Results of the Perception of Appreciation 10 item subscale *t*-test showed that as students rated their interaction with other students, faculty, senior administrators (Senior Admin), administrators (Admin), support services (Support), and student organizations (Orgs), there were statistical differences according to enrollment status. Students who are enrolled full-time rated their interaction with other students, faculty, administrators (Admin), support services (Support), and student organizations (Orgs) higher than those who are enrolled part-time: Students: $t(1123) = 3.90, p = .000$, (Full-time, $M = 4.11$; Part-time, $M = 3.85$); Faculty: $t(1124) = 3.70, p < .05$, (Full-time, $M = 4.41$; Part-time, $M = 4.17$); Administrators: $t(1065) = 2.13, p = .034$, (Full-time, $M = 3.80$, Part-time = 3.62); Support: $t(1109) = 2.45, p = .015$, (Full-time, $M = 3.96$; Part-time, $M = 3.76$); Organizations: $t(1056) = 3.07, p = .002$, (Full-time, $M = 4.08$; Part-time, $M = 3.83$).

Table 52 provides a summary of the results.

Table 52

Perception of Appreciation t-tests: Enrollment Status, 10 Item CCI Differences

Item	Enrollment	N	df	Mean	SD	<i>t</i>	<i>p</i>
Student+	Full-time	932	1123	4.11	.89	3.90	.000***
	Part-time	193		3.85	.83		
Faculty	Full-time	932	1124	4.41	.85	3.70	.000***
	Part-time	194		4.17	.86		
Senior Admin	Full-time	878	1051	3.61	1.10	.65	.516
	Part-time	175		3.55	1.08		
Admin	Full-time	890	1065	3.80	1.05	2.13	.034*
	Part-time	177		3.62	1.06		

Table 52 Continued

Perception of Appreciation t-tests: Enrollment Status, 10 Item CCI Differences

Item	Enrollment	N	df	Mean	SD	<i>t</i>	<i>p</i>
Support	Full-time	923	1109	3.96	1.03	2.45	.015*
	Part-time	188		3.76	1.01	2.48	
Orgs	Full-time	885	1056	4.08	.98	3.07	.002**
	Part-time	173		3.83	.95		

*Statistically significant $p < .05$

**Statistically significant $p < .01$

***Statistically significant $p < .001$

+Levene's test for equality of variances was violated so results for equal variances not assumed are reported.

Results of the Perception of Appreciation 12 item subscale *t*-test showed that as students rated their interaction with other students, faculty, senior administrators (Senior Admin), administrators (Admin), support services (Support), and student organizations (Orgs), there were no statistical differences related to their residency status. Table 53 provides a summary of the results.

Table 53

Perception of Appreciation t-tests: Residency Status, 12 Item CCI Differences

Item	Residency	N	df	Mean	SD	<i>t</i>	<i>p</i>
Student	In-state	1074	1125	3.86	.65	-1.85	.064
	Out-of-state	53		4.03	.53		
Faculty	In-state	1075	1126	4.12	.62	-1.04	.298
	Out-of-state	53		4.21	.48		

Table 53 Continued

Perception of Appreciation t-tests: Residency Status, 12 Item CCI Differences

Item	Residency	N	df	Mean	SD	<i>t</i>	<i>p</i>
Senior Admin+	In-state	1008	1059	3.61	.83	-1.02	.312
	Out-of-state	53		3.71	.63		
Admin+	In-state	1024	1074	3.73	.79	-.91	.369
	Out-of-state	52		3.80	.58		
Support	In-state	1064	1114	3.84	.75	-.26	.794
	Out-of-state	52		3.86	.67		
Orgs	In-state	1010	1060	3.87	.75	-1.34	.180
	Out-of-state	52		4.01	.53		

+Levene's test for equality of variances was violated so results for equal variances not assumed are reported.

Results of the Perception of Appreciation 10 item subscale *t*-test showed that as students rate their interaction with other students, faculty, senior administrators (Senior Admin), administrators (Admin), support services (Support), and student organizations (Orgs), there were no statistical differences related to residency status. Table 54 provides a summary of the results.

Table 54

Perception of Appreciation t-tests: Residency Status, 10 Item CCI Differences

Item	Residency	N	df	Mean	SD	<i>t</i>	<i>p</i>
Student	In-state	1074	1125	4.37	.86	-.78	.438
	Out-of-state	53		4.46	.66		

Table 54 Continued

Perception of Appreciation t-tests: Residency Status, 10 Item CCI Differences

Item	Residency	N	df	Mean	SD	<i>t</i>	<i>p</i>
Faculty	In-state	1075	1126	4.05	.89	-1.56	.119
	Out-of-state	53		4.25	.72		
Senior Admin+	In-state	1002	1053	3.60	1.11	1.06	.294
	Out-of-state	53		3.72	.85		
Admin+	In-state	1017	1067	3.77	1.07	-.77	.447
	Out-of-state	52		3.85	.76		
Support	In-state	1061	1111	3.92	1.04	-.09	.930
	Out-of-state	52		3.94	.92		
Orgs	In-state	1008	1058	4.03	.99	-1.16	.245
	Out-of-state	52		4.19	.73		

+Levene's test for equality of variances was violated so results for equal variances not assumed are recorded

Results of the Depth of Connectedness 12 item subscale *t*-test showed that as students rated their interaction with other students, faculty, senior administrators (Senior Admin), administrators (Admin), support services (Support), and student organizations (Orgs), there were statistical differences according to age. Students who are 18 to 24 years old rated their interaction with other students, senior administrators (Senior Admin), administrators (Admin), support services (Support), and student organizations (Orgs) higher than those who are 25 years old and older: Students: $t(1124) = 3.95, p = .000$ (18-24, $M = 4.25$; 25+, $M = 4.08$); Senior Admin: $t(1050) = 3.87, p = .000$, (18-24, $M = 3.72$; 25+, $M = 3.51$); Administrators: $t(1065) =$

3.00, $p = .003$ (18-24, $M = 3.82$; 25+, $M = 3.66$); Support: $t(1111) = 3.60$, $p = .000$ (18-24, $M = 3.97$; 25+, $M = 3.80$); Student Organizations: $t(1052) = 6.13$, $p = .000$, (18-24, $M = 4.09$; 25+, $M = 3.77$). Table 55 provides a summary of the results.

Table 55

Depth of Connectedness t-tests: Age, 12 Item CCI Differences

Item	Residency	N	df	Mean	SD	<i>t</i>	<i>p</i>
Students	18-24	651	1124	4.25	.67	3.95	.000*
	25+	475		4.08	.76		
Faculty	18-24	651	1127	4.23	.63	.49	.623
	25+	478		4.21	.69		
Senior Admin+	18-24	623	1050	3.72	.82	3.87	.000*
	25+	429		3.51	.93		
Admin+	18-24	627	1065	3.82	.78	3.00	.003*
	25+	440		3.66	.89		
Support	18-24	644	1111	3.97	.75	3.60	.000*
	25+	469		3.80	.83		
Orgs*+	18-24	628	1052	4.09	.73	6.13	.000*
	25+	426		3.77	.89		

*Statistically significant $p < .01$

**Statistically significant $p < .001$

+Levene's test for equality of variances was violated so results for equal variances not assumed are recorded

Results of the Depth of Connectedness 10 item subscale *t*-test showed that as students rated their interaction with other students, senior administrators (Senior Admin), administrators (Admin), support services (Support), and student organizations (Orgs), there were statistical

differences according to age. Students who are 18 to 24 years old rated their interaction with other students, senior administrators (Senior Admin), administrators (Admin), support services (Support), student organizations (Orgs), higher than those who are 25 years old and older: Students: $t(1124) = 3.81, p = .000$ (18-24, $M = 4.49$; 25+, $M = 4.28$); Senior administrators: $t(1005) = 3.72, p = .000$ (18-24, $M = 3.69$; 25+, $M = 3.42$); Administrators: $t(1034) = 2.86, p = .004$, (18-24, $M = 3.86$; 25+, $M = 3.66$); Support Services: $t(1100) = 3.53, p = .000$, (18-24, $M = 4.05$; 25+, $M = 3.83$); Student Organizations: $t(1034) = 6.20, p = .000$, (18-24, $M = 4.30$; 25+, $M = 3.88$). Table 56 provides a summary of the results.

Table 56

Depth of Connectedness t-tests: Age 10 Item CCI

Item	Age	N	df	Mean	SD	<i>t</i>	<i>p</i>
Students	18-24	651	1124	4.49	.89	3.81	.000**
	25+	475		4.28	.96		
Faculty	18-24	650	1125	4.46	.84	.58	.564
	25+	477		4.43	.90		
Senior Admin+	18-24	605	1005	3.70	1.07	3.72	.000**
	25+	402		3.42	1.22		
Admin+	18-24	610	1034	3.86	1.01	2.86	.004*
	25+	426		3.66	1.18		
Support+	18-24	637	1100	4.05	.99	3.53	.000**
	25+	465		3.83	1.08		
Orgs*+	18-24	625	1034	4.30	.93	6.20	.000**
	25+	411		3.88	1.15		

*Statistically significant $p < .01$

**Statistically significant $p < .001$

+Levene's test for equality of variances was violated so results for equal variances not assumed are reported.

Results of the Depth of Connectedness 12 item subscale *t*-test showed that as students rated their interaction with other students, faculty, senior administrators (Senior Admin), administrators (Admin), support services (Support), and student organizations (Orgs), there were no statistical differences related to gender. Table 57 provides a summary of the results.

Table 57

Depth of Connectedness t-tests: Gender, 12 Item CCI Differences

Item	Gender	N	df	Mean	SD	<i>t</i>	<i>p</i>
Students	Male	364	1124	4.21	.73	1.16	.246
	Female	762		4.16	.71		
Faculty	Male	365	1127	4.24	.66	.61	.541
	Female	764		4.21	.65		
Senior Admin	Male	340	1050	3.63	.88	-.11	.916
	Female	712		3.64	.87		
Admin	Male	341	1065	3.73	.86	-.61	.540
	Female	726		3.76	.81		
Support+	Male	356	1111	3.86	.85	-1.11	.268
	Female	757		3.91	.76		
Orgs	Male	336	1052	3.96	.86	-.06	.954
	Female	718		3.96	.79		

Levene's test for equality of variances was violated so results for equal variances not assumed are reported.

Results of the Depth of Connectedness 10 item subscale *t*-test showed that as students rated their interaction with other students, faculty, senior administrators (Senior Admin),

administrators (Admins), support services (Support), and student organizations (Orgs), there were no statistical differences related to gender. Table 58 provides a summary of the results.

Table 58

Depth of Connectedness t-tests: Gender, 10 Item CCI Differences

Item	Gender	N	df	Mean	SD	<i>t</i>	<i>p</i>
Students	Male	364	1124	4.46	.91	1.30	.195
	Female	762		4.38	.94		
Faculty	Male	365	1125	4.47	.84	.52	.603
	Female	762		4.44	.87		
Senior Admin	Male	337	1005	3.58	1.15	.02	.981
	Female	670		3.58	1.13		
Admin+	Male	339	1034	3.76	1.14	-.44	.660
	Female	697		3.79	1.06		
Support+	Male	354	1100	3.93	1.10	-.71	.479
	Female	748		3.98	1.01		
Orgs	Male	334	1034	4.13	1.09	-.07	.941
	Female	702		4.14	1.0		

+Levene's test for equality of variances was violated so results for equal variances not assumed are reported.

Results of the Depth of Connectedness 12 item subscale *t*-test showed that as students rated their interaction with other students, faculty, senior administrators (Senior Admin), administrators (Admin), support services (Support), and student organizations (Orgs), there was a statistical difference according to transfer status related to interaction with student

organizations (Orgs). Non-transfer students rated their interaction with student organizations higher than those who transfer: Students Organizations: $t(1052) = -2.12, p = .034$ (Yes, $M = 3.89$; No, $M = 4.00$). Table 59 provides a summary of the results.

Table 59

Depth of Connectedness t-tests: Transfer Status, 12 Item CCI Differences

Item	Transfer	N	df	Mean	SD	<i>t</i>	<i>p</i>
Students	Yes	453	1124	4.13	.74	-1.84	.066
	No	673		4.21	.70		
Faculty	Yes	453	1127	4.22	.64	.05	.957
	No	676		4.22	.66		
Senior Admin	Yes	408	1050	3.57	.92	-1.89	.058
	No	644		3.68	.84		
Admin	Yes	420	1065	3.70	.84	-1.73	.084
	No	647		3.79	.82		
Support	Yes	446	1111	3.87	.81	-.95	.342
	No	667		3.91	.78		
Orgs	Yes	413	1052	3.89	.85	-2.12	.034*
	No	641		4.00	.79		

*statistically significant $p < .05$

Results of the Depth of Connectedness 10 item subscale *t*-test showed that as students rated their interaction with other students, faculty, senior administrators (Senior Admin), administrators (Admin), support services (Support), and student organizations (Orgs), there were statistical differences according to transfer status related to interaction with senior administrators

(Senior Admin), as well as with student organizations (Orgs). Non-transfer students rated their interaction with senior administrators (Senior Admin) and student organizations (Orgs) higher than transfer students. Senior administrators: $t(1005) = -2.12, p = .034$ (Yes, $M = 3.48$; No, $M = 3.64$); Students Organizations: $t(1034) = -2.36, p = .019$, (Yes, $M = 4.04$; No, $M = 4.20$). Table 60 provides a summary of the results.

Table 60

Depth of Connectedness t-tests: Transfer Status, 10 Item CCI Differences

Item	Transfer	N	df	Mean	SD	<i>t</i>	<i>p</i>
Students	Yes	453	1124	4.35	.97	-1.60	.111
	No	673		4.44	.90		
Faculty	Yes	452	1125	4.45	.87	-.01	.991
	No	675		4.45	.86		
Senior Admin+	Yes	382	1005	3.48	1.22	-2.12	.034*
	No	625		3.64	1.08		
Admin	Yes	404	1034	3.71	1.13	-1.73	.085
	No	632		3.83	1.06		
Support+	Yes	441	1100	3.92	1.08	-.97	.330
	No	661		3.98	1.00		
Orgs*+	Yes	406	1034	4.04	1.13	-2.36	.019*
	No	630		4.20	.97		

*Statistically significant $p < .05$

+Levene's test for equality of variances was violated so results for equal variances not assumed are recorded

Results of the Depth of Connectedness 12 item subscale *t*-test showed that as students rated their interaction with other students, faculty, senior administrators (Senior Admin), administrators (Admin), support services (Support), and student organizations (Orgs), there was a statistical difference according to enrollment status related to interaction with other students, faculty, administrators (Admin), support services (Support), and student organizations (Orgs). Students who are enrolled full-time rated their interaction with other students, faculty, administrators (Admin), support services (Support), and student organizations (Orgs) higher than those who are enrolled part-time: Students: $t(1122) = 4.90, p = .000$ (Full-time, $M = 4.23$; Part-time, $M = 3.96$); Faculty: $t(1125) = 4.32, p = .000$ (Full-time, $M = 4.26$; Part-time, $M = 4.04$); Administrators: $t(1063) = 2.98, p = .003$ (Full-time, $M = 3.78$; Part-time, $M = 3.58$), Support Services: $t(1109) = 2.78, p = .006$ (Full-time, $M = 3.93$; Part-time, $M = 3.75$); Students Organizations: $t(1050) = 2.79, p = .005$ (Full-time, $M = 3.99$; Part-time, $M = 3.80$). Table 61 provides a summary of the results.

Table 61

Depth of Connectedness t-tests: Enrollment Status, 12 Item CCI Differences

Item	Enrollment	N	df	Mean	SD	<i>t</i>	<i>p</i>
Student+	Full-time	931	1122	4.23	.71	4.90	.000**
	Part-time	193		3.96	.69		
Faculty	Full-time	933	1125	4.26	.65	4.32	.000**
	Part-time	194		4.04	.65		
Senior Admin	Full-time	874	1048	3.65	.88	1.44	.151
	Part-time	176		3.55	.82		

Table 61 Continued

Depth of Connectedness t-tests: Enrollment Status, 12 Item CCI Differences

Item	Enrollment	N	df	Mean	SD	<i>t</i>	<i>p</i>
Admin	Full-time	887	1063	3.78	.83	2.98	.003*
	Part-time	178		3.58	.78		
Support	Full-time	923	1109	3.93	.79	2.78	.006*
	Part-time	188		3.75	.76		
Orgs	Full-time	882	1050	3.99	.82	2.79	.005*
	Part-time	170		3.80	.74		

*Statistically significant $p < .01$

**Statistically significant $p < .001$

+Levene's test for equality of variances was violated so results for equal variances not assumed are recorded

Results of the Depth of Connectedness 10 item subscale *t*-test showed as students rated their interaction with other students, faculty, senior administrators (Senior Admin), administrators (Admin), support services (Support), and student organizations (Orgs), there were no statistical differences related to enrollment status. Students who are enrolled full-time rated their interaction with other students, faculty administrators, support services (Support), and student organizations (Orgs) higher than those who are enrolled part-time. Students: $t(1122) = 4.76, p = .000$ (Full-time, $M = 4.46$; Part-time, $M = 4.13$); Faculty: $t(1123) = 4.19, p = .000$ (Full-time, $M = 4.50$; Part-time, $M = 4.21$), Administrators: $t(1032) = 3.06, p = .002$ (Full-time, $M = 3.83$; Part-time, $M = 3.55$), Support Services: $t(1098) = 2.77, p = .006$ (Full-time, $M = 3.99$; Part-time, $M = 3.77$), Student Organizations: $t(1032) = 2.92, p = .004$ (Full-time, $M = 4.18$; Part-time, $M = 3.92$). Table 62 provides a summary of the results.

Table 62

Depth of Connectedness t-tests: Enrollment Status, 10 Item CCI Differences

Item	Enrollment	N	df	Mean	SD	<i>t</i>	<i>p</i>
Students+	Full-time	931	1122	4.46	.93	4.76	.000**
	Part-Time	193		4.13	.89		
Faculty+	Full-time	931	1123	4.50	.86	4.19	.000**
	Part-Time	194		4.21	.85		
Senior Admin	Full-time	834	1004	3.60	1.14	1.47	.142
	Part-Time	172		3.47	1.13		
Admin	Full-time	859	1032	3.83	1.08	3.06	.002*
	Part-Time	175		3.55	1.10		
Support	Full-time	913	1098	3.99	1.04	2.77	.006*
	Part-Time	187		3.77	1.00		
Orgs	Full-time	871	1032	4.18	1.04	2.92	.004*
	Part-Time	163		3.92	1.00		

*Statistically significant $p < .01$

**Statistically significant $p < .001$

+Levene's test for equality of variances was violated so results for equal variances not assumed are recorded

Results of the Depth of Connectedness 12 item subscale *t*-test showed that as students rated their interaction with other students, senior administrators (Senior Admin), administrators (Admin), support services (Support), and student organizations (Orgs), there were no statistical differences related to residency status. Table 63 provides a summary of the results.

Table 63

Depth of Connectedness t-tests: Residency Status, 12 Item CCI Differences

Item	Residency	N	df	Mean	SD	<i>t</i>	<i>p</i>
Student	In-state	1073	1124	4.17	.72	-1.04	.296
	Out-of-state	53		4.28	.59		
Faculty	In-state	1076	1127	4.22	.66	-.40	.688
	Out-of-state	53		4.26	.57		
Senior Admin	In-state	1000	1050	3.63	.88	-.69	.488
	Out-of-state	52		3.72	.82		
Admin	In-state	1014	1065	3.75	.83	-.48	.628
	Out-of-state	53		3.80	.81		
Support	In-state	1060	1111	3.90	.79	.05	.960
	Out-of-state	53		3.89	.75		
Orgs	In-state	1001	1052	3.95	.82	-1.17	.242
	Out-of-state	53		4.09	.63		

Results of the Depth of Connectedness 10 item subscale *t*-test showed that as students rated their interaction with other students, senior administrators (Senior Admin), administrators (Admin), support services (Support), and student organizations (Orgs), there were no statistical differences related to residency status. Table 64 provides a summary of the results.

Table 64

Depth of Connectedness t-tests: Residency Status, 10 Item CCI Differences

Item	Residency	N	df	Mean	SD	<i>t</i>	<i>p</i>
Student	In-state	1073	1124	4.40	.94	-.95	.340
	Out-of-state	53		4.52	.80		
Faculty	In-state	1074	1125	4.44	.87	-.52	.603
	Out-of-state	53		4.51	.74		
Senior Admin	In-state	956	1005	3.58	1.14	-.85	.393
	Out-of-state	51		3.72	1.02		
Admin	In-state	985	1034	3.77	1.09	-.67	.499
	Out-of-state	51		3.88	1.02		
Support	In-state	1050	1100	3.96	1.04	.16	.871
	Out-of-state	52		3.94	.99		
Orgs	In-state	983	1034	4.13	1.05	-.90	.370
	Out-of-state	53		4.26	.81		

ANOVAs

One-way ANOVA analyses were conducted to examine differences among three or more groups: (a) year-in-college category (freshman, sophomore, junior, senior, graduate student); (b) ethnicity (non-Hispanic, white, Euro-American/Black, Afro-Caribbean, African-American/Latino or Hispanic American/East Asian, Asian-American/other). Tukey post hoc analyses were conducted to determine where statistical significance occurred among specific variables (Coladarci, Cobb, Minium, & Clark, 2009).

How did groups differ on the basis of year-in-college according to the 12-item Perception of Appreciation subscale? For students' views of other students (Students), Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .320$). Results of a one-way ANOVA showed statistical differences among year-in-college according to how students view their interaction with other students: $F(4,1126) = 5.65, p = .000$. Tukey post hoc analysis showed that statistically significant differences occurred between freshmen ($M = 3.95$) and sophomores ($M = 3.76$), $p = .044$; freshman ($M = 3.95$) and seniors ($M = 3.79$), $p = .047$; sophomores ($M = 3.76$) and graduate students ($M = 4.04$), $p = .002$; juniors ($M = 3.86$) and graduate students ($M = 4.04$), $p < .047$; and seniors ($M = 3.79$) and graduate students ($M = 4.04$), $p = .001$.

For students' views of faculty, Levene's test for equality was violated, therefore results cannot be assumed for equality of variance ($p = .026$). Group sizes were considered unequal and results of the harmonic mean of the group sizes were used. There were no statistical differences: $F(4, 1127) = 5.22, p = .268$.

For students' views of senior administrators (Senior Admin) Levene's test for equality was violated, therefore results cannot be assumed for equality of variance ($p = .000$). Group sizes were considered unequal and results of the harmonic mean of the group sizes were used. There were no statistical differences: $F(4, 1060) = 9.90, p = .067$.

For students' views of administrators (Admin) Levene's test for equality was violated, therefore results cannot be assumed for equality of variance ($p = .005$). Group sizes were considered unequal and results of the harmonic mean of the group sizes were used. There were no statistical differences: $F(4, 1071) = 7.44, p = .847$.

For students' views of support services Levene's test for equality was violated, therefore results cannot be assumed for equality of variance ($p = .019$). Group sizes were considered unequal and results of the harmonic mean of the group sizes were used. There were no statistical differences: $F(4, 1115) = 9.02, p = .584$.

For students' views of student organizations Levene's test for equality was violated, therefore results cannot be assumed for equality of variance ($p = .002$). Group sizes were considered unequal and results of the harmonic mean of the group sizes were used. There were no statistical differences: $F(4, 1061) = 5.00, p = .284$. Table 65 below provides a summary of the results.

Table 65

One-way ANOVA: Differences of Year-in-College by Groups according to Perception of Appreciation 12 item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	p
Groups			4	5.65	.000**	
Students						
freshman	216	3.95	.58			
sophomore	158	3.76	.59			
junior	285	3.86	.67			
senior	324	3.79	.69			
graduate	144	4.04	.60			

Table 65 Continued

One-way ANOVA: Differences of Year-in-College by Groups according to Perception of

Appreciation 12 item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	<i>p</i>
Groups			4	5.22	.000**	
Faculty						
freshman	216	4.17	.53			
sophomore	158	4.04	.55			
junior	285	4.10	.66			
senior	323	4.07	.66			
graduate	146	4.32	.59			
Groups			4	9.90	.000**	
Senior Administrators						
freshman	206	3.90	.69			
sophomore	142	3.62	.76			
junior	266	3.58	.87			
senior	314	3.45	.86			
graduate	133	3.67	.76			

Table 65 Continued

One-way ANOVA: Differences of Year-in-College by Groups according to Perception of

Appreciation 12 item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	<i>p</i>
Groups				4	7.44	.000**
Administrators						
freshman	207	3.95	.65			
sophomore	143	3.69	.72			
junior	270	3.66	.82			
senior	319	3.61	.83			
graduate	137	3.85	.72			
Groups				4	9.02	.000**
Support Services						
freshman	213	4.10	.59			
sophomore	155	3.81	.73			
junior	282	3.80	.80			
senior	323	3.71	.78			
graduate	143	3.82	.71			

Table 65 Continued

One-way ANOVA: Differences of Year-in-College by Groups according to Perception of

Appreciation 12 item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	<i>p</i>
Groups			4	5.00	.001*	
Student Organizations						
freshman	207	4.05	.57			
sophomore	145	3.87	.61			
junior	267	3.92	.80			
senior	312	3.79	.81			
graduate	131	3.77	.72			

*Statistically significant $p < .01$

**Statistically significant $p < .001$

How did groups differ on the basis of year-in-college according to the 10-item Perception of Appreciation subscale? For students' views of other students, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .189$). Results of a one-way ANOVA showed statistical differences among year-in-college according to how students view their interaction with other students: $F(4,1126) = 4.73, p = .001$. Tukey post hoc analysis showed that statistically significant differences occurred between sophomores ($M = 3.93$) and graduate students ($M = 4.29$), $p = .000$; juniors ($M = 4.06$) and graduate students ($M = 4.29$), $p = .003$; and between seniors ($M = 3.97$) and graduate students ($M = 4.29$), $p = .001$.

For students' views of faculty, Levene's test for equality was violated, therefore results cannot be assumed for equality of variance ($p = .015$). Group sizes were considered unequal and

results of the harmonic mean of the group sizes were used. There were no statistical differences: $F(4, 1127) = 5.60, p = .269$.

For students' views of senior administrators Levene's test for equality was violated, therefore results cannot be assumed for equality of variance ($p = .000$). Group sizes were considered unequal and results of the harmonic mean of the group sizes were used. There were no statistical differences: $F(4, 1054) = 12.50, p = .051$.

For students' views of administrators (Admin) Levene's test for equality was violated, therefore results cannot be assumed for equality of variance ($p = .000$). Group sizes were considered unequal and results of the harmonic mean of the group sizes were used. There were no statistical differences: $F(4, 1068) = 7.91, p = .781$.

For students' views of support services Levene's test for equality was violated, therefore results cannot be assumed for equality of variance ($p = .001$). Group sizes were considered unequal and results of the harmonic mean of the group sizes were used. There were no statistical differences: $F(4, 1112) = 9.05, p = .529$.

For students' views of student organizations Levene's test for equality was violated, therefore results cannot be assumed for equality of variance ($p = .000$). Group sizes were considered unequal and results of the harmonic mean of the group sizes were used. There were no statistical differences: $F(4, 1059) = 5.33, p = .184$. Table 66 below provides a summary of the results.

Table 66

One-way ANOVA: Differences of Year-in-College by Groups according to Perception of

Appreciation 10 item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	<i>p</i>
Groups				4	4.73	.001*
Students						
freshman	216	4.14	.77			
sophomore	158	3.93	.84			
junior	285	4.06	.93			
senior	324	3.97	.94			
graduate	144	4.29	.79			
Groups				4	5.60	.000*
Faculty						
freshman	216	4.41	.71			
sophomore	158	4.24	.78			
junior	285	4.34	.92			
senior	323	4.31	.92			
graduate	146	4.65	.81			

Table 66 Continued

One-way ANOVA: Differences of Year-in-College by Groups according to Perception of

Appreciation 10 item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	<i>p</i>
Groups				4	12.50	.000**
Senior Administrators						
freshman	206	4.00	.88			
sophomore	140	3.63	.97			
junior	264	3.56	1.18			
senior	312	3.33	1.17			
graduate	133	3.68	.99			
Groups				4	7.91	.000**
Administrators						
freshman	207	4.06	.84			
sophomore	142	3.72	.97			
junior	267	3.69	1.12			
senior	317	3.60	1.14			
graduate	136	3.97	.98			

Table 66 Continued

One-way ANOVA: Differences of Year-in-College by Groups according to Perception of Appreciation 10 item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	<i>p</i>
Groups				4	9.05	.000**
Support Services						
freshman	213	4.28	.78			
sophomore	154	3.90	1.00			
junior	281	3.87	1.11			
senior	323	3.75	1.10			
graduate	142	3.91	.96			
Groups				4	5.33	.000**
Student Organizations						
freshman	207	4.26	.74			
sophomore	144	4.05	.80			
junior	266	4.10	1.05			
senior	312	3.90	1.11			
graduate	131	3.88	.90			

*Statistically significant $p < .01$

**Statistically significant $p < .001$

How did groups differ in ethnicity according to the 12-item Perception of Appreciation subscale? For students' views of other students, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .629$). Results of a one-way

ANOVA showed no statistical differences among ethnic groups according to how students view their interaction with other students: $F(4, 1126) = .65, p = .630$.

For students' views of faculty, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .940$). Results of a one-way ANOVA showed no statistical differences among ethnic groups according to how students view their interaction with faculty: $F(4, 1127) = 2.12, p = .076$.

For students' views of senior administrators, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .130$). Results of one-way ANOVA showed no statistically significant differences among groups: $F(4, 1060) = 2.60, p = .122$.

For students' views of administrators, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .319$). Results of a one-way ANOVA showed no statistical differences among ethnic groups according to how students view their interaction with administrators: $F(4, 1075) = 1.61, p = .169$.

For students' views of support services, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .281$). Results of a one-way ANOVA showed no statistical differences among ethnic groups according to how students view their interaction with support services: $F(4, 1115) = 1.54, p = .187$.

For students' views of student organizations, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .493$). Results of a one-way ANOVA showed no statistical differences among ethnic groups according to how students view their interaction with student organizations: $F(4, 1061) = 1.82, p = .123$. Table 67 provides a summary of the results.

Table 67

One-way ANOVA: Differences of Ethnicity by Groups according to Perception of Appreciation

12 item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	<i>p</i>
Groups				4	.65	.630
Students						
White	653	3.85	.61			
Black	76	3.88	.71			
Hispanic	273	3.88	.68			
Asian	33	4.02	.60			
Other	92	3.84	.75			
Groups				4	2.12	.076
Faculty						
White	655	4.16	.57			
Black	76	4.13	.66			
Hispanic	272	4.04	.68			
Asian	33	4.17	.58			
Other	92	4.06	.68			

Table 67 Continued

One-way ANOVA: Differences of Ethnicity by Groups according to Perception of Appreciation

12 item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	p
Groups				4	2.60	.035*
Senior Administrators						
White	612	3.55	.78			
Black	72	3.74	1.01			
Hispanic	259	3.69	.87			
Asian	31	3.86	.62			
Other	87	3.67	.78			
Groups				4	1.61	.169
Administrators						
White	621	3.68	.74			
Black	73	3.86	.94			
Hispanic	263	3.76	.83			
Asian	32	3.90	.60			
Other	87	3.76	.79			

Table 67 Continued

One-way ANOVA: Differences of Ethnicity by Groups according to Perception of Appreciation

12 item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	p
Groups				4	1.54	.187
Support Services						
White	649	3.80	.70			
Black	74	3.96	.85			
Hispanic	271	3.88	.81			
Asian	33	3.98	.60			
Other	89	3.84	.83			
Groups				4	1.82	.123
Student Organizations						
White	610	3.84	.72			
Black	71	3.98	.79			
Hispanic	264	3.89	.74			
Asian	31	4.13	.52			
Other	86	3.95	.83			

*Statistically significant $p < .05$

How did groups differ in ethnicity according to the 10-item Perception of Appreciation subscale? For students' views of other students, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .870$). Results of a one-way

ANOVA showed no statistical differences among ethnic groups according to how students view their interaction with other students $F(4, 1126) = 1.51, p = .963$.

For students' views of faculty, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .939$). Results of a one-way ANOVA showed statistical differences among student ethnic groups according to how they view their interaction with faculty: $F(4, 1127) = 3.81, p = .004$. Tukey post hoc analysis for students views of their interaction with faculty on the basis of ethnicity showed that statistically significant differences occurred between black students ($M = 4.30$), and Asian students ($M = 4.31$), $p = .009$; between Black students ($M = 4.30$), and other students ($M = 4.29$), $p = .014$; and between Asian students (4.31) other students ($M = 4.29$), $p = .023$.

For students' views of senior administrators, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .227$). Results of a one-way ANOVA showed statistically significant differences among student ethnic groups according to how they view their interaction with senior administrators: $F(4, 1054) = 2.64, p = .032$; (White, $M = 3.51$; Black, $M = 3.78$; Hispanic, $M = 3.71$; Asian, $M = 3.88$; Other, $M = 3.66$). However, Tukey post hoc analysis for how student ethnic groups view their interaction with senior administrators showed no statistically significant differences. The Tukey post hoc test only examines paired groups, and a statistically significant ANOVA mean does not guarantee that Tukey paired comparisons will find a significant difference. Therefore, it is possible to have statistical significance in a group, yet not have statistical significance pairwise.

For students' views of administrators, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .455$). Results of a one-way

ANOVA showed no statistical differences among student ethnic groups according to how they view their interaction with administrators: $F(4, 1068) = 1.21, p = .305$.

For students' views of support services Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .787$). Results of a one-way ANOVA showed no statistical differences among student ethnic groups according to how they view their interaction with support services: $F(4, 1112) = 1.04, p = .388$.

For students' views of student organizations, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .647$). Results of a one-way ANOVA showed no statistical differences among student ethnic groups according to how they view their interaction with administrators: $F(4, 1059) = 1.15, p = .332$. Table 68 provides a sample of the results.

Table 68

One-way ANOVA: Differences of Ethnicity by Groups according to Perception of Appreciation 10 item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	p
Groups				4	.151	.963
Students						
White	653	4.07	.88			
Black	76	4.06	.95			
Hispanic	273	4.05	.86			
Asian	33	4.15	.73			
Other	92	4.02	.96			

Table 68 Continued

One-way ANOVA: Differences of Ethnicity by Groups according to Perception of Appreciation

10 item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	p
Groups				4	3.81	.004*
Faculty						
White	655	4.45	.83			
Black	76	4.30	.89			
Hispanic	272	4.23	.89			
Asian	33	4.31	.75			
Other	92	4.29	.87			
Groups				4	2.64	.032**
Senior Administrators						
White	611	3.51	1.10			
Black	71	3.78	1.16			
Hispanic	256	3.71	1.10			
Asian	31	3.88	.81			
Other	86	3.66	1.03			

Table 68 Continued

One-way ANOVA: Differences of Ethnicity by Groups according to Perception of Appreciation

10 item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	<i>p</i>
Groups				4	1.21	.305
Administrators						
White	619	3.72	1.06			
Black	71	3.96	1.12			
Hispanic	261	3.80	1.07			
Asian	32	3.95	.80			
Other	86	3.81	1.03			
Groups				4	1.04	.388
Support Services						
White	648	3.88	1.02			
Black	72	4.09	1.00			
Hispanic	271	3.97	1.06			
Asian	33	4.05	.83			
Other	89	3.93	1.10			

Table 68 Continued

One-way ANOVA: Differences of Ethnicity by Groups according to Perception of Appreciation

10 item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	p
Groups				4	1.15	.332
Student Organizations						
White	610	4.00	.99			
Black	70	4.16	.91			
Hispanic	263	4.03	.96			
Asian	31	4.28	.73			
Other	86	4.14	1.06			

*Statistically significant $p < .05$

**Statistically significant $p < .01$

How did groups differ in year-in-college according to the 12-item Depth of Connectedness subscale? For students' views of other students, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .129$). Results of a one-way ANOVA showed no statistical differences among year-in-college according to how students view their interaction with other students: $F(4,1125) = 2.32, p = .055$.

For students' views of faculty, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .158$). Results of a one-way ANOVA showed statistical differences among year-in-college according to how students view their interaction with faculty: $F(4,1128) = 3.07, p = .016$. Tukey post hoc analysis showed that statistically significant differences occurred between sophomores ($M = 4.16$) and graduate

students ($M = 4.39$), $p = .019$; juniors ($M = 4.21$) and graduate students (4.39), $p = .044$; and seniors ($M = 4.19$) and graduate students (4.39), $p = .015$.

For students' views of senior administrators, Levene's test for equality was violated, therefore results cannot be assumed for equality of variance ($p = .008$). Group sizes were considered unequal and results of the harmonic mean of the group sizes were used. There was no statistical differences among year-in-college according to how students view their interaction with senior administrators: $F(4, 1051) = 10.72$, $p = .245$.

For students' views of administrators, Levene's test for equality was violated, therefore results cannot be assumed for equality of variance ($p = .046$). Group sizes were considered unequal and results of the harmonic mean of the group sizes were used. There was no statistical differences among year-in-college according to how students view their interaction with administrators: $F(4, 1066) = 5.51$, $p = .146$.

For students' views of support services, Levene's test for equality was violated, therefore results cannot be assumed for equality of variance ($p = .054$). Group sizes were considered unequal and results of the harmonic mean of the group sizes were used. There was no statistical differences among year-in-college according to how students view their interaction with support services: $F(4, 1112) = 5.80$, $p = .467$.

For students' views of student organizations Levene's test for equality was violated, therefore results cannot be assumed for equality of variance ($p = .003$). Therefore, group sizes are considered unequal and the harmonic mean of the group sizes was used. There were no statistical differences among year-in-college according to how students view their interaction with student organizations: $F(4, 1053) = 5.18$, $p = .091$. Table 69 provides a summary of the results.

Table 67

One-way ANOVA: Differences of Year-in-College by Groups according to Depth of

Connectedness 12 item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	<i>p</i>
Groups				4	2.32	.055
Students						
freshman	215	4.25	.63			
sophomore	158	4.08	.68			
junior	285	4.17	.79			
senior	324	4.15	.74			
graduate	144	4.29	.64			
Groups				4	3.07	.016*
Faculty						
freshman	216	4.22	.57			
sophomore	158	4.16	.60			
junior	285	4.21	.72			
senior	324	4.19	.67			
graduate	146	4.40	.62			

Table 69 Continued

One-way ANOVA: Differences of Year-in-College by Groups according to Depth of Connectedness 12 item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	p
Groups				4	10.72	.000**
Senior Administrators						
freshman	206	3.93	.73			
sophomore	141	3.74	.80			
junior	263	3.63	.94			
senior	311	3.45	.87			
graduate	131	3.53	.93			
Groups				4	5.51	.000**
Administrators						
freshman	206	3.96	.71			
sophomore	141	3.76	.77			
junior	267	3.70	.88			
senior	316	3.63	.85			
graduate	137	3.82	.83			

Table 69 Continued

One-way ANOVA: Differences of Year-in-College by Groups according to Depth of Connectedness 12 item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	p
Groups				4	5.80	.000**
Support Services						
freshman	213	4.11	.63			
sophomore	155	3.92	.73			
junior	280	3.86	.85			
senior	323	3.79	.83			
graduate	142	3.85	.80			
Groups				4	5.18	.000**
Student Organizations						
freshman	207	4.14	.62			
sophomore	144	4.03	.68			
junior	266	3.98	.87			
senior	308	3.85	.89			
graduate	129	3.82	.85			

*Statistically significant $p < .05$

**Statistically significant $p < .001$

How did groups differ in year-in-college according to the 10-item Depth of Connectedness subscale? For students' views of other students, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .114$). Results of a

one-way ANOVA showed no statistical differences among year-in-college according to how students view their interaction with other students: $F(4,1125) = 2.31, p = .056$.

For students' views of faculty, Levene's test for equality was violated, therefore results cannot be assumed for equality of variance ($p = .083$). Group sizes were considered unequal and results of the harmonic mean of the group sizes were used. There were no statistical differences among year-in-college according to how students view their interaction with faculty: $F(4, 1126) = 4.10, p = .679$.

For students' views of senior administrators (Senior Admin), Levene's test for equality was violated, therefore results cannot be assumed for equality of variance ($p = .000$). Group sizes were considered unequal and results of the harmonic mean of the group sizes were used. There was no statistical differences among year-in-college according to how students view their interaction with senior administrators: $F(4, 1006) = 12.29, p = .215$.

For students' views of administrators (Admin), Levene's test for equality was violated, therefore results cannot be assumed for equality of variance ($p = .022$). Group sizes were considered unequal and results of the harmonic mean of the group sizes were used. There was no statistical differences among year-in-college according to how students view their interaction with administrators: $F(4, 1035) = 6.20, p = .068$.

For students' views of support services, Levene's test for equality was violated, therefore results cannot be assumed for equality of variance ($p = .016$). Group sizes were considered unequal and results of the harmonic mean of the group sizes were used. There was no statistical differences among year-in-college according to how students view their interaction with administrators: $F(4, 1101) = 6.45, p = .605$.

For students' views of student organizations (Orgs), Levene's test for equality was violated, therefore results can be assumed for equality of variance ($p = .002$). Therefore group sizes were considered unequal and results of the harmonic mean of the group sizes was used. There was no statistical differences among year-in-college according to how students view their interaction with administrators: $F(4, 1035) = 4.47, p = .236$. Table 70 provides a summary of the results.

Table 8

One-way ANOVA: Differences of Year-in-College by Groups according to Depth of Connectedness 10-item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	<i>p</i>
Groups				4	2.31	.056
Students						
freshman	215	4.46	.83			
sophomore	158	4.26	.89			
junior	285	4.41	1.02			
senior	324	4.36	.96			
graduate	144	4.56	.83			

Table 70 Continued

One-way ANOVA: Differences of Year-in-College by Groups according to Depth of Connectedness 10-item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	p
Groups				4	4.10	.003*
Faculty						
freshman	215	4.44	.75			
sophomore	158	4.33	.80			
junior	285	4.44	.94			
senior	323	4.40	.90			
graduate	146	4.70	.81			
Groups				4	12.29	.000**
Senior Administrators						
freshman	198	4.01	.94			
sophomore	136	3.68	1.06			
junior	249	3.56	1.21			
senior	299	3.31	1.17			
graduate	125	3.52	1.09			

Table 70 Continued

One-way ANOVA: Differences of Year-in-College by Groups according to Depth of Connectedness 10-item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	p
Groups				4	5.51	.000**
Administrators						
freshman	199	4.07	.93			
sophomore	135	3.75	1.02			
junior	258	3.71	1.15			
senior	310	3.61	1.12			
graduate	134	3.91	1.10			
Groups				4	6.45	.000**
Support Services						
freshman	211	4.26	.82			
sophomore	154	3.97	.99			
junior	275	3.90	1.10			
senior	321	3.82	1.10			
graduate	141	3.93	1.01			

Table 70 Continued

One-way ANOVA: Differences of Year-in-College by Groups according to Depth of

Connectedness 10-item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	<i>p</i>
Groups				4	4.47	.001*
Student Organizations						
freshman	207	4.34	.79			
sophomore	142	4.20	.89			
junior	258	4.17	1.14			
senior	305	3.98	1.15			
graduate	124	4.01	1.01			

*Statistically significant $p < .01$

**Statistically significant $p < .001$

How did groups differ in ethnicity according to the 12-item Depth of Connectedness subscale? For students' views of other students, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .828$). Results of a one-way ANOVA showed no statistical differences among ethnic groups according to how students view their interaction with other students: $F(4, 1125) = .221, p = .927$.

For students' views of faculty, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .748$). Results of a one-way ANOVA showed statistical differences among ethnic groups according to how students view their interaction with faculty: $F(4, 1128) = 3.01, p = .017$. Tukey post hoc analysis showed that

statistically significant differences occurred between White ($M = 4.28$) and Hispanic ($M = 4.12$) student ethnic groups ($p = .008$).

For students' views of senior administrators, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .493$). Results of a one-way ANOVA showed statistical differences among ethnic groups according to how students view their interaction with senior administrators: $F(4, 1051) = 3.79, p = .005$. Tukey post hoc analysis showed that statistically significant differences occurred between White ($M = 3.55$) and Hispanic ($M = 3.76$) student ethnic groups ($p = .009$).

For students' views of administrators, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .642$). Results of a one-way ANOVA showed no statistical differences among ethnic groups according to how students view their interaction with administrators: $F(4, 1066) = 2.19, p = .068$.

For students' views of support services, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .538$). Results of a one-way ANOVA showed no statistical differences among ethnic groups according to how students view their interaction with support services: $F(4, 1112) = 1.95, p = .100$.

For students' views of student organizations, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .703$). Results of a one-way ANOVA showed no statistical differences among ethnic groups according to how students view their interaction with student organizations: $F(4, 1053) = 1.88, p = .111$.

Table 71 below provides a summary of the results.

Table 71

One-way ANOVA: Differences of Ethnicity by Groups according to Depth of Connectedness 12 item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	p
Groups				4	.22	.927
Students						
White	653	4.17	.69			
Black	76	4.22	.74			
Hispanic	272	4.19	.75			
Asian	33	4.25	.62			
Other	92	4.15	.79			
Groups				4	3.01	.017*
Faculty						
White	655	4.28	.60			
Black	76	4.17	.69			
Hispanic	273	4.12	.73			
Asian	33	4.20	.59			
Other	92	4.19	.70			

Table 71 Continued

One-way ANOVA: Differences of Ethnicity by Groups according to Depth of Connectedness 12 item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	p
Groups				4	3.79	.005**
Senior Administrators						
White	605	3.55	.87			
Black	73	3.78	.93			
Hispanic	260	3.76	.87			
Asian	31	3.84	.69			
Other	83	3.65	.89			
Groups				4	2.19	.068
Administrators						
White	614	3.69	.81			
Black	73	3.88	.86			
Hispanic	263	3.83	.85			
Asian	32	3.91	.63			
Other	85	3.79	.86			

Table 71 Continued

One-way ANOVA: Differences of Ethnicity by Groups according to Depth of Connectedness 12 item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	p
Groups				4	1.95	.100
Support Services						
White	647	3.85	.75			
Black	73	4.07	.80			
Hispanic	271	3.92	.86			
Asian	32	4.06	.66			
Other	90	4.94	.83			
Groups				4	1.88	.111
Student Organizations						
White	601	3.91	.80			
Black	70	4.07	.76			
Hispanic	265	3.99	.83			
Asian	30	4.24	.69			
Other	88	3.99	.92			

*Statistically significant $p < .05$

**Statistically significant $p < .01$

How did groups differ in ethnicity according to the 10-item Depth of Connectedness subscale? For students' views of other students, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .663$). Results of a one-way

ANOVA showed no statistical differences among ethnic groups according to how students view their interaction with other students: $F(4, 1125) = .232, p = .920$.

For students' views of faculty, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .953$). Results of a one-way ANOVA showed statistical differences among ethnic groups according to how students view their interaction with faculty: $F(4, 1126) = 4.56, p = .001$. Tukey post hoc analysis showed that statistically significant differences occurred between White ($M = 4.54$) and Hispanic ($M = 4.28$) student ethnic groups ($p = .001$).

For students' views of senior administrators, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .126$). Results of a one-way ANOVA showed statistical differences among ethnic groups according to how students view their interaction with senior administrators: $F(4, 1006) = 3.48, p = .008$. Tukey post hoc analysis showed that statistically significant differences occurred between White ($M = 3.47$) and Hispanic ($M = 3.74$) student ethnic groups ($p = .017$).

For students' views of administrators, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .299$). Results of a one-way ANOVA showed no statistical differences among ethnic groups according to how students view their interaction with administrators: $F(4, 1066) = 2.19, p = .068$.

For students' views of support services, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .920$). Results of a one-way ANOVA showed no statistical differences among ethnic groups according to how students view their interaction with support services $F(4, 1101) = 1.21, p = .303$.

For students' views of student organizations, Levene's test for equality was not violated, therefore results can be assumed for equality of variance ($p = .456$). Results of a one-way ANOVA showed no statistical differences among ethnic groups according to how students view their interaction with student organizations: $F(4, 1035) = 1.09, p = .360$. Table 72 below provides a summary of the results.

Table 72

One-way ANOVA: Differences of Ethnicity by Groups according to Depth of Connectedness 10 item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	<i>p</i>
Groups				4	2.32	.920
Students						
White	653	4.42	.93			
Black	76	4.44	.96			
Hispanic	272	4.38	.92			
Asian	33	4.44	.77			
Other	92	4.34	1.00			
Groups				4	4.56	.001*
Faculty						
White	655	4.54	.83			
Black	76	4.35	.89			
Hispanic	271	4.28	.91			
Asian	33	4.39	.75			
Other	92	4.40	.89			

Table 72 Continued

One-way ANOVA: Differences of Ethnicity by Groups according to Depth of Connectedness 10

item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	p
Groups				4	3.48	.008*
Senior Administrators						
White	577	3.47	1.14			
Black	67	3.70	1.26			
Hispanic	253	3.74	1.09			
Asian	30	3.92	.86			
Other	80	3.65	1.15			
Groups				4	2.04	.086
Administrators						
White	596	3.70	1.11			
Black	69	3.96	1.13			
Hispanic	257	3.85	1.04			
Asian	31	3.99	.87			
Other	83	3.90	1.12			

Table 72 Continued

One-way ANOVA: Differences of Ethnicity by Groups according to Depth of Connectedness 10

item subscale; 1 = completely disagree to 6 = completely agree

Variables	n	Mean	SD	df	F	<i>p</i>
Groups				4	1.21	.303
Support Services						
White	642	3.91	.75			
Black	71	4.12	.80			
Hispanic	268	3.98	.94			
Asian	32	4.18	.83			
Other	89	4.02	1.08			
Groups				4	1.09	.360
Student Organizations						
White	591	4.10	1.05			
Black	70	4.23	.98			
Hispanic	257	4.13	1.01			
Asian	30	4.47	.85			
Other	88	4.17	1.15			

*Statistically significant $p < .01$

Summary

This chapter provides an in depth report of the data collection and analyses methods used by the researcher, as well as an exhaustive explanation of the results. First, descriptive statistics provided thorough analyses of the demographic and background details of the participants. Second, Cronbach's alpha determined internal consistency of the CCI items and revealed which items, if deleted, would strengthen the Cronbach's alpha level of the instrument. Third, Bartlett Test of Sphericity showed that variance were equal and could be used for further analyses. Fourth, exploratory factor analyses identified factors predictive of student sense of community in college. Fifth, multiple regression analyses indicated no multicollinearity was present that might skew the data. Sixth, chi-square tests revealed statistically significant results in several areas according to how student groups differed in the way they viewed the concepts. Seventh, *t*-tests showed there were some differences among the demographics that had two categories: (a) age (18-24/25+); (b) gender (male/female); (c) transfer student (yes/no); (d) enrollment status (full-time/part-time); and (e) residency status (in-state/out-of-state). Eighth, ANOVAs demonstrated some differences existed among demographic categories with more than two categories, in the ways students understood the concepts: (a) year-in-college (freshman, sophomore, junior, senior, graduate student); and (b) ethnicity (non-Hispanic, white, Euro-American/Black, Afro-Caribbean, African-American/Latino or Hispanic American/East Asian, Asian-American/other). Where ANOVAs results showed statistical significance, Tukey post showed where statistical significance occurred among specific categories.

CHAPTER V: OVERVIEW, SUMMARY, AND PURPOSE

This chapter provides an overview of the study, including a discussion of the data analyses used in the development of Campus Community Index (CCI) survey, implications of the findings in light of existing literature, and suggestions for future research based on the application of the CCI.

Summary of the Problem

Studies indicate that the attainment of a college degree has a significant impact on the economic success of individuals (Carnevale, Rose, & Cheah, 2011). Yet Symonds, Ferguson, and Schwartz (2011) reported only 56% of college/university students complete a four-year degree within six years, putting the U.S in 14th place among the 34 member countries tracked by the Organization for Economic Co-Operation and Development (OECD, 2013). As a result, higher education administrators and stakeholders at the local, state, and federal levels of government dedicate much attention to mitigating attrition through programs, aimed at addressing student engagement from recruitment through graduation. Thus, much attention is given to analytics surrounding student engagement, retention, and graduation. Existing survey instruments, designed to determine which factors account for student retention, focus primarily on students' extrinsic responses to their campus environments. Put another way, they measure the ways in which students respond extrinsically to the campus environment, for example how often they participate in activities related to campus.

Studies in the field of social psychology have shown that individuals tend to thrive when their intrinsic needs to connect with and matter to the communities in which they participate are satisfied (Elliott, Kao, & Grant, 2004; Lee & Robbins, 2000). The foundation is that if students feel they are integral to their campus community, they will engage more and thus persist in their

academic career path. In general, research and literature have not fully addressed how students view their sense of community on their college and university campuses. Hence, the need to develop an instrument to measure that sense using an all-inclusive approach has emerged.

Purpose of the Study

The purpose of the study was to develop a theory based survey instrument to measure students' sense of community on their college and university campuses. The instrument is referred to as the Campus Community Index (CCI). The instrument development process followed previously established procedures for developing scales of measure, including item development, scale identification, and validation (Liden, Wayne, Zhao, & Henderson, 2008). The researcher drew from two theoretical frameworks, which have emerged in the field of social psychology. These included Theory of Mattering (Elliot, Kao & Grant, 2004) and Social Connectedness Theory (Lee & Robins, 2000). Two subscales for the CCI were derived from these frameworks: (a) Perception of Appreciation; and (b) Depth of Connectedness. Using language related to each of the theoretical frameworks, the researcher developed 24 statements, which contributed to the development of the Campus Community Index (CCI); 12 statements to measure students' Perception of Appreciation and 12 statements to measure students' Depth of Connectedness. The CCI also included demographic and background questions. The design of the CCI is such that it can stand alone or be used with other instruments for additional quantitative analyses.

Conclusions

The study was quantitative, as the Campus Community Index (CCI) survey instrument was examined for its validity and reliability when used to measure students' sense of community on college and university campuses. The CCI is comprised of two subscales: (a) Perception of

Appreciation; and (b) Depth of Connectedness. The two subscales measure individual perspectives of interaction within the elements, which make up the campus environment. The study consisted of the development of the CCI. In addition, the study also examined the CCI's performance among university students. For the purpose of determining whether students differed in their responses based on particular aspects of their background, the CCI also includes preliminary questions on student background and demographic information.

Variables included students with seven groupings, which included the following demographic and student background data: (a) age (18-24/25+); (b) gender (male/female); (c) year-in-college (freshman/sophomore/junior/senior/graduate student); (d) ethnicity (White, Black, Hispanic, Asian, other); (e) transfer student (yes/no), (f) enrollment status (part-time/full-time); and (g) residency status (in state/out of state). The CCI examined students' perspectives of interaction with the campus community: (a) other students; (b) faculty; (c) senior administrators; (d) administrators; (e) support services; and (f) student organizations. The study included all students from four public universities in the United States, which included a Colorado metro area university, a west central Virginia university; a Texas gulf coast university, and a south Texas university. The four universities agreed to participate and in so doing, agreed to distribute the survey via email in accordance with their individual institutional protocols. The participants were sent a recruitment email (see Appendix D for student request for participation e-mail), which included a link to the Campus Community Index (CCI) (see Appendix E for CCI information details) survey (N=1132). The survey initiated with a consent form (see Appendix C). Survey items included eight questions on student background, and 12 items for the Perception of Appreciation subscale and 12 items for the Depth of Connectedness subscale. Data collected from the surveys were used for eight types of analyses: (a) descriptive statistics;

(b) Cronbach's alpha; (c) Bartlett Test of Sphericity; (d) exploratory factor analysis; (e) regression; (f) chi-square goodness of fit; (g) *t*-tests; (h) ANOVAs.

The Campus Community Index (CCI) performed well at every phase of the statistical analyses. The results of this study are limited to the sample studied. Since the purpose of the study was first to develop an instrument to measure students' sense of community on college and university campuses, then to assess its validity and reliability, the study set out to answer the following research questions.

Research Question One

What statements represent the Perception of Appreciation subscale among college and university students? Perception of Appreciation subscale items were based on Mattering Theory. Mattering Theory is defined by Elliott, Kao, and Grant (2004), as "the perception, that to some degree and in a variety of ways, we are a significant part of the world around us" (p. 339). When applied to college and university students, Mattering Theory asserts that students, to some degree and in different ways, have a need to sense that they are a part of their campus community. This sense would be determined by their perception of the types of relationships they have with the elements, which make up the campus environment. These elements include other students, faculty, senior administrators, administrators, support services, and student organizations. Second, Elliott, Kao, and Grant (2004) explained that mattering is linked to people's sense of self, in that it determines who we are, and whether or not we belong in the environments we find ourselves in. Based on this explanation, as students interact with the campus community, they assume their identities, and thus determine whether or not they belong. Research indicated that the ability to measure students' perception of the level of interaction they have with the campus community is a critical factor in predicting retention rates. In consideration of the implications

suggested by Mattering Theory, the researcher developed the items for the Perception of Appreciation subscale.

Overall results of the Perception of Appreciation subscale data analyses indicated all items performed well at every phase. On a Likert scale where 1 = Completely disagree and 6 = Completely agree, mean scores for the Perception of Appreciation subscale ranged from 3.62 to 4.12, where 3 = Disagree and 4 = Agree. The following is a list of the order in which students rated their interaction with the elements, which compose the campus community from the highest to the lowest mean score: faculty; student organizations; other students; support services; administrators; senior administrators.

Perception of Appreciation items had Cronbach's alpha ranging from .818 to .852. Although all statements had high levels, results indicated that if the following statements were removed, Cronbach's alpha could be raised by approximately .05: Item 17 It seems like my presence is disregarded when I am with; and Item 25 I feel like only acknowledge me because they are required to. Further analyses would determine whether or not to retain these items or remove them from the survey.

Given the purpose of the study was to develop the Campus Community Index (CCI), the researcher ran Bartlett's test of sphericity to determine if further analyses was appropriate for the scale. Results of the test indicated that variances were equal, and thus the researcher proceeded to analyze the data further performing factor analyses, multiple regression, chi-square goodness of fit tests, *t*-tests, and ANOVAs.

Factor analysis for Perception of Appreciation items indicated that items 17 and 25 had some of the lowest factor loadings, and thus the items can be considered for removal from the final instrument. A possible explanation for the lower factor loadings could be that unlike the

other ten statements in the Perception of Appreciation subscale, both items 17 and 25 were negative concepts, and therefore it is possible that these may have confused the respondents, resulting in a lower internal consistency level. For the purpose of comparison, the researcher deleted items 17 and 25 and repeated the Cronbach's alpha analyses. Results for the 10 item Perception of Appreciation subscale increased the Cronbach's alpha from a range of .818 to .852, to a range of .951 to .965.

When students rated their interaction with other students, and faculty, item 23 had the highest factor loadings. Item 23 reads as follows: take an interest in me. For students' interaction with other students, item 23 explained 64.67 percent of the variance. The overall mean score for students' interaction with other students was 3.87 with a standard deviation score of .65. For students' interaction with faculty, item 23 explained 65.64 percent of the variance. The overall mean score for students' interaction with faculty was 4.12, with a standard deviation of .62, which was the highest for the subscale.

When students rated their interaction with senior administrators and administrators, item 21 had the highest factor loadings. Item 21 reads as follows: I consider as someone who supports me. For students' interaction with senior administrators, item 21 explained 71.22 percent of the variance. The overall mean score for student interaction with senior administrators was 3.62 with a standard deviation of .82, which was the lowest for the Perception of Appreciation subscale. For students' interaction with administrators, item 21 explained 66.51 percent of the variance. The overall mean score for student interaction with administrators was 3.73 with a standard deviation of .78.

When students rated their interaction with support services, item 10 had the highest factor loadings, explaining 69.76 percent of the variance. Item 10 reads as follows: I sense are

concerned with my well-being. The overall mean score for student interaction with support services for the Perception of Appreciation subscale was 3.84 with a standard deviation of .75.

When students rated their interaction with student organizations, item 19 had the highest factor loadings, explaining 66.96 percent of the variance. Item 19 reads as follows: listen attentively when I speak with them. The overall mean score for student interaction with student organizations for the Perception of Appreciation subscale was 3.88 with a standard deviation of .74.

Overall, factor analyses indicated the items for the Perception of Appreciation subscale were appropriately classified. The variability of items and high factor loadings showed the subscale is well structured to include the items to measure Perception of Appreciation. However, further analyses examined the data for variance and skewness. Multiple regression analyses showed no outliers that might skew the results and no multicollinearity, which demonstrate appropriate variance for additional analyses. Results indicated items in the Perception of Appreciation subscale can be considered for inclusion in the final instrument.

Chi-square analyses of Perception of Appreciation were conducted to examine how items were associated for each group: (a) other students; (b) faculty; (c) senior administrators; (d) administrators; (e) student support; and (f) student organizations. Overall, items cluster according to students' perception of their interaction with these groups. The results showed that a campus community is a complex construct as statistical significance varied among items and groups. Perception of Appreciation chi-square results indicated students at year-in-college (freshman, sophomore, junior, senior, and graduate) place different values on both appreciation and interaction with groups representing the campus community. The only consistent differences were with how students perceive how other students are interested in their well-being

and that they matter. Results demonstrate that the CCI appropriately identifies the six groups as the campus community: (a) other students; (b) faculty; (c) senior administrators; (d) administrators; (e) support services; and (f) student organizations. Chi-square results for Perception of Appreciation showed items 10) I sense are concerned about my well-being; and 11) I feel like I matter to, were statistically significant among all groups. They were the only two items that differed across all groups. Since items 17) It seems like my presence is disregarded when I am with; and 25) I feel like only acknowledge me because they are required to, were not included across all groups in Perception of Appreciation, this suggests they can be deleted from the final instrument.

Overall data analyses results indicate the Perception of Appreciation subscale includes both appropriate items and relevant groups to measure campus community.

Research Question Two

What statements represent the Depth of Connectedness subscale among college and university students? Depth of Connectedness subscale statements were based on Social Connectedness Theory (Lee & Robins, 2000). Lee and Robins (2000) defined social connectedness as “an aspect of the self that reflects subjective awareness of interpersonal closeness with the social world in toto” (p. 484). Based on this theory, for college and university students, their combined college experience is made up of the relationships they have with the elements that make up the campus community. According to Lee and Robins (2000) how college and university students view themselves as members of the campus community depends on the level to which they experience interpersonal closeness with these elements. Put another way, the level of closeness students experience is determined by their assessment of the Depth of Connectedness they feel toward other students, faculty, senior administrators, administrators,

support services, and student organizations. Whitlock, Wyman, and Barreira (2012) stated connectedness is: (a) a perception of one's level of identification with others and his or her environment; (b) dynamic and reciprocal; (c) setting-specific; and (d) intrapersonal experiences and interpersonal experiences. Using language from the social connectedness theory, the researcher developed items for the Depth of Connectedness subscale.

Overall results of the Depth of Connectedness subscale data analyses indicated all items performed well at every phase. On a Likert scale where 1 = Completely disagree and 6 = Completely agree, mean scores for the Depth of Connectedness subscale ranged from 3.63 to 4.22, (3 = Disagree and 4 = Agree). For the Depth of Connectedness subscale, the following is a list of the order in which students rated their interaction with the elements which compose the campus community from the highest to the lowest mean score: faculty; other students; student organizations; support services; administrators; senior administrators.

Depth of Connectedness items had Cronbach's alpha ranging from .847 to .870. Although all statements had high levels, results indicated that if the following statements were removed, Cronbach's alpha could be raised by approximately .05: Item 12 I feel more like a number than a person when I am around; and Item 28 When I am around I feel like I am infringing on them. Further analyses would determine whether or not to retain these items or delete them.

Since factor analysis for Depth of Connectedness items indicated that items 12 and 28 had some of the lowest factor loadings, for the purpose of comparison, the researcher deleted the items repeated the Cronbach's alpha analyses. Results for the 10 item Depth of Connectedness subscale increased the Cronbach's alpha from a range of .847 to .870, to a range of .952 to .962. A possible explanation for the lower factor loadings could be that unlike the other ten statements

in the Depth of Connectedness subscale, both items 12 and 28 were negative concepts, and therefore it is possible that these may have confused the respondents, resulting in a lower internal consistency level.

Results of the factor analyses revealed that as students rated their interaction with other students, faculty, senior administrators, and administrators, statement 24 had the highest factor loadings among subscale items, with results ranging from 61.57 to 63.87 percent of the variance. Statement 24 reads as follows: My relationships with make me feel like I am part of the campus community. Although it did not have the highest factor loadings for the remaining two variables, statement 24 appeared among the top three items for the support services and student organizations variables.

When students rated their interaction with support services, item 29 had the highest factor loadings among subscale items, explaining 64.89 percent of the variance. Statement 29 reads as follows: When I am with ... I feel like I belong on campus. The overall mean score for student interaction with support services for the Depth of Connectedness subscale was 3.90 with a standard deviation of .79.

When students rated their interaction with student organizations, item 22 had the highest factor loadings among subscale items, explaining 64.32 percent of the variance. Statement 22 reads as follows: I am able to identify with The overall mean score for student interaction with student organizations was 3.96 with a standard deviation of .81.

Overall, factor analyses indicated the items for the Depth of Connectedness subscale were appropriately classified. The variability of items and high factor loadings showed the subscale is well structured to include the items to measure Depth of Connectedness. However, further analyses examined the data for variance and skewness. Multiple regression analyses

showed no outliers that might skew the results and no multicollinearity, which demonstrate appropriate variance for additional analyses. Results indicated items in the Depth of Connectedness subscale can be considered for inclusion in the final instrument.

Chi-square goodness of fit tests were conducted to examine how Depth of Connectedness subscale items were associated for each group: (a) other students; (b) faculty; (c) senior administrators; (d) administrators; (e) student support; and (f) student organizations. Results showed that the campus community is a complex construct as statistical significance varied among items and groups. Chi-square results demonstrated that the instrument appropriately identifies the six groups as the campus community: (a) other students; (b) faculty; (c) senior administrators; (d) administrators; (e) support services; and (f) student organizations.

Chi-square results for Depth of Connectedness showed items 15) I am grateful for the relationships I have with; and 29) When I am with I feel like I belong on campus, were statistically significant among all groups. They were the only two items that differed across all groups. The results showed how the items clustered. Clustering suggests that the items could be used independent of the entire instrument to help assess students' sense of campus community with each group. Since items 12) I feel more like a number than a person when I am around; and 28) When I am around I feel like I am infringing on them, were not included across all groups in Depth of Connectedness, it further suggests they can be deleted from the final instrument.

Overall data analyses results indicate the Depth of Connectedness subscale include both appropriate items and relevant groups to measure campus community.

Whereas research questions one and two related to the development of the Campus Community Index, research questions three and four examined its performance. Analyses were

based on a single assumption: students' year-in-college. Since the CCI is grounded in the theories that people need to be connected, the assumption was made that students' year-in-college is related to their perception of involvement in the campus as a community. It suggests that the more they perceive to matter and are connected among various campus groups, the more likely they are to remain in college. Research question three more specifically addresses that assumption.

Research Question Three

How does student background relate to the Perception of Appreciation subscale regarding components pertaining to campus community? Studies suggest that student demographic backgrounds, including age, gender and race/ethnicity have a strong impact on important college outcomes (Hurtado, Carter & Spuler, 1996; Lopez, 2013; Pascarella & Terenzini, 2005). The researcher included a section of background questions at the beginning of the Campus Community Index (CCI) to determine whether or not there were differences among groups in their responses to CCI items, according to students' demographic background.

For Perception of Appreciation, in both the 12 and 10 item versions of the subscale, there were statistically significant differences among groups according to age. Students in the 18 to 24 age category rated their interaction with other students, senior administrators, administrators, support services and student organizations higher than those in the 25+ age category, while there were no statistically significant differences in the way they rated their interaction with faculty.

For Perception of Appreciation, in both the 12 and 10 item versions of the subscale, there were statistically significant differences among groups according to gender in the way students rated their interaction with other students. Male students rated their interaction with other students higher than females did. There were no statistically significant differences among

groups according to gender in the way that students rated their interaction with faculty, senior administrators, administrators, support services, and student organizations.

For Perception of Appreciation subscale, in both the 12 and 10 item versions of the subscale, there were no statistically significant differences among groups according to transfer status.

For Perception of Appreciation, in both the 12 and 10 item versions of the subscale, there were statistically significant differences among groups according to enrollment status. Students enrolled full-time rated their interaction with other students, faculty, administrators and student organizations higher than those with part-time enrollment. There were no statistically significant differences among groups according to enrollment status in the way students rated their interaction with senior administrators.

For Perception of Appreciation, in both the 12 and 10 item versions of the subscale, there were no statistically significant differences among groups according to residency status in the way students rated their interaction with other students, faculty, senior administrators, administrators, support services and student organizations.

Both the 12 item and 10 item versions of the subscale performed the same among the groups. However, previous factor analyses showed that two items should not be included in the final instrument. This was confirmed with ANOVA analyses.

One-way ANOVA analyses were used to examine differences among groups with three or more categories: (a) year-in-college (freshman, sophomore, junior, senior, graduate student); (b) ethnicity (White, Black, Hispanic, Asian, other). The following paragraphs provide an explanation of the ANOVA results.

For the Perception of Appreciation 12 item subscale, there were no statistically significant differences among groups for year-in-college. However, for the Perception of Appreciation 10 item version of the subscale ANOVA revealed statistically significant differences in the way that students rated their interaction with other students. Tukey post hoc results revealed statistically significant differences occurred between sophomores and graduate students, juniors and graduate students, and seniors and graduate students.

For the Perception of Appreciation 12 item subscale, there were no statistically significant differences among groups for ethnicity. However, for the Perception of Appreciation 10 item version of the subscale, ANOVA revealed statistically significant differences in the way that students rated their interaction with faculty and senior administrators according to ethnicity. For students' interaction with faculty, Tukey post hoc results revealed statistically significant differences occurred between Black students, and Asian students, between Black students and other students, and between Asian students and students in the other category. For students' interaction with senior administrators, ANOVA results indicated statistically significant differences were present. However Tukey post hoc, which is used to determine differences between groups, did not find statistical significance. This result indicated that there were statistically significant differences within the group according to ethnicity, but not between groups.

Research Question Four

How does student background relate to the Depth of Connectedness subscale regarding components pertaining to campus community? The researcher used *t*-tests and ANOVAs to determine how student background related to the Depth of Connectedness subscale regarding components pertaining to campus community. These tests were performed to gain understanding

of the performance of the instrument among students on various university campuses. First, *t*-tests were used to determine differences among groups with two categories: age (18-24/25+); gender (male/female); transfer student (yes/no); enrollment status (full-time/part-time); residency status (in-state/out-of-state). Second, ANOVAs were used to determine differences among groups with three or more categories: year-in-college (freshman, sophomore, junior, senior, graduate student); ethnicity (White, Black, Hispanic, Asian, other).

For Depth of Connectedness, in both the 12 and 10 item versions of the subscale, students in the 18 to 24 age category rated their interaction with other students, senior administrators, administrators, support services and student organizations higher than those in the 25+ age category, while there were no statically significant differences according to age in the way they rated their interaction with faculty.

For the Depth of Connectedness, in both the 12 and 10 item versions of the subscale, there were no statistically significant differences among groups according to gender. This is important because the literature showed male students tend to be more socially involved than female students (Hu & Kuh, 2003). Since the results did not show statistical differences according to gender, this indicated whether a student is male or female have no implications on how they perceive the quality of their connections with the elements of the campus community.

For the Depth of Connectedness 12 item versions of the subscale, there were statistically significant differences among groups in the way students rated their interaction with student organizations according to transfer status. Non-transfer students rated their interaction with student organizations higher than transfer students. For the Depth of Connectedness 10 item version of the subscale, there were statistically significant differences according to transfer status in the way students rated their interaction with senior administrators and student organizations.

Non-transfer students rated their interaction with senior administrators and student organizations higher than transfer students did.

For Depth of Connectedness, in both the 12 and 10 item versions of the subscale, there were statistically significant differences among groups according to enrollment status in the way students rated their interaction with other students, faculty, administrators, support services, and student organizations. Students enrolled full-time rated their interaction with other students, faculty, administrators, support services, and student organizations higher than those enrolled part-time. There were no statistically significant differences among groups according to enrollment status in the way they rated their interaction with senior administrators.

For Depth of Connectedness, in both the 12 and 10 item versions of the subscale, there were no statistically significant differences among groups according to residency status.

Both the 12 and 10 item versions of the subscale performed the same among the groups. However, previous factor analyses showed that two items should not be included in the final instrument. This was confirmed with ANOVA analyses.

One-way ANOVA analyses were used to examine differences among groups with three or more categories: (a) year-in-college (freshman, sophomore, junior, senior, graduate student); (b) ethnicity (White, Black, Hispanic, Asian, other). The following paragraphs provide an explanation of the ANOVA results.

For the Depth of Connectedness 12 item version of the subscale, one-way ANOVA results indicated there were statistically significant differences in the way students rated their interaction with faculty according to year-in-college. Tukey post hoc analyses showed that statistically significant differences occurred between sophomores and graduate students, juniors and graduate students, and seniors and graduate students. There were no statistically significant

differences among groups in the way students rated their interaction with other students, senior administrators, administrators, support services and student organizations according to year-in-college.

For the Depth of Connectedness 10 item version of the subscale, one-way ANOVA results showed no statistically significant differences among groups in the way students rated their interaction with other students, faculty, senior administrators, administrators, support services and student organizations according to year-in-college.

For Depth of Connectedness, in both the 12 and 10 item versions of the subscale, one-way ANOVA results indicated there were statistically significant differences according to ethnicity in the way students rated their interaction with faculty and senior administrators. Tukey post hoc analyses revealed that statistically significant differences occurred between White and Hispanic students. There were no statistically significant differences among groups according to ethnicity in the way students rated their interaction with other students, administrators, support services and student organizations.

Discussion

Retention and graduation rates remain a major concern for higher education administrators, as well as for state and federal officials (Kanter, 2011; Shapiro & Bray, 2011; Talbert, 2012). Despite past efforts to improve retention and graduation rates, Symonds, Ferguson, and Schwartz (2011) reported only 56% of college/university students complete a four-year degree within six years. Existing instruments aimed at predicting student retention have focused on measuring student engagement based on their extrinsic responses to their college and university campus environment. Axelson and Flick (2011) described student engagement as “how involved or interested students appear to be in their learning, and how

connected they are to their classes, their institutions, and each other” (p. 38). Since student engagement has been linked to student success and retention, it makes sense for colleges and universities to assess not only how engaged their students are, but how they feel about their connections with the components of their institutions. Stated another way, although students may participate in campus activities, events, and required programs, it is important for administrators, faculty and support services staff, to understand how well their students see themselves as integral members of the campus community.

Thus this study was initiated with the intent to respond to the need for a theory-based instrument that could assess students’ sense of community based on their intrinsic responses to their college and university campus environments. Specifically, the researcher designed the Campus Community Index (CCI) to measure students’ perceived sense of appreciation and connectedness relative to the relationships they have with the elements that compose their college campus. Findings of this study highlighted the value of having an instrument capable of measuring students’ sense of community as it relates to student success.

When applied to college and university campuses, Mattering Theory suggests that how students feel about the level of interest, concern and dependence others demonstrate toward them plays a critical role on our actions (Rosenberg & McCullough, 1981). Studies have shown that students’ success and satisfaction in the classroom is based in large part to their perception of the quality of the relationships they have with their instructors and fellow classmates (Tebben, 1995; Tinto, 1997; McKinney, McKinney, Franiuk, & Schweitzer, 2006). The review of literature indicated there is evidence to support that if efforts were made toward ensuring the quality of relationships between students and the campus community, students’ success would improve, resulting in increased retention and graduation rates.

Research Question One

What statements represent the Perception of Appreciation subscale among college and university students? The Campus Community Index (CCI) is a theory based instrument of student engagement. The Perception of Appreciation subscale is based on Mattering Theory (Elliott, Kao, & Grant, 2004). Mattering refers to “the perception, that to some degree and in a variety of ways, we are a significant part of the world around us” (p. 339). Mattering is linked to our sense of self, in that it determines who we are, and whether or not we belong in the environments we find ourselves in (Elliott, Kao, & Grant, 2004).

Rosenberg and McCullough (1981) argued that mattering has a serious impact on both the self and society, as we are innately inclined to feel that we are relevant to others, and ultimately to the society to which we belong. The Perception of Appreciation subscale was developed with 12 items to measure how well students feel relevant to others on a college campus community. Results showed high Cronbach’s alpha and factor loadings; and no outliers or multicollinearity. It measures how students perceive to be a significant part of the campus community that surrounds them.

The campus community that surrounds students consists of several groups: (a) other students; (b) faculty; (c) senior administrators; (d) administrators; (e) support services; and (f) student organizations. Students perceived the interest other students and faculty had in them showed the highest factor loadings. Both Rosenberg and McCullough (1981), and Elliott, Kao, and Grant (2004) asserted that whether or not an individual experiences mattering to others, is dependent on whether or not that individual has an internal sense that they matter, and not on the actions of others toward them. In this regard, the Perception of Appreciation subscale differs from previous instruments.

The major difference pertains to how students participate in their environment. For example, one major instrument (which tends to represent the approach of most student engagement instruments), the National Survey of Student Engagement (NSSE), measures students' external involvement in campus activities, such as number of: (a) contributions to course discussions; (b) drafts for course assignments; (c) attendances in class and campus related activities; (e) times seeking assignment help; (f) times providing help to other students for assignments; (g) working with other students on assignments; and (h) course presentations. The Perception of Appreciation subscale of the Campus Community Index, although, does not measure number of interaction, but the degree to which students perceive they matter to those with whom they interact.

Analyses from this study showed that students' interaction with students and faculty are important constructs. According to Tebben (1995), the results of the study indicated the primary contributing variables to students' overall satisfaction and success, were the faculty's expression of care toward them and the environment of support generated by their classroom peers. However, instruments through the years have not measured the concept put forth by Tebben on a campus-wide, all-inclusive scale. The majority of students' experiences revolve around interaction with other students and faculty (Astin, 1975). Therefore, students' perception of interaction with other students and faculty is a crucial component of belonging to a campus community. This study showed that interest showed to students by other students and faculty had very high factor loadings, therefore demonstrating a major aspect of Perception of Appreciation for a college community.

When students interact with administrators and senior administrators, their perception of these two groups is in the area of support. Results showed that students perceive the role of

administrators and senior administrators as support. The issue is how students perceive their interaction with administrators and senior administrators. Consistent with Mattering Theory Elliott, Kao, and Grant (2004), related that there needs to be a reliance, which applies to the perception that others look to us for resources. Although administrators and senior administrators do not look to students for resources, the Perception of Appreciation subscale measures students' interaction with them. Students look to them for support as part of the campus community. The number of interactions is not important as much as the connection that is made: how well do administrators and senior administrators make students feel appreciated by the support they provide? Although results of this study pertaining to student interaction with administrators and senior administrators were low, it showed high factor loadings as part of the campus community in the area of support. The CCI, then, examined the quality of interaction versus the number of interactions.

Other instruments, such as the College Senior Survey (CSS) looks at student satisfaction with the academic, social, and service areas, which is why the CCI differs. Specifically, the campus community encompasses all things that happen to students in the pursuit of their education (Astin, 1993). When the campus environment is viewed from this standpoint, it is consistent with other instruments. For example, Noel-Levitz (2014) reported colleges and universities use the Student Satisfaction Inventory (SSI) to provide support for guiding institutions in strategic planning, student retention, accreditation reports, marketing efforts, and progress toward meeting campus goals. Although important, these aspects of institutional operations are made more possible when students identify more readily with their campus as a community (Lounsbury & DeNeui, 1996). This study showed that the campus community also involved students' interaction with administrators and senior administrators.

Another aspect of the development of the Campus Community Index (CCI) involved how students viewed their interaction with support services and student organizations according to Perception of Appreciation. Support services had a high factor loading in the area of students needing to feel that they are interested in students' well-being. This aspect of the CCI is a major development aspect of the subscale. Measuring students' Perception of Appreciation according to college and university support departments is rare among student engagement instruments. For example, the National Survey of Student Engagement (NSSE), Beginning College Student Survey of Engagement (BCSSE), Community College Student Survey of Engagement (CCSSE), College Senior Survey (CSS), the College Student Experiences Questionnaire (CSEQ), and the Student Satisfaction Inventory (SSI) are used to obtain data, which can inform colleges and universities of areas where improvement is needed. Three primary areas of application include institutional improvement, enhancement of teaching and learning quality, and improvement of retention and graduation rates. In the case of the NSSE, the NSSE Institute for Effective institutional practices reports the results of the instrument are used for a number of purposes including assessment of educational practices for undergraduate students, including teaching and learning, educational effectiveness, and to determine what is needed to improve the conditions for student success. The BCSSE is an instrument, which provides data regarding the level of involvement in co-curricular activities incoming freshmen had in high school for the purpose of predicting their level of engagement in college. According to Gonyea (Robert Gonyea, personal communication, December 12, 2013), the CSEQ "is for local assessment and improvement purposes, and reports and results are kept internal to each college and university."

The literature, therefore, suggests that instruments measuring students' interaction with support services are designed for institutional planning. However, the results of this study

showed that students' perceived support services are to focus on students' well-being.

According to Elliott, Kao, and Grant (2004) Mattering Theory has an aspect of *importance* to it. It pertains to the ways others invest in us. Therefore, according to the results of this study, student support services align with Mattering Theory. It suggests that students view support services as an entity of the campus community that should promote their well-being.

Finally, students' Perception of Appreciation from those in student organizations ranks high in the area of listening. Student organizations create opportunities for students to participate in activities that interest them. The foundation of co-curricular activities is to provide experiences outside of the classroom to enhance student development, which leads to retention and success (Elias & Drea, 2013). The results of the study showed that a major aspect of student development involves students need to be involved in activities to where others listen to them. A major part of participating in college as a community means that students not only have a voice, but that that voice is actually heard. For students to be successful they must perceive themselves as a vital part of the community in which they enter. Studies in the field of social psychology have shown that individuals tend to thrive when their intrinsic needs to connect with and matter to the communities in which they participate are satisfied (Elliott, Kao, & Grant, 2004; Lee & Robbins, 2000).

The Perception of Appreciation subscale differs from other instruments. Other instruments focus on measuring what students do as they interact with their environment. For example, the development of the Beginning College Student Survey of Engagement (BCSSE), the National Survey of Student Engagement (NSSE), and its community college counterpart, the Community College Survey of Engagement (CCSSE), are based on two theoretical frameworks. These include Alexander Astin's Theory of Student Involvement and C. Robert Pace's quality of

effort theory. They both suggest that as students participate in co-curricular activities and the effort they exert, student retention and success increase. Instruments tend to measure the number and duration of involvement. The Perception of Appreciation takes a different approach.

The Perception of Appreciation measures what students think of their involvement with the campus community. This approach in the study showed that students value being appreciated by others in student organization listening to them. Although Alexander Astin's Theory of Student Involvement and C. Robert Pace's quality of effort theory are important, this study showed that involvement and effort should not necessarily be limited to the number and duration of activities but to the quality of listening opportunities provided by organizations. Students want to feel appreciated in organizations by being listening to, that they matter. As such, Grant (2004) explained that mattering is linked to people's sense of self, in that it determines who we are, and whether or not we belong in the environments we find ourselves in.

Perception of Appreciation as a subscale is a valuable aspect of the Campus Community Index. Based on Mattering Theory by Elliott, Kao, and Grant (2004), it is "the perception, that to some degree and in a variety of ways, we are a significant part of the world around us" (p. 339). The result is that if people do not feel they are a significant part of the world around them, they will not continue to participate in that world. In the context of the campus community, if they feel appreciated, they will be more inclined to remain in college.

Research Question Two

What statements represent the Depth of Perception subscale among college and university students? The Depth of Connectedness subscale is based on Social Connectedness Theory (Lee & Robins, 1998). Social connectedness is defined by Lee and Robins (2000) as "an aspect of the self that reflects subjective awareness of interpersonal closeness with the social

world in toto” (p. 484). Lee and Robins (2000) further stated that this particular sense of closeness is essential to an individual’s sense of belonging in that it is rooted in the combined experiences one has in their relationships with those they are close to, as well as with those with whom they associate on a more peripheral basis. Hagerty, Lynch-Sauer, Patusky & Bouwsema (1993) explained that connectedness occurs when there is dynamic, reciprocal involvement between persons that results in an amalgamation of comfort and an increased sense of well-being.

Research indicated that belonging, as a component of Social Connectedness theory, has a strong influence on human cognitions and emotions, and therefore affects the ways in which we behave within our social environments (Andersen, Chen, & Carter, 2000; Baumeister & Leary; 1995; Duru & Poyrazli, 2011). Since a college student’s overall experience is comprised of a collection of relationships they have with elements of the campus community, how students translate the level of their connectedness is important (Lee & Robbins, 2000; Hagerty, Lynch-Sauer, Patusky, Bouwsema 1993).

The Depth of Connectedness subscale was developed with 12 items to measure the level of involvement students feel they have with others within a college campus community. Results showed high Cronbach’s alpha and factor loadings, and no outliers or multicollinearity. The Depth of Connectedness subscale of the CCI measures the degree to which students feel connected to the campus community.

The campus community that surrounds students consists of several groups: (a) other students; (b) faculty; (c) senior administrators; (d) administrators; (e) support services; and (f) student organizations. High factor loadings indicated students’ perceptions of the relationships they had with other students, faculty, senior administrators, and administrators were the major

determinants in how they felt about themselves as part of the campus community. Hagerty et al. (1993) contended that contrary to connectedness, individuals experience disconnection “when lack of involvement is accompanied by anxiety, distress and a lack of well-being” (p. 296). Depth of Connectedness is important because it relates to how students assess the quality of the relationships they have with the elements that make up the campus community. While literature clearly identifies the need for students to connect (Glasser, 1986), there is a void in research regarding how strongly students connect to their institution. For this reason, the Depth of Connectedness subscale presents a critical aspect of assessment that differs from previous instruments.

The major difference between the Depth of Connectedness subscale and previous instruments is in how students perceive themselves as integral members of the campus as a community based on the quality of the relationships they have with elements of the college environment. Instruments, such as the National Survey of Student Engagement (NSSE), the Beginning College Survey of Student Engagement (BCSSE), the Community College Survey of Student Engagement (CCSSE), and the College Student Experiences Questionnaire (CSEQ), measure students’ involvement in activities related to their education on the basis of the frequency and/or the duration of time they perform a particular action, such as collaborating with other students on assignments or projects, and contributing to class discussions. The primary focus of the Depth of Connectedness subscale is to examine how students perceive the quality of their relationships with the components of the campus community. Depth of Connectedness also differs from the Student Satisfaction Inventory (SSI) in that while the SSI is aimed at measuring the level of importance and satisfaction students feel toward their experience with various

elements of the campus environment, the Depth of Connectedness subscale looks at the quality of the relationships students have with the components of the campus community.

Belonging, as a component of Social Connectedness theory, has been explored in various educational contexts (Glasser, 1986; O’Keeffe, 2013). O’Keeffe (2013) argued that the ability of a student to develop a sense of belonging on his or her college campus plays a crucial role in determining their inclination to remain in school, regardless of their year-in-college. Results of the study indicated students’ need to belong was a major determinant of their level of connectedness to the campus community. The Depth of Connectedness subscale included two items that were specifically based on the construct of belonging. These included items 24) My relationships with ... make me feel like I am a part of the campus community; and 29) When I am with ... I feel like I belong on campus. This study showed that being made to feel like they were a part of the campus community by other students, faculty, senior administrators and administrators had very high factor loadings. The highest factor loadings for support services occurred where students were shown that they belonged on campus. These results indicate belonging is an exceedingly important aspect of Depth of Connectedness for a college community. As students participate in the campus environment their level of engagement is attached to whether or not they sense they belong to the campus as a community.

Whitlock, Wyman, and Barreira (2012) included the perception of one’s level of identification with others and his or her environment as a major component of connectedness. Studies suggest the faster students identify with peer groups, the faster they acculturate into university life, which in turn leads to their success (Engstrom & Tinto, 2008). For students, Depth of Connectedness with student organizations was determined by their ability to identify with them, as indicated by the highest factor loadings.

Chi-square analyses of Depth of Connectedness were conducted for goodness of fit. Overall, items cluster according to students' perception of their interaction with various groups. The results showed that a campus community is a complex construct. Depth of Connectedness chi-square results showed that among all groups students felt connectedness was tied to perceptions of others being grateful of them and others made them feel like they belong. Closely related to these were students' views, that among most groups, students felt they belonged on campus, they were content with their relationships, and they make acquaintances easily (see Tables 11 & 41 in Chapter Four).

Overall results of the CCI data analyses indicate the Depth of Connectedness subscale performed well at all phases. As a subscale, it is a valuable aspect of the Campus Community Index, as it successfully measured the degree to which students felt connected to the components of their respective campus communities, as defined by Social Connectedness Theory (Lee & Robins, 2000). Social Connectedness theory purports that if people sense the quality of the connections with the social world around them is poor or altogether absent, they will not continue to participate in that world. In the context of the campus community, if students feel connected, they will be more inclined to remain in college.

Research Question Three

How does student background relate to the Perception of Appreciation subscale regarding components pertaining to campus community? *T*-tests and ANOVAs were performed to gain understanding of the performance of the Campus Community Index (CCI) among students on various university campuses. First, *t*-tests were used to determine differences among groups with two categories: age (18-24/25+); gender (male/female); transfer student (yes/no); enrollment status (full-time/part-time); residency status (in-state/out-of-state). Second,

ANOVAs were used to determine differences among groups with three or more categories: year-in college (freshman, sophomore, junior, senior, graduate student); ethnicity (White, Black, Hispanic, Asian, other).

For Perception of Appreciation, *t*-tests regarding differences among groups according to age indicated 18 to 24 year old students rated their interaction with other students, senior administrators, administrators, support services and student organizations, higher than students in the 25+ category. Students in the 25+ category are referred to as non-traditional in the literature (Meuleman, Garrett, Wrench & King, 2015). These tend to be commuter students with greater demands on their time from family and employment. Studies have shown a positive correlation exists between the level of involvement students have in academically purposeful activities and academic success (Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008; NSSE, 2014; Wyatt, 2011). Student engagement research showed non-traditional students are more likely to leave college than traditional students due to challenges they face in getting more involved in the college environment (Kenner & Weirnerman, 2011). Results of this study support this trend, as they showed a lower overall rating for students in the 25+ category relative to their interaction with the campus community on the Perception of Appreciation subscale.

For Perception of Appreciation, statistical significance appeared among groups based on gender in the way students rated their interaction with other students. Male students rated their interaction with other students higher than female students. Studies indicate that gender differences exist relative to student levels of campus engagement (Kinzie, Gonyea, Kuh, Umbach, Blaich, & Korkmaz, 2007). Male students tend to be more involved in campus activities such as sports, fitness, and social activities, while female students dedicate more time to academic preparation (Hu & Kuh, 2003). The fact that male students tend to be more

involved socially on campus indicated they would most likely have a larger network of peers, and thus would perceive higher levels of awareness, importance, and reliance in their interactions.

For Perception of Appreciation, when students rated their interaction with campus community elements, statistical significance only appeared in the way that transfer students and non-transfer students rated their interaction with student organizations, with non-transfer students posting higher ratings. This was a curious outcome in light of existing literature. Notable differences between transfer and non-transfer students have been documented in the literature. Tobolowsky and Cox (2012) reported in addition to common differences, which could appear in age, enrollment status (attending full-time/part-time), commuting as opposed to residing on campus, and being employed full or part time, that greater degrees of diversity in race, gender, and socioeconomic status tend to appear in transfer student cohorts as well. These differences have been linked to increases in social challenges including the feeling of being out of place (Britt & Hirt, 1999). Studies have suggested colleges and universities may be deficient in their response to the needs of transfer students, namely in the areas of providing programs and supports to assist them in their transition (Townsend, 2008). Although the literature has suggested a significant disparity would result as students rated their interaction with other students, faculty, senior administrators, administrators, and support services, results of this study identified statistical significance only in the way students rated their interaction with student organizations.

For Perception of Appreciation, when students rated their interaction with the components of the campus community, there was a statistical difference among groups according to enrollment status. Full-time students rated their interaction with students, faculty,

administrators, support services, and student organizations higher than part-time students.

According to Mattering theory, individuals have an innate need to be acknowledged, important and relied upon by those with whom they associate (Elliot, Kao & Grant, 2004). Since part-time students take fewer classes and are less involved in co-curricular activities than their full-time counterparts (NSSE, 2013), it stands to reason that they would have less interaction with the with the elements of the campus community, and therefore their ratings would be lower. Thus the Perception of Appreciation subscale of the CCI performed well in this area. These results are important in light of the existing literature on the topic of part-time college students. The U.S. Department of Education, National Center for Education Statistics (2015) reported part-time students comprise a little over 37% of the total college enrollment. Despite the implications of this statistic, research surrounding part-time college students is limited. Laird and Cruce (2009) argued that available empirical studies on the part-time student population are not only sparse but also “problematic” (p. 291), in that they are largely based on descriptive findings obtained in national studies such as the NSSE.

For Perception of Appreciation there were no statistical differences among groups on the basis of residency. Whether a students’ permanent residence was in-state or out-of-state showed no difference in the way that students rated their interaction with elements of the campus community. Groen and White (2004) stated, since tuition rates are higher for out-of-state students, public universities are incentivized to give greater consideration to their recruitment and retention. Research indicated retention rates for out-of-state students going from their first to second year in college, are significantly lower than in-state student retention rates (Barlow & Crisp, 2005). This result is important because it suggests that whether a student’s residency status is in-state or out-of-state does not appear to matter when it pertains to how they rate their

interaction with elements of the campus community. This further indicated if a student feels like they matter on campus, they will most likely remain enrolled, regardless of their residency status.

For Perception of Appreciation when students rated their interaction with other students, there were statistical differences according to year-in-college. Freshman rated their interaction with other students higher than sophomores and seniors did. This result supported the literature, which showed freshmen students' sense of overall belonging at a university was strongly tied to their sense of social acceptance (Freeman, Anderman & Jensen, 2007). Additionally this result was consistent with Mattering theory, which states that as individuals, we need to know that "to some degree and in a variety of ways, we are a significant part of the world around us" (Elliott, Kao, & Grant, 2004, p. 339).

Graduate students rated their interaction with other students higher than sophomores, juniors, and seniors. This result is important in consideration of the literature, which reported that attrition rates for doctoral students range from 40 to 60 % (Golde, 2005; Lovitts, 2001). While the data for masters' level student attrition is scarce, a recent study reported 10% of MBA students, and 23% of masters level students working in the STEM disciplines left after two years of starting their programs (CGS, 2013). Polson (2003) reported adult graduate students who have postponed seeking advanced degrees, regularly enroll in universities other than those they have attended previously, and tend to pursue disciplines different from their former studies. As a result, these students often confront challenges related to their transition into their new campus community. Given the Perception of Appreciation subscale showed graduate students rated their interaction with other students higher than sophomores, juniors, and seniors, but not higher than freshman, showed that when students are new to their college campus environment, they have a

need to fit in regardless of their year-in-college. Thus the Perception of Appreciation subscale based on Mattering theory (Elliott, Kao, & Grant, 2004), performed well in this area.

For the Perception of Appreciation subscale, there were no differences among groups according to year-in-college in the way that students rated their interaction with faculty, senior administrators, administrators, support services, and student organizations.

For Perception of Appreciation when students rated their interaction with other students, there were no statistical differences according to ethnicity. These results were important in view of existing studies, which reported there are lower graduation rates for Black and Hispanic students (Aud et al., 2012; Hinrichs, 2014; Nguyen, 2012). According to this study, students in these ethnic categories felt like they mattered to other students, and therefore they are more likely to remain enrolled on the basis of social acceptance (Freeman, Anderman & Jensen, 2007).

For Perception of Appreciation, when students rated their interaction with faculty, there were statistically significant differences according to ethnicity. Asian students rated their interaction with faculty higher than Black students and students in the “other” ethnicity category did. This result was very important considering existing literature on the topic of graduation rates among ethnic groups. A study conducted by Cole (2010), which examined the relationship between student-faculty interaction and academic GPA, showed that when Asian American students rated their interactions with faculty related to their courses, there was a negative correlation with GPA.

Results of the CCI study showed that Black students rated their interaction with faculty higher than students in the “other” ethnicity category did. According to (Cole, 2010) African American students’ educational outcomes (GPA) were most affected by their interaction with their faculty and peers (other students). Pascarella and Terenzini (2005), however posited that

grades are not an ideal measure of learning. They indicated though, grades are probably the single most important indicator of student success among all stakeholders. This is because grades are readily available, easily accessed, and clearly understood from a quantifiable perspective. Hence the Perception of Appreciation subscale of the CCI is consistent with decades of literature.

For Perception of Appreciation, when students rated their interaction with senior administrators, results indicated statistical differences according to ethnicity, however this difference did not appear in the Tukey post hoc outcomes. This result indicated there were differences according to ethnicity when students rated their interaction with senior administrators as a group, however there were no statistically significant differences pair wise (between groups). The results indicated that this interaction is confounding. However, it is not. On the one hand, as a student body (group), it suggests that administrators treat ethnic groups differently. On the other hand, as isolated groups they view their interaction with senior administrators similarly. Therefore, the larger the mix of ethnicity, the more likely students are to view their interaction with senior administrators similarly.

For Perception of Appreciation, when students rated their interaction with administrators, support services, and student organizations, there were no statistically significant differences among groups according to ethnicity. This was important because it indicated that when students interact with these elements of the campus community, they perceive that they matter, regardless of their ethnic background. Therefore, in accordance with Mattering theory (Elliott, Kao, & Grant, 2004), if students sense they matter to those with whom they associate on the campus community, they are likely to remain enrolled. Thus, the Perception of Appreciation subscale performed well in this area.

Chi-square analyses of Perception of Appreciation were conducted for goodness of fit. Overall, items clustered according to students' perception of their interaction with various groups. The results showed that a campus community is a complex construct. Perception of Appreciation chi-square results showed that among all groups, students felt appreciation was tied to their mattering to others and that others were interested in their well being. These two aspects of the CCI revealed what it means to be part of a campus community (see Tables 11 & 41 in Chapter Four).

Overall the Perception of Appreciation subscale performed well as a way to measure students' sense of community on their college campus. Based on Mattering theory (Elliott, Kao, & Grant, 2004), which states that individuals have a need to be acknowledged, important and relied upon by those with whom they interact regularly, Perception of Appreciation subscale results indicated student background, including age, gender, ethnicity, enrollment status, transfer status, and residency status, played an important role in determining whether or not students felt like they mattered on campus.

Research Question Four

How does student background relate to the Depth of Connectedness subscale regarding components pertaining to campus community? *T*-tests and ANOVAs were performed to gain understanding of the performance of the Campus Community Index (CCI) among students on various university campuses. First, *t*-tests were used to determine differences among groups with two categories: age (18-24/25+); gender (male/female); transfer student (yes/no); enrollment status (full-time/part-time); residency status (in-state/out-of-state). Second, ANOVAs were used to determine differences among groups with three or more categories: year-

in college (freshman, sophomore, junior, senior, graduate student); ethnicity (White Black, Hispanic, Asian, other).

For Depth of Connectedness, *t*-tests regarding statistically significant differences among groups according to age indicated students in the 18 to 24 year old category rated their interaction with other students, senior administrators, administrators, support services, and student organizations, higher than students in the 25+ category. Students in the 25+ category are referred to as non-traditional in the literature (Meuleman, 2015). Non-traditional students tend to be commuter students with greater demands on their time from family and employment. Studies have shown a positive correlation exists between the level of involvement students have in academically purposeful activities and academic success (Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008; NSSE, 2014; Wyatt, 2011). Student engagement research indicated attrition rates for non-traditional students are higher than for traditional students due to challenges they face in getting more involved in the academic environment (Kenner & Weinerman, 2011). Results of this study support this trend, as they showed a lower overall rating for students in the 25+ category relative to their interaction with the campus community on the Depth of Connectedness subscale, indicating it performed well in this area.

Unlike the results of the *t*-test for Perception of Appreciation, for Depth of Connectedness, there were no statistically significant differences between groups according to gender. This was an interesting outcome as the research indicated males are more socially involved on campus (Hu & Kuh, 2003). The indication would be that males would have more connections with the campus community than females do. This result was important because it indicated that gender had no bearing on how students rated their interaction with the elements of

the campus community according Depth of Connectedness items, and thus the subscale performed well.

For Depth of Connectedness, for both the 10 and 12 item subscales, statistically significant differences appeared among groups according to transfer and non-transfer status only when students rated their interaction with student organizations. For the 10 item subscale, there were statistically significant differences according to transfer and non-transfer students when students rated their interaction with senior administrators. The literature indicated transfer students often feel out of place when they go to a new institution (Britt & Hirt, 1999). When it comes to recruiting efforts, student organizations tend to focus their recruitment efforts on incoming freshmen and therefore transfer students may not have the same opportunities to join. This result supports the premise of Social Connectedness in that it reflects that students interpret the quality of their connections based on their view of the interpersonal closeness they have with the elements on campus (Lee & Robins, 2000), and therefore demonstrates the Depth of Connectedness subscale performed well in this area.

For Depth of Connectedness, there were statistically significant differences in the way students rated their interaction with elements of their campus community according to enrollment status. Students who are enrolled full-time rated their interaction with other students, faculty, administrators, support services, and student organizations higher than part-time students did. Since part-time students do not take as many classes and are less involved in campus activities than their full-time counterparts (NSSE, 2013), it makes sense that they would have less interaction with the campus community, and therefore the quality of their connections with others would not be as high as those of full-time students. These results are important in light of the existing literature on the topic of part-time college students. The U.S. Department of

Education, National Center for Education Statistics (2015) reported part-time students comprise a little over 37% of the total college enrollment. Despite the implications of this statistic, research surrounding part-time college students is limited. Laird and Cruce (2009) argued that available empirical studies on the part-time student population are not only sparse but also “problematic” (p. 291), in that they are largely based on descriptive findings obtained in national studies such as the NSSE. Thus the Depth of Connectedness subscale of the CCI performed well in this area.

For Depth of Connectedness there were no statistical differences in the way students rated their interaction with elements of the campus community related to residency status. Whether students were in-state or out-of-state made no significant difference in the way they rated the quality of the connections they had on campus. Groen and White (2004) stated, since out-of-state students are required to pay higher tuition rates, public universities are incentivized to give greater consideration to their recruitment and retention. Research indicated the departure rate, between first and second year, for out-of-state students was significantly higher than that of in-state students (Barlow & Crisp, 2005). This result is important because it suggests that whether a student’s residency status is in-state or out-of-state does not appear to matter when it pertains to how they rate their interaction with elements of the campus community. This further indicated if a student feels like they matter on campus, they will most likely remain enrolled, regardless of their residency status.

For the 12 item Depth of Connectedness subscales, when students rated their interaction with other students, faculty, senior administrators, administrators, support services, and student organizations, there were statistical differences among groups in the way they rated their connections with faculty according to year-in-college. Graduate students rated their interaction

with faculty higher than sophomores, juniors, and seniors did. This result is important in consideration of the literature, which reported that attrition rates for doctoral students range from 40 to 60 % (Golde, 2005; Lovitts, 2001). While the data for masters' level student attrition is scarce, a recent study reported 10% of MBA students, and 23% of masters level students working in the STEM disciplines left after two years of starting their programs (CGS, 2013). Polson (2003) reported adult graduate students who have postponed seeking advanced degrees, regularly enroll in universities other than those they have attended previously, and tend to pursue disciplines different from their former studies. Social Connectedness theory states how we determine the degree of our connectedness is linked to our awareness of the interpersonal closeness we feel toward those in our social realm (Lee & Robins, 2000). This is important as the research showed faculty have a strong influence on the socialization process of graduate students in that their relationships outside of the classroom often extend to advising and providing mentoring (Weidman, Twale, & Stein, 2001). Given the Depth of Connectedness subscale showed graduate students rated their interaction with faculty higher than sophomores, juniors, and seniors, but not higher than freshman, showed that when students are new to their college campus environment, they have a strong need to connect with their faculty regardless of their year-in-college. Thus the Depth of Connectedness subscale based on Social Connectedness theory (Lee & Robins, 2000), performed well in this area. For the 10 item Depth of Connectedness subscale, there were no statistically significant differences among groups according to year-in-college in the way students rated their interaction with faculty. Although both 10 item and 12 item scales performed similarly, factor analyses showed a 10 item instrument would be preferable. Since the 10 items instrument presents statements in positive terms, overall it would be less confusing to participants.

For Depth of Connectedness, for both the 10 and 12 item subscales, there were statistically significant differences among groups when students rated their interaction with faculty and senior administrators. Hispanic students rated their interaction with both faculty and senior administrators higher than White students did. This was a very important result in light of studies, which showed that Hispanic students have lower retention rates than White students do (Aud, Hussar, Johnson, Kena, Roth, Manning, Wang, & Zhang, 2012).

The overall results of this study indicate the Campus Community Index (CCI), comprised of the Perception of Appreciation and Depth of Connectedness subscales, performed well in all areas. Based on Mattering (Elliot, Kao & Grant, 2004) and Social Connectedness theory (Lee & Robins, 2000), individuals assess their sense of community on their perception of the quality of the relationships they have with other members of that community; their perception of how others attend to them, as well as their awareness of the interpersonal closeness they have with others. Results of the study are important because they indicate both subscales effectively measured these aspects of students' relationships on campus. The premise is the more students feel appreciated and that they matter, and the deeper they connect with others on campus, the more likely they will remain enrolled.

Summary of Discussion

The findings from this study are important and can be used by higher education administrators, admissions and student affairs professionals, faculty, and students to bolster retention and graduation efforts. The literature indicated that for decades higher education administrators have persisted in their efforts to find ways to mitigate attrition and improve graduation rates (Shapiro & Bray, 2011; Talbert, 2012). Current trends indicate the greatest amount of effort and resources are expended on developing programs that can directly address

issues identified in the results of existing student engagement instruments (Englestrom & Tinto, 2008; Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008; Montero, 2009; Murphy Clinton, 2011). Development of these instruments is based on theoretical frameworks, which assert that the more involved students are in activities related to their education, the more inclined they are to attain academic success (Kuh 2003; Pascarella & Terenzini, 2005; Tinto, 1998). The literature indicated the psychometric properties of these engagement instruments support their effectiveness at measuring student engagement through the use of items that inquire about students' extrinsic responses to their campus environment (BCSSE, 2014; Gonyea & Marti, 2006; Kinzie, n.d.; Marti, 2009; Noel-Levitz, 2013; NSSE, 2013; QSEQ, 2013; Williams, 2007). However, studies showed that despite actions taken to enhance student engagement in response to the outcomes of these instruments, 44% of students who initiate a higher education academic path will not complete a degree within six years (Symonds, Ferguson & Schwartz, 2011), with one third of student drop out occurring within the first year of college (Pittman & Richmond, 2008). For this reason, it is necessary for higher education administrators to channel their efforts and resources toward a more effective means of assessment that will measure students' intrinsic responses to their campus environment early on.

Studies indicate a students' success has a positive correlation with the quality of the relationships they have with their peers (McKinney, McKinney, Franiuk, & Schweitzer, 2006; Tebben, 1995; Tinto, 1997). Results of this study showed there was statistical significance among groups according to year-in-college as students rated their interaction with other students. These differences appeared between freshmen and sophomores, freshman and seniors, sophomores and graduate students, juniors and graduate students, and seniors and graduate students. In consideration of the literature, which showed that students' relationships with their

peers and their faculty have a strong impact on their success, and given the results of the CCI indicated that students rated their interaction with faculty, other students, and student organizations higher than they did the other elements of the campus community, colleges and universities should place major emphasis on the fostering of these relationships.

While students did not rate their interaction with administrators and senior administrators very high, it is important to consider students' responses to the CCI items in light of what they reveal about students' perceptions of the quality of relationships they have with these elements of the campus community. For example, factor analyses results showed low factor loadings for item 10, which reads as follows: I sense.... are concerned about my well-being. As members of the campus community, making students feel like their well-being matters should be an important goal for all stakeholders.

According to ACT (2011), approximately 22% of first-year college freshmen do not return for their sophomore year. The need to more closely examine this trend in attrition rates is clear. The application of theories, which explain the dynamics of communities, could provide a basis for understanding why students decide to persist or depart from college and university campuses. Eisen, Kushner, McLeod, Queen, Gordon, and Ford (2009) reported the education system itself could have a major impact on students' feelings of disconnectedness from the institution they are attending. O'Keeffe (2013) argued that if students are going to be successful, there is a need to create a caring environment that is supportive and welcoming, to increase students' sense of belonging. Specifically, this environment would call for "the development of positive student/faculty relationships, the presence of a well resourced counseling center, and the encouragement of diversity and difference" (O'Keeffe, 2012, p. 605). While this study identified other students, faculty, and support services as elements of the campus community with whom

students interacted, there were no specific items related to diversity. This could be a consideration for the final instrument.

Implications

Data analyses provided varied results, which supported the development of a new instrument to measure students' sense of community on their college and university campuses. Some results were more salient than others, leading to beneficial implications. The following implications apply to a number of campus-wide areas, which include general application, student affairs, faculty, administrators and enrollment staff, and student organization leaders.

Implications of the Instrument

The study examined the development of an instrument to measure how well students feel connected to a campus community. It is an intrinsic approach to student engagement, which is different than other, major instruments, such as the National Survey of Student Engagement (NSSE), the Community College Survey of Student Engagement (CCSSE), College Student Experiences Questionnaire (QSEQ), the College Senior Survey (CSS), and the Student Satisfaction Inventory (SSI). They tend to measure students' external activities on campus, such as amount of time studying with a group, number of organizations joined, number of extra-curricular events attended, number of times a student has used a campus amenity such as the gym. The results of the CCI showed its importance for measuring intrinsic values according to the relationships students have with groups who represent the campus community. The implication is that student success is predicated on how students feel they matter to others and how well connected they are to them, both of which share in the general idea of the human condition of needing to feel accepted. Connectedness is defined by Lee and Robins (2000) as “an aspect of the self that reflects subjective awareness of interpersonal closeness with the social

world in toto” (p. 484). Lee and Robins (2000) further stated that this particular sense of closeness is essential to a person’s sense of belonging in that it is rooted in the combined experiences one has in their relationships with those they are close to, as well as with those with whom they associate on a more peripheral basis. If students feel connected, they should be more inclined to participate in activities related to their education such as participating in study groups, joining student organizations, attending extra-curricular events.

The results of the study demonstrated it is robust. Not only can it stand alone to measure how well students connect to the campus community, but the CCI can be used to compare to other data, such as IPEDS, NSSE, demographics, retention and graduation rates, program participation, GPA, admission standards, financial aid participation, and any number student and organizational success indicators. Furthermore, certain CCI items were so strong that they validated the entire theoretical frameworks from which they were derived. For instance, for the Perception of Appreciation subscale, item 10 (I sense are concerned about my well-being) and item 11 (I feel like I matter to) clustered at the top for all groups according to year-in-college, thus validating Mattering theory (Elliott, Kao, & Grant, 2004). Thus, mattering rates as a crucial aspect of campus life. According to Rayle and Chung (2007), regardless of gender having friends and developing strong social supports rank high for students’ perception of mattering on campus. They further concluded a strong link existed between academic stress and the need to matter. It indicated the campus must feel like a welcoming community, if students are to settle in. For example, Marshall, Liu, Wu, Berzonsky and Adams (2010) indicated rapid changes in relationships, such as entering college, which brings sudden, new connections in an unfamiliar environment, may jeopardize one’s continuity with the community, leaving them to

wonder if and how they matter. The current study and the literature strongly suggest that if students feel isolated, they may be less inclined to participate in the campus community.

Furthermore, for the Depth of Connectedness subscale, item 15 (I am grateful for the relationships I have with) and item 29 (When I am with I feel like I belong on campus) were at the top for all groups according to year-in-college, thus validating Social Connectedness theory (Lee & Robins, 2000). When Allen, Robbins, Casillas and Oh (2007) looked at social connectedness and retention beyond the first year among 6,872 students at 23 four-year colleges and universities, they found social connectedness and commitment to college are significant for retention. They also found that academic self-discipline did not have an effect on retention, but more importantly social connectedness and commitment to the institution did relate to retention. The Depth of Connectedness subscale can be an extremely important instrument for understanding students' level of connection to the campus a part of their community. It suggests a different way to comprehend retention issues. Ultimately, the CCI revealed these constructs were widespread across all variables, strongly suggesting that for students to sense they are part of a campus community, they need to feel like they matter and that they are connected.

Implications for Student Affairs

In spite of all the changes occurring in colleges and universities, according to Nuss (2003), student affairs departments still are guided by two fundamental principles. First, they emphasize the development of the whole person. Guided by this priority, student affairs professionals, then, recognize their responsibility to help students develop emotionally, personally, and with their identity (Magolda & Quaye, 2011). Second, student affairs departments are to support the mission of the institution. James and Estanek (2012) related that student affairs professionals perform their function based on the mission of an institution. This

concept has prevailed since student affairs was established as an independent profession in the early twentieth century. It has also been stated in documents authored by prominent authorities in education, such as the American Council on Education, National Association of Student Personnel Administrators, and American College Personnel Association (James & Estanek, 2012).

These two fundamental principles are key for implications for student affairs. First, if student affairs professionals are responsible for student development as a whole person, the development of the Campus Community Index (CCI) is a valuable tool for understanding how students feel internally about their relationships with various campus groups. The results of the study showed that students view their relationships with different groups in dissimilar ways. One of the most important features of the instrument is it showed how students are connected to their environment. Much of the college experience is about making meaning. The CCI showed where relationships should be fostered in order to create more meaningful relationships. Torres (2011) related that students' campus context influences how they make meaning. Therefore, student affairs professionals should develop practices to help students understand their role, the role of others across campus, and how to interact with them. They should show them how to make connections, important connections, with those across campus with whom they interact.

Second, the role of student affairs professionals is to support their institutional mission. Kuh et al. (2010) related that implementing the mission of the institution pertains to student affairs professionals' responsibility to ensure student success. The CCI can be applied to mission support. It can offer a strong connection between how students view their relationships on campus and student success initiatives according to the institutions' mission and strategic initiatives. Unlike other student engagement instruments, such as NSSE, the CSSE, the CSEQ,

the CSS, and the SSI, which primarily measure the number of times and/or the duration of time a student participated in activities related to their education such as visiting a faculty member, attending a study group, or participating in extra curricular activities, the CCI measures how well connected students are to others. It indicated the quality of involvement leads to student success more than the number of engagements.

Implications for Faculty

The Campus Community Index (CCI) study also exposed strong implications for faculty. Research indicated faculty play a key role in influencing students' decisions on whether or not to persist toward the completion of their degrees (Pascarella & Terrenzini, 2005). The level at which faculty are involved with students has been associated with positive academic and psychosocial development outcomes (Komorraju, Musulkin & Bhattacharya, 2010). Results of the CCI study clearly supported existing literature as they revealed that how students' perceive the quality of their interactions with faculty had a strong impact on their sense of community on campus. The CCI results suggested colleges and universities should consider avenues for promoting the development of positive student-faculty relationships. With student to faculty ratios becoming increasingly disproportionate, this goal may be difficult to attain, therefore this becomes an issue of feasibility. Creative and cost effective ways of promoting student-faculty relationships need to be explored, such as having faculty participate more at student orientations and offering meet and greet opportunities where connections can be made during campus tours.

Another consideration is the use of social media. Research indicated social networking site usage, where friendships are established, correlated positively with sense of community and their perception of social support (Oh, Ozkaya, & LaRose, 2015). Hoffman (2014) related up to 42% of first- and second-year students fail to earn their degree. What is surprising is that only

15% to 25% leave college because of poor academic performance or financial concerns. To reverse this trend, Hoffman conveyed that positive faculty/student relationships need to be developed. Faculty/Student relationships should go beyond the classroom to include formal and informal interaction, both in person as well as through digital means. Since most institutions now hold preregistration as early as three to five months before the start of an academic semester, faculty can use their rosters to begin reaching out to their students with email invitations for students to join online groups, where both instructors and students can exchange introductions. Instructors and students can make use of multimedia resources to share videos and photographs, geared toward making the first day of class less stressful for all. The importance of the faculty/student relationship is for students to feel appreciated and connected by faculty, as one of the key groups of the campus community. It needs to be developed early in a students' acceptance to college.

Implications for Student Organizations

Results of the CCI study provided strong implications for student organizations. Research indicated students' active participation in student organizations contributes positively to student psychosocial development as it relates to "establishing and clarifying purpose, educational involvement, career planning, life management, and cultural participation" (Foubert & Urbanski, 2006, p. 8). The CCI study showed when students rated their interaction with student organizations, their need to identify with and be listened to were key contributors to their assessment of how they perceived their sense of appreciation and connectedness with this group. Since being able to identify with student organizations was an important result, it supports the need for university organization offerings to represent the student population in terms of their diverse backgrounds and interests. Such an endeavor would require that student affairs

professionals remain apprised of the institutional landscape through the use of a variety of thoughtfully planned communication strategies. Further, if students feel it is important that student organizations provide opportunities for them to express themselves, the leadership of these groups should work toward making this a priority.

It should be noted though, the implication is not for leadership to invest in more programs. It is quite the opposite. The issue is one of depth of involvement. The importance of student organizations is not student involvement, but a students' sense of one's engagement through appreciation and connectedness. Kahu (2013) wrote that the power of student engagement is grounded in students' socio-cultural experiences, particularly those found in relationships and campus culture. The future success of student organizations may well be measured not by the number of activities they provide for student engagement, but quality of student involvement based on how they matter and connect.

Implications for Administrators

While the CCI study showed students' perception of the quality of relationships they had with administrators was not as strong of an indicator of students' sense of community on campus, there are implications for senior administrators related to their interaction with ethnic groups on campus. When it comes to ethnicity, the degree to which students perceived they mattered to and were connected to senior administrators did have an impact on their overall sense of community on campus. In particular, when students rated their interaction with senior administrators, showing an interest in students' well-being and that they mattered, were important determinants of their sense of community on campus. This is an important finding because according to Hall, Cabrera, and Milem (2011), "[E]ngagement is a learned behavior" and "shaped long before students entered college" (p. 434). They cited that ethnic differences of

engagement in campus activities, though, tend to be lessened as students progress through college. The implication here is that there is a need for senior administrators to consider how they are coming across to student ethnic groups. The challenge here is that fostering positive student-administrator relationships can be difficult, particularly at larger institutions, but necessary for students to learn or re-learn what it means to be an integral part of a campus community. However, students usually do not have much involvement with senior administrators, nevertheless, they are a vital part of the campus community. Exploring creative and feasible ways to engage with student groups, such as the use of social media, or simply making frequent appearances at student events, can carry great value when it comes to showing students that they matter and belong on campus.

Implications for Retention Efforts

The Campus Community Index (CCI) study showed there is a strong implication for its implementation with regard to institutional retention efforts. Higher education attrition and graduation rates have a major impact on the nation's economy and social health. The cost associated with current attrition trends is estimated at \$4.5 billion in lost federal and state (American Institutes for Research, 2011). As a result, improving retention and graduation rates remains a central focus for higher education administrators and state and national governments. Research indicated the more engaged students are in activities related to their education, the more likely they are to succeed in college (Kuh 2003; Pascarella & Terenzini, 2005; Tinto, 1998). More recently, O' Keeffe (2013) reported retention suffers because of the disconnect between students and faculty and administrative staffs. The loss of connection between students and their institutions and their feeling of isolation are considerable factors toward students'

decision to leave college without graduating. Students who feel cared for is critical for their performance and retention.

Colleges and universities have used instruments, such as the National Student Survey of Student Engagement (NSSE), to measure student engagement for the purpose of predicting retention outcomes. Since the CCI provides data that measures students' Perception of Appreciation and Depth of Connectedness on campus, it could be used as a compliment to the NSSE. While the NSSE considers the number of times and duration that students participate in activities such as attending extracurricular events, participating in study groups, visiting with faculty, and becoming involved in clubs, the CCI can be used to identify the specific types of activities students participate in where they feel they matter and connect the most. An implication for the use of the CCI then is that it can help colleges and universities determine which activities have the greatest impact on students' sense of community. This information could lead to operational cost saving measures, since many contemporary intervention strategies such as orientation programming, special events, and the efforts to support numerous student organizations, come with a high price tag.

Summary of Implications

The Campus Community Index (CCI) study revealed implications for general application by all higher education stakeholders, with special areas of consideration for faculty, senior administrators, student affairs professionals, student organization leaders, and institutional retention efforts. Based on Mattering (Elliott, Kao, & Grant, 2004) and Social Connectedness theory (Lee & Robins, 2000), the CCI presents a new avenue for the assessment of retention and graduation rates as it demonstrates that students' Perception of Appreciation and Depth of Connectedness are quintessential aspects of their sense of community. Since, research indicated

there is a strong connection between students' persistence in college and the degree to which students sense they are part of the campus community, (Kuh 2003; Pascarella & Terenzini, 2005; Tinto, 1998), results of this study showed the CCI is both a reliable and valid means to measure this sense.

Recommendations for Future Research

The research established a number of key results and implications. These include the establishment of the Campus Community Index (CCI) as a valid and reliable instrument to measure students' sense of belonging to a campus community, and implications regarding its use in assisting campus community members help students connect to others and feel appreciated. The results, therefore, provide a distinct foundation for recommendations. There are seven recommendations for future research.

First, it is recommended that this study be replicated to include respondents from institutions with other Carnegie classifications, such as community colleges and private universities, for the purpose of comparing data analyses results. Repeated use of the CCI in a variety of institutions across the country and even around the globe would provide a more thorough demonstration of its performance. In addition, it would be important to know if students are satisfied with their experiences on their campuses. A series of questions can be developed to examine this more closely. Although the series of questions would not be a part of the CCI, they could provide insights into students' connections to their campus communities.

Second, while the CCI included a question regarding year-in-college on the basis of classman categories (freshmen, sophomore, junior, senior, graduate student), it did not specify the amount of time the student had actually been on campus. To gain a better understanding of how time relates students' sense of community on campus, a question requiring a specific time

frame of attendance at their college or university could be added. Additionally, a pre- and post-test design could be used to examine how time on campus influences students' sense of campus community. Time on campus would also include time spent participating in campus sponsored activities, events, and organizations. However, the examination needs to be more extensive than just amount of time of involvement. Since, colleges and universities offer an extensive number of activities, events, and organizations, knowing students' time of involvement, number of involvements, and levels of appreciation and connectedness could help decision makers with better data for assisting students with their development.

Third, results of the CCI showed students enrolled full-time rated their interaction with other students, faculty, administrators, and student organizations higher than those with part-time enrollment. A review of literature indicated there is a scarcity of research pertinent to the part-time student population (Laird & Cruce, 2009). Laird and Cruce (2009) argued that available empirical studies on the part-time student population are not only sparse but also “problematic” (p. 291), in that they are largely based on descriptive findings obtained in national studies such as the NSSE. Given the part-time student population accounts for 37% of the total college enrollment (National Center for Education Statistics, 2015), it is important that higher education administrators and stakeholders have a more comprehensive understanding of their perceived level of appreciation and connectedness on campus. Future studies could examine how specific retention strategies impact part-time students' sense of community on campus, such as offering more flexible class times, ensuring support services were available online, improving faculty-student relations, providing opportunities for establishing social connections in class as well as online.

Fourth, results of the study indicated non-transfer students and students in the 18 to 24 year old categories rated their interaction with campus groups higher overall than transfer students and students in the 25+ categories did. This result is important because it indicated they had a greater sense of community on campus. Future studies could examine how differences in the way new students were introduced to the campus, impacted their sense of community. For example, new student orientation programming tends to be geared toward traditional first-year freshman students, and often includes team building activities, whereas non-traditional and transfer student orientations may not include the same type or number of opportunities to establish connections on campus. However, there are two aspects to orientation that should be examined. First, the question of how much do orientation programs make students feel appreciated and connected needs to be addressed. The CCI can be used as baseline data as it would be expected new students would have little involvement, but it would provide information to track how students feel appreciated and connect over time. Second, the question of what activities in orientations are most effective needs to be examined. The CCI is built on the premise that the campus community reflects various groups. During orientation new student and transfer student exposure to those groups, explanations of their roles, and enlightenment of student/campus-group relationships could prove to be valuable for students' rapid development of sense of community.

Fifth, a surprising finding was that freshman students and graduate students responded similarly on the CCI. At first glance this appears as an anomaly. However, the results indicate a previously little explored area of research. Many, if not most graduate students do not enter a graduate program immediately after graduating with a bachelor's degree. It may even be many more years before they enter a doctoral program after receiving a master's degree. Thus, similar

to freshman, who are new to a campus environment, new graduate students may experience similar feelings of needing to be appreciated and needing to connect. Future studies can compare levels of appreciation and connectedness according to several factors between student groups. Is there a similar trend between freshman/sophomore/junior/senior students' feelings of campus community and graduate students as they progress in their programs? If so, it would suggest that orientation programs and types of interaction with graduate students would also need to change according to how they feel appreciated and connected.

Sixth, part of the intent of the design of the CCI was that, if valid, it would be able to be used as a stand-alone instrument or in conjunction with other instruments. Since most student engagement instruments tend to count the amount of interactions and amount of time students are involved with groups or activities, used in conjunction with the CCI, researchers would have a stronger sense of whether time and interactions actually equate to student engagement for success. Future research could compare CCI data with that of existing engagement instruments, such as the National Student Survey of Engagement (NSSE) and the College Student Experiences Questionnaire (CSEQ), for the purpose of indicating where significant relationships might exist. There is an abundance of literature on student engagement. One online library search produced close to 1,000,000 results for articles in academic journals when searching for "student engagement." In one sense this is a dreadful sign: it suggests the academic community does not have a very good handle on what students need to be engaged in their college careers. The literature is overwhelming and yet retention and graduation rates have not risen in decades in spite of all that is supposedly known about students and engagement. The opposite side of this is that if there was not the amount of literature pertaining to students and engagement, would retention and graduation rates decrease? This cannot be explored since there is an abundance of

literature. Thus, the time has come for a new perspective of students and their roles on college campuses. The CCI may very well be the new perspective.

Summary

Chapter V presented a review of the summary of the problem and the purpose of the study. It also provided conclusions, a discussion of trends, a presentation of the implications of the study, and recommendations for future research related to the Campus Community Index (CCI). The conclusions section provides an overview of the CCI results, including a review of the data analyses. The discussion section speaks to the ways in which the CCI responds to the implications revealed in existing literature on student engagement and success in higher education. The implications section related the relevance of the CCI results in light of the literature, and provides suggestions for how the research findings could be used to inform colleges and universities regarding areas, which may require attention. The final section provides suggestions for future research related to the use of the CCI.

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APPENDIX A: IRB APPLICATION AND AMMENDMENT

FOR COMPLIANCE OFFICE USE ONLY:	
IRB#	<input style="width: 80%;" type="text"/>
Date Received:	<input style="width: 80%;" type="text"/>
<input type="checkbox"/> Revision	

Application for Review of Research Involving Human Subjects Institutional Review Board (IRB)



Texas A&M University-Corpus Christi

RESEARCH
COMMERCIALIZATION
OUTREACH

INSTRUCTIONS

IRB protocol application forms are ONLY accepted in electronic format. Please utilize digital signatures and email form with the IRB Protocol Application Form to irb@tamucc.edu.

1. Complete CITI Training

CITI training is required for all researchers and faculty advisors listed on the protocol.

Note: The Certificate of Completion will be automatically emailed to the Research Compliance Officer upon completion.

2. Complete Form

All sections of the form are required. The protocol review will not begin if any section is incomplete. The form must be complete and free of typographical/grammatical errors.

3. Submit Application & Completed Supplemental Documents

Review of application will not begin until all required documentation is received.

If you have any questions or need assistance completing this application, please contact [Kassandra Brown](mailto:kassandra.brown@tamucc.edu) at (361)825-2892 or kassandra.brown@tamucc.edu or [Erin Sherman](mailto:erin.sherman@tamucc.edu) at (361)825-2497 or erin.sherman@tamucc.edu.

Check which of the following documents are submitted with the protocol application:

- Any other documents referenced in this application as applicable (survey instrument, interview questions, debriefing form, payment schedule, etc.)
- Grant/contract proposal as applicable
- Permission from site of study as applicable
- Recruitment Materials as applicable: Flyers, Letters, Phone Scripts, Email, Online Posting, etc.
- Consent Documentation as applicable: Informed Consent Form, Assent Form, *Translated Informed Consent Form, and
- *Translated Assent Form
*See Translator/Interpreter Guidelines on the IRB forms page
- Conflict of Interest Disclosure as applicable

INVESTIGATOR INFORMATION

A. Principal Investigator Information:

Name:

Address:

Please include unit number if address is on campus.

Phone Number:

Email Address:

Department:

College:

Faculty
 Staff Member
 Undergraduate Student
 Graduate Student
 Faculty Advisor
 Other

Specify Other:

B. Co-Principal Investigator or Faculty Advisor Information:

Name:

Address:

Please include unit number if address is on campus.

Phone Number:

Email Address:

Department:

College:

Faculty
 Staff Member
 Undergraduate Student
 Graduate Student
 Faculty Advisor
 Other

Specify Other:

C. Co-Principal Investigator or Faculty Advisor Information:

Name:

Address:

Please include unit number if address is on campus.

Phone Number:

Email Address:

Department:

College:

Faculty
 Staff Member
 Undergraduate Student
 Graduate Student
 Faculty Advisor
 Other

Specify Other:

D. Co-Principal Investigator or Faculty Advisor Information:

Name:

Address:

Please include unit number if address is on campus.

Phone Number:

Email Address:

Department:

College:

Faculty
 Staff Member
 Undergraduate Student
 Graduate Student
 Faculty Advisor
 Other

Specify Other:

CONFLICT OF INTEREST CERTIFICATION

All Principal Investigators and Co-Investigators must certify the Conflict of Interest Statement below and comply with the conditions or restrictions imposed by the University to manage, reduce, or eliminate actual or potential conflicts of interest or forfeit IRB approval and possible funding. This disclosure must also be updated annually (for expedited and full board reviews) when the protocol is renewed.

Carefully read the following conflict of interest statements and check the appropriate box after considering whether you or any member of your immediate family* have any conflicts of interest.

*Immediate family is considered to be a close relative by birth or marriage including spouse, siblings, parents, children, in-laws and any other financial dependents.

Financial conflicts of interest include:

- a) A financial interest in the research with value that cannot be readily determined;
- b) A financial interest in the research with value that exceeds \$5,000.00;
- c) Have received or will receive compensation with value that may be affected by the outcome of the study;
- d) A proprietary interest in the research, such as a patent, trademark, copyright, or licensing agreement;
- e) Have received or will receive payments from the sponsor that exceed \$5,000.00 in a specific period of time;
- f) Being an executive director of the agency or company sponsoring the research;
- g) A financial interests that requires disclosure to the sponsor or funding source; or
- h) Have any other financial interests that I believe may interfere with my ability to protect participants.

ORIGINAL SIGNATURES REQUIRED

PLEASE NOTE: SIGNATURE PAGES MAY BE SUBMITTED EITHER (1) SCANNED ORIGINAL SIGNATURE(S) ON SIGNATURE PAGE EMAILED AS AN ATTACHMENT WITH FORM (2) SUBMITTED AS PRINTED HARD COPY

Principal Investigator (Typed):

Principal Investigator (Signature):

Digitally signed by
 com.apple.idms.appleid.prd.7762335a4b636b35333549694c772b67712b5a4e31513d3d
 DN:
 cn=com.apple.idms.appleid.prd.7762335a4b636b35333549694c772b67712b5a4e31513d3d
 Date: 2014.09.05 00:20:47 -05'00'

Date:

Conflict of Interest Certification: I have no conflict of interest related to this project. I have a non-financial conflict of interest related to this project** I have a financial conflict of interest related to this project**

B. Co-Principal Investigator or Faculty Advisor Certification:

Co-Principal Investigator/ Advisor (Typed):

Co-Principal Investigator/ Advisor (Signature):

Digitally signed by Randall Bowden
 DN: cn=Randall Bowden, o=Texas A and M Corpus Christi, ou=Educational Leadership, email=randall.bowden@tamucc.edu, c=US
 Date: 2014.09.08 12:35:52 -05'00'

Date: Check one: Co-PI Faculty Advisor

Conflict of Interest Certification: I have no conflict of interest related to this project. I have a non-financial conflict of interest related to this project** I have a financial conflict of interest related to this project**

C. Co-Principal Investigator or Faculty Advisor Certification:

Co-Principal Investigator/
Advisor (Typed):

Co-Principal Investigator/
Advisor (Signature):

Date:

Check one: Co-PI Faculty
Advisor

Conflict of Interest
Certification:

I have no conflict of interest
related to this project.

I have a non-financial conflict of
interest related to this project**

I have a financial conflict of
interest related to this project**

D. Co-Principal Investigator or Faculty Advisor Certification:

Co-Principal Investigator/
Advisor (Typed):

Co-Principal Investigator/
Advisor (Signature):

Date:

Check one: Co-PI Faculty
Advisor

Conflict of Interest
Certification:

I have no conflict of interest
related to this project.

I have a non-financial conflict of
interest related to this project**

I have a financial conflict of
interest related to this project**

**PROVIDE DETAILS AS ATTACHMENT FOR ANY NON-FINANCIAL CONFLICT OR
FINANCIAL CONFLICT OF INTEREST RELATED TO THIS PROJECT.

PROJECT CLASSIFICATION

Research
Project

Masters
Thesis

Class
Project

Doctoral
Dissertation

Program Evaluation

Other

Specify Other:

REVIEW REQUESTED

Please thoroughly review the Human Subject Research Categories and Notes at the end of the protocol form before completing this section.

Exempt Review

*Are you requesting exempt status for the project?

Yes No

If yes, based on which category outlined at the end of the application?

Category

Expedited Review

(Expedited review does NOT mean rushed approval. Please allow at least three weeks for the expedited review process.)

*Are you requesting an expedited review of the project?

Yes No

If yes, based on which category outlined at the end of the application?

Category

Full Board Review

Are you requesting full board review for the project?

Yes No

*** You may only select one of the above choices. A protocol cannot qualify for more than one category of review.**

EXTERNAL FUNDING

Is the project externally funded? Yes No *If yes, complete the remainder of the External Funding Section. If no, go to next section.*

External Funding Submission Deadline/Award Date:

Funding Agency:

PROJECT TITLE

Title of Project:

PROJECT DATES

Starting Date:

The starting date CANNOT be a date before IRB approval is received. If you will start as soon as approval is received, enter "Upon IRB Approval" for the starting date.

Estimated Completion Date:

The above is an estimated date of completion. A Completion Report is due at the conclusion of the project noting the actual completion date.

PROJECT PURPOSE & OBJECTIVES

Describe Project Purpose:
Be specific and thorough.

Describe Project Objectives and/or Research Questions:
Be specific and thorough.

RESEARCH SUBJECTS

Description and Source of Research Subjects:
MINIMUM information to include:
1. Target number of participants
2. Location of participants (on campus or specifically provide names for other locations - permission needed from other locations)
3. Manner in which participants

will be identified from a larger pool of individuals
 4. Inclusion & Exclusion criteria for participants (ex. age, physical characteristics, learning characteristics, professional criteria, etc.)
 5. Minimum age for participants
 6. How participants will be contacted (ex. online, through a faculty member, through a social networking site, through a professional in a specific field, etc.)

participate.
 5. The minimum age for participants is 18.
 6. A letter will be sent via e-mail to the offices of institutional research, inviting them to participate in the study. The letter will request that these offices send an email message to their undergraduate students, which contains a link to the Campus Community Index (CCI) survey.

RESEARCH DESIGN, METHODS, & DATA COLLECTION PROCEDURES

Describe Research Design, Methods and Data Collection Procedures for Human Subject Interactions:

Be specific and thorough.

Be specific to your study.

Describe the methods and procedures step-by-step in common terminology. Describe each procedure, including frequency duration and location of each procedure. Describe how data will be stored and protected, how long data will be kept following the study, etc.

You do not need to describe the statistical methods for analyzing data once it is collected or other elements of the study not involving human subjects.

DESIGN
 An ex post facto design will be used in this study to analyze students' sense of campus community among college students. A theoretically based instrument (Campus Community Index) was designed with two subscales (depth of connectedness & perception of appreciation) to evaluate how well college students identify with a campus community (other students; faculty; senior administration; administration; support services; student organizations).

DATA COLLECTION
 In efforts to determine how the instrument performs with all types of students, four public undergraduate degree-granting institutions were selected from four different states across the country using the list of institutions from the Carnegie Classification (Carnegie Foundation for the Advancement of Teaching, 2014). These included [REDACTED]
 [REDACTED] The institutions are public, therefore contact information is public and can be accessed to contact for research.

A letter requesting participation will be emailed to the offices of Institutional Research for each of the selected institutions. The letter will request that an email message with instructions be sent to their student database, which includes a link to the Campus Community Index (CCI) questionnaire (see attachment). The CCI will be developed and distributed using the TAMU-CC supported Qualtrics web-based application (<http://it.tamucc.edu/accounts/qualtrics.html>).

As an incentive for their participation, colleges and universities will be provided with a full report of the data collected from their students at the end of the study. Selected institutions will also be asked to perform electronic tracking of the email in order to determine the response rates. This will include keeping counts of respondents who are sent the email, and include those which were not received, for example bounced. It will also include a count of which emails were opened but did not generate a response to the survey, and which emails were opened and generated a response.

DURATION
 Data collection will begin on the 11th week of the 16 week semester. Participating institutions will be asked to send a second and third subsequent email reminders at one week intervals after the initial email is sent, e.g. the 12th and 13th week of the semester.

PROTECTIVE MEASURES
 The survey will be set to be taken anonymously, with no identifying information requested. Raw data entered into the Qualtrics online survey system will be password protected. Data will be kept on the researcher's password protected computer. Only the researcher and faculty advisor will have access to the data. Results will be presented in aggregate form, thereby protecting the anonymity of the respondents. Data will be kept for three years after the completion of the study.

RISKS & PROTECTION MEANS

Describe the Specific Risks and Protection Means for Human Subject

The research involves minimal risks to participants. The quantitative data will be collected and provided to the researcher via an online survey. The survey will be set to be taken anonymously, with no identifying information requested. Raw data entered into the Qualtrics online survey system will be

Participants:

Be specific and thorough. If no risk, state "No risk." If risks associated with the study are minimal and not greater than risks ordinarily encountered in daily life, state: Minimal Risk and describe risks. The risk levels provided in the protocol and the consent forms must be consistent.

Describe each potential risk and the steps taken to protect human subject participants from the risk (ex. breach of confidentiality, data protection, possibly injury, psychological distress, pressure to conform, pressure to participate, etc.) Describe the protection means specifically and how participants will gain access to any necessary outside assistance (ex. medical care, counseling, etc.) if available.

Consider whether there are physical, emotional, social, legal, etc. risks if participants' participation were to become public.

password protected. Results will be presented in aggregate form, thereby protecting the anonymity of the respondents. Raw data will be viewed only by the researcher and faculty advisor. No personally identifiable information is included in the survey.

BENEFITS VS. RISKS

Describe Benefits & Risks to Human Subject Participants:

Address benefits reasonably expected to the research participant and potential benefits to society. Any possible monetary compensation is not to be categorized as a benefit. Be specific and thorough.

There are no direct benefits to the participants. If the CCI produces statistical significance in measuring the level of student perceived sense of community on college campuses, it will provide higher education administrators, researchers and theorists an avenue for better understanding and predicting retention rates. More importantly, it will aid in the development of more thoughtful ways of addressing students' basic need to connect with, and feel like they matter on their college campuses.

INFORMED CONSENT METHODS

Describe Methods for Obtaining Informed Consent from Human Subject Participants:

Be specific and thorough. Describe how researcher(s) will gain access to participants, how participants will be provided the consent documentation, in what format the consent will be provided, any discussion that will take place with participants, and methods of communication utilized to keep participants aware of their rights throughout the study, if applicable. Points to remember: (1) Participants must be given time to review the consent/informational documents and ask questions (2) minors must have a separate assent for participation written at

The participants are anonymous because there is no way to link their contact information with the completion of the instrument. Consent to the study will be obtained using the attached Online Informed Consent Form(see attached Online Informed Consent Form), and data collected from the survey instrument will be anonymous. The email will contain a link which will take participants to a consent screen. Participants may choose to consent. Choosing consent will take the participant directly to the CCI survey.

The participants will be contacted upon approval of IRB, anticipated during the 11th week of the fall 2014 semester, to complete the online survey. Participants may read the e-mail for consent and participation and choose to participate.

After the survey has been completed, no additional participation is required. Consent to participate is voluntary.

a level appropriate to the age group of participants, and parents must be given a separate parental consent form.

(3) Information sheets should be utilized for exempt studies in which the only record of participants would be signed consent forms.

(4) The online consent template should be utilized as a guide for online survey consent.

Check if waiver of signed informed consent is requested. Justification must be provided for waiver. See waiver criteria at end of form.

Justification: Consent for the the study will be obtained using the attached Online Consent Form. The Agreement to Participate section states that agreement to participate is obtained by the participant's completion of the survey. Participants are anonymous and there will be no way to link their contact information with the completion of the CCI instrument.

INVESTIGATOR(S) QUALIFICATIONS

Qualifications of the Investigator(s) to Conduct Research:

Describe the qualifications of each investigator to conduct human subject research or attach CV/ biosketch.

Gloria L. Dávila is a Doctoral candidate in the Department of Educational Leadership at Texas A&M University Corpus Christi. She is Student IT Support Manager at Texas A & M University Corpus Christi, in Corpus Christi, Texas. She has completed the online training course offered on protecting human research participants.

The study will be supervised by Dr. Randall Bowden, Co-Principal Investigator. Dr. Bowden is an Associate Professor of Education Administration and Research. His PhD is in Higher Education Administration. He has served in higher education for over 20 years as a faculty member and administrator. His dissertation chair/committee work includes serving on over 25 dissertation committees. He has over 25 publications in topics of education and management.

FACILITIES & EQUIPMENT

Facilities & Equipment to be Used in the Research:

Describe any equipment that will be used, including audio/video equipment.

* Specifically list (by name) any off-campus locations that will be used.

List any on-campus locations where the study will occur.

The researcher will utilize a personal computer and personal office space. The researcher's computer will be used for data entry and analysis. E-mails will be sent to the e-mail addresses listed for the offices of Institutional Research at each of participating university. Participants may respond using a personal computer or any device with Internet access.

* Investigators must submit permission from all off-campus study locations and/or organizations providing data, specimens, access to participants, etc. Permission must be submitted with the IRB protocol application.

INVESTIGATOR(S) RESPONSIBILITIES & SIGNATURES

By complying with the policies established by the Institutional Review Board of Texas A & M University-Corpus Christi, the principal investigator(s) subscribe(s) to the principles stated in "The Belmont Report" and standards of professional ethics in all research, development, and related activities involving human subjects under the auspices of Texas A & M University-Corpus Christi. The principal investigator(s) further agree(s) that:

- A. Approval will be obtained from the Institutional Review Board before making ANY change in this research project.
- B. Development of any unexpected risks will be immediately reported to the Institutional Review Board.
- C. An annual continuation application will be completed and submitted annually for expedited and full review studies. The study will CEASE once approval expires.
- D. Signed informed consent documents will be kept for the duration of the project and for at least three years thereafter at a location approved by the Institutional Review Board and as described in the protocol.

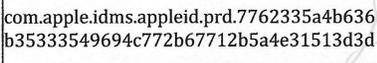
ALL INVESTIGATOR(S) AND ADVISOR(S) MUST SIGN THE PROTOCOL. The Principal Investigator should save a copy of the IRB Protocol Form after emailing the form to the Research Compliance Officer for review. Type the name of each individual in the appropriate signature line. Add additional signature pages if needed for all Co-Principal Investigators, collaborating and student investigators, and faculty advisor(s).

ORIGINAL SIGNATURES REQUIRED

PLEASE NOTE: SIGNATURE PAGES MAY BE SUBMITTED EITHER (1) SCANNED ORIGINAL SIGNATURE(S) ON SIGNATURE PAGE EMAILED AS AN ATTACHMENT WITH FORM (2) SUBMITTED AS PRINTED HARD COPY

A. Principal Investigator Certification:

Principal Investigator (Typed): Gloria L. Dávila

Principal Investigator (Signature):  Digitally signed by com.apple.idms.appleid.prd.7762335a4b636b35333549694c772b67712b5a4e31513d3d
DN: cn=com.apple.idms.appleid.prd.7762335a4b636b35333549694c772b67712b5a4e31513d3d
Date: 2014.09.05 00:18:52 -05'00'

Date: September 5, 2014

B. Co-Principal Investigator or Faculty Advisor Certification:

Co-Principal Investigator/ Advisor (Typed):

Co-Principal Investigator/ Advisor (Signature):  Digitally signed by Randall Bowden
DN: cn=Randall Bowden, o=Texas A and M Corpus Christi, ou=Educational Leadership, email=randall.bowden@tamucc.edu, c=US
Date: 2014.09.08 12:37:28 -05'00'

Date: 9.8.14 Check one: Co-PI Faculty Advisor

C. Co-Principal Investigator or Faculty Advisor Certification:

Co-Principal Investigator/ Advisor (Typed):

Co-Principal Investigator/ Advisor (Signature):

Date: Check one: Co-PI Faculty Advisor

D. Co-Principal Investigator or Faculty Advisor Certification:

Co-Principal Investigator/ Advisor (Typed):

Co-Principal Investigator/ Advisor (Signature):

Date: Check one: Co-PI Faculty Advisor

Human Subject Research Categories

Please Note

Research involving special or protected populations, such as children, prisoners, pregnant women, mentally disabled persons, or economically or educationally disadvantaged persons, does not qualify for exempt review and is subject to full review.

The following types of studies do not qualify for exempt reviews and are subject to expedited or full reviews:

- 1) Studies involving a faculty member's current students
- 2) Studies supported by external funding
- 3) Studies involving the following and similar sensitive subject matters which can potentially cause discomfort and stress to the

participant: Abortion, AIDS/HIV, Alcohol, Body Composition, Criminal Activity, Psychological Well-being, Financial Matters, Sexual Activity, Suicide, Learning Disability, Drugs, Depression

Studies involving audio taping and/or videotaping *DO NOT* qualify for exempt review.

Exempt Research Categories

Certain categories of research are exempt from the Protection of Human Subjects policy in the Code of Federal Regulations 45 CFR 46. The IRB Chair will determine, based on the federal guidelines, whether a research activity qualifies for exemption. Although exempt research is not regularly reviewed by the IRB, the exempt research form (and the informed consent form, if applicable) must be on file with the IRB, and the research may be reviewed at the committee's discretion. If the committee deems necessary, it may require a full review.

Unless otherwise required by federal departments or agencies, research activities in which the only involvement of human subjects will be in one or more of the following categories are generally exempt from full review by the IRB:

- 1) Research conducted in established or commonly accepted educational settings, involving normal education practices, such as (i.) research on regular and special education instructional strategies, or (ii.) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless (i.) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii.) any disclosure of human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

- 3) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under the previous paragraph, if (i.) the human subjects are elected or appointed public officials or candidates for public office; or (ii.) federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.
- 4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.
- 5) Research and demonstration projects that are conducted by or subject to the approval of federal department or agency heads, and that are designed to study, evaluate, or otherwise examine (i.) public benefit or service programs (ii.) procedures for obtaining benefits or services under these programs (iii.) possible changes in or alternatives to those programs or procedures; or (iv.) possible changes in methods or levels of payment for benefits or services under those programs
- 6) Taste and food quality evaluation and consumer acceptance studies (i.) if wholesome foods without additives are consumed or (ii.) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture

Expedited Review Categories

Expedited review procedures are available for certain kinds of research involving no more than minimal risk, and for minor changes in approved research. Specifically, research is eligible for expedited review if it involves no more than minimal risk (see 45 CFR as amended) to the subjects and the only involvement of human subjects will be in one or more of the categories listed below:

- (1) Clinical studies of drugs and medical devices only when condition (a) or (b) is met.
 - a. (a) Research on drugs for which an investigational new drug application (21 CFR Part 312) is not required. (Note: Research on marketed drugs that significantly increases the risks or decreases the acceptability of the risks associated with the use of the product is not eligible for expedited review.)
 - b. Research on medical devices for which (i) an investigational device exemption application (21 CFR Part 812) is not required; or (ii) the medical device is cleared/approved for marketing and the medical device is being used in accordance with its cleared/approved labeling.

- (2) Collection of blood samples by finger stick, heel stick, ear stick, or venipuncture as follows:

- a. (a) from healthy, nonpregnant adults who weigh at least 110 pounds. For these subjects, the amounts drawn may not exceed 550 ml in an 8 week period and collection may not occur more frequently than 2 times per week; or
- b. from other adults and children considering the age, weight, and health of the subjects, the collection procedure, the amount of blood to be collected, and the frequency with which it will be collected. For these subjects, the amount drawn may not exceed the lesser of 50 ml or 3 ml per kg in an 8 week period and collection may not occur more frequently than 2 times per week.

(3) Prospective collection of biological specimens for research purposes by noninvasive means.

Examples: (a) hair and nail clippings in a nondisfiguring manner; (b) deciduous teeth at time of exfoliation or if routine patient care indicates a need for extraction; (c) permanent teeth if routine patient care indicates a need for extraction; (d) excreta and external secretions (including sweat); (e) uncannulated saliva collected either in an unstimulated fashion or stimulated by chewing gumbase or wax or by applying a dilute citric solution to the tongue; (f) placenta removed at delivery; (g) amniotic fluid obtained at the time of rupture of the membrane prior to or during labor; (h) supra- and subgingival dental plaque and calculus, provided the collection procedure is not more invasive than routine prophylactic scaling of the teeth and the process is accomplished in accordance with accepted prophylactic techniques; (i) mucosal and skin cells collected by buccal scraping or swab, skin swab, or mouth washings; (j) sputum collected after saline mist nebulization.

(4) Collection of data through noninvasive procedures (not involving general anesthesia or sedation) routinely employed in clinical practice, excluding procedures involving x-rays or microwaves. Where medical devices are employed, they must be cleared/approved for marketing. (Studies intended to evaluate the safety and effectiveness of the medical device are not generally eligible for expedited review, including studies of cleared medical devices for new indications.)

Examples: (a) physical sensors that are applied either to the surface of the body or at a distance and do not involve input of significant amounts of energy into the subject or an invasion of the subject's privacy; (b) weighing or testing sensory acuity; (c) magnetic resonance imaging; (d) electrocardiography, electroencephalography, thermography, detection of naturally occurring radioactivity, electroretinography, ultrasound, diagnostic infrared imaging, doppler blood flow, and echocardiography; (e) moderate exercise, muscular strength testing, body composition assessment, and flexibility testing where appropriate given the age, weight, and health of the individual.

(5) Research involving materials (data, documents, records, or specimens) that have been collected, or will be collected solely for nonresearch purposes (such as medical treatment or diagnosis). (NOTE: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(4). This listing refers only to research that is not exempt.)

(6) Collection of data from voice, video, digital, or image recordings made for research purposes.

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies. (NOTE: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(2) and (b)(3). This listing refers only to research that is not exempt.)

(8) Continuing review of research previously approved by the convened IRB as follows:
 a. where (i) the research is permanently closed to the enrollment of new subjects; (ii) all subjects have completed all research-related interventions; and (iii) the research remains active only for long-term follow-up of subjects; or
 b. where no subjects have been enrolled and no additional risks have been identified; or
 c. where the remaining research activities are limited to data analysis.

(9) Continuing review of research, not conducted under an investigational new drug application or investigational device exemption where categories two (2) through eight (8) do not apply but the IRB has determined and documented at a convened meeting that the research involves no greater than minimal risk and no additional risks have been identified.

Criteria for Waiver of Consent

§46.116 General requirements for informed consent.

(c) An IRB may approve a consent procedure which does not include, or which alters, some or all of the elements of informed consent set forth above, or waive the requirement to obtain informed consent provided the IRB finds and documents that:

(1) The research or demonstration project is to be conducted by or subject to the approval of state or local government officials

and is designed to study, evaluate, or otherwise examine: (i) public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those programs; and
(2) The research could not practicably be carried out without the waiver or alteration.

(d) An IRB may approve a consent procedure which does not include, or which alters, some or all of the elements of informed consent set forth in this section, or waive the requirements to obtain informed consent provided the IRB finds and documents that:

- (1) The research involves no more than minimal risk to the subjects;
- (2) The waiver or alteration will not adversely affect the rights and welfare of the subjects;
- (3) The research could not practicably be carried out without the waiver or alteration; and
- (4) Whenever appropriate, the subjects will be provided with additional pertinent information after participation.

FOR COMPLIANCE OFFICE USE ONLY:	
IRB#	<input type="text"/>
Date Received:	<input type="text"/>
Amendment #	<input type="text"/>

IRB Amendment Application

For the Use of Human Subjects in Research

Texas A&M University-Corpus Christi



INSTRUCTIONS

IRB Amendment Applications are ONLY accepted in electronic format. Please utilize digital signatures and email form with the IRB Protocol Application Form to irb@tamucc.edu.

1. Complete Form
Form must be complete and free of typographical/grammatical errors.

2. Submit Application & Completed Supplemental Documents
Please note that you do not need to submit the original protocol with Amendment Application.
Please add the contact information of an added principal investigator to the consent form, if appropriate.
Review of application will not begin until all required documentation is received.

If you have any questions or need assistance completing this application, please contact **Kassandra Brown** at (361)825-2892 or kassandra.brown@tamucc.edu or **Erin Sherman** at (361)825-2497 or erin.sherman@tamucc.edu.

Check which of the following documents are submitted with the amendment application

Attach a current consent document unless the study is in the data analysis phase and no more participants will be recruited.

Any modified document or protocol, i.e. survey instrument, interview questions, consent form, etc

Any modified or additional external funding proposal

IRB PROTOCOL INFORMATION

IRB Protocol #:

Project Title:

INVESTIGATOR INFORMATION

A. Principal Investigator Information:

Name:

Address:

Please include unit number if address is on campus.

Phone Number:

Email Address:

Department:

College:

Faculty Staff Member Undergraduate Student Graduate Student Faculty Advisor Other

Specify Other:

B. Co-Principal Investigator or Faculty Advisor Information:

Name:

Address:

Please include unit number if address is on campus.

Phone Number:

Email Address:

Department:

College:

Faculty Staff Member Undergraduate Student Graduate Student Faculty Advisor Other

Specify Other:

C. Co-Principal Investigator or Faculty Advisor Information:

Name:

Address:

Please include unit number if address is on campus.

Phone Number:

Email Address:

Department:

College:

Faculty Staff Member Undergraduate Student Graduate Student Faculty Advisor Other

Specify Other:

D. Co-Principal Investigator or Faculty Advisor Information:

Name:

Address:

Please include unit number if address is on campus.

Phone Number:

Email Address:

Department:

College:

Faculty Staff Member Undergraduate Student Graduate Student Faculty Advisor Other

Specify Other:

EXTERNAL FUNDING

Is the project supported by new and/or additional external funding? Yes No

Have any amendments been made to previously awarded external funding supporting the project? Yes No

Attach external funding proposal(s) if the answer to either of the above is "Yes"

DESCRIPTION OF PROPOSED CHANGES

What is to be changed? will be participating in the study.

Why is the change needed? declining to participate, and I, the principal investigator, had to seek other universities to participate in the study.

Currently, would like to participate. The Vice Presidents at each institution will sponsor the research through their respective offices, thus specific IRB is not required from each institution.

Is the proposed change to *replace* an original procedure? Yes No

If yes, describe which processes/documents are no longer to be used.

Is the proposed change in *addition* to original procedure(s)? Yes No

Does the Consent Form need to be edited to reflect the proposed changes? Yes No

If yes, attach the revised Consent Form with the Amendment Application.

Has the level of risk to the participant(s) increased? Yes No

INVESTIGATOR(S) RESPONSIBILITIES & SIGNATURES

By complying with the policies established by the Institutional Review Board of Texas A & M University-Corpus Christi, the principal investigator(s) subscribe(s) to the principles stated in "The Belmont Report" and standards of professional ethics in all research, development, and related activities involving human subjects under the auspices of Texas A & M University-Corpus Christi. The principal investigator(s) further agree(s) that:

- A. Approval will be obtained from the Institutional Review Board before making any change in this research project.
- B. Development of any unexpected risks will be immediately reported to the Institutional Review Board.
- C. An annual review and progress report will be completed and submitted when requested by the Institutional Review Board.
- D. Signed informed consent documents will be kept for the duration of the project and for at least three years thereafter at a location approved by the Institutional Review Board.

ALL INVESTIGATOR(S) AND ADVISOR(S) MUST SIGN THE PROTOCOL. The Principal Investigator should save a copy of the IRB Protocol Form after emailing the form to the Research Compliance Officer for review. Type the name of each individual in the appropriate signature line. Add additional signature pages if needed for all Co-Principal Investigators, collaborating and student investigators, and faculty advisor(s).

PLEASE NOTE: SIGNATURE PAGES MAY BE SUBMITTED EITHER (1) SCANNED ORIGINAL SIGNATURE(S) ON SIGNATURE PAGE EMAILED AS AN ATTACHMENT WITH FORM (2) SUBMITTED AS PRINTED HARD COPY

A. Principal Investigator Certification:

Principal Investigator (Typed): Gloria L. Dávila

Principal Investigator (Signature): **Gloria L. Dávila**
Digitally signed by Gloria L. Dávila
DN: cn=Gloria L. Dávila, o=TAMUCC, ou,
email=gloria.davila@tamucc.edu, c=US
Date: 2014.10.16 22:07:37 -05'00'

Date: October 16, 2014

B. Co-Principal Investigator or Faculty Advisor Certification:

Co-Principal Investigator/ Advisor (Typed): Randall Bowden

Co-Principal Investigator/ Advisor (Signature): **Randall Bowden**
Digitally signed by Randall Bowden
DN: cn=Randall Bowden, o=Texas A and M Corpus Christi,
ou=Educational Leadership, email=randall.bowden@tamucc.edu,
c=US
Date: 2014.10.17 13:39:43 -05'00'

Date: October 17, 2014 Select one: Co-PI Faculty Advisor

C. Co-Principal Investigator or Faculty Advisor Certification:

Co-Principal Investigator/ Advisor (Typed):

Co-Principal Investigator/ Advisor (Signature):

Date: Select one: Co-PI Faculty Advisor

D. Co-Principal Investigator or Faculty Advisor Certification:

Co-Principal Investigator/ Advisor (Typed):

Co-Principal Investigator/ Advisor (Signature):

Date: Select one: Co-PI Faculty Advisor

APPENDIX B: REQUEST FOR PARTICIPATION TO UNIVERSITIES

Dear (Vice President for Student Engagement),

My name is Gloria Dávila and I am a doctoral candidate at Texas A & M University Corpus Christi. I recently received my committee's approval to proceed with my dissertation study, which involves developing a theory-based instrument to measure students' sense of community on their college or university campuses. I realize (University name) receives many requests to survey your students; however I am confident that your using my survey will be of great value to your institution, and to your department in particular.

The title of my study is "Development of the Campus Community Index: Reliability and Validation of a New Instrument to Measure College Student's Depth of Connectedness and Perception of Appreciation at Colleges and Universities". I chose your campus because of its rich diversity. According to your fact sheet, 19.2 percent of the (University Name) enrollment is Hispanic or Latino, and as you know Latino retention rates remain low in states with large Latino populations. I believe my instrument will provide you with data that you currently do not have about how Latino/a and other student populations perceive their sense of community at (University Name).

Last week I spoke to (IRB Staff Name) from your IRB office, and she recommended I contact you regarding my study. Should you agree to participate, the process would entail your sending out the recruitment letter, which includes a link to the Online Informed Consent Form and a link to the survey, which will be hosted on the Qualtrics system. Survey responses would be 100 percent anonymous, and every security measure will be taken to protect your students' identities. I have attached my IRB document from TAMUCC along with the supporting documents for your review. At the conclusion of my study, I will provide you with a complete report of the data collected from (University Name).

(Name of Vice President for Student Engagement), it would be an honor to work with you. Please consider participating in this study.

Respectfully,

Gloria L. Dávila
Doctoral Candidate
TAMUCC
(361)442-8594

APPENDIX C: ONLINE INFORMED CONSENT FORM

Development of the Campus Community Index: Reliability and Validation of a New Instrument to Measure College Student's Depth of Connectedness & Perception of Appreciation at Colleges and Universities

Introduction

The purpose of this form is to provide you information that may affect your decision as to whether or not to participate in this research study. If you decide to participate in this study, this form will also be used to record your consent.

You have been asked to participate in a research project involving the development of the Campus Community Index, which is a new instrument to measure student's sense of community in colleges and universities. The first section of the survey questions ask for background information. The second portion of the survey asks you to respond to various campus community issues in 24 statements according to 6 campus categories.

You were selected to be a possible participant because your college agreed to participate in the study.

What will I be asked to do?

If you agree to participate in this study, you will be asked to respond to an email by completing and online survey. The Campus Community Index (CCI) takes approximately 15 minutes of your time. This study will take approximately 5 months to complete. Your participation will take approximately 15 minutes to complete the survey and 5-10 minutes to read emails associated with your participation. During the last week of October, you will receive a recruitment email followed with an online consent form and the TIQ survey. Upon completion of the consent and the on-line survey, no further participation is required. Participants will receive additional emails November 5th, 2014 and November 12, 2014 to encourage completion.

What are the risks involved in this study?

The risks associated with this study are the participants may be inconvenienced by taking part in the survey 15 minute and reading the emails associated with the study. It is the belief that the benefits outweigh the minimal potential risk. The risks associated in this study are minimal, and are not greater than risks ordinarily encountered in daily life.

What are the possible benefits of this study?

The possible benefits of participation. Sharing this data with higher education leaders will provide an avenue for the development of thoughtfully developed programs of support that can ensure student success in college.

Do I have to participate?

No. Your participation is voluntary. You may decide not to participate or to withdraw at any time. There is no penalty for withdrawing or not participating.

Who will know about my participation in this research study?

This study is anonymous and the identity of the participants will not be disclosed. The survey is computer-based and will be completed and analyzed without identifying definite participants and specific universities. The records of this study will be kept private. No identifiers linking you to this study will be included in any sort of report that may be published. Research records will be stored securely and only I, Gloria Davila, Principal Investigator, and Dr. Randall Bowden, Co-Principal Investigator will have access to the records.

Is there anything else I should consider?

Whether you choose to complete the survey, not to participate, or withdraw at any time, there are no penalties.

Whom do I contact with questions about the research?

If you have questions regarding this study, you may contact Gloria L. Dávila, Principal Investigator at 361-442-8594 or email gloria.davila@tamucc.edu. You may also contact Dr. Randall Bowden at 361-825-6035 or email Randall.Bowden@tamucc.edu.

Whom do I contact about my rights as a research participant?

This research study has been reviewed by the Research Compliance Office and/or the Institutional Review Board at Texas A&M University-Corpus Christi. For research-related problems or questions regarding your rights as a research participant, you can contact Erin Sherman, Research Compliance Officer, at (361) 825-2497 or erin.sherman@tamucc.edu

Agreement to Participate

You agree to participate in the study entitled Development of the Campus Community Index: Reliability and Validation of a New Instrument to Measure College Student's Depth of Connectedness & Perception of Appreciation at Colleges and Universities by completing the following survey. Participants must be 18 years of age or older.

Please do not complete the survey if you do not wish to participate in this study.

APPENDIX D: REQUEST FOR PARTICIPATION TO STUDENTS

Greetings (university mascot name for students),

The (university name) Office of Student Engagement and Success encourages your participation in a new research study aimed at measuring students' sense of community on college and university campuses. The Campus Community Index (CCI) takes approximately 15 minutes to complete, and the results will provide valuable information that will help the (university name) leadership ensure student success. The Campus Community Index (CCI) research study has been approved by the Texas A & M University Corpus Christi Institutional Review Board. Details on whom to contact regarding IRB approval are contained in the body of the survey. Please click on the link below to proceed.

(Link to Campus Community Index here)

Thank you in advance for your participation in this important research study.

Sincerely,

APPENDIX E: CCI INSTRUMENT DETAILS

For information regarding the Campus Community Index instrument, please contact Gloria L. Dávila, at gloria.davila@tamucc.edu.