FACTORS THAT PREDICT PERSISTENCE FOR NON-IMMIGRANT, INTERNATIONAL STUDENTS AT A PRIVATE, FOUR-YEAR UNIVERSITY IN GEORGIA

by

Shawn M. Adams

Liberty University

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

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ABSTRACT

The purpose of this study was to explore factors that predict the persistence of international, non-immigrant students in higher education. A sample of international students from a four-year private university in Georgia served as the focused population for this study. Persistence research asserts that six factors predict persistence: academic integration, social integration, support services satisfaction, degree commitment, institutional commitment, and academic conscientiousness. These six predictor variables were measured via the College Persistence Questionnaire (CPQ). However, cultural intelligence (CQ) is another predictive factor that merited consideration for the unique population of international students. The Cultural Intelligence Scale (CQS) quantifies CQ and the corresponding subscales of cognitive CQ, metacognitive CQ, motivational CQ, and behavioral CQ. Data from both instruments were obtained from the sample of students identified (N=109). A hierarchical logistic regression was performed on the data acquired. The results of the analysis determined that there was not a statistically significant predictive relationship between the predictor variables (CPQ and CQS) and the criterion variable, persistence, operationalized as continued enrollment from one academic term to the next. However, an additional regression analysis determined that there was a statistically significant predictive relationship between cultural intelligence (CQ) and the student’s College Persistence Questionnaire (CPQ) score.

Keywords: persistence, international students, cultural intelligence, retention, higher education
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Education has always been a great passion in my life. I am reminded of the apostle Paul’s compliment to Timothy in Second Timothy chapter 1 when he celebrated the heritage of his faith and attributed it to the influence of his mother and grandmother. Like Timothy, I was blessed with a tremendous grandmother and mother who influenced my faith and my passion for learning. As it relates to this particular milestone in my life, there are three very strong influences who happen to be women who bear responsibility in helping me to navigate through to the completion of this segment of my journey.

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List of Abbreviations

College Persistence Questionnaire (CPQ)
Cultural intelligence (CQ)
Cultural Intelligence Scale (CQS)
Designated school official (DSO)
English as a Second Language (ESL)
Hierarchical multiple regression (HMR)
Historically Black Colleges and Universities (HBCUs)
Institutional Review Board (IRB)
Primarily White Institutions (PWIs)
Student and Exchange Visitor Program (SEVIS)
Student Integration Model (SIM)
Test of English as a Foreign Language (TOEFL)
Variation Inflation Factor (VIF)
CHAPTER ONE: INTRODUCTION

The international community holds the system of higher education in the United States (U.S.) in high regard (Chow, 2015). The Institute of International Education surveyed international students from 2009 to 2010 and found that out of the 9,330 respondents, 75% preferred the United States as their destination for higher education. The United Kingdom (8%) was the next most popular first-choice destination, followed by Canada (5%) and Australia (3%). Survey results also revealed that due to the belief that a higher quality education was available in the U. S., students across the globe desire to pursue their higher education degrees in the United States. The broad options of schools and programs, quality of life, and availability of scholarships were other considerations that also factored into international students’ desire to obtain a college education in the United States (Institute for International Education [IIE], 2015).

Unfortunately, the desire to pursue a degree in the United States and acceptance into an academic institution in the United States does not always result in an obtained degree.

Domestic and international students usually enter higher education institutions with the intent of obtaining a degree within a specific discipline. However, the attainment of that degree does not always materialize. Attrition has been and continues to be a problem for many colleges and universities, and the status of higher education attainment is on the decline (Tilghman, 2012). Of the several million students who begin undergraduate and graduate degree programs each year, 41% will not graduate (U. S. Department of Education, 2013). Within the University System of Georgia, of the 49,119 first time, full-time freshmen enrolled in Fall 2011, only 34,296 (approx 69.8%) students continued the following term at the same institution (University System of Georgia, 2013).
Consistent with the positive international view of education in the United States, the total number of international students enrolled in college grew from 819,644 in the year 2012-2013 academic year to 886,052 in the next academic year of 2013-2014. The overall growth of 66,408 students is encouraging; however, the persistence data are grim when one examines the data more closely. Of the 886,052 international students who enrolled in the 2013-2014 academic year, 207,128 were first-time or new international students. The number of new students (207,128) outpaced the overall numerical growth (66,408) for international students and left 140,720 students unaccounted for or not retained (IIE, 2015). Unfortunately, little attention or research has focused on the attrition or the persistence of international students (Andrade, 2008). Thus, this study sought to fill a gap in the literature and determine the factors that predict persistence for international students.

Chapter One presents an overview of retention studies and persistence theory with a specific focus on international students. Chapter Two provides a comprehensive review of the framework of retention theory espoused by Tinto (1975, 1997) and further developed by Bean and Eaton (2001), as well as the cultural intelligence model developed by Earley and Ang (2003). The aforementioned theories grounded this study. Empirical research focused on retention for different student populations is addressed within the construct of Tinto’s (1975) Integration Model and Bean and Eaton’s (2001) psychological model. Chapter Three covers the methodology used for this study. Chapter Four will present the data from the study and in Chapter Five, the data will be analyzed and interpreted in light of the current body of research.

**Background**

**Tinto’s Student Integration Model of Persistence**

Persistence has been defined in a number of ways, including a student re-enrolling in
school from one semester to the next (Capps, 2012), but factors that contribute to student persistence are numerous and complex. Tinto (1975) developed the student integration model (SIM) based on longitudinal studies that related to persistence and student dropout. Tinto postulated that while student characteristics are related to persistence and will invariably influence how the student interacts and integrates into an institution, factors of social and academic integration are central to a student’s decision to continue at or drop out from the institution.

From Tinto’s (1993) standpoint, integration is “shaped by the personal and intellectual interactions that occur within and between students and faculty and the various communities that make academic and social systems of the institution” (p. 231). Integration is affected by social and academic influences. As stated earlier, social integration occurs when there is participation in the student culture within and outside the immediate context of the learning environment. For example, social integration is experienced when a student takes part in co-curricular activities that produce connections with fellow students and faculty. Within this model, integration has an implicit academic component that closely ties to the educational context and learning environment and is partly dependent on the ability of the student to meet educational expectations (Tinto, 1998).

Academic integration occurs when students attach to the intellectual life of the college inside and outside of the classroom (Tinto, 1975, 1997, 1998). There are intentional, formal classroom settings in which this integration transpires such as the implementation of problem-based learning programs within curricula (Severiens & Schmidt, 2009) or using collaborative inquiry facilitated by the classroom instructor (Kahu, 2013). Outside of the classroom, informal integration of an academic nature can take place by ongoing, intellectual discussion between
students and faculty in places such as the dining hall or library (Severiens & Schmidt, 2009).

Social and academic integration, though critically different, interact in the process of student persistence. These two constructs were of such importance to Tinto (1993) that he stressed the need for higher education administrators to involve students actively in learning with other students within and outside the classroom, thereby promoting greater social and academic integration for students (Tinto, 1997, 2007; Zhao & Kuh, 2004).

Further, Tinto (1975) indicated that the student’s decision to persist or dropout is directly influenced by the institutional and goal commitments, which are influenced by student characteristics and social and academic interaction within the institution. Goal commitment refers to the degree to which a student is motivated to earn a higher education degree. In other words, the more committed a student is to obtain a degree, the greater the likelihood of their persistence (Hawley & Harris, 2005; Leppel, 2001; Tinto, 1975, 1988). Institutional commitment is distinguished from goal commitment as it refers to student’s commitment to graduate at a specific institution (Nakajima, Dembo, & Mossler, 2012; Tinto, 1975, 1988). While goal commitment and institutional commitment both provide an impetus for student persistence, Tinto (1975) acknowledged “high goal commitment may lead to persistence even when little commitment to the institution is present” (p. 110). In summary, Tinto’s (1975) model emphasized academic and social integration as well as goal commitment and institutional commitment as critical factors associated with persistence.

**Bean and Eaton’s Psychological Model**

Bean and Eaton (2001) expanded upon Tinto’s foundational retention theory to create a psychological model of college student retention. Bean and Eaton (2001) described underlying psychological processes that encourage student persistence. Within the psychological processes
are self-efficacy beliefs. When a student believes he or she is efficacious and competent, he or she will persist and develop goals. More specifically, they posited that self-efficacy increases academic and social integration. They believed the strong focus on social and academic integration led to designs concentrated on the external, practical functions of retention programming without giving specific attention to the actual mechanisms by which attrition would be reduced. Davidson, Beck, and Silver (1999) summarized Bean and Eaton’s work by explaining that students’ intention to stay at their institution in this framework is shaped by their beliefs or academic conscientiousness.

Beyond conscientiousness, Bean (1980) also explored the idea that the background or external dynamics at an institution of higher education impacted student satisfaction, which in turn influenced their decision to persist or dropout. Bean and Metzner (1985) further identified external variables that affected the persistence of non-traditional, commuter students. Their findings resulted in the idea that support services could mitigate the background or external stressors and enhance student integration. In turn, these support services would have a positive impact on student persistence.

**Studies in Diverse Communities**

Although these models provided insight into student persistence, the research upon which they were built focused on student populations that lacked diversity and were comprised from a majority of White students (Titus, 2004). Thus, there has been emerging research to better understand the application of these theories and models on the recruitment and retention of American minorities and immigrants (Baker & Robnett, 2012; Hetzel, & Laskey, 2011; Love, Trammell, & Cartner, 2010; Pappamihiel & Moreno, 2011; Weiher & Tedin, 2006; Wells, 2008). Unfortunately, international students “have remained one of the most quiet, invisible,
underserved groups on the U.S. campus” (Mori, 2000, p. 143) and very little investigation has been done in the area of persistence with a specific focus on international students who often find academic and social integration difficult due to a myriad of cultural factors (Andrade, 2005).

Cultural factors can impede the likelihood of international students persisting (Kwai, 2009). In a study of 900 international students in Australia, Russell, Rosenthal, and Thomson, (2010) found that 41% of international students experienced stress from homesickness, cultural shock, or perceived discrimination. Contrasted with domestic students, international students’ successful integration within an institution is negatively affected by poor social networking in the United States and their home culture (Mamiseishvili, 2012). Furthermore, international students may be unaware of the explicit and implicit customs or culture of the host institute/country, in particular when non-Western students pursue higher education at a Western institution in Europe, Australia, or the United States (Deil-Amen, 2011). “Essentially, models of integration have the effect of merely inserting minorities into a dominant cultural frame of reference that is transmitted within dominant cultural forms, leaving invisible cultural hierarchies intact” (Tierney, 1992, p. 611). French sociologist Émile Durkheim (2014) stressed that culture is something outside of individuals that exerts a strong coercive power. The inability to adapt and deal with cultural factors or the lack of cultural intelligence in a cross-cultural college transition can inhibit international student persistence.

Cultural intelligence (CQ) refers to the capacity to adapt successfully to various cultural settings and/or cultures (Earley & Ang, 2003; Earley & Peterson, 2004). Extensive studies on cultural intelligence have explained the phenomena of a person’s ability to integrate into a different culture (Ang, VanDyke, & Tan, 2011). As it pertains to persistence research, there is reason to believe that cultural intelligence (Sam & Berry, 2010) can influence dropout decisions.
for foreign students in addition to dynamics normally analyzed in research focused primarily on domestic student populations. The degree to which cultural intelligence is a factor in international student persistence merits greater quantitative exploration, as this data can be of great use for further understanding of this unique student population.

**Problem Statement**

While the international student population may be invisible in the extensive body of retention research, the number of international students attending colleges and universities in the United States continues to grow. From 2012 to 2014, the international student enrollment in the U. S. grew from 819,644 to 886,052 (Institution for International Education, 2014). Foreign students and their families contributed an estimated $30.5 billion in net income to their schools and local communities during the 2014-15 academic year (National Association of Foreign Student Advisors, 2015), and the overall impact of their fiscal contribution to higher education, especially for smaller, private liberal arts schools that rely on tuition revenue cannot be overstated. In 2011, the U.S. Department of Education placed 114 private colleges on a watch list of schools in danger of closure due to the lack of fiscal health (Webster & Showers, 2011). These small, tuition-reliant schools with minimum endowments must make effective retention an area of focus regardless of the students’ origin or nationality, but especially for international student populations for which current persistence models are lacking.

This present lack of research and theory calls for greater analysis and investigation of international students’ persistence in higher education. Hanover Research (2010) posited, “a significant part of the challenge in retaining international students at U.S. universities is that there is no comprehensive data collection of the issues they face or of their perception of the services offered to them.” (p. 37). This study sought to determine a clearer understanding of the
factors that may be predictive of the persistence for the international student population based on persistence theory and cultural intelligence.

**Purpose Statement**

The purpose of this predictive, correlational study was to determine if the linear combination of six factors (academic integration, social integration, support services satisfaction, degree commitment, institutional commitment, and academic conscientiousness) can predict persistence for international students in the United States. These six factors were measured using the College Persistence Questionnaire as informed by Bean and Eaton’s (2000) psychological model, Tinto’s (1975) integrated model, and Tinto’s (1993) student integration model.

This study further analyzed the statistical significance of cultural intelligence (CQ) as a persistence predictor for the international student population within higher education. The Cultural Intelligence Scale (Earley & Ang, 2003), which has four specific dimensions, Metacognitive CQ, Cognitive CQ, Motivational CQ, and Behavioral CQ, was used to assess CQ. The cultural intelligence factors as measured by the Cultural Intelligence Scale (Earley & Ang, 2003) were included (Ang et al., 2007; Earley & Ang, 2003; Earley, Ang & Tan, 2006; Peterson, 2004; Thomas & Inkson, 2004). The criterion variable was the persistence of the student, which is operationalized as the continuation from one term to the next at the same institution. There are multiple ways to define or determine retention rates. Retention is commonly referred to, within institutional data, as the ratio of students returning for the next term or year of college as compared to the total number of students who entered the previous year or term. This ratio is significant within the first few academic terms because student attrition (dropout) for undergraduate students is highest between the first and second years of student attendance and is
a strong predictor for ultimate student persistence unto the completion of a degree (Skomsvold, Radford, Berkner & National Center for Educational Statistics, 2011).

**Significance of the Study**

Effective and reliable data that identifies significant persistence factors for international students is important. Results from this study should help discover any potential misalignment, with current persistence theory foci among the unique population of international students in the United States (Rienties, Beausaert, Grohnert, Niemantsverdriet, & Kommers, 2012). Moreover, the results extend current research by promoting a clearer understanding of the relationship between the research-based factors of persistence and cultural intelligence and their predictive validity for the persistence of international students.

These data provide higher educational institutions with information to target areas that effectively help international students persist. As globalization continues, the population of international students in the United States will continue to grow (Altbach & Knight, 2007), and the international student contribution to learning as well as their learning environments will continue to enhance the value and viability of institutions of higher learning if they are supported in a manner in which they are likely to persist (Hlyva & Schuh, 2004).

**Research Questions**

The research questions for this study were as follows:

**RQ1:** Will the linear combination of the College Persistence Questionnaire (CPQ) subscale scores and the cultural intelligence factors as measured by the Cultural Intelligence Scale (CQS) predict the persistence of international students?

**RQ2:** Do the College Persistence Questionnaire (CPQ) subscale scores significantly contribute to the variance in the persistence of international students?
RQ2a: Does academic integration as measured by the CPQ significantly contribute to the variance in persistence for international students?

RQ2b: Does social integration as measured by the CPQ significantly contribute to the variance in persistence for international students?

RQ2c: Does student support services as measured by the CPQ significantly contribute to the variance in persistence for international students?

RQ2d: Does degree commitment as measured by the CPQ significantly contribute to the variance in persistence for international students?

RQ2e: Does institutional commitment as measured by the CPQ significantly contribute to the variance in persistence for international students?

RQ2f: Does academic conscientiousness as measured by the CPQ significantly contribute to the variance in persistence for international students?

RQ3: Do the cultural intelligence factors as measured by the Cultural Intelligence Scale (CQS) significantly contribute to the variance in the persistence of international students?

RQ3a: Does metacognitive CQ as measured by the CQS significantly contribute to the variance in persistence for international students?

RQ3b: Does cognitive CQ as measured by the CQS significantly contribute to the variance in persistence for international students?

RQ3c: Does motivational CQ as measured by the CQS significantly contribute to the variance in persistence for international students?

RQ3d: Does behavioral CQ as measured by the CQS significantly contribute to the variance in persistence for international students?
Identification of Variables

The criterion variable is persistence, which for this study was operationalized and measured as the participating student returning to the same institution from one academic term to the next (Capps, 2012; Hagedorn, 2012). Two sets of predictor variables were used to assess statistical significance for likelihood to persist. First, the College Persistence Questionnaire (CPQ) was used to assess factors grounded in research that affect student retention (Davidson, Beck, & Milligan, 2009). Tinto’s (1975, 1988) predictive factors of academic integration, social integration, goal commitment, and institutional commitment were measured by a grouping of Likert-type questions for each area. Services support satisfaction and student conscientiousness were also postulated to have significant influence on student persistence and were the additional factors measured in the CPQ (Bean 1980; Bean & Eaton, 2001; Pascarella, Smart, & Ethington, 1986).

The second group of predictive variables explored factors specific to the unique population of international students enrolled in higher education in the United States. In this study, the ability to integrate successfully in college extends beyond academic and social domains and into the area of culture (Pappamihel & Moreno, 2011; Sato & Hodge, 2015; Titus, 2004). Cultural intelligence (CQ) is an indicator of one’s capability to integrate into a different culture effectively (Bang & Montgomery, 2013). CQ dimensions as measured by the Cultural Intelligence Scale (Earley & Ang, 2003) determined metacognitive CQ, cognitive CQ, motivational CQ, and behavioral CQ.

Definitions

1. International student- An international student is defined as an individual who is enrolled for credit at an accredited higher education institution in the U.S. on a
temporary visa and who is not an immigrant (permanent resident with an I-51 or Green Card), an undocumented immigrant, or a refugee (Chin, 2004).

2. **Persistence** - Persistence for a student is the ability to complete the prescribed coursework successfully toward the attainment of a degree, specifically re-enrollment at the same institution. (Cabrera, Nora, & Castaneda, 1993).

3. **Retention** - Retention, from an organization’s perspective, “refers to the ability of an institution to retain a student” (Berger, Ramirez & Lyons, 2005, p. 7), evidenced by continued enrollment until degree completion.

4. **Academic integration** - Academic integration refers to student integration influenced by such variables as class discussions, quality of instruction, and feelings of intellectual growth (Davidson et al., 2009).

5. **Social integration** - Social integration measures a student’s sense of belonging, shared values, and similarity to others in the college environment (Davidson et al., 2009).

6. **Support services satisfaction** - Support services satisfaction are the variables which address the attitudes students develop toward the school based upon how well the institution meets their out-of-classroom, school-related needs (Davidson et al., 2009).

7. **Degree commitment** - Degree commitment are students’ intentions (to finish the degree), estimates of the likelihood or certainty that a degree will be achieved, and their self-appraised commitment to earning the degree (Davidson et al., 2009).

8. **Institutional commitment** - Institutional commitment describes students’ intentions to re-enroll and to earn a degree from that institution and their confidence in having selected the right institution (Davidson et al., 2009).
9. **Academic conscientiousness** - Academic conscientiousness refers to a student’s view of their academic environment, exploring the connection between perceptual viewpoints and important indicators of educational attainment and persistence (Davidson et al., 2009).

10. **Cultural intelligence (CQ)** - Cultural intelligence is defined as an individual’s capability to function and manage effectively in culturally diverse settings. CQ acknowledges the practical realities of globalization (Earley & Ang, 2003) and focuses on a specific domain – intercultural settings. Thus, CQ is a specific form of intelligence focused on capabilities to grasp, reason, and behave effectively in situations characterized by cultural diversity (Ang et al., 2007).

11. **Metacognitive CQ** - Metacognitive CQ refers to an individual’s mental ability to acquire and understand cultural knowledge (Ang & Van Dyne, 2008).

12. **Cognitive CQ** - Cognitive CQ is a person’s knowledge of different cultures’ norms, practices, and conventions (Van Dyne, Ang, & Koh, 2009).

13. **Motivational CQ** - Motivational CQ is the capability of a person to invest attention, energy, and focus toward learning about and operating in intercultural conditions (Ang & Van Dyne, 2008).

14. **Behavioral CQ** - Behavioral CQ reflects a person’s capacity to demonstrate appropriate verbal and non-verbal intercultural interactions (Van Dyne et al., 2009).

**Summary**

In summary, a predictive, correlational design was used to determine whether a statistically significant, predictive relationship existed between the six factors of student persistence (academic integration, social integration, support services satisfaction, degree
commitment, institutional commitment, and academic conscientiousness) as measured by the College Persistence Questionnaire (Davidson et al., 2009). The research was extended by including the four dimensions of cultural intelligence (metacognitive CQ, cognitive CQ, motivational CQ, and behavioral CQ) and actual persistence for international students. The results of this study determined the most significant factors contributing to student persistence specifically for international students.

The research design, a predictive correlational design with a logistic regression is most appropriate for a study with these variables (Kwai, 2009). A predictive model was suitable in this case, as I aimed to examine how the two groups of predictor variables (as determined by the College Persistence Questionnaire and the Cultural Intelligence Scale) actually predict a criterion variable (persistence). This method of analysis, a hierarchical logistic regression, is more appropriate than a standard multiple regression, as each predictive variable or set of predictive variables can be assessed for statistical significance and the criterion variable is categorical (Tabachnick & Fidell, 2007). Hierarchical linear modeling allowed for the control of variables or sets of variables to be in subsequent steps. Therefore, the likelihood to persist can be examined with each variable or set of variables at each step in the model while accounting for the previous variables entered. This design and analysis is often used in similar educational studies, for example, Gore (2006) employed this model of analysis to evaluate the degree to which two groups of composite scores (ACT scores and College Self-Efficacy Inventory) could predict college retention. Krumrei-Mancuso, Newton, Kim, and Wilcox (2013) also used this model in a comparable study focused on psychological factors that could predict student success.
CHAPTER TWO: LITERATURE REVIEW

Overview

Higher education in the United States has been a significant indicator of national stability and growth (Bowles, 2014). The earning capacity of college graduates versus those without a degree is significantly different. Studies that examine the causal impact of college completion on earnings present greater personal income rates, ranging between seven and 15 percent for each year of school completed (Oreopoulos, & Petronijevic, 2013). While this is a clear incentive for collegiate study, the cost of higher education in the U.S. has grown significantly and has led to a more in-depth analysis of the actual benefits of a college degree versus the cost. In this case, the economic benefit for the individual student as well the societal value and impact is weighed against the possible costs and debts associated with studies in higher education (Bok, 2015). The economic concern increases when students begin their collegiate studies without finishing and leave school with student loan debt but without a degree (Hout, 2012).

Millions of students enter colleges across the United States every year with the goal of timely completion of their academic pursuits, namely the attainment of a college degree through graduation (Pike, Hansen, & Childress, 2014). The ability to navigate this process successfully is influenced by personal and environmental factors along with other variables that can either hinder or enhance the probability of successful matriculation. A major determinant of college success is how well the student adapts to unfamiliar surroundings (Kim, 2012; Roberts & Stryon, 2010). The environment can affect proper student integration considerably at an institution of higher learning. In addition to external and institutional realities, there are personal factors that can influence student success in college. Students enter the arena of higher education at differing stages of personal development and background (Shepherd, 2008).
While the transition considerations for all college students are numerous, international students often face additional hurdles that create a greater complexity in the analysis of their challenges. One obvious barrier is language for non-English speakers in the U.S. International students deal with a confusing and bureaucratic visa process to acquire and ensure maintenance of their status as a student (Hegarty, 2014). The immigration compliance requirements for the Student and Exchange Visitor Program (SEVIS) are intended to be a means of support for non-immigrant students. However, international students often view these requirements negatively and consider them to be impediments or restrictions (Rosser, Hermen, Mamisheishvili, & Wood, 2007). Moreover, an individual’s capacity to integrate and navigate effectively in an unfamiliar, cross-cultural context can be a dynamic that can promote or impede persistence.

Numerous studies have focused on traditional and non-traditional students as well as students with various ethnic backgrounds who enroll in undergraduate programs. Davidson and Beck (2009) developed a predictive instrument using a population of students from public state universities as well as community colleges. The ethnic breakdown of the sample for the Beck and Davidson’s study was 71% Caucasian, 19% Black, 7% Hispanic, 2% Asian, and 2% Native American and other. A clear predomination of focus on U.S. populations in persistence research literature exists (Payne, Slate & Barnes, 2013; Stewart, Lim, & Kim, 2015; Wolfle, 2012). Additional persistence studies such as one by Gray, Vitak, Easton, and Ellison (2013) highlighted strong minority populations in their samples (42.3% racial minorities including 19% African American and 12% Latino). However, studies focused on persistence within the unique population of international students are relatively scarce (Chadha & Chadha, 2010; Goralski & Tootoonchi, 2015; Mamiseishvili, 2012), and this gap in the literature begs for further persistence research focused within this overlooked population.
Earlier studies have not focused on persistence factors for international students. A title search for literature via the EBSCO database using the keywords “international students” and “college student persistence factors” yielded a dissertation and two peer reviewed journal articles. The dissertation focused on persistence factors for Black males attending community college (Adams-Mahaley, 2012) and the journal articles focused on persistence for international students that are addressed in this review (Andrade, 2008; Mamiseishvili, 2012).

While quantitative examination of data grounded in retention theory for students in this context will prove beneficial, an analysis of cultural intelligence (Earley & Ang, 2003) for this group will also present a great benefit. The rationale behind this addition to any model of college persistence theory is the value of cultural intelligence as an indicator of an individual’s capacity to integrate and navigate effectively in an unfamiliar context (MacNab, 2012). Moreover, research is beginning to emerge suggesting that that cultural intelligence can increase the likelihood of successful student integration within a particular context or institution. According to Braten and Stromso (2005), epistemological beliefs more so than implicit theories of intelligence predict student self-regulated learning, which is a component of student preparedness that affects student persistence. Other studies, such as one completed by Harrison and Brower (2011), analyzed the impact of cultural intelligence on homesickness among study abroad students. Their research indicated that students who have strong cultural intelligence were more apt to adjust to the cross cultural context and experienced less homesickness while studying abroad. It is on this basis that the specific dimensions of metacognitive cultural intelligence, cognitive cultural intelligence, motivational cultural intelligence, and behavioral cultural intelligence were examined as viable predictors for student persistence.
This review initially explored retention theory, the corresponding models associated with these theories, and the limitations to those models based on empirical and contextual questions and variables. The variables of focus were academic integration, social integration, support services satisfaction, degree commitment, institutional commitment, and academic conscientiousness. A clear conceptualization of these variables and their connection to the framework of retention theory validates the importance of each component within the successful persistence for international students in higher education (Ford, Moore, & Scott 2011; Slanger, Berg, Fisk, & Hanson, 2015). The final section presents the cultural intelligence (CQ) nomological theoretical model and its four dimensions (metacognitive, cognitive, motivational and behavioral) as it appropriately relates to international student persistence.

**Theoretical Framework**

**Retention Theory**

Retention theory aims to explain and delineate a rationale for student dropout and persistence. The seminal theorist of retention, Tinto (1975), developed his theory of integration rooted by the conceptual framework of the psychology of suicide championed by Durkheim (1974). Within Tinto’s construct, the psychological conditions contributing to dropout were analogous to those of suicide. Most specifically, Tinto (1975) asserted that “lack of integration into the social system of the college will lead to low commitment to that social system and will increase the probability that individuals will decide to leave college and pursue alternative activities” (p. 92).

**Tinto’s student integration model.** Tinto’s (1975) student integration model was initially developed in collaboration with his research assistant, Cullen, in 1973 as a theory of student departure. Their longitudinal analysis of student attrition produced a theoretical model of
persistence and attrition that identified specific variables including pre-entry attributes (individual attributes, past education experience and family background), institutional experiences (faculty-student interactions and peer-group interactions), goals or commitment (institutional goals and student objectives), integration (academic and social), and outcomes (student departure due to graduation, transfer, or dropout). Academic and social integration formed the foundation of the 1975 model often referred to as the student integration model (SIM).

The SIM theory was drawn from Durkheim’s (1974) assertion of suicide as a result of extreme withdrawal from society occasioned by the lack of integration into society (Tinto, 1975). For Durkheim, the lack of integration was characterized by the inability to adopt societal values and interact in a social context. Correspondingly, Tinto (1975) proposed that students fail to persist because of their inability to integrate into the values (academic success) and social networks of their academic institution. While students entered college with different backgrounds and characteristics, Tinto’s theory proposed that social and academic integration were the significant determinants for student persistence. This integration, along with a person’s commitment to complete their degree (goal commitment) and remain at their institution to complete the degree (institutional commitment), formed the basis of Tinto’s theoretical model (1975, 1988).

Pascarella and Chapman (1983) employed Tinto’s (1975) SIM model in a multi-institutional study that largely corroborated the predictive validity of persistence as an outcome of student interactions with the social and academic systems of the institution. The validity of Tinto’s model has also been tested by other studies and was found to be an adequate predictive
framework of the reasons for voluntary student withdrawal or dropout (Bean, 1980; Pascarella & Terenzini, 1979; Terenzini & Pascarella, 1977).

**Limitations of Tinto’s SIM model.** While some of Tinto’s (1975) theory was supported by research, some criticized its lack of sufficient empirical data and raised questions about the level of rigor from which findings were founded. Specifically, there were concerns that the data that informed this theoretical framework was derived from archival data without controlled experiments to test the hypothesis and that an examination of alternative theories was nonexistent (Cabrera, Castañeda, Nora, & Hengstler, 1992). Empirical validation studies of this framework had yielded mixed results. Braxton, Sullivan, and Johnson (1997) examined 13 propositions from Tinto’s model and found support for only five, which included social integration. Years later, Brunsden, Davies, Shevlin, and Bracken (2001) tested what could be termed the composite Tinto model rather than a segmented model. Using multivariate analyses on a large student sample, they found little support for the complete model. They emphasized that previous studies that have appeared to support Tinto’s student integration model had never tested his complete theoretical model, but rather tested elements of the model. Brunsden et. al (2001) suggested that the SIM was incomplete, and failed to account for all variables that contributed to student attrition or drop out. Therefore, researchers needed to expand and revise Tinto’s basic model by including new perspectives or by integrating additional elements in Tinto’s model while maintaining elements that have been consistently supported (e.g. integration).

Moreover, limitations related to a diverse population was a criticism levied by Tierney (1992), in which he suggested that Tinto’s (1975) model was developed in a study focused on traditional-aged students. He further argued that Tinto’s model was developed with evidence of
limited understanding and appreciation of groups who tended to be alienated by the mainstream. Tierney (1992) asserted that Tinto’s model developed within an integrationist perspective that was harmful to groups who were not from the dominant institutional culture. These individuals were expected to transition from their previous contexts and environments and readily adapt to a new one in order to successfully persist. While research supports the claim that involvement and integration were necessary, positive contributors for student persistence, much of this research has examined mainstream, traditional American students for whom the transition to college was quite different from students who were from other cultures and socioeconomic backgrounds.

For international students, the concept of integration requires greater exploration. The idea framed in Tinto’s (1975) model for integration implied an adaptation to a dominant culture that Tierney (1992) stressed could be harmful to individuals who are not from the prevailing cultural environment. While a preponderance of research supports the principal claim that student integration is essential for persistence, Andrade (2006) noted “much of this research has examined, mainstream, traditional American students for whom the transition to college is quite different than for students who are from other cultures and socioeconomic backgrounds” (p. 63). Due to the salient reality of diverse student populations and an imprecise empirical framework within Tinto’s model, other researchers such as Bean and Eaton (2001) proposed modifications or extensions of his integration model.

**Bean and Eaton’s retention theory.** Bean and Eaton (2001) delved deeper into the concepts of persistence and integration espoused by Tinto (1975, 1988) and focused on the role of psychological processes inherent but not explicitly extracted within traditional retention theory. While traditional constructs focused on the sociological aspects that created academic and social integration, Bean and Eaton (2000) explored the psychological processes that led to
successful integration and contributed to the overall structure of an effective retention model. This model developed out of a study that employed a psychological model to further explore academic and social integration on the basis that these variables were much more complicated constructs than presented in past studies (Bean, 1983; Eaton & Bean, 1995).

Bean and Eaton (2000, 2001) further discovered that the coping behaviors of approach and avoidance based on a psychological theoretical substratum had statistically significant effects on academic and social integration, which in turn effected eventual dropout decisions (Bean, 1990; Eaton & Bean, 1995; Roth & Cohen, 1986). More explicitly, academic and social integration were outcomes of self-efficacy assessments, normative beliefs, and past behaviors. In other words, the internal factors that manifested as guiding questions of personal confidence (self-efficacy), ideology (beliefs), and experiences gained (past behavior) were determined to influence student interaction with the institution. As a result, a unique context for social and academic integration was created. However, this complicated assertion was characterized as an interaction that did not directly result in integration but most certainly impacted a student’s integration into a university or college (Bean & Eaton, 2000). Thus, their findings did not contradict Tinto’s (1975) SIM, but further validated integration and also provided a clearer understanding of the nature of academic and social integration.

**Related Literature**

**Persistence Factors**

An extensive review of persistence literature and research inclusive of Tinto (1975, 1988 2007), Bean and Eaton (2000, 2001), as well as others (Berger & Milem, 1999; Cabrera et al., 1993; Pascarella & Terenzini, 1979, 1983, 1991) presented a locus of reliable factors or variables that influence student decisions to persist or drop out. The variables began with social and
academic integration and expanded to include other empirical, validated descriptors connected to institutional and/or personal student characteristics. The other variables included degree or goal commitment (Cabrera et al., 1993; Tinto, 1975, 1987), institutional commitment (Braxton, Hirschy, & McClendon, 2011), student conscientiousness (Bean & Eaton, 2001; Hetzel & Laskey, 2011), and satisfaction with services and support at the school (Bean, 1980; Berger & Milem, 1999; Milem & Berger, 1997). The viability and validity of these variables within persistence research and operationalized definitions of these factors merited discussion and inclusion for any feasible model that would predict student persistence (Cabrera et al., 1993; Davidson et al., 1999; Davidson et al., 2009).

**Integration.** For Tinto (1975, 1988, 1993), the thematic concept of integration was of utmost significance. Academic integration occurs within an academic system. Academic performance and interaction with faculty and staff lead to either constructive experiences that help to integrate the student into their academic environment or negative academic occurrences that trigger student isolation (Chen, 2012). In a similar fashion, social integration develops within a social context. Experiences such as student extracurricular involvement or peer-group interactions lead to positive environments and successful integration while negative experiences lead to student disengagement (Tinto, 1988, 1993). The integration of a student from an academic and social standpoint is also influenced by the student’s family background, pre-college experiences, internal commitments to the academy, as well as chosen institution of study (Bean & Eaton, 2001; Tinto, 1975, 1993). When analyzing academic integration, background characteristics such as intellectual development and grade attainment factor significantly for the learner. In a similar light, peer and faculty engagement often affect the degree of social
integration for the student. This complex mix of influences produces a decision to persist or dropout within Tinto’s model.

Academic and social integration are accepted across retention research as vital indicative factors of student persistence. The manner in which students experience interactions within the campus environment in an academic and social basis could lead to persistence or dropout. However, a widely accepted metric to determine a student’s level of academic and social integration does not exist. Wood, Newman, and Harris (2015) used mathematics and English self-efficacy as a determinant of academic integration in a study focused on first year Black males enrolled in community college, while Shepler and Woosley (2012) used pre-entry variables of gender and admissions test scores as possible predictors of academic integration. It is worthy to note that social integration analysis indicated that interactions external to the institution such as life, work, and family circumstances, as well as outside encouragement are important aspects that support the student’s academic connection within the school (Siekpe & Barksdale, 2013). There is also a strong interplay between academic and social integration as persistence factors that build upon one another (Tinto, 2007).

**Commitment.** Retention theory extends beyond academic and social integration to aspects of personal and institutional commitment. Goal commitment, also known as degree commitment, refers to an individual’s tenacity and personal drive towards attainment of a degree in relation to educational expectations or career plans (Tinto, 1975). The higher the level of goal commitment that a student has, the more likely the individual will remain in school. However, the goal commitment level is not merely derived from an inner drive within the student. Cabrera et al. (1993) suggested a link between encouragement from friends and family and a student’s intent to persist as an aspect of goal commitment that can be especially impactful during the
initial phases of student enrollment. Reinforcement from recognizable sources of support such as parents can prove an invaluable boost to a student struggling with a class or any other aspect of their experience in higher education (Strom & Savage, 2014).

Institutional commitment is closely related to goal commitment and refers to a student’s satisfaction with their selection of a college or university and their commitment to complete their educational goal at the institution (Braxton et al., 2011). Institutional commitments and goal commitments serve as initial predictors and eventual reflections of a student’s collegiate experience. Tinto (1993) stated, “Intentions or goals specify both the level and type of education and occupation desired by the individual. Commitments indicate the degree to which individuals are committed both to the attainment of those goals (goal commitment) and to the institution into which they gain entry (institutional commitment)” (p. 115).

The four variables, goal commitment, institutional commitment, academic integration, and social integration, prominently factor in Tinto’s model as the reflected in Figure 1. Yet, these are not exhaustive and are impacted by other factors such as pre-entry characteristics and external social systems. Researchers concurred with Tinto’s (1975, 1987) assertion that no single factor for retention can be identified as “the key” for persistence (Cabrera et al., 1993; Davidson et al., 2009). Rather, there is a mixture of individual and institutional variables such as student personality and student adjustment. These variables that interact with academic situations must be considered for any focused on student persistence.
Personal pre-entry characteristics are noteworthy components within Tinto’s (1975) model. However, they will not be examined in this study because universities have little influence over them once a student has been admitted. Additionally, research has indicated that institutional factors exert greater influence on student persistence when compared with these pre-entry characteristics. For example, in their study on the persistence of college students, Hetzel and Laskey (2011) found no significant difference in student persistence when analyzing the pre-entry data of high school GPA and standardized test scores (pre-college schooling). Their study also found that participation in the institutional support service of tutoring had a significant influence on student persistence, which showed that in addition to integration and commitment, other variables such as student conscientiousness and student support satisfaction affected student persistence.

**Conscientiousness.** Hetzel and Laskey (2011) investigated personal characteristics of students based on Tinto’s (1988) revised model which called for the creation of institutional climates of caring and belonging in the aim of furthering student retention. Their study yielded
findings that showed that certain personality traits assessed and examined generated greater degrees of persistence for students who were identified as at risk of dropping out when tracked over a three-year period. Five personality factors, also known as the “Big Five” were investigated in the study: (1) neuroticism, the tendency to experience psychological distress; (2) extraversion, the tendency towards sociability, activity, and positive emotions of joy and pleasure; (3) openness, the openness to new experiences; (4) agreeableness, the tendency to be trusting sympathetic and cooperative; and (5) conscientiousness, the tendency to be scrupulous, well organized, and diligent. Of these factors, conscientiousness emerged as a valid and reliable predictor of both academic success and student retention.

Okun and Finch (1998) examined the role of the “Big Five” personality dimensions in relation to student departure. The path model of departure focused on the variables of social integration, changes in institutional commitment, cumulative GPA, and departure. Conscientiousness was projected to indirectly affect social integration and conscientiousness and also predicted departure, as they postulated that individuals who were more conscientious often felt a greater commitment to their school. This was also seen in the line of questions that informed the College Persistence Questionnaire which was used to determine academic conscientiousness as they assessed areas such as how often students missed class or turned in assignments in a timely fashion (Davidson et al., 2009). This paradigm was developed to determine the level of personal diligence a student had as a predictor of student persistence.

**Student support satisfaction.** This conception of satisfaction was based on the idea of how much a student enjoyed the role of being a student inclusive of and beyond the academy (Bean & Metzner, 1985). The utilization of institutional resources anticipated the effectiveness of meeting student needs beyond the classroom. Satisfaction with aspects of the student
experience such as living environment, student inclusive policy development and decision-making, school community, and communication initiatives have all been found to play a statistically significant role in causal models of persistence (Bean, 1980; Berger & Milem, 1999; Milem & Berger, 1997; Pascarella et al., 1986).

One of the more important considerations that can affect a student’s decision to persist is the level of financial ability to fund their education and continue studies within an institution. Students with access to a sufficient level of financial support or aid are much more likely to persist to degree completion (Avery & Turner, 2012; Stewart et al., 2015). Financial capability and access has been a variable of consideration in several models of persistence (Braxton et al., 2011; Chen, 2012; McKinney & Novak, 2013). Student support satisfaction identifies and measures this component of retention theory by comparing a student’s satisfaction with institutional costs and the strain they experience in meeting their financial commitments in exchange for the perceived value of investment that the attainment of the degree from the institution presents (Cabrera, Nora, & Castaneda, 1992; Hatcher, Kryter, Prus, & Fitzgerald, 1992; Schreiner, & Nelson, 2013).

**Development of the College Persistence Questionnaire**

Davidson et al. (2009) developed an instrument, the College Persistence Questionnaire, tied to the six factors discussed above: (1) academic integration, (2) social integration, (3) degree/goal commitment, (4) institutional commitment, (5) academic conscientiousness and (6) support services satisfaction. This instrument was designed to aid colleges in identifying students at risk of dropping out as well as determine the variables/factors that best predicted undergraduate student persistence.

The instrument was developed from an item pool created after the review of
approximately 150 studies that identified variables associated with persistence. Questions were composed to measure these variables. After a conduction of principal components analyses, 53 questions were preserved to measure the six factors. The sample for the validation study was undergraduate students ($N = 283$) from three four-year institutions and one community college. The participants were largely made up of Caucasian students (71%) who were younger than 25 years of age (62%). Predictive validity for the instrument was also established through a second investigation to assess the ability of the CPQ to predict freshmen students’ persistence into their sophomore year. The entire scale was found to significantly predict persistence, with institutional commitment, academic integration and conscientiousness being the best predictors (Davidson et al., 2009).

**Studies Beyond Traditional Student Populations**

While the College Persistence Questionnaire and traditional theories have examined traditional populations, some research has focused on non-traditional and diverse populations (Bean & Metzer, 1985). The retention of non-traditional and diverse students is especially relevant in our contemporary environment, as the percentage of students over the age of 25 in higher education has increased. As of 2012, only 29% of college students could be identified as traditional (U.S. Department of Education, National Center for Education Statistics [NCES], 2013).

As Tinto (1975, 1988), Bean and Eaton (2001), and others have provided a theoretical framework for greater exploration and study, persistence studies continue to evolve and incorporate new variables for consideration into the research, reflecting the changing dynamics of higher education in the United States and abroad. The greatest challenge within this arena of inquiry and examination remains that the results of these persistence studies suggested that
influences on student departure remained mixed and go beyond variables comprehensively recognized by current research (Braxton et al., 2011; Metz, 2004; Tinto, 2010).

The social and academic needs of any specific population must be analyzed with an awareness of its uniqueness. For example, for non-traditional adult learners, there should be the question of how andragogy, teaching strategies for the adult learner, fits within the context of this unique student population (Minter, 2011), since adult students are more self-directed and require a different set of resources to promote effective integration and manage attrition (Knowles, Holton, & Swanson, 2012).

Love et al. (2010) compared various aspects of campus communities and quantitatively analyzed those factors upon the retention of African-American students in both historically Black colleges and universities (HBCUs) and primarily white institutions (PWIs). Grade point average, faculty relationships, racial stereotypes (sensitivity), and school climate were statistically significant predictors of persistence. In their study, racial stereotypes negatively impacted student retention in a significant fashion, while campus climate factored in a very positive manner. The underpinnings of student integration in the form of acculturation and assimilation provided this study a critical background to support their quantitative analyses (Love et al., 2010).

Love et al. (2010) further suggested that minorities felt pressured to conform to the dominant culture at PWIs and sacrificed their cultural values and accepted the dominant culture to fit into their respective institutional setting. Students often conformed to a different culture in order to survive and build social networks to progress through their collegiate experience (Guiffrida & Douthit, 2010; Sato, & Hodge, 2015). The finding of this study concerning
acculturation provided impetus for further exploration of unique student populations such as international students.

**International Students**

Very little research has been completed with a concentration on the recruitment and retention of international students (Kwai, 2009). However, their participation in higher education is significant and merits focus. As a resource, international student enrollment adds up to over $27 billion to the national economy of the United States (IIE, 2014). However, their enrollment and persistence practices do not correlate to patterns that exist with other student populations (Zhao, Kuh, & Carini, 2005). For example, contrary to popular persistence practices, participation in remedial English actually had a negative effect on persistence for international students (Mamiseishvili, 2012). This presents a challenge to much of the current research within a traditional academic context where remedial courses positively supported student persistence (Bettinger & Long, 2009; Hoyt, 1999).

The prevailing mindset in remedial course research suggests a positive link between academic preparedness with that of persistence and subsequent program completion (Cabrera, Nora, Terenzini, Pascarella & Hagedorn, 1999; Perin, 2004; Tinto, 2006). The logic is that the more prepared students are for accomplishment in an academic environment, the more likely the student will be successful as a student and therefore continue in school (Bettinger & Long, 2009). Uncovering the influences that create an inverse response to remedial courses in an international context then would provide research of great value. The data would suggest that while English remediation has a positive impact on domestic student retention, an international student’s struggle with English and the resultant likelihood to drop out create concerns about the remedial course’s necessity or even its effectiveness for that specific and unique student
The idea that traditional persistence theory may not apply to the international student population is supported by a few emerging studies. Andrade’s (2006) qualitative study uncovered that international students found themselves having “to choose between having a social life and doing well in their course” (p. 68). However, Mamiseishvili (2012) recommended an emphasis on integrative strategies such as faculty advisement outside of the classroom and the use of more cooperative learning activities within the classroom to foster greater social engagement for international students in a manner that would be accepted within their community.

As noted earlier, cultural factors may also influence international students’ persistence. Russell et al. (2010) suggested that international students experience substantial levels of stress because of homesickness, cultural shocks, or perceived discrimination. In contrast to domestic students, international students have additional barriers to overcome with regard to social integration, as social networks are often not within reach (Zhou, Jindal-Snape, Topping, & Todman, 2008). Therefore, extensions of Tinto’s (1975, 1998) model to include five additional social integration factors for international students have been recommended. These are: (1) perception of the faculty by the social network of students, (2) social support by family and friends, (3) social life, (4) ethnic background, and (5) financial support as contributing elements for student integration.

Studies have verified lower levels of academic and social integration among non-Western international students attending colleges in the United States, Australia, or Europe (Rienties et al., 2012). This was due to the fact that non-Western students often received less support from family and friends in the form of emotional support and encouragement, and it left the student
with more obstacles to overcome in the process of successful integration into academic life in contrast to domestic student groups.

For international students, the predictive factors of social integration, academic integration, goal commitment, institutional commitment, and support services satisfaction can be impacted by variables not usually anticipated for the traditional domestic student in higher education. In addition to, or possibly in contrast to these normed persistence factors found in models such as Tinto’s (1975) SIM, a student from a foreign country also has to deal with the additional variable of intercultural experiences. These experiences can vary based on cultural intelligence level or their own ability to adjust or adapt to the predominant culture in which they immersed and is reflected throughout their matriculation at the college or university (Gopal, 2011; Livermore, 2015).

**Cultural Intelligence**

Bang and Montgomery (2013) presented the idea of acculturation and cultural intelligence (CQ) as concepts to assess and predict the interpersonal capacity of international students. Insights from the vantage point of the research focused on the concerns of social adaptability, social success, and adjustment as well as social, cultural, and emotional competency. Acculturation refers to an individual’s ability to adjust and process the interactional dynamics between two or more cultural systems (Ayoob, Wani, Ahmad, Jan, & Dar, 2015; Berry, 2005). Research presented a quantifiable measure for the ability to manage acculturative stress as one’s cultural intelligence (Ang et al., 2007; Ayoob et al., 2015). Cultural intelligence (CQ) is defined as an individual’s capability to function and manage effectively in culturally diverse settings (Ang et al., 2007; Earley & Ang, 2003).
Earley and Ang (2003) developed the cultural intelligence (CQ) theoretical model. The construct of CQ is comprised of four dimensions grounded in contemporary theories of intelligence. Consistent with the concept of general intelligence that is defined as the ability to grasp and reason correctly with concepts and solve problems (Schmidt & Hunter, 2000), cultural intelligence extended beyond earlier, more narrow conceptions of intelligence to areas beyond traditional classroom paradigms (Ang & Van Dyne, 2008). Intelligence constructs have transitioned into other “real-world” expressions that focus on specific domains such as social intelligence or emotional intelligence (Ang & Van Dyne, 2008). Similarly, cultural intelligence (CQ) focuses on the specific sphere of intercultural settings. CQ is conceptualized as the specific expression of intelligence based on the ability to grasp and reason in situations characterized by cultural diversity (Earley & Ang, 2003). In the same way that emotional intelligence (EQ) complements cognitive intelligence (IQ), CQ is the corresponding form of intelligence that can clarify potential capability in diverse, cultural interactions (Ang & Van Dyne, 2008).

Cultural intelligence research has been largely limited to the area of business because United States corporations used CQ to determine the viability of employees’ capacity and effectiveness in an international work environment (Stening, 2006). However, these principles can be extrapolated to other environments such as higher education and the unique population of international students where their experiences and competencies intersect with those of other studies that have applied CQ to learning capability and global leadership self-efficacy (Ng, Van Dyne, & Ang, 2009)

The four dimensions of cultural intelligence used to measure interpersonal interactions in culturally diverse environments are metacognitive CQ, cognitive CQ, behavioral CQ, and motivational CQ (Van Dyne et al., 2012). Metacognitive cultural intelligence is how individuals
acquire and develop understanding of cultural knowledge, particularly to the “control of cognition – the processes individuals use to acquire and understand knowledge” (Ang et al., p. 584). Cognitive cultural intelligence refers to cultural knowledge that is acquired in an explicit manner as part of a person’s intellect (Ang et al., 2011). The third aspect of CQ, which is framed within a three-pronged “loci” of intelligence as emphasized by Sternberg (2012), is motivational cultural intelligence. Motivational cultural intelligence “refers to the mental capacity to direct and sustain energy on a particular task” within a diverse cultural environment (Ang et al., 2011, p. 584). Finally, behavioral cultural intelligence presents the capability to demonstrate appropriate behaviors (both verbal and non-verbal) in cross-cultural interactions (Ang et al., 2011). These dimensions are outlined and explained further below.

**Metacognitive cultural intelligence.** The mental process used to obtain and comprehend cultural knowledge is the first component of cultural intelligence, termed metacognition (Earley & Ang, 2003). Metacognition is a complex concept framed by many as “thinking about thinking” (Akyol, & Garrison, 2011). Martinez (2006) presented metacognitive cultural intelligence as the “monitoring and control of thought” (p. 696). This can be further divided into two ideals: metacognitive knowledge and metacognitive experience. Metacognitive knowledge is knowledge obtained in a variety of situations and metacognitive experience refers to the incorporation of meaningful experiences in anticipation of future interactions (Earley & Ang, 2003). This capacity can guide the cognitive focus of an individual while they are able to make behavioral adjustments such as adaption, interaction, and learning in culturally diverse situations (Van Dyne et al., 2012).

The metacognitive domain is an expansion of Bennett’s (1993) theory of the origin of intercultural sensitivity and King and Baxter Magolda’s (2005) constructive development theory.
Both models suggested that strong personal cognitive ability will allow individuals to create an internal self-concept open to challenges of their own initial, inherent worldview and cultural framework (Ang et al., 2011; Earley & Ang, 2003). Metacognitive cultural intelligence enhances one’s ability adjust to divergent cultural processing through the use of metacognitive capabilities such as planning and monitoring self-thought to revise personal perspectives or swiftly adapt to a different cultural environment (Bennett, 1993; Earley & Ang, 2003; King & Baxter Magolda, 2005).

Metacognitive cultural intelligence also draws from Offermann and Phan’s (2002) framework of intelligence in a cultural environment that fosters individual evaluation of personal cultural assumptions. This evaluation can facilitate adjustment of behavior during intercultural exchanges (Rockstuhl, Seiler, Ang, Van Dyne, & Annen, 2011). This requires a capacity for suspending any personal cultural stereotyping or categorizing until additional knowledge is acquired (Brubacker, 2004). Individuals who have a high metacognitive cultural intelligence have mental awareness and openness to the norms and activities of other cultures and are able to monitor and adjust their cultural assumptions and mental structure through their cross-cultural interactions (Ang et al., 2007; Earley & Ang, 2003; Rockstuhl et al., 2011).

Thinking in a relativistic, cultural manner is a trait for individuals with high levels of metacognitive cultural intelligence. People who are able to interact with individuals from cultures that are different from their own cultural framework and esteem those differences with value exhibit high metacognitive CQ (Earley & Ang, 2003). Earley (2002) asserted that this aspect of cultural intelligence is imperative, as much of what is required in assimilating a new culture is the ability to assemble patterns and constructs in a logical picture even before the total picture is fully developed. Taken as a whole, cognitive and metacognitive CQ work together to
complete a mental framework of what people understand about themselves and other cultures (Earley & Ang, 2003; Saxe, 2015; Thomas, 2006).

**Cognitive cultural intelligence.** The second dimension, cognitive cultural intelligence, is defined as knowledge obtained through educational and personal experiences (Ang et al., 2007). Cognitive CQ provides a greater knowledge base and comprehension of how to operate within a different cultural context. This context could include cultural norms and values, social systems (Ang et al., 2007), knowledge of the processes by which culture informs behavior, (Thomas, 2006) as well as normative practices and conventions (Saxe, 2015).

This understanding of cultural phenomena creates the interpersonal and intrapersonal parameters necessary for healthy interaction in a culturally diverse context (Earley & Ang, 2003; Kim & Van Dyne, 2012; Offermann & Phan, 2002). The focused knowledge creates connections and awareness of personal identity, personality, and social role (Earley & Ang, 2003; Rapport, 2014). Those parameters of understanding then create a substratum for processing cultural engagement and provide personal insights to individuals concerning their relation to others. The greater the level of personal understanding and cultural specific knowledge, the deeper the intellectual connection, and the likelihood of desirable cross-cultural interaction increases (Earley & Ang, 2003; Rockstuhl et al., 2011).

Cognitive capability is as much the process of overcoming misconceptions as it is the acquisition of new concepts and data (Sinatra, Kienhues, & Hofer, 2014). The removal of existing perceptions about why people’s behavior is different is a crucial aspect of cognitive CQ. Without this knowledge base, individuals are not able to apply their interpersonal knowledge effectively in different cultural settings. Individuals with high cognitive CQ can determine meaning inductively in an appropriate fashion when observing cultures that are not like their
own. Additionally, they are able to compare deductively cultural knowledge to specific cultural settings and interact within that setting in a proper fashion (Earley & Ang, 2003). High levels of cognitive CQ will reflect greater appreciation and understanding of the nuanced similarities and differences found between cultures (Earley & Ang, 2003). While cognitive cultural intelligence is usually the major focus of intercultural training (Ting-Toomey, 2012), it is worth noting that motivational and behavioral CQ are other components of cultural intelligence necessary for effective cultural knowledge acquisition (Ang et al., 2007; Earley & Ang, 2003; Rockstuhl et al., 2011).

**Motivational cultural intelligence.** The third dimension of cultural intelligence is known as motivational CQ. Motivational CQ is reflected as a person’s interest in learning and preforming well in cross-cultural situations (Van Dyne et al., 2012). This domain reflects the desire for the recognition and adoption of novel cultural values. The end desire is reflected by a personal satisfaction in the attainment of personal development and growth when it comes to engagement with other cultures (Zhao et al., 2005). A person’s motivation is grounded in one’s self-concept, which is made up of a combination of self-efficacy and intrinsic motivation (Earley & Ang, 2003).

Bandura (1986) defined self-efficacy as a person’s “capability to accomplish a certain level of performance” (p. 391). In turn, self-efficacy supports the growth of intercultural effectiveness despite the possible presence of certain unseen barriers between cultural exchanges (Bandura, 1994; Earley & Ang, 2003). Individuals with high levels of self-efficacy have the ability to glean from other’s successful intercultural exchanges in a more effective manner (Ang, Van Dyne, & Koh, 2006). This serves as the basis for successful cultural interaction since self-
efficacy provides a greater personal sense of confidence and anticipation (Van Dyne et al., 2012).

A deeper analysis of motivational CQ revealed a dual framework of extrinsic and intrinsic motivators that provide fuel for individuals in this dimension of cultural intelligence. These motivations are distinguished by their locus of personal impact as intrinsic motivation refers to doing something because it is fundamentally interesting or gratifying, and extrinsic motivation is done because it leads to a distinguishable and desired outcome (Ryan & Deci, 2000). In a corporate study on cultural intelligence, Livermore (2015) presented examples of extrinsic motivators such as greater salary and profit, career advancement, recognition, and expansion of global network as possible influences to encourage intercultural exchanges and engagement (Van Dyne et al., 2009). Extending beyond the apparent financial benefits, intrinsic motivation provides the internal satisfaction and pleasure of being culturally intelligent (Van Dyne et al., 2009). It was found that the intrinsic rather than extrinsic motivators actually encourage, empower, and sustain motivational cultural intelligence (Ang & Van Dyne, 2008; Firth, Chen, Kirkman, & Kim, 2014; Livermore, 2015).

High levels of motivational CQ present a greater likelihood for a person to be open to new, diverse cultural experiences in addition to having a capacity to appreciate engagement in culturally divergent settings (Earley & Ang, 2003). Intercultural effectiveness is a direct result of the personal motivation within individuals who desire opportunities to experience and learn more about different cultural groups (Mueller & Pope, 2001). A person with a great degree of motivational CQ will exhibit high levels of interest and confidence in their cross-cultural effectiveness.
Behavioral cultural intelligence. The fourth dimension of cultural intelligence is behavioral cultural intelligence. Ang and Van Dyne (2015) defined this aspect of CQ as “the individual capability to exhibit appropriate verbal and nonverbal actions in culturally diverse interactions” (p. 5). Mental capabilities for cultural competency in this realm are supplemented with the correct behavior in verbal and nonverbal manners. This capacity extends past verbal communication to nonverbal occurrences such as facial expressions, bodily movements, proxemics, and time, all of which can differ based on cultural context (Earley & Ang, 2003; Livermore, 2015).

Behavioral CQ manifests in personal interactive settings and exchanges that inform a person’s perception of a new encounter (Earley & Ang, 2003). This personal interaction can be observed in several specific demeanors. For example, the ability can be revealed in one’s ability to express himself or herself, also termed self-presentation (Ang et al., 2007). Self-presentation as well as cognitive flexibility are essential ingredients for proper cross-cultural interaction and engagement (Earley & Ang, 2003). Behavioral CQ can also be marked by appropriate verbal and non-verbal communication within cross-cultural contexts (Ang et al., 2007), also known as framing. Another component of behavioral CQ is scripting, which is the ability to improvise and to be flexible in adapting and performing (Ang et al., 2007; Earley & Ang, 2003).

Behavioral CQ links directly to an individual’s capacity to acquire and respond to novel information in a culturally competent manner in divergent cultural situations (Earley & Ang, 2003; Earley & Peterson, 2004). Individuals with high levels of behavioral CQ are able to access internal verbal and non-verbal abilities and use culture-specific knowledge to express appropriate words or other communicative postures such as gestures or facial and bodily expressions to other cultures (Matsumoto & Yoo, 2005). High levels of behavioral CQ are evident when others feel
at ease in cross-cultural situations because they intuitively adapt their behaviors to culturally appropriate forms in order to promote healthy cross-cultural interaction (Ang & Van Dyne, 2015; Tuleja, 2014).

**Relevance of Cultural Intelligence to Persistence Factors**

The value of measuring cultural intelligence for international students in higher education can prove to be noteworthy. Due to globalization in modern commerce, much of cultural intelligence research has been developed within the area of business literature and corporate studies (Tuleja, 2014). Therefore, its value as an empirically sound measure of one’s capacity to properly interact with others in a culturally diverse setting can be extrapolated into the realm of higher education with relative ease. Love et al. (2010) presented data that suggested non-majority students who are able to successfully integrate and find inclusion into the mainstream life of a university are much more likely to persist. Their regression analysis revealed a positive correlation between a campus climate that fostered positive intercultural exchange with student persistence. There was additionally a negative relationship where students perceived a great deal of racial stereotyping in the institution studied.

The ability to engage other cultures in a meaningful manner is a bulwark of cultural intelligence. The concept of task performance is closely tied to a person’s cultural intelligence (Ang et al., 2007). Task performance refers to all behaviors and activities that must be done officially in the working process and of a specific task. Skills, knowledge, abilities, and motivation (the substratum of CQ measurements) are components of performance (Crowne, 2009). In the business arena, poor performance evaluations are often tied to a poor understanding of cultural differences in role expectations and a lack of conformity to those expectations (Moran, Abramson, & Moran, 2014).
Research asserted that individuals who exhibit greater environmental awareness and can adapt their behavior based on those environmental factors are better at comprehending and properly fulfilling culturally appropriate role expectations (Ang et al., 2007). Strong metacognitive and behavioral cultural intelligence creates a greater capacity to understand expected role behaviors within culturally diverse contexts.

Similar to the business management setting and the focus of these data, international students in higher education will often find themselves in a comparable reality. While performance evaluations are generally the measure of task effectiveness in a corporate context, academic evaluation of student performance can be substituted for the idea of task performance (Baird, 1985; Hogan, Chamorro-Premuzic, & Kaiser, 2013). Although there are challenges to an over-simplified analytical relationship between academic performance and job performance, the evaluative context of both rely on an individual’s ability to exhibit skills, knowledge, abilities, and motivation (Ang et al., 2007; Young & Fry, 2012).

The likelihood for successful integration into institutions of higher education not only relies on academic or intellectual success, but also on the student’s level of cultural adaptation (Love et al., 2010). As cultural intelligence is an indicator of cross-cultural adjustment ability that indicates integration capacity, it is also connected to a student’s ability to persist in school. Further, the four dimensions of cultural intelligence validated in a study facilitated by Van Dyne et al. (2009), concluded that motivational and behavioral CQ had a positive relationship with mental well-being.

This positive relationship is valuable, as Mofidi, El-Alayli, and Brown (2014) found that psychological well-being was a positive predictor for student persistence and further reflected a likelihood for greater social connectedness for students in higher education. This clearly
anticipates the possibility of cultural intelligence and its dimensions of cognitive, metacognitive, motivational, and behavioral CQ as valid predictors for student persistence. Each of these dimensions have integrative aspects of persistence factors in a packaging unique for international students placed in a cultural context different from their own. This study further addressed the existing gap in research on international student persistence, as current research has not explicitly examined cultural intelligence as a predictive factor for international student persistence in higher education.

**Summary**

Research is replete with data that supports and extends student integration models for effective retention practice. These studies require adjustment and alignment based upon the unique needs of the diverse student populations present in today’s higher education climate in the United States. While studies of unique populations such as non-traditional, African-American, Hispanic, and other minority groups of students have emerged to provide greater analysis for significant and relevant persistence factors for each group, studies focused on international students in the United States are deficient and incomplete. One of the major admissions requirements for international students in U.S. higher education, the Test of English as a Foreign Language (TOEFL) score, is not an accurate indicator or predictor of student success (Vu & Vu, 2013; Wait & Gressel, 2009). It is only a measure of language proficiency. There are academic, social, psychosocial, economic, and additional cultural factors that require examination within the unique context of non-immigrant international students. This calls for further research into how retention theory applies and can be extended to the unique international student population.
CHAPTER THREE: METHODOLOGY

Overview

The purpose of this predictive, correlational study was to determine if a statistically significant association existed among the factors measured by the International Students’ College Persistence Questionnaire (academic integration, social integration, support services satisfaction, degree commitment, institutional commitment, and academic conscientiousness) (Davidson et al., 2009), the factors measured by the Cultural Intelligence Scale (cultural intelligence (CQ) dimensions of metacognitive CQ, cognitive CQ, motivational CQ, and behavioral CQ (Earley & Ang, 2003), and the criterion variable of actual student persistence from one semester term to the next semester term. A hierarchical logistic regression analysis was utilized to analyze the relationship between the predictor and the criterion variables. This chapter discusses the design, the research question and hypotheses, the participants and setting for the study, the instrumentation, procedures, and data analyses.

Design

A predictive, correlational research design was employed for this quantitative study in order to investigate the association between international students’ persistence and academic integration, social integration, support services satisfaction, degree commitment, institutional commitment, academic conscientiousness, and factors of cultural intelligence. A correlational design was chosen because it explores the association that may exist between the variables (Tabachnick & Fidell, 2007). The use of this design and the corresponding hierarchical logistic regression analysis is supported by the fact various researchers have used these approaches in similar studies (Gore, 2006; Krumrei-Mancuso et al., 2013).
Assumptions

There are several assumptions presumed in this predictive correlational study. First, it was assumed that the College Persistence Questionnaire (CPQ) is a valid and appropriate instrument to assess likelihood to persist in a post-secondary institution, as the instrument has been used at several universities to accurately project persistence (Davidson et al., 2009). Additionally, it is assumed that the Cultural Intelligence Scale (Early & Ang, 2003) is a valid instrument to measure cultural competency in a diverse cultural setting. It was assumed the predictor variables used in this study were distinctive from one another. Finally, it was assumed that the student population identified in this study responded to the items in these questionnaires in an honest, accurate, and authentic manner.

Research Questions

The research questions for this study were as follows:

RQ1: Will the linear combination of the College Persistence Questionnaire (CPQ) subscale scores and the cultural intelligence factors as measured by the Cultural Intelligence Scale (CQS) predict the persistence of international students?

RQ2: Do the College Persistence Questionnaire (CPQ) subscale scores significantly contribute to the variance in the persistence of international students?

RQ2a: Does academic integration as measured by the CPQ significantly contribute to the variance in persistence for international students?

RQ2b: Does social integration as measured by the CPQ significantly contribute to the variance in persistence for international students?

RQ2c: Does student support services as measured by the CPQ significantly contribute to the variance in persistence for international students?
RQ2d: Does degree commitment as measured by the CPQ significantly contribute to the variance in persistence for international students?

RQ2e: Does institutional commitment as measured by the CPQ significantly contribute to the variance in persistence for international students?

RQ2f: Does academic conscientiousness as measured by the CPQ significantly contribute to the variance in persistence for international students?

RQ3: Do the cultural intelligence factors as measured by the Cultural Intelligence Scale (CQS) significantly contribute to the variance in the persistence of international students?

RQ3a: Does metacognitive CQ as measured by the CQS significantly contribute to the variance in persistence for international students?

RQ3b: Does cognitive CQ as measured by the CQS significantly contribute to the variance in persistence for international students?

RQ3c: Does motivational CQ as measured by the CQS significantly contribute to the variance in persistence for international students?

RQ3d: Does behavioral CQ as measured by the CQS significantly contribute to the variance in persistence for international students?

Research Hypotheses

The following were the research hypotheses:

H1: The linear combination of the College Persistence Questionnaire (CPQ) subscale scores and the cultural intelligence factors as measured by the Cultural Intelligence Scale (CQS) will predict the persistence of international students.

H2: The College Persistence Questionnaire (CPQ) subscale scores will significantly contribute to the variance in the persistence of international students.
**H12a:** Academic integration as measured by the CPQ will significantly contribute to the variance in persistence for international students.

**H12b:** Social Integration as measured by the CPQ will significantly contribute to the variance in persistence for international students.

**H12c:** Student support services as measured by the CPQ will significantly contribute to the variance in persistence for international students.

**H12d:** Degree Commitment as measured by the CPQ will significantly contribute to the variance in persistence for international students.

**H12e:** Institutional Commitment as measured by the CPQ will significantly contribute to the variance in persistence for international students.

**H12f:** Academic Conscientiousness as measured by the CPQ will significantly contribute to the variance in persistence for international students.

**H13:** Cultural intelligence factors as measured by the Cultural Intelligence Scale (CQS) will significantly contribute to the variance in persistence for international students.

**H13a:** Metacognitive CQ as measured by the CQS will significantly contribute to the variance in persistence for international students.

**H13b:** Cognitive CQ as measured by the CQS will significantly contribute to the variance in persistence for international students.

**H13c:** Motivational CQ as measured by the CQS will significantly contribute to the variance in persistence for international students.

**H13d:** Behavioral CQ as measured by the CQS will significantly contribute to the variance in persistence for international students.
**Null Hypotheses**

The following were the null hypotheses:

- **Ho1:** The linear combination of the College Persistence Questionnaire (CPQ) subscale scores and the cultural intelligence factors as measured by the Cultural Intelligence Scale (CQS) will not predict the persistence of international students.

- **Ho2:** The College Persistence Questionnaire (CPQ) subscale scores will not significantly contribute to the variance in the persistence of international students.

- **Ho2a:** Academic integration as measured by the CPQ will not significantly contribute to the variance in persistence for international students.

- **Ho2b:** Social integration as measured by the CPQ will not significantly contribute to the variance in persistence for international students.

- **Ho2c:** Student support services as measured by the CPQ will not significantly contribute to the variance in persistence for international students.

- **Ho2d:** Degree Commitment as measured by the CPQ will not significantly contribute to the variance in persistence for international students.

- **Ho2e:** Institutional commitment as measured by the CPQ will not significantly contribute to the variance in persistence for international students.

- **Ho2f:** Academic conscientiousness as measured by the CPQ will not significantly contribute to the variance in persistence for international students.

- **Ho3:** Cultural intelligence factors as measured by the Cultural Intelligence Scale (CQS) will not significantly contribute to the variance in persistence for international students.

- **Ho3a:** Metacognitive CQ as measured by the CQS will not significantly contribute to the variance in persistence for international students.
**H₀₃b:** Cognitive CQ as measured by the CQS will not significantly contribute to the variance in persistence for international students.

**H₀₃c:** Motivational CQ as measured by the CQS will not significantly contribute to the variance in persistence for international students.

**H₀₃d:** Behavioral CQ as measured by the CQS will not significantly contribute to the variance in persistence for international students.

**Participants and Setting**

A convenience sampling was used due to the availability of the students and the students’ data to the researcher (Warner, 2013). Archival data from a convenience sample of international, non-immigrant undergraduate students from a private university in Georgia was examined and included in the study. More specifically, the data analyzed was from students identified by the designated school official (DSO) as an F-1 international student at the university. Designated school officials are individuals tasked with overseeing the enrollment of non-immigrant, international students. F-1 students are individuals enrolled in courses at a higher education institution in the United States on a temporary visa who are not immigrants (permanent resident with an I-151 or “Green Card”), U.S. citizens, illegal aliens (undocumented immigrant), or a from a refugee country (Department of Homeland Security, 2015).

During the fall 2015 semester, all international students \( (N=150) \) were invited to take part in a university wide assessment about their experience at the university. This assessment sent from the office of Institutional Effectiveness included items from the College Persistence Questionnaire and Cultural Intelligence Scale. Upon Institutional Review Board approval, all international students’ data from this survey and their enrollment status for the subsequent term were sent to the researcher. Out of the 150 students surveyed, 41 cases were removed due to
missing data fields, leaving 109 cases for this study. Tabachnick and Fidell (2007) recommended a sample size of at least 80 where \( N > 50 + 8m \) (\( m \) is the number of independent variables). The number of international students who completed this assessment exceeded the needed sample size.

The survey included demographic data to include age, ethnicity, sex, classification, country of origin, and language spoken in addition to English. The population was made up of 57\% (\( n = 62 \)) male and 43\% (\( n = 47 \)) female respondents with the majority (57\%, \( n = 62 \)) of the population being from South Korea. The other large ethnic populations were from Africa (27\%, \( n = 29 \)) and Central or South America (13\%, \( n = 14 \)). The classification breakdown was 25.7\% (\( n = 28 \)) first year students, 25.7\% (\( n = 28 \)) in their second year, 38.5\% (\( n = 42 \)) in their third year and 10.1\% (\( n = 11 \)) in their fourth year.

The site for this study was an accredited, private, religious-affiliated university in Atlanta, Georgia, offering associates and bachelor degrees in religious studies or leadership studies. The city boasts a large international resident population due to the airport being a major hub for international travel. Per the Carnegie Classification for Institutions of Higher Educations (2015), the school is a special focus, four-year, faith-related institution and its size and setting is four-year, very small, and primarily nonresidential. Overall, the student enrollment averages between 600 to 700 total students per semester with roughly 150 of the students being international, non-immigrant students. The great majority of these international students are from South Korea (around 100 students). The school has an open enrollment policy that allows any student with a high school diploma or GED admission. International students must also provide evidence of English proficiency with score of at least 500 on the Test of English as a
Foreign Language (TOEFL) or completion of an advanced level in an English as a Second Language (ESL) program.

The graduation rate as reported by the Integrated Postsecondary Education Data System (U.S. Department of Education, 2015) for all students is 21% within a six-year time frame and 64% within an eight-year span. This degree completion data reflects what research purports that the majority of students are non-traditional, adult learners that progress to degree completion at a much slower pace than the traditional, full-time student (Markle, 2015).

**Instrumentation**

A survey made up of general demographic identifiers (age, sex, classification, country of origin), of the College Persistence Questionnaire (Davidson et al., 2009), and questions from the Cultural Intelligence Scale (Earley & Ang, 2003) was administered to students via an electronic survey. The data was collected by the school’s office of Institutional Research in the fall of 2015. This archival data was subsequently collected and analyzed for this study.

The College Persistence Questionnaire (CPQ) is a validated tool developed to predict student persistence and serves to measure several predictor variables related to students’ likelihood to persist. It is made up of 53 items grouped into six factors derived from a component analysis of the responses of 2,022 students at four institutions. These six factors and their corresponding Cronbach’s alpha scores are as follows: institutional commitment ($\alpha = .78$), degree commitment ($\alpha = .70$), academic integration ($\alpha = .81$), social integration ($\alpha = .82$), support services satisfaction ($\alpha = .74$), and academic conscientiousness ($\alpha = .63$) (Davidson et al., 2009). Cronbach’s alpha scores suggest good reliability for all subscales (Warner, 2013). Two principal component analyses were performed on this questionnaire to ensure its validity (Davidson et al., 2009).
Each of the subscales on the questionnaire measures a construct associated with likelihood to persistence grounded in theories and models provided by Tinto (1975) and Bean and Eaton (2000). Items on each subscale were measured using a five-point Likert-type scale. Labels for the responses depend on the wording of the question. If a question was related to level of satisfaction, the scale would range from “very satisfied” to “very dissatisfied.” If the question asked how much student liked something the range would be “very much” to “very little.” The content of the answers would then be converted to five-point “favorability” scores based on response (-2 = very unfavorable, -1 = somewhat unfavorable, 0 = neutral, +1 = somewhat favorable, +2 very favorable). The final scale and corresponding sub-scales are presented in Table 1 below.
Table 1

College Persistence Questionnaire Scale/subscales

<table>
<thead>
<tr>
<th>Factor</th>
<th>Highest Possible Scale Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Integration</td>
<td>16</td>
</tr>
<tr>
<td>Social Integration</td>
<td>16</td>
</tr>
<tr>
<td>Supportive Services Satisfactions</td>
<td>12</td>
</tr>
<tr>
<td>Degree Commitment</td>
<td>10</td>
</tr>
<tr>
<td>Institutional Commitment</td>
<td>8</td>
</tr>
<tr>
<td>Academic Conscientiousness</td>
<td>6</td>
</tr>
<tr>
<td>Total Possible CPQ</td>
<td>68</td>
</tr>
</tbody>
</table>

A higher CPQ total indicates a greater likelihood for persistence. Likewise, a higher total in each specified domain reflects a greater influence of that specified area on student persistence.

The Cultural Intelligence Scale (CQS) was used to measure the four dimensions of cultural intelligence (Earley & Ang, 2003). The 20 items are used to determine metacognitive CQ, cognitive CQ, motivational CQ and behavioral CQ. Each subscale item uses a seven-point Likert-type scale (7=strongly agree, 6=agree, 5=slightly agree, 4=neutral, 3=slightly disagree, 2=disagree, 1=strongly disagree) for responses that best correspond to the respondent’s mental processing, knowledge, desires, and abilities. For example, students are asked to determine their level of conscientious cultural knowledge when interacting with people from different cultural backgrounds or their knowledge of the legal and economic systems of other cultures (Earley & Ang, 2003). The sum of the subscale responses fall into one of three tiers. Those tiers are classified as low in the lowest 30%, average if within the middle 40%, and
high if in the upper 30% of total subscale point values when compared to similar people. Table 2 below clarifies the range groupings for each subscale.

Table 2

*Cultural Intelligence Scale Ranges*

<table>
<thead>
<tr>
<th>Cultural Intelligence (CQ) Subscale</th>
<th>Low Range</th>
<th>Moderate Range</th>
<th>High Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metacognitive CQ</td>
<td>4 to 11</td>
<td>12 to 20</td>
<td>21 to 28</td>
</tr>
<tr>
<td>Cognitive CQ</td>
<td>6 to 18</td>
<td>19 to 30</td>
<td>21 to 42</td>
</tr>
<tr>
<td>Motivational CQ</td>
<td>5 to 15</td>
<td>16 to 25</td>
<td>26 to 35</td>
</tr>
<tr>
<td>Behavioral CQ</td>
<td>5 to 15</td>
<td>16 to 25</td>
<td>26 to 35</td>
</tr>
</tbody>
</table>

A confirmatory factor analysis of the four cultural intelligence (CQ) dimensions demonstrated that it has sufficient validity (Ang et al., 2006). Reliability has also been established using Chronbach’s alpha. Those values are as follows: metacognitive CQ (α = .76), Cognitive CQ (α = .84), motivational CQ (α = .77), and behavioral CQ (α = .84). These values demonstrate good reliability (Ang et al., 2005). For this study and specific sample, Chronbach’s alpha indicated high levels of internal consistency: metacognitive CQ (α = .93), cognitive CQ (α = .90), motivational CQ (α = .78), and behavioral CQ (α = .87).

Persistence was determined by semester enrollment data. The survey instrument data was collected in the fall 2015 term. The enrollment data gathered was from the spring 2016 academic term. Students who persisted (enrolled in the spring term) were coded “1” and those who did not return were coded “0.” This dichotomous data informed the criterion variable of persistence for this study.
**Procedures**

The researcher obtained approval from Liberty University’s Institutional Review Board (IRB) prior to implementation of this study in October of 2016. At that time, the researcher submitted a request to the institution to obtain access to the fall 2015 survey data, consisting of the demographic information, College Persistence Questionnaire, and Cultural Intelligence Scale for all enrolled international students from the Institution’s Office of Institutional Effectiveness. The data was provided in November of 2016 which also included data on the registration status of students for the subsequent term in a Microsoft Excel file. Students who enrolled for the spring 2016 term were coded with a “1” on their particular row, while students who did not enroll were coded on the excel file with a “0.” The data was then exported from excel to SPSS Version 23 for statistical analysis.

**Data Analysis**

A hierarchical binary logistic regression was used to assess the association among study factors (Warner, 2013), as the outcome (criterion) variable, actual persistence, was dichotomous or binary. Logistic regressions are sensitive to multicollinearity and outliers. Therefore, assumption testing was performed after the calculation of descriptive statistics. A correlation matrix as well as Tolerance and Variation Inflation Factor (VIF) values were calculated to assess the presence multicollinearity. Mahalanobis distance was used to inspect for outliers. Results of the logistic regression analysis for the entire model is presented in Chapter Four. Cox and Snell (1989) $R$ square and Nagelkerke $R$ square, respectively, are reported for the entire model to discuss the practical significance of findings. The correctly classified cases for the entire model are also reported. The individual contributions for each variable are reported in tabular format.
CHAPTER FOUR: FINDINGS

Overview

This chapter provides the data from the statistical analyses. The purpose of the analyses is to determine if a statistically significant association exists between international students’ persistence and academic integration, social integration, support services satisfaction, degree commitment, institutional commitment, academic conscientiousness, and dimensions of cultural intelligence. A summary of demographic data is followed by analysis of the three primary research questions, including the descriptive statistics, assumption testing, and a logistic regression analysis.

Research Questions

The research questions for this study were as follows:

**RQ1:** Will the linear combination of the College Persistence Questionnaire (CPQ) subscale scores and the cultural intelligence factors as measured by the Cultural Intelligence Scale (CQS) predict the persistence of international students?

**RQ2:** Do the College Persistence Questionnaire (CPQ) subscale scores significantly contribute to the variance in the persistence of international students?

**RQ2a:** Does academic integration as measured by the CPQ significantly contribute to the variance in persistence for international students?

**RQ2b:** Does social integration as measured by the CPQ significantly contribute to the variance in persistence for international students?

**RQ2c:** Does student support services as measured by the CPQ significantly contribute to the variance in persistence for international students?

**RQ2d:** Does degree commitment as measured by the CPQ significantly contribute to the
variance in persistence for international students?

**RQ2e:** Does institutional commitment as measured by the CPQ significantly contribute to the variance in persistence for international students?

**RQ2f:** Does academic conscientiousness as measured by the CPQ significantly contribute to the variance in persistence for international students?

**RQ3:** Do the cultural intelligence factors as measured by the Cultural Intelligence Scale (CQS) significantly contribute to the variance in the persistence of international students?

**RQ3a:** Does metacognitive CQ as measured by the CQS significantly contribute to the variance in persistence for international students?

**RQ3b:** Does cognitive CQ as measured by the CQS significantly contribute to the variance in persistence for international students?

**RQ3c:** Does motivational CQ as measured by the CQS significantly contribute to the variance in persistence for international students?

**RQ3d:** Does behavioral CQ as measured by the CQS significantly contribute to the variance in persistence for international students?

**Null Hypotheses**

The following were the null hypotheses:

**H₀1:** The linear combination of the College Persistence Questionnaire (CPQ) subscale scores and the cultural intelligence factors as measured by the Cultural Intelligence Scale (CQS) will not predict the persistence of international students.

**H₀2:** The College Persistence Questionnaire (CPQ) subscale scores will not significantly contribute to the variance in the persistence of international students.

**H₀2a:** Academic integration as measured by the CPQ will not significantly contribute to
the variance in persistence for international students.

**H₀₂b:** Social integration as measured by the CPQ will not significantly contribute to the variance in persistence for international students.

**H₀₂c:** Student support services as measured by the CPQ will not significantly contribute to the variance in persistence for international students.

**H₀₂d:** Degree Commitment as measured by the CPQ will not significantly contribute to the variance in persistence for international students.

**H₀₂e:** Institutional commitment as measured by the CPQ will not significantly contribute to the variance in persistence for international students.

**H₀₂f:** Academic conscientiousness as measured by the CPQ will not significantly contribute to the variance in persistence for international students.

**H₀₃:** Cultural intelligence factors as measured by the Cultural Intelligence Scale (CQS) will not significantly contribute to the variance in persistence for international students.

**H₀₃a:** Metacognitive CQ as measured by the CQS will not significantly contribute to the variance in persistence for international students.

**H₀₃b:** Cognitive CQ as measured by the CQS will not significantly contribute to the variance in persistence for international students.

**H₀₃c:** Motivational CQ as measured by the CQS will not significantly contribute to the variance in persistence for international students.

**H₀₃d:** Behavioral CQ as measured by the CQS will not significantly contribute to the variance in persistence for international students.
Descriptive Statistics

The study consisted of 109 international students. Sixty-two (56.9%) were male and 47 (43.1% were female). Sixty-two (56.9%) identified their ethnicity as Asian, 29 (26.6%) selected African, 14 (12.8%) identified as Latino or Hispanic, and the remaining four (3.7%) were from India or Australia. The ages ranged from 20 years old to over 46 years of age; five (4.6%) were 20 or younger, 20 (18.3%) were 21 to 26 years old, 29 (26.6%) were 27 to 35 years old, 26 (23.9%) were 36-45 years old, and 29 (26.6%) were 46 years old or over. Their classification ranged from freshman to senior: 28 (25.7%) were freshmen, 28 (25.7%) were sophomores, 42 (38.5%) identified themselves as juniors, and 11 (10.1%) were seniors.

A total of 61 (55.9%) of the international students were born in South Korea, 26 (23.8%) were from Africa, 14 (12.8%) from Brazil, three (2.8%) from Australia (2.6%), one (.9%) from Guyana, one (.9%) from Haiti, and one (.9%) from India. Ninety-nine students (90.8%) from the group reported that they spoke another language in addition to English; these languages included French, Korean, Portuguese, and Swahili.

Table 3 presents the mean and standard deviation for the predictive variables from the College Persistence Questionnaire (Davidson et al., 2009) and Cultural Intelligence Scale (Earley & Ang, 2003). Persistence was the criterion variable. Eighty-five (78%) of the 109 participants enrolled in the next consecutive semester term, while 24 (22%) students did not enroll in the subsequent term. Students who persisted (enrolled in next consecutive semester term) were coded “1,” and those who did not return were coded “0.”
Table 3

*Descriptive Statistics (N=109)*

<table>
<thead>
<tr>
<th>College Persistence Variable</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Integration</td>
<td>7.90</td>
<td>4.18</td>
</tr>
<tr>
<td>Social Integration</td>
<td>1.98</td>
<td>5.19</td>
</tr>
<tr>
<td>Support Services Satisfaction</td>
<td>3.17</td>
<td>4.04</td>
</tr>
<tr>
<td>Degree Commitment</td>
<td>7.69</td>
<td>3.11</td>
</tr>
<tr>
<td>Institutional Commitment</td>
<td>3.98</td>
<td>1.67</td>
</tr>
<tr>
<td>Academic Conscientiousness</td>
<td>3.75</td>
<td>2.31</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cultural Intelligence Variable</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Metacognitive</td>
<td>20.14</td>
<td>6.82</td>
</tr>
<tr>
<td>Cognitive</td>
<td>26.37</td>
<td>9.45</td>
</tr>
<tr>
<td>Motivational</td>
<td>28.28</td>
<td>5.84</td>
</tr>
<tr>
<td>Behavioral</td>
<td>24.33</td>
<td>7.95</td>
</tr>
</tbody>
</table>

Results

Assumption Testing

After descriptive statistics were calculated, assumption testing was conducted. The logistic regression does not have many assumptions, but it is sensitive to multicollinearity and outliers. The correlation matrix (see Table 4) demonstrated that the assumption of multicollinearity was not violated as there were no significant correlation coefficients greater than 0.7.
Table 4

Pearson Correlation Matrix among the Variables (N=109)

<table>
<thead>
<tr>
<th></th>
<th>Metacognitive CQ</th>
<th>Cognitive CQ</th>
<th>Motivational CQ</th>
<th>Behavioral CQ</th>
<th>Academic Integration</th>
<th>Social Integration</th>
<th>Support Services Satisfaction</th>
<th>Degree Commitment</th>
<th>Institutional Commitment</th>
<th>Academic Conscientiousness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metacognitive CQ</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognitive CQ</td>
<td>.45**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motivational CQ</td>
<td>.50**</td>
<td>.62**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavioral CQ</td>
<td>.46**</td>
<td>.54**</td>
<td>.58**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic Integration</td>
<td>.06</td>
<td>-.01</td>
<td>.23*</td>
<td>.16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Integration</td>
<td>.08</td>
<td>.09</td>
<td>.27**</td>
<td>.10</td>
<td>.49**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support Services Satisfaction</td>
<td>.13</td>
<td>.19</td>
<td>.20*</td>
<td>.05</td>
<td>.54**</td>
<td>.48**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree Commitment</td>
<td>.08</td>
<td>-.02</td>
<td>.19</td>
<td>.03</td>
<td>.35**</td>
<td>.25**</td>
<td>.25*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institutional Commitment</td>
<td>.09</td>
<td>.01</td>
<td>-.01</td>
<td>-.06</td>
<td>.34**</td>
<td>.10</td>
<td>.14</td>
<td>.46**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic Conscientiousness</td>
<td>-.14</td>
<td>-.10</td>
<td>-.02</td>
<td>-.10</td>
<td>.23*</td>
<td>.17</td>
<td>.11</td>
<td>.33**</td>
<td>-.02</td>
<td></td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
Tolerance and Variation Inflation Factor (VIF) values were also calculated and presented in Table 5. Tolerance values were not less than 0.10, and the VIF values did not exceed 10, indicating that predictor values were not highly correlated with one another. Therefore, the assumption of multicollinearity was not violated.

Table 5

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional Commitment</td>
<td>.73</td>
<td>1.37</td>
</tr>
<tr>
<td>Degree Commitment</td>
<td>.73</td>
<td>1.38</td>
</tr>
<tr>
<td>Support Services Satisfaction</td>
<td>.65</td>
<td>1.54</td>
</tr>
<tr>
<td>Social Integration</td>
<td>.68</td>
<td>1.46</td>
</tr>
<tr>
<td>Academic Integration</td>
<td>.57</td>
<td>1.76</td>
</tr>
<tr>
<td>Institutional Commitment</td>
<td>.61</td>
<td>1.49</td>
</tr>
<tr>
<td>Degree Commitment</td>
<td>.68</td>
<td>1.47</td>
</tr>
<tr>
<td>Support Services Satisfaction</td>
<td>.58</td>
<td>1.72</td>
</tr>
<tr>
<td>Social Integration</td>
<td>.67</td>
<td>1.50</td>
</tr>
<tr>
<td>Academic Integration</td>
<td>.49</td>
<td>2.03</td>
</tr>
<tr>
<td>Behavioral CQ</td>
<td>.54</td>
<td>1.87</td>
</tr>
<tr>
<td>Motivational CQ</td>
<td>.43</td>
<td>2.34</td>
</tr>
<tr>
<td>Cognitive CQ</td>
<td>.47</td>
<td>2.14</td>
</tr>
<tr>
<td>Metacognitive CQ</td>
<td>.67</td>
<td>1.50</td>
</tr>
</tbody>
</table>

*Note.* Dependent variable = Spring 2016 enrollment

Mahalanobis distance was used to inspect for outliers. Tabacknick and Fidell (2007), (see Appendix Table C4) suggested a chi-square critical value of 29.59 should not be exceeded when 10 predictors are being used. The maximum Mahalanobis distance value in this data set was 26.11, indicating no concern about the presence of outliers.

**Logistic Regression Analysis**

A logistic regression was conducted to answer the study’s research questions and test the null hypotheses. The hierarchical logistic regression was conducted to assess the influence of the College Persistence Questionnaire (Davidson et al., 2009) subscales and Cultural Intelligence
Scale (Earley & Ang, 2003) subscales on whether international students would enroll in a consecutive semester term (persistence).

The first model that was examined contained the subscales of the CPQ: academic integration, social integration, support services satisfaction, degree commitment, institutional commitment, and academic conscientiousness. Results demonstrated that the first model consisting of the CPQ variables did not significantly predict whether students would persist, $X^2 (6, N = 109) = 1.15, p = .98$. Nagelkereke’s $R$ of .016 and Cox and Snell (1989) $R$ of .010 indicated that the first model only accounted for between 1% and 1.6% of the variance in persistence.

While the model correctly classified 78% of the cases in the study, this is the same percentage shown for Block 0 in the model which contained none of the predictors. Next, the CQS subscales were added to the prediction model. These subscales included the dimensions of metacognitive CQ, cognitive CQ, motivational CQ, and behavioral CQ. Results of the direct logistic regression analysis for this second model consisted of the CPQ in addition to the CQS. The full model of factors was not statistically significant as $X^2 (4, N = 109) = .97, p = .92$, indicating that the addition of cultural intelligence to the model of College Persistence Questionnaire factors did not significantly predict whether students would persist. According to Cox and Snell (1989) $R$ Square and Nagelkerke $R$ Square, respectively, the model with all variables only accounted for between 1.9% and 2.9% of the variance in persistence. None of the predictor variables from the CPQ (academic integration, social integration, support services satisfaction, degree commitment, institutional commitment, academic conscientiousness) or the dimensions of the CQS (metacognitive CQ, cognitive CQ, motivational CQ, behavioral CQ), made an individually unique statistical contribution to the model (see Table 6).
### Table 6

*Summary of Logistical Regression Analysis*

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\beta$</th>
<th>S.E.</th>
<th>Wald</th>
<th>$df$</th>
<th>$p$</th>
<th>Odds ratio</th>
<th>95% C.I. for EXP($\beta$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Integration</td>
<td>.02</td>
<td>.08</td>
<td>.04</td>
<td>1</td>
<td>.85</td>
<td>1.02</td>
<td>.87</td>
</tr>
<tr>
<td>Social Integration</td>
<td>.00</td>
<td>.06</td>
<td>.00</td>
<td>1</td>
<td>1.00</td>
<td>1.00</td>
<td>.90</td>
</tr>
<tr>
<td>Support Services Satisfaction</td>
<td>-.02</td>
<td>.08</td>
<td>.04</td>
<td>1</td>
<td>.84</td>
<td>.98</td>
<td>.85</td>
</tr>
<tr>
<td>Degree Commitment</td>
<td>.04</td>
<td>.10</td>
<td>.16</td>
<td>1</td>
<td>.69</td>
<td>1.04</td>
<td>.86</td>
</tr>
<tr>
<td>Institutional Commitment</td>
<td>.08</td>
<td>.19</td>
<td>.18</td>
<td>1</td>
<td>.68</td>
<td>1.08</td>
<td>.75</td>
</tr>
<tr>
<td>Academic Conscientiousness</td>
<td>.01</td>
<td>.11</td>
<td>.02</td>
<td>1</td>
<td>.90</td>
<td>1.02</td>
<td>.81</td>
</tr>
<tr>
<td>Metacognitive CQ</td>
<td>.03</td>
<td>.04</td>
<td>.45</td>
<td>1</td>
<td>.50</td>
<td>1.03</td>
<td>.95</td>
</tr>
<tr>
<td>Cognitive CQ</td>
<td>.01</td>
<td>.04</td>
<td>.08</td>
<td>1</td>
<td>.78</td>
<td>1.01</td>
<td>.94</td>
</tr>
<tr>
<td>Motivational CQ</td>
<td>-.01</td>
<td>.06</td>
<td>.03</td>
<td>1</td>
<td>.87</td>
<td>.99</td>
<td>.88</td>
</tr>
<tr>
<td>Behavioral CQ</td>
<td>.01</td>
<td>.04</td>
<td>.02</td>
<td>1</td>
<td>.90</td>
<td>1.01</td>
<td>.93</td>
</tr>
</tbody>
</table>

a. Variable(s) entered on step 1: Metacognitive CQ, Cognitive CQ, Motivational CQ, Behavioral CQ

Therefore, the three main null hypotheses and sub hypotheses were not rejected. Table 7 provides a summary.
Table 7

*Summary of Null Hypotheses*

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>H₀₁:</strong> The linear combination of the College Persistence Questionnaire (CPQ) subscale scores and the cultural intelligence factors as measured by the Cultural Intelligence Scale (CQS) will not predict the persistence of international students.</td>
<td>Fail to reject</td>
</tr>
<tr>
<td><strong>H₀₂:</strong> The College Persistence Questionnaire (CPQ) subscale scores will not significantly contribute to the variance in the persistence of international students.</td>
<td>Fail to reject</td>
</tr>
<tr>
<td><strong>H₀₂ᵃ:</strong> Academic Integration as measured by the CPQ will not significantly contribute to the variance in persistence for international students.</td>
<td>Fail to reject</td>
</tr>
<tr>
<td><strong>H₀₂ᵇ:</strong> Social Integration as measured by the CPQ will not significantly contribute to the variance in persistence for international students.</td>
<td>Fail to reject</td>
</tr>
<tr>
<td><strong>H₀₂ᶜ:</strong> Student Support Services as measured by the CPQ will not significantly contribute to the variance in persistence for international students.</td>
<td>Fail to reject</td>
</tr>
<tr>
<td><strong>H₀₂ᵈ:</strong> Degree Commitment as measured by the CPQ will not significantly contribute to the variance in persistence for international students.</td>
<td>Fail to reject</td>
</tr>
<tr>
<td><strong>H₀₂ᵉ:</strong> Institutional Commitment as measured by the CPQ will not significantly contribute to the variance in persistence for international students.</td>
<td>Fail to reject</td>
</tr>
<tr>
<td><strong>H₀₂ᶠ:</strong> Academic Conscientiousness as measured by the CPQ will not significantly contribute to the variance in persistence for international students.</td>
<td>Fail to reject</td>
</tr>
<tr>
<td><strong>H₀₃:</strong> Cultural intelligence factors as measured by the Cultural Intelligence Scale (CQS) will not significantly contribute to the variance in persistence for international students.</td>
<td>Fail to reject</td>
</tr>
<tr>
<td><strong>H₀₃ᵃ:</strong> Metacognitive CQ as measured by the CQS will not significantly contribute to the variance in persistence for international students.</td>
<td>Fail to reject</td>
</tr>
<tr>
<td><strong>H₀₃ᵇ:</strong> Cognitive CQ as measured by the CQS will not significantly contribute to the variance in persistence for international students.</td>
<td>Fail to reject</td>
</tr>
<tr>
<td><strong>H₀₃ᶜ:</strong> Motivational CQ as measured by the CQS will not significantly contribute to the variance in persistence for international students.</td>
<td>Fail to reject</td>
</tr>
<tr>
<td><strong>H₀₃ᵈ:</strong> Behavioral CQ as measured by the CQS will not significantly contribute to the variance in persistence for international students.</td>
<td>Fail to reject</td>
</tr>
</tbody>
</table>
Additional Analysis

An additional analysis was performed. A hierarchical multiple regression (HMR) was employed to assess how students’ cultural intelligence (CQ) predicted their overall College Persistence Questionnaire score while controlling for demographic control variables. Preliminary analyses showed no major violations of the assumption tests of normality, homoscedasticity, linearity, and extreme outliers. Residuals were examined using a histogram with superimposed normal curve and a P-P plot and were found to be approximately normally distributed. Correlation analyses demonstrated a significant relationship between the majority of the predictor and the criterion variables, with no correlation coefficient over .7. Further, a significant relationship among each pair of the predictor variables existed with no correlation coefficient over .7 (see Table 8). Multicollinearity was not a concern. Therefore, it was suitable to conduct a hierarchical multiple regression.
Table 8

*Pearson Correlation among Variables (N= 109)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>CPQ Total</th>
<th>Year in School</th>
<th>Gender</th>
<th>Age</th>
<th>Metacognitive CQ</th>
<th>Cognitive CQ</th>
<th>Motivational CQ</th>
<th>Behavioral CQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Persistence</td>
<td>1</td>
<td>-.13</td>
<td>.07</td>
<td>-.13</td>
<td>.16</td>
<td>.07</td>
<td>.29</td>
<td>.08</td>
</tr>
<tr>
<td>Questionnaire Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year in School</td>
<td>-.13</td>
<td>1</td>
<td>-.01</td>
<td>.13</td>
<td>.11</td>
<td>.04</td>
<td>-.08</td>
<td>-.13</td>
</tr>
<tr>
<td>Gender</td>
<td>.07</td>
<td>-.01</td>
<td>1</td>
<td>-.15</td>
<td>-.08</td>
<td>-.09</td>
<td>-.10</td>
<td>-.14</td>
</tr>
<tr>
<td>Age</td>
<td>-.13</td>
<td>.13</td>
<td>-.15</td>
<td>1</td>
<td>.04</td>
<td>-.02</td>
<td>-.04</td>
<td>-.05</td>
</tr>
<tr>
<td>Metacognitive CQ</td>
<td>.16</td>
<td>.11</td>
<td>-.08</td>
<td>.04</td>
<td>1</td>
<td>.45</td>
<td>.50</td>
<td>.46</td>
</tr>
<tr>
<td>Cognitive CQ</td>
<td>.07</td>
<td>.04</td>
<td>-.09</td>
<td>-.02</td>
<td>.45</td>
<td>1</td>
<td>.624</td>
<td>.54</td>
</tr>
<tr>
<td>Motivational CQ</td>
<td>.29</td>
<td>-.08</td>
<td>-.10</td>
<td>-.04</td>
<td>.50</td>
<td>.62</td>
<td>1</td>
<td>.58</td>
</tr>
<tr>
<td>Behavioral CQ</td>
<td>.08</td>
<td>0.12</td>
<td>-.14</td>
<td>-.05</td>
<td>.46</td>
<td>.54</td>
<td>.58</td>
<td>1</td>
</tr>
</tbody>
</table>
The results of the multiple regression demonstrated that the demographic control variables (i.e., sex, age, and year in school) did not present a statistical significance in predicting the CPQ scores, $F(3,105) = 1.125, p = .342$. The control variables only explained 3.1% of the variance in the CPQ scores. However, after the entry of the CQ variables (Model 2), the model accounted for 14.5% of the variance in the CPQ scores. The model was significant, $F(4,101) = 2.44, p < .023$, suggesting that Cultural Intelligence (CQ) influences the student’s score on the College Persistence Questionnaire (CPQ). Table 9 demonstrates individual contributions of the predictor variables. Motivational CQ made a significant individual contribution to the model, with beta value ($\beta = .41$). A positive relationship existed between students’ CPQ and this variable. The higher students’ motivational CQ, the higher their CPQ.
Table 9

Hierarchical Regression Model (N=109)

<table>
<thead>
<tr>
<th></th>
<th>R Change</th>
<th>F Ratio for R Change</th>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 1*</td>
<td>.03</td>
<td>1.13</td>
<td>.03</td>
<td>.68</td>
<td>-.34</td>
<td>3</td>
<td>.34</td>
</tr>
<tr>
<td>Block 2*</td>
<td>.15</td>
<td>2.44</td>
<td>.15</td>
<td>.96</td>
<td>.47</td>
<td>2.44</td>
<td>&lt; .23</td>
</tr>
<tr>
<td>Year in School</td>
<td></td>
<td></td>
<td>-1.29</td>
<td>1.20</td>
<td>-.10</td>
<td>-1.08</td>
<td>.28</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td>1.70</td>
<td>2.30</td>
<td>.07</td>
<td>.74</td>
<td>.46</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td>-1.05</td>
<td>.97</td>
<td>-.10</td>
<td>-1.08</td>
<td>.29</td>
</tr>
<tr>
<td>Metacognitive CQ</td>
<td></td>
<td></td>
<td>.19</td>
<td>.20</td>
<td>.11</td>
<td>.94</td>
<td>.35</td>
</tr>
<tr>
<td>Cognitive CQ</td>
<td></td>
<td></td>
<td>-.20</td>
<td>.16</td>
<td>-.15</td>
<td>-1.23</td>
<td>.22</td>
</tr>
<tr>
<td>Motivational CQ</td>
<td></td>
<td></td>
<td>.84</td>
<td>.27</td>
<td>.41</td>
<td>3.09</td>
<td>.00</td>
</tr>
<tr>
<td>Behavioral CQ</td>
<td></td>
<td></td>
<td>-.19</td>
<td>.19</td>
<td>-.13</td>
<td>-1.04</td>
<td>.30</td>
</tr>
</tbody>
</table>

Note. Dependent Variable: College Persistence Questionnaire Score

Summary

A hierarchical logistic regression was performed to determine the association between predictor variables (CPQ and CQS) and the criterion variable, persistence, operationalized as continued enrollment from one academic term to the next. To answer the research questions of this study, it was determined that the linear combination of the College Persistence Questionnaire (CPQ) subscale scores and the cultural intelligence factors as measured by the Cultural Intelligence Scale (CQS) did not have a statistical significance on the prediction of persistence for international students. Further, the College Persistence Questionnaire (CPQ) subscale scores of academic integration, social integration, student support services, goal commitment,
institutional commitment did not significantly contribute to the variance in the persistence of international students. Additionally, in this hierarchical model, the cultural intelligence (CQ) factors of metacognitive CQ, cognitive CQ, motivational CQ, and behavioral CQ, as measured by the Cultural Intelligence Scale (CQS), did not significantly contribute to the variance in persistence for international students. However, an additional hierarchical multiple regression analysis determined that there was a statistically significant predictive relationship between cultural intelligence (CQ) and the student’s College Persistence Questionnaire (CPQ) score. Higher motivational CQ particularly predicted a higher score on the CPQ.
CHAPTER FIVE: DISCUSSION

Overview

The purpose of this predictive, correlational study was to determine if a statistically significant association existed for international students among the factors measured by the College Persistence Questionnaire (CPQ): academic integration, social integration, support services satisfaction, degree commitment, institutional commitment, and academic conscientiousness (Davidson et al., 2009) and persistence. The study also analyzed the factors measured by the Cultural Intelligence Scale or CQS and its corresponding dimensions of metacognitive CQ, cognitive CQ, motivational CQ, and behavioral CQ (Earley & Ang, 2003) with persistence. These factors served as the predictor variables of the study while persistence, enrollment from one academic term to the next, served as the criterion variable. A hierarchical logistic regression analysis was utilized to analyze the association between the predictor and the criterion variables. Additional analysis was performed to assess how cultural intelligence predicted students’ scores on the College Persistence Questionnaire. Chapter Four provided results of the statistical analysis for this study. Chapter Five includes a discussion of the findings, implications from the results of the analysis, the limitations of this study, recommendations for future research, and a concluding summary.

Discussion

Results of this research study determined that there was not a statistically significant, predictive association between the research-based factors that have traditionally predicted persistence for students. Factors associated with Tinto’s (1975, 1988) integration model and Bean and Eaton’s (2001) psychological model were found to have no influence on international students’ persistence from one semester term to the next. Further, the cultural intelligence
dimensions of metacognitive CQ, cognitive CQ, behavioral CQ, and motivational CQ did not contribute a statistically significant variance in international students’ persistence.

These findings present a departure from results of research within traditional student populations. However, this is not completely unexpected as persistence factors can vary across different populations and unique contexts (Metz, 2004; Tinto, 2006). For example, a study by Davidson et al. (2009) at Angelo State University of students enrolled in a freshmen orientation course found that institutional commitment was the best predictor of persistence with academic conscientiousness and academic integration also making statistically significant contributions to their prediction model. In their study, social integration, support services satisfaction, and degree commitment did not improve the predictive model; however, there were other studies that presented these variables as significant factors in the prediction of persistence. These varying results are largely dependent on the unique context of each university. For example, Milem and Berger’s (1997) study of focus found that social integration was a predictor of intent to enroll more so than academic integration. In contrast to San Angelo University, which is a large public institution, Milem and Berger’s (1997) study site was a large, highly selective private university in which 84% of the respondents were white and three percent were African American (Berger & Braxton, 1998; Milem & Berger, 1997).

While the variables from the initial analytical model of this particular study that included the College Persistence Questionnaire and Cultural Intelligence Scale did not present a statistically significant prediction on student persistence in this study, it is worth noting that cultural intelligence did predict higher outcomes on the CPQ. More explicitly, motivational CQ made a significant, individual contribution in an additional hierarchical multiple regression analysis model that assessed how international students’ cultural intelligence could predict their
overall CPQ score while controlling for the demographic variables of age, gender, and year in school. This was seen in the regression results which revealed that the higher the students’ motivational CQ, the higher their College Persistence Questionnaire overall score.

Motivational CQ is principally expressed in one’s interest in acquiring capacity to thrive in cross-cultural situations (Van Dyne et al., 2012). This ability to engage with other cultures should produce greater levels of integration with other individuals and institutions, as integration is a foundational basis for much of retention/persistence theory (Tinto, 1975, 1987).

Motivational CQ reflects a capability and desire for the recognition and adoption of new cultural values. The end desire is reflected by a personal satisfaction in the attainment of individual development and growth when it comes to engagement with other cultures (Zhao et al., 2005). This aptitude should influence one’s capability to successfully integrate in a social and academic fashion within an institution of higher learning.

**Implications**

There has been much research on the persistence of students in the higher educational system of the United States. Many studies have focused on general student populations on one or several campuses (Cabrera et al., 1993; Pascarella & Terenzini, 1979, 1983, 1991), while some studies have focused on specific student populations and found various themes and factors to consider when making a determination of what and how they may impact student persistence (Guiffrida & Douthit, 2010; Minter, 2011; Sato & Hodge, 2015). In this study, the analysis of the persistence factors associated with Tinto’s SIM (1975, 1987, 2007) and Bean and Eaton’s (2000, 2001) psychological models within an international student population did not yield any specific, identifiable factors of statistical significance. Academic integration, social integration,
support services satisfaction, degree commitment, institutional commitment, and academic conscientiousness are not the variables that predict persistence for international students.

This study also included the nomological framework of cultural intelligence (Ang & Van Dyne, 2008) for international students as possible predictors for persistence. The dimensions of cognitive CQ, metacognitive CQ, motivational CQ and behavioral CQ did not provide a statistically significant factor when added to the original model for this study. There may be other persistence related variables unique to this population that have not yet been identified or considered in the current literature. As other studies that investigate international student persistence emerge, researchers should consider how factors or variables such as integration are determined and defined. Integration, within this study’s context, measured a student’s sense of belonging, shared values, and similarity to others in the college setting academically and socially (Davidson et al., 2009). It is possible that more holistic or expansive determinations for the concept may be fitting for people from a different background culture (Andrade, 2006).

It is a point of merit to note that cultural intelligence, specifically motivational CQ, was found to be a viable predictor for higher scores on the College Persistence Questionnaire. As an overall result, international students with greater levels of cultural intelligence should exhibit a higher capacity to integrate into their college or university. This confirms research that individuals who exhibit higher levels of cultural intelligence can more effectively navigate within divergent environmental contexts (Ang et al., 2006, 2007). The value of this finding from the study is that institutions of higher education can employ resources towards improving cultural intelligence as a strategy towards improving international student integration to the life of the campus. Although there was not a clear influence between variables such as social and academic integration as determined by the CPQ with actual persistence in this study, research
has consistently suggested that social and academic integration are valuable components of an effective retention strategy (Bean & Eaton, 2001; Cabrera et al., 1993; Davidson et al., 2009; Tinto, 1975, 1993).

**Limitations**

The main limitation of this study was that the data sample was limited to archival data from one private university in the Southeast. The study did not include international students from different institutions. The archival data did not provide other extensive demographic information or pre-college characteristics data that may have provided meaningful content for further analysis. Further, this sample is not an accurate representation of the general international student population at most schools, as more than half of the students in this study originated from a single location, South Korea. As this study was based on data from a private institution, it is worth noting that private institutions generally have higher persistence or degree completion rates when compared to public colleges and universities (Pascarella & Terenzini, 2005). Therefore, a comparison with international students from other types of universities (e.g. public, research, etc.) and from different passport countries would serve to enhance the findings from this study.

Additional limitations were the size of the data pool and the timeframe of the data analyzed. The study consisted of 109 international students in which the predictor variables were collected in the fall 2015 term, while the criterion variable, persistence, was captured during the subsequent, spring semester. If a more longitudinal model had been employed, different results may have emerged. The findings and results are likely to be different if the study were extended to include persistence beyond the first year into the second year or beyond. Thus, it is recommended that further research examine a larger sample and define persistence as
degree completion rather than semester to semester enrollment. Also, an instrumentation limitation to consider is the fact that while the CPQ has been used for several studies regarding student persistence, it has not yet been validated with primarily international or non-western populations.

Finally, participant self-reporting is a limitation in this study. Participant self-reporting can be a limitation due to subjectivity and responder bias (Gall, Gall, & Borg, 2005). As international students may have a lower competence or comprehension barriers to the subject matter, they may overcompensate and exaggerate their abilities when assessing their own capacity within a cultural context (Deardorff, 2006). Inversely, it is also possible that those with greater levels of competence depress their true cultural capacity and abilities in the self-report (Deardorff, 2006).

**Recommendations for Future Research**

Several of the recommendations for future research are connected to the limitations presented as noted above. An expanded study of the same model within multiple sites (public and/or private institutions) is highly recommended and would extend the current research models and population of study. These additional sites could address the recognized research limitation that all campuses present different experiences and contexts which impact student retention based on those unique institutional milieus (Metz, 2004; Tinto, 2006). More data from additional sources can create more comprehensive validation for current theoretical models while also providing new variables for consideration in forthcoming explorations in this area.

An added recommendation comes from the fact that this study analyzed persistence of students from one academic term to the next (fall to spring). An extended analysis of persistence beyond this single academic term to one from year to year (fall to fall or even spring to fall)
could prove to be beneficial. Examination of degree completion is warranted. Further, more information on student pre-entry characteristics, such as socio-economic status, high school achievement levels, and parental education could be included. Beyond pre-college variables, college engagement data such as the degree of peer interactions with other students or level of engagement with campus activities could enhance the analysis on institutional factors that affect student persistence for international students.

It is important to note that this was a quantitative analysis based on variables from Tinto’s (1975, 1993) student integration model, Bean and Eaton’s (2000, 2001) psychological model, and the nomological framework for cultural intelligence (Ang & Van Dyne, 2008). The research in this analysis did not produce findings of statistical significance for the international student population of focus. It is in that light that another recommendation would be to develop a qualitative study with a similar theoretical framework for international students within a focus group, ethnographic study, or other qualitative inquiry. This qualitative data could produce further insights regarding the validity or departure from the normed variables and factors traditionally associated with student retention and persistence.

Another recommendation for future research would be to expand the model of study on the impact of cultural intelligence on variables beyond student persistence. The current analysis focused on the singular result of persistence and was unable to determine any statistical significance on this binary outcome. Other outcome variables to consider such as levels of academic achievement or levels of social engagement in the life of the institution could also reveal the value of cultural intelligence for students from different cultures in institutions of higher education.
Finally, this study used a predictive model to determine likelihood for persistence for international students. As more studies emerge in this area of focus, an experimental, causal model of student persistence would be a valuable contribution to the body of research. There are very few empirical studies in this area. Therefore, a causal model would aid in the identification of factors that impact persistence among international students in the United States.

Conclusion

As globalization continues, the expanding educational opportunities for international students in the United States and other western nations will also continue to grow. Research focused on the identification and recognition of factors that contribute to persistence for this unique population has been somewhat elusive (Andrade, 2006; Mamiseishvili, 2012). This study aimed to validate factors based on the extensive body of research and literature on retention/persistence theory. While the traditional persistence factors presented in this study did not yield any significant findings, the addition of cultural intelligence to the research model did present some meaningful data and can serve as a catalyst for expanded studies in the future. Developing a model to include intercultural studies can serve as a successful prompt and outline for potential research in persistence for the international student community in higher education.

Cultural intelligence is used as a multidimensional model to identify and address missing cultural competencies. It is a tool to aid in the removal of barriers and challenges when addressing cultural differences (Ang et al., 2007; Earley & Ang, 2003). Further empirical studies exploring cultural intelligence are needed to provide an expanded framework for research with college students beyond the factors identified within traditional student populations and current persistence studies. While this present study did not generate data to substantiate a predictive relationship between cultural intelligence and actual student persistence, this model provides a
meaningful tool to assess and identify the significance of intercultural differences in higher education. Additionally, it can serve to present the likelihood for successful integration into educational environments as globalization continues. This will be a valuable resource to help assist students as they adjust to the process of college matriculation, thus preparing them to be successful in diverse social and cross-cultural environments (Friedman, 2005).

In conclusion, the study revealed that more research is needed to identify factors that impact international student persistence. In comparison to research of factors that focused on domestic students, there are additional concepts that merit consideration, namely the ability to navigate properly in environments and contexts different from one’s native culture. This certainly anticipates the value of cultural intelligence as a theoretical consideration. While conclusive answers were not found because of this investigation on persistence factors, this study adds to the gap in literature concerning persistence/retention for international students as it presents other variables for consideration to the landscape of theoretical frameworks for persistence. This is necessary, as some have provided a critique of previous models that focused on integration and other factors within in a traditional context that required adaptation to a dominant culture (Tierney, 1992). Further insights and research which consider cultural intelligence should begin to provide greater insights not only for international students, but for any student population required to adapt and adjust to new environments in the ever-evolving world of higher education.
REFERENCES


Firth, B. M., Chen, G., Kirkman, B. L., & Kim, K. (2014). Newcomers abroad: Expatriate adaptation during early phases of international assignments. *Academy of Management Journal, 57*(1), 280-300.


Hanover Research (2010) Best Practices in International Student Recruitment and Retention in Anglophone Countries


Hegarty, N. (2014). Where we are now -the presence and importance of international students to universities in the united states. *Journal of International Students, 4*(3), 223-235.


Rockstuhl, T., Seiler, S., Ang, S., Van Dyne, L., & Annen, H. (2011). Beyond general intelligence (IQ) and emotional intelligence (EQ): The role of cultural intelligence (CQ)


Strom, R. E., & Savage, M. W. (2014). Assessing the relationships between perceived support from close others, goal commitment, and persistence decisions at the college level. *Journal of College Student Development, 55*(6), 531-547.


APPENDIX A

Institutional Review Board Approval

November 11, 2016

Shawn Adams
IRB Application 2689: Factors That Predict Persistence for Non-Immigrant, International Students at a Private, Four-Year University in Georgia

Dear Shawn Adams,

The Liberty University Institutional Review Board has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study does not classify as human subjects research. This means you may begin your research with the data safeguarding methods mentioned in your IRB application.

Your study does not classify as human subjects research because it will not involve the collection of identifiable, private information.

Please note that this decision only applies to your current research application, and any changes to your protocol must be reported to the Liberty IRB for verification of continued non-human subjects research status. You may report these changes by submitting a new application to the IRB and referencing the above IRB Application number.

If you have any questions about this determination or need assistance in identifying whether possible changes to your protocol would change your application’s status, please email us at irb@liberty.edu.

Sincerely,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
The Graduate School

Liberty University | Training Champions for Christ since 1971
APPENDIX B

Research Site Permission

October 24, 2016

Shawn Adams
1363 Summer Lane Dr SE
Atlanta, GA 30316

Dear Mr. Shawn Adams,

After careful review of your research proposal entitled Factors that Predict Persistence for Non-Immigrant, International Students at a Private, Four-year University in Georgia, we have decided to grant you permission to access the survey and enrollment data collected in fall 2015 and spring 2016 which contains demographic data, the College Persistence Questionnaire and the Cultural Intelligence Scale for our International Students.

Check the following boxes, as applicable:

☑ Data will be provided to the researcher stripped of any identifying information.

☐ I/We are requesting a copy of the results upon study completion and/or publication.

Sincerely,

Josiane Caroline
Associate Director of Assessment and Institutional Research
Beulah Heights University
APPENDIX C

Demographic Questions

1. Indicate your year in school
   a. 1\textsuperscript{st} (Freshman)
   b. 2\textsuperscript{nd} (Sophomore)
   c. 3\textsuperscript{rd} (Junior)
   d. 4\textsuperscript{th} (Senior)

2. Indicate your sex
   a. Male
   b. Female

3. Indicate your age
   a) 20 or less
   b) 21-26
   c) 27-35
   d) 36-45
   e) 46 or older

4. Indicate your ethnicity and race (Select all that apply)
   a. American Indian or Alaska Native
   b. White or Caucasian
   c. Asian
   d. Black or African American
   e. Native Hawaiian or Other Pacific Islander
   f. Hispanic or Latino
   g. Non-Hispanic or Latino
   h. Two or more races (specify ______________)
   i. Other (specify ______________)

5. Indicate your country of birth____________________

6. In addition to English, what languages do you speak? (Select all that apply)
   a. Spanish
   b. French
   c. German
   d. Italian
   e. Chinese
   f. Navajo
   g. None
   h. Other

7. Please enter your student ID (This will only be used to verify enrollment for the current and subsequent semester at the school).
APPENDIX D

College Persistence Questionnaire

Instructions: Students differ a great deal from one another in how they feel about their college experiences. This questionnaire asks you about your reactions to many aspects of your life here at this college. Please consider each of the questions carefully, and circle the answer that best represents your thoughts. There are no "right or wrong" answers, so mark your real impressions. There are only 34 questions, and it is very important that you answer all of them. This should take you about 20-25 minutes. Your answers will be treated as confidential information.

1. How well do you understand the thinking of your instructors when they lecture or ask students to answer questions in class?
   Very well
   Well
   Neutral
   Not well
   Not at all well

2. How satisfied are you with the extent of your intellectual growth and interest in ideas since coming here?
   Very satisfied
   Satisfied
   Neutral
   Not Satisfied
   Very dissatisfied

3. In general, how satisfied are you with the quality of instruction you are receiving here?
   Very satisfied
   Satisfied
   Neutral
   Not Satisfied
   Very dissatisfied

4. How concerned about your intellectual growth are the faculty here?
   Not at all concerned
   A little concerned
   Neutral
   Concerned
   Very Concerned
5. On average across all your courses, how interested are you in the things that are being said during class discussions?
   Very interested
   Interested
   Neutral
   Not interested
   Not interested at all

6. How much of a connection do you see between what you are learning here and your future career possibilities?
   Very much
   Much
   Neutral
   Little
   No connection

7. I believe that many instructors deliberately impose unreasonable requirements on students and enjoy their distress
   Not at all true
   Not true
   Neutral
   True
   Very True

8. Students differ widely in how much interaction they want to have with faculty. How disappointed are you in the amount of interaction you have?
   Not disappointed at all
   Not disappointed
   Neutral
   Disappointed
   Very disappointed

9. How much have your interpersonal relationships with other students had an impact on your personal growth, attitudes and values?
   Very much
   Much
   Neutral
   Little
   No effect
10. How much have your interpersonal relationships with other students had an impact on your intellectual growth and interest in ideas?
   Very much
   Much
   Neutral
   Little
   No effect

11. How strong is your sense of connectedness with other faculty, students, staff on this campus?
   Very strong
   Strong
   Neutral
   Weak
   Very Weak

12. How much do you think you have in common with other students here?
   Very much
   Much
   Neutral
   Little
   Nothing

13. When you think about your overall social life here; friendships, college organizations, extracurricular activities, and so on, how satisfied are you with yours?
   Very satisfied
   Satisfied
   Neutral
   Disappointed
   Very disappointed

14. How many of your closest friends are here in college with you rather than elsewhere such as other colleges, work, or hometown?
   A lot
   Some
   Neutral
   A few
   None
15. What is your overall impression of the other students here?
   Very positive
   Positive
   Neutral
   Negative
   Very Negative

16. How often do you wear clothing with this college’s emblems?
   Often
   Sometimes
   Neutral
   A few times
   Never

17. How satisfied are you with the academic advisement you receive here?
   Very satisfied
   Satisfied
   Neutral
   Disappointed
   Very disappointed

18. How well does this institution communicate important information to students such as academic rules, degree requirements, individual course requirements, campus news and events, extracurricular activities, tuition costs, and financial aid and scholarship opportunities?
   Very well
   Well
   Neutral
   Not well
   Not at all well

19. How easy is it to get answers to your questions about things related to your education here?
   Very Easy
   Easy
   Neutral
   Difficult
   Very Difficult
20. How much input do you think you can have on matters such as course offerings, rules and regulations, and registrations procedures.
   A lot
   Some
   Neutral
   A little
   None

21. If you have needs that are different from the majority of students here, how well does this university meet these needs?
   Very well
   Well
   Neutral
   Not well
   Not at all well

22. How fairly do you think students are handled here?
   Very fair
   Fair
   Neutral
   Unfair
   Very unfair

23. When you think of the people who mean the most to you (friends and family), how disappointed do you think they would be if you quit school?
   Very disappointed
   Disappointed
   Neutral
   Not disappointed
   Not disappointed at all

24. At this moment in time, how certain are you that you will earn a college degree?
   Very certain
   Certain
   Neutral
   Not certain
   Not at all certain
25. At this moment in time, how strong would you say your commitment is to earning a college degree, here or elsewhere?
   Very strong
   Strong
   Neutral
   Not strong
   Not at all strong

26. How strong is your intention to persist in your pursuit of the degree, here or elsewhere?
   Very strong
   Strong
   Neutral
   Not strong
   Not at all strong

27. How supportive is your family of your pursuit of a college degree, in terms of their encouragement and expectations?
   Very supportive
   Supportive
   Neutral
   Little support
   No support at all

28. How likely is it that you will earn a degree from here?
   Very likely
   Somewhat Likely
   Neutral
   Not likely
   Definitely not likely

29. How confident are you that this is the right university for you?
   Very confident
   Confident
   Neutral
   Little confidence
   Not at all confident

30. How likely is it that you will reenroll here next semester?
   Very likely
   Somewhat Likely
   Neutral
   Not likely
   Definitely not likely
31. How much thought have to given to stopping your education here, perhaps transferring to another college, going to work, or leaving for other reasons?
   A lot
   Some
   Neutral
   A little
   None

32. How often do you miss class for reasons other than illness or participation in school-sponsored activities?
   Never
   Not often
   Neutral
   Often
   Very Often

33. How often do you turn in assignments past the due date?
   Never
   Not often
   Neutral
   Often
   Very Often

34. I am disinterested in academic work and do as little as possible.
   Not at all true
   Not true
   Neutral
   True
   Very True
APPENDIX E

Cultural Intelligence Scale (CQS) Self Report

Instructions: Read each statement and carefully select the response that best describes your current capabilities. Think of yourself as you generally are now, not as you would like to be. Answer as you honestly see yourself in relation to other people you know who are the same sex as you are and generally your same age.

Select the answer that BEST describes you AS YOU REALLY ARE (1=strongly disagree; 7=strongly agree).

**CQ Factor Questionnaire Items**

**CQ-Strategy:**

MC1 I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.

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MC2 I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.

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MC3 I am conscious of the cultural knowledge I apply to cross-cultural interactions.

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MC4 I check the accuracy of my cultural knowledge as I interact with people from different cultures.

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**CQ-Knowledge:**

COG1 I know the legal and economic systems of other cultures.

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COG2 I know the rules (e.g., vocabulary, grammar) of other languages.

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COG3 I know the cultural values and religious beliefs of other cultures.

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COG4 I know the marriage systems of other cultures.

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COG5 I know the arts and crafts of other cultures.

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COG6 I know the rules for expressing non-verbal behaviors in other cultures.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
CQ-Motivation:
MOT1 I enjoy interacting with people from different cultures.

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MOT2 I am confident that I can socialize with locals in a culture that is unfamiliar to me.

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MOT3 I am sure I can deal with the stresses of adjusting to a culture that is new to me.

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MOT4 I enjoy living in cultures that are unfamiliar to me.

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MOT5 I am confident that I can get accustomed to the shopping conditions in a different culture.

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CQ-Behavior:
BEH1 I change my verbal behavior (e.g., accent, tone) when a cross-cultural interaction requires it.

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<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

BEH2 I use pause and silence differently to suit different cross-cultural situations.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

BEH3 I vary the rate of my speaking when a cross-cultural situation requires it.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

BEH5 I change my non-verbal behavior when a cross-cultural interaction requires it.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

BEH6 I alter my facial expressions when a cross-cultural interaction requires it.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

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For information on using the scale for purposes other than academic research (e.g., consultants and non-academic organizations), please send an email to cquery@culturalq.com
APPENDIX F

Permission to Use Tinto’s Original Model Diagram of Student Departure

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Thursday, April 6, 2017 at 10:35:19 AM Eastern Daylight Time

Subject: Re: Request for permission to use image/model
Date: Thursday, April 6, 2017 at 10:34:28 AM Eastern Daylight Time
From: Adams, Shawn
To: Vincent Tinto

Thank you very much!

From: Vincent Tinto <vtinto@syr.edu>
Sent: Wednesday, April 5, 2017 8:28 PM
To: Adams, Shawn
Subject: Re: Request for permission to use image/model

Dear Shawn:

Please feel free to include the diagram of my initial model in your dissertation.

Sincerely

vincent tinto

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On Apr 5, 2017, at 5:11 AM, Adams, Shawn <sadams58@liberty.edu> wrote:

Dr. Vincent Tinto
Distinguished University Professor,
Syracuse University

Dr. Tinto, I am writing to request permission for publication of your original model of student departure shown below. It is to be included in my literature review for an unpublished dissertation entitled; Factors that Predict Persistence for Non-Immigrant, International Students at a Private, Four-year University in Georgia. It is clear that your pioneering scholarship in student persistence has created a substantial framework of study for so many in the body of research.

Thank you for your consideration in this matter.

Shawn Adams
Doctoral Candidate, Liberty University

<tinto75.png>