An Exploration of the Role of Perceived Instructor Cultural Intelligence, Instructor Classroom Practices, Students’ Feelings of Validation, and Sense of Belonging on Students’ Intent to Persist

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

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Abstract

Access to post-secondary education has increased over the last forty years. At the same time that more students are enrolling, participation in developmental education is increasing and fewer are completing degrees. Student persistence is not new to the post-secondary research community. The recent focus relates to the correlation between participation in developmental education and lower completion rates. This is particularly true for students who are first generation, students of color, and from families with lower socioeconomic status. As the country becomes increasingly diverse, it is imperative that this trend be reversed. Research on the effectiveness of developmental education is divided and because of associated costs, policy makers have been actively seeking ways to improve student persistence for students who are enrolled in developmental education.

Much of the current research focuses on the types of developmental programs and level of effectiveness. This study focuses on the classroom level and the interaction between the instructor and student. Tinto’s (1993) Integration Model was used as the conceptual framework and Rendón’s (1994) Validation theory provided the theoretical framework. Cultural Intelligence was included in this research through questions that captured students’ perception of instructor level of cultural intelligence and classroom practices that have been shown to create feelings of validation in students. Levels of feeling validated and sense of belonging were measured along with students’ intent to persist.
Data was collected from students enrolled in first level developmental Math and English courses at two regional campuses of the Ohio State University. Three broad questions guided the study. The questions were designed to explore relationships between instructor classroom practices, students’ perception of instructor cultural intelligence, students’ feelings of validation and students’ sense of belonging as they related to students’ intent to persist. Multivariate analytic techniques were used to address the questions.

Some of the findings indicted that there were significant relationships among instructor classroom practices, students’ feelings of validation, and students’ sense of belonging. Instructor classroom practices were significant for female students when in combination with student’s feelings of validation, students’ sense of belonging, and students’ perception of instructor cultural intelligence. When students’ perception of instructor cultural intelligence was removed from the model, the amount of variance was just 13%. When it was added along with female as a selection variable the model accounted for 43% of the variance in students’ intent to persist.
Dedication

To …

My mother,

Ann Frances Lechman

January 14, 1934-March 10, 2007
Acknowledgments

There are no words to capture the level of appreciation I have for Dr. Joshua Hawley, my advisor who stuck with me for 10 years. It has been a ride with ups and downs and I think we are both elated to have made it to the end of this leg of life’s journey as we both move forward to the next adventure. Thank you for believing in me when I doubted myself, not giving up on me, and pushing when needed.

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Fields of Study

Major Field: Education: Physical Activity and Educational Services
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Chapter 1 Introduction

Over the last four decades enrollment in post-secondary institutions has increased exponentially. Much of the increased enrollment for students of color, women, and those from low socioeconomic groups is attributable to laws and initiatives of the 1960s and 1970s including the Civil Rights Act of 1964 and the Higher Education Act of 1965. These laws, in addition to establishing more community colleges and increasing support of Historically Black Colleges and Universities (HBCUs) opened doors that historically have only been cracked for women, people of color and those from low socioeconomic groups (Brock, 2010). Total enrollments (all students regardless of age/race/ethnicity) increased by 46% between 1996 and 2010 and are projected to continue increasing through 2021 (NCES, 2013). In a ten year period, enrollment for students who were 25 years old and older grew 42%, surpassing the growth of those between age 18 and 24. This trend is projected to continue through 2021 (Snyder and Dillow, 2012).

More people may be entering post-secondary education but degree attainment has not kept pace (Ross et al., 2012). In 2010, the three-year completion rate for students who enrolled in two-year colleges in 2007 was 30%. The two-year completion rate was at 20%, as it had been since 2002 (Hughes, 2012). For students who enrolled in 4-year institutions between 2006 and 2007, the six-year graduation rate was 58.8% (Hughes, 2012; Ginder and Kelly-Reid, 2013; Community College Research Center, 2014). Six-year completion rates from 2010, disaggregated by race and ethnicity for 4-year colleges and universities (public and private), show disparities between white and non-white
racial/ethnic groups. Table 1.1 shows that that Asians have the highest completion rate at almost 69% followed by whites at 62%. Hispanic/Latino has the third highest at almost 51% and the 2 lowest are American Indian and African American/Black both at 40%. Poverty is as a contributing factor in low completion rates. Data from 2012 show that only 52% of students coming from families with the lowest incomes enrolled in post-secondary education while students coming from families with mid-level incomes enrolled at 65%. Enrollment for students who came from families with the highest levels of income was 82% showing gaps in enrollment based on economic status (Shapiro, Dundar, Ziskin, Yuan, & Harrell, 2013).

<table>
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<th>Demographic Classification</th>
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<td>African American/Black</td>
<td>40.1%</td>
</tr>
<tr>
<td>American Indian</td>
<td>40.3%</td>
</tr>
<tr>
<td>Asian</td>
<td>68.9%</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>50.6%</td>
</tr>
<tr>
<td>White</td>
<td>62%</td>
</tr>
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Table 1.1 Demographics and Completion Rates
National 6-year degree completion rates NCRC, 2013

**Background**

Access to post-secondary education and degree completion rates have been part of the research agenda of post-secondary education for 40 years (Tinto, 2006-2007). However, within the last two decades, finding empirically based strategies and techniques to increase student persistence and retention has become more of a critical issue. One of
the reasons for college completion being a concern is that other nations, including the
Russian Federation, Israel, Japan, and Canada have exceeded the United States in overall
post-secondary attainment, especially in the science, technology, engineering, and math
(STEM) fields (American Association of Community Colleges (AACC), Reclaiming the
American Dream, 2012; Kena et al., 2014).

Some fear that this gap in educational attainment may inhibit the United States in
effectively competing across the globe, resulting in negative economic impact for the
nation’s economy (Shapiro et al., 2013; Palmer, Davis, Moore III, and Hilton, 2010; U.S.
Department of Education, Advisory Committee on Financial Assistance, 2012). Degree
completion is troubling for more than concerns tied to national economic gains.
Historically, in the United States, access to post-secondary education has been tied to
upward mobility and correlated with higher income (Baum and Ma, 2007). Obtaining a
post-secondary credential has led to increased employment opportunities, living wage
jobs that are more likely to provide health care and retirement benefits (AACC,
Reclaiming the American Dream, 2012; Wilmer, 2008). A well-educated citizenry is
also more likely to be engaged in civic affairs, have less reliance on public assistance,
make significant contributions to the tax-base, and lead healthier life-styles (Baum, et al.,
2013; Hughes, 2012; Shapiro, et al., 2013).

Increased access to post-secondary education has also resulted in more students
entering under-prepared or unprepared for college level work resulting in placement into
developmental education courses. According to the Community College Research Center
(2014), as many as 60% of students who enter post-secondary institutions, whether two-
year or four-year take at least one developmental education course. Since developmental
courses do not count for credit toward a degree or credential students must spend additional time to complete the desired degree or credential (Bettinger and Long, 2005). Research has shown correlations between participation in developmental education and college dropout (Shield, 2004; Bailey, 2009; Bailey and Cho, 2010; Scrivener, Bloom, LeBlanc, Paxson, Rouse, and Sommo, 2008). This stark reality has resulted in the increased demand for research addressing how to increase college completion rates for all students. Past studies have concluded that instructors and their actions were important variables in students’ decision to persist (Hurtado and Carter, 1996; Rendón, 1994).

Tinto (2006-2007) acknowledges the usefulness of existing student persistence theories, including his own, and yet encourages continued research on the role of faculty influence on student persistence.

**Statement of the Problem**

Access to and enrollment in post-secondary institutions has been steadily increasing over the last several decades, however, degree completion has not kept pace (Baum et al., 2010). Demographic variables and other attributes such as race/ethnicity; being first generation to attend college; low socioeconomic status; and participation in developmental education, correlate with lower completion rates. The fact that persistence levels disproportionately affect these students is problematic as the population of the United States continues to become more heterogeneous and current and future jobs require some post-secondary credential (Shield, 2004; Ginder and Kelly-Reid, 2013; Shapiro et al., 2013). Some researchers are concerned that the United States will not be as competitive in the global economy without increasing the number of citizens with post-secondary credentials (Carnevale, Smith, and Strohl, 2010; Hughes, 2012). Others
are concerned that economic disparities will worsen, increasing the level of income inequality found in the United States (Baum, et al., 2010; Hughes, 2012; Shapiro, et al., 2013; U.S. Department of Education, Advisory Committee on Student Financial Assistance, 2012; Soares and Perna, 2014).

With funding for post-secondary education diminishing but students’ needs increasing, educational researchers, and policymakers have been actively seeking ways to improve student persistence and increase completion rates in post-secondary education. Research by Tinto (2006-2007) and Engstrom (2008) concluded that post-secondary classrooms could influence students in positive ways through interacting with faculty who practice active learning methods, are organized, and provided clear direction as components of instructional classroom practices. Harris and Wood (2013) identified several practices of faculty that students found helpful, these include being approachable, having high expectations, inquiring into student’s progress, and listening to student concerns. Bensimon (2007) found that student persistence correlated with faculty-student relationships that involved sharing of norms and expectations of academic culture that helped students adapt and persist. Other scholars advocate for faculty that are culturally intelligent in order to successfully work with students who are members of historically underrepresented racial/ethnic and class groups (Irish and Scrubb, 2011; Langelier, 2006).

Because of the changing demographics of the United States and the increasing heterogeneity of post-secondary classrooms, Nieto and Booth (2010) call for instructors who demonstrate cultural intelligence and successfully work with students. Irish and Scrubb (2011) advocate for faculty who are aware of his/her internal cultural assumptions
and are willing and able to recognize the wide array of knowledge and experiences that students bring with them to post-secondary education that can be reflected in course assignments, class discussion, and homework assignments. Ramis and Krastina (2010) assert that instructors’ cultural intelligence is even more relevant since they are most often part of the majority group in a changing world but leading multicultural classrooms.

Conceptual Model and Framework

This study addresses the call for continued research on the role of faculty in the classroom while incorporating the impact of how student perception of instructor level of cultural intelligence relates to students’ developing a feeling that validates their participation in post-secondary education and development of sense of belonging. Both, validation and sense of belonging have been identified as variables that contribute to students’ intent to persist. The conceptual model for this study is based upon Tinto’s (1997, 1993) revised Integration Model sometimes referred to as the Interactionalist model and uses Rendón’s (1994) Validation Theory as the theoretical framework. Tinto’s Model is explained below followed by an explanation of Validation Theory and the Conceptual Model for this study.

Tinto’s model as conceptualized by Forbes (2008), shown in Figure 1.1, is longitudinal and is among the first to incorporate the experiences that students bring with them to post-secondary education. The model addresses two elements, the individual, and the institution. For the student, the model identifies family background, pre-college experiences, and individual attributes as external factors that students come with. Based on the student’s experiences s/he has goals regarding post-secondary education. The student’s goal influences the commitment to post-secondary education.
The institution also demonstrates its commitment through what it offers to students by way of courses, libraries, scholarships and other items that can contribute to student success. Student goals and commitment interact with the institutional commitment and lead to experiences within the academic system. Things like academic performance (GPA, class attendance, intellectual development). There is also the social aspect of the institution, the peer groups the student interacts with, clubs, or campus based-organizations as well as faculty. Based on the interaction of all of the elements previously described students develop a level of academic and social integration which interact with the student’s goal and commitment all of which are influence by the institutional commitment and influence the student’s decision to remain or depart.
Tinto’s Integration Model (1975)

Figure 1.1 Tinto Integration Model

Alastair Forbes, 2008 Presentation at Higher Education Association Annual Conference
**Explanation of Conceptual Model**

In Tinto’s Model academic and social integration are key elements in students’ decision to remain or depart. In the conceptual model for this study using Validation Theory as the framework academic and social integration are replaced by students’ feeling of validation and sense of belonging as key factors in decision to remain or depart. Instructor classroom practices and student sense of instructor Cultural Intelligence are included as factors to determine if instructors who are perceived to have higher levels of cultural intelligence incorporate classroom practices that lead to students’ feeling validated and then to developing a sense of belonging in the classroom.

The conceptual model for this study, like Tinto’s recognizes that students come to post-secondary education with a variety of background characteristics referred to as “Student Entry Characteristics”. These entry characteristics are considered constants. Many are attributes that students have no control over, (race/ethnicity, sex, age, first in family to attend college). Others are choices but they can influence student persistence. These entry characteristics have also been correlated with increased placement into developmental education courses (Tinto, 1975, 1988, 1993; Rendón, 1994, Bailey, 2009; Aud, Fox, and Kewal-Ramani, 2010).

Students who participate in developmental education courses may see having to take developmental or remedial courses as a failure as most of these courses do not apply toward completion of a degree or certificate. Struggling to become acclimated to the post-secondary environment and experiences academic
challenges may lead to low self-esteem, frustration and a greater likelihood of dropping out (Bettinger, Boatman, and Terry Long, 2013).

**Validation**

Validation is a process whereby institutional and non-institutional agents lay the foundation for supportive and affirming learning environments and or provide consistent encouragement to those engaging in post-secondary education. A key premise of validation theory is that students develop a sense of validation through faculty initiated interactions (Rendón Linares and Muñoz 2011; Morris and Price, 2008, Nora, Urick, and Quijado-Cerecer, 2011; Nora, Barlow and Crisp, 2005). The Validation model infers that instructors, like students come to post-secondary institutions with a variety of experiences, skills, and abilities and examines the role that instructors play in students’ intent to persist. Students’ intent to persist functions as the dependent variable with students’ perception of instructor CQ; instructor classroom practices; students’ feeling of validation; and students’ sense of belonging as independent variables. The student entry characteristics are also independent variables. Tinto no longer uses the word integration, and contends that the model is still an effective and appropriate tool in examining student persistence (Wolf-Wendel, Ward, and Kinzie 2009). Figure 1.2 shows the Conceptual Model.
Figure 1.2 Conceptual Model
Purpose of the Study

The purpose of this cross-sectional correlational study is to explore the relationship between instructor classroom practices, students’ perception of instructor cultural intelligence, students’ feelings of validation, and students’ sense of belonging as predictors of students’ intent to persist. The independent variables, instructor classroom practices, ICP; students’ perception of instructor cultural intelligence, SPICQ; students’ sense of validation, SSV; students’ sense of belonging, SSOB were drawn from extant literature addressing aspects of classroom interactions with faculty that influence students’ intent to persist. Students’ intent to persist, SITP is the dependent variable.

Recent work by Strayhorn (2012), presents student sense of belonging as a critical factor in student persistence; Hurtado (2013) and Rendón (2011) address the importance of feeling a sense of validation. Bensimon (2008) and Engstrom (2008) identify instructor classroom practices as relevant factors correlating with student persistence. Students’ perception of instructor Cultural Intelligence was introduced as an independent variable to determine if there is a relationship between instructor use of classroom practices that have been shown to support students’ feeling validated and developing a sense of belonging.
Research Questions

Three research questions guide this study.

1. What is the relationship between student perception of instructor cultural intelligence, instructor classroom practices, student sense of validation, student sense of belonging and intent to persist?

2. Does students’ sense of validation, students’ sense of belonging, and instructor classroom practices predict students’ intent to persist?

3. To what degree does perceived level of instructor CQ, students’ sense of validation, and students’ sense of belonging affect traditional and non-traditional students’ intent to persist?

Significance

This study contributes to the literature on students’ intent to persist through the lens of students enrolled at two regional campuses in Ohio. There is abundant literature that addresses students’ persistence at community colleges and a growing body on four-year colleges. However, research is scant on major universities with multiple regional campuses like the Ohio State University, Ohio University, and Kent State University. Little evidence was found that focused on the students who enroll at regional campuses with the intent to complete a 4-year degree and placed in beginning levels of developmental education.
This research on regional campuses is important because regional campuses have commonalities with community colleges that have not been examined. For both, entrance requirements are often more relaxed with most regional campuses being open admission like community colleges. Regional campuses for some are a “last chance institution” like community colleges. Students at regional campuses are often enrolled there because they did not have test scores or GPAs high enough to be accepted on the main campus. These students are often encouraged to attend a regional campus or are accepted to main campus with the provision of completing at least the first year at the regional campus. For some students who attend regional campuses, the proximity to home is appealing. Attending a regional campus and earning a degree or credential is equivalent to earning a degree from the main campus.

This research provides insight into the experiences of students at regional campuses who are enrolled in first level developmental education courses. Much of the existing literature on developmental education focuses on cost, assessments, and program structure (Levin and Calcagno, 2008; Bettinger, Boatman, and Terry Long, 2013; Arendale, 2010; Illowsky, 2008). Seminal work by Grubb (1999) presents extensive research on instructional practices of faculty teaching developmental education in community colleges. His research addresses the variety of instructional practices that are successful and highlights those that are not as successful. However, the research does not go past instructional practices to examine how interactions between faculty and students may; build feelings of validation and sense of belonging within students. Few studies within the last decade address classroom practices of instructors even if instructor classroom practices are referenced as a best practice. The focus is often on the benefits
of instructors having organized content and using active learning techniques. Little is shared regarding interactions between instructors and students that may lead to students feeling validated (Pascarella, Seifert, and Whitt, 2008; Rendón Linares and Muñoz, 2011).

This study contributes to the literature related to classroom practices beyond instructional techniques and establishes that there is a relationship between sense of belonging, validation and instructor classroom practices. The results from this study can be used to further the research agenda on student persistence and to develop professional development opportunities for faculty.

**Definition of Terms**

Active Learning—is any classroom activity that engages students as well as prompts them to reflect upon what they are doing in relation to the course topic (Braxton, Jones, Hirschy, and Hartley III, 2008).

At-risk student—are students who possess one or more of the following characteristics that are often classified as “at risk”, come from low income families, assessed as being underprepared, first generation in the family to attend college, students of color, and 25 and older (Rendón Linares and Muñoz, 2011).

Developmental education- is often used interchangeably with remediation; developmental education refers to a holistic approach to assisting students, found to be underprepared for college-level work. Developmental education programs include courses and programs connected to student services like tutoring, resource centers,
establishment of learning communities, and blended courses (Higbee, Arendale and Lundell, 2005; Brock, 2010).

Cultural Intelligence (CQ) - is “a person’s capability to adapt effectively to new cultural contexts (Earley and Ang, 2003 p. 59)”.

Non-traditional student- generally possess one or more of the following attributes: have parents who did not attend college, being older (25+), having adult responsibilities like working and or family obligations, having lower socioeconomic status, and being a person of color. Possessing any one or combination of these variables often leads to the label, non-traditional student. Non-traditional is often used interchangeably with “at risk student” (Brock, 2010; Rendón Linares and Muñoz, 2011).

Persistence- is continuing to the next semester, in other studies it refers to completion of a degree or certificate (Brock, 2010).

Sense of belonging- is a cognitive and affective process that refers to how students perceive receiving support, either social or academic, from agents of the institution (both faculty and non-faculty) as well as the level of connectedness felt from the campus community. Other feelings that are part of sense of belonging include mattering, valued, respected, important, and cared about (Strayhorn, 2012).
Students of Color - those who identify as non-white (Ross et al., 2012). ¹

Traditional student- is a student (of any race/ethnicity) that possess one or more of the following characteristics: a middle or upper class background; financially dependent upon a parent/s; enrolled right out of high school; attend college full-time; does not work or if working, works only part time; has at least one parent who attended college and grew up with the expectation that she or he would attend college therefore the concept of participating in post-secondary education is not foreign but rather expected (Brock, 2010; Rendón Linares and Muñoz (2011).

Validation- a process engaged in by agents of the institution (faculty/staff/peers) or non-institutional agents (family/significant other/community member) that builds a sense of feeling accepted and cared for that supports students’ belief in his or her ability to construct knowledge and succeed in post-secondary courses (Rendón Linares, and Muñoz, 2011; Barnett, 2011).

Assumptions

The researcher assumes that students have access to computers and an e-mail account; a valid assumption because students are assigned an e-mail account when accepted into the university. An additional assumption is that contacting students via e-mail is a valid method based on ease of access to computers and other forms of

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¹ This research uses the categories from the Office of Management and Budget (OMB) the unit responsible for determining the demographic categories for “federal data on race and ethnicity (Ross et al., 2012 p.1)”. The OMB categories include, American Indian/Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, Black/African American, and White. Hispanic/Latino is an ethnicity but the group can have those who identify as Black or White. When the term “Students of Color” is used it is referring to all students who identify as non-white and as one or more of the categories previously listed including those who identify ethnically as Latino/Hispanic.
technology (Tablets, Smart phones, laptops) used by students. The researcher also assumes that students are reliable sources on their perceptions related to classroom experiences with the instructor (Schreiner and Nelson, 2013-2014).

**Limitations**

- This study is limited in scope. The sample draws from two of four regional campuses of The Ohio State University meaning that the results of the study are only applicable to the two campuses who participated in the study.
- Respondents self-selected and decided to respond to the study or to ignore the request.
- Proximity- feedback from one of the campus contacts indicated that students on that campus often ignore e-mails from Columbus because the content is deemed irrelevant. Therefore, the researcher being located in Columbus may have influenced students’ decisions to participate.
- The response rate, 25% was acceptable for on-line surveys (Minnaar and Heystek, 2014). The population of 511, provided a significant N that would allow for a wide variety of statistical analysis to be conducted without fear of insufficient cases to variable ratios. However, the actual response rate and the demographic distribution of respondents may have limited the power of the statistical analysis conducted.
- Survey questions may have contributed to multicollinearity of some of the variables because of differences in how variables were operationalized.
Chapter 2 Literature Review

Chapter 2 provides a review of literature relevant to this study. The literature review begins with an introduction on why persistence is a significant concern for post-secondary education. The second section provides a brief overview of increasing enrollments in post-secondary institutions and the influence of the changing demographics of the United States. The third section introduces four student background characteristics identified as contributing factors to student persistence. They are, being a non-traditional student, growing up in a family with low socioeconomic status, membership in any group classified as minority, and participating in developmental education (Tinto, 1993, 2006; Bettinger and Long, 2005; Bailey, 2009; Hughes, 20120). Three of the most well-known persistence theories; Tinto’s Interactionalist Theory (1975, 1993), Astin’s (1984) Involvement theory, and Kuh’s (2005, 2008) Engagement theory, are introduced in the fourth section along with Rendón’s (1994) Validation theory. The fifth section addresses research on instructors’ role on students’ intent to persist. The final section includes an introduction to Cultural Intelligence (CQ).

The Persistence Dilemma

Studied for over thirty years, student persistence continues to be a concern (College Board, 2009). As more first time students enroll in colleges and universities, the numbers who complete a degree continues to languish or fall (Hughes, 2012). According to the U.S. Department of Education Advisory Committee on Student Financial Assistance (2012), the average completion rate among the nation’s post-secondary
intuitions (both 2 and 4-year) was 40%. Persistence rates that remain static or decline have the potential to negatively influence the national economy as well as jeopardizing competitiveness within the increasingly global economy (U.S. Department of Education Advisory Committee on Student Financial Assistance, 2012; Hughes, 2012;). While other countries are increasing the numbers of citizens with post-secondary degrees the numbers in the United States are declining especially in the Science, Technology, Engineering, and Mathematics (STEM) fields (Palmer, Davis, Moore III, and Hilton, 2010).

Persistence is not just an economic concern. Some researchers identify low persistence and completion rates as variables that contribute to increasing economic inequality (Baum, Ma, and Peyea, 2010). Traditionally, post-secondary education or vocational certification was a pathway to middle class life (American Association of Community Colleges: Reclaiming the American Dream, 2012; Wilmer, 2008; Bailey and Dynarski, 2011; Casazza and Silverman, 2013). Recent data suggests that post-secondary education can still be one of those pathways. Individuals with even some post-secondary education are more likely to experience increased social and economic mobility through obtaining employment that pays a living wage, provides health care, and retirement benefits, over those with, a only a GED or High School diploma (Martorell and McFarlin, 2011; Aud et al., 2013; Baum, Ma, and Peyea, 2010; Palmer, Davis, Moore III, and Hilton, 2010; Advisory Committee on Financial Assistance, 2012).

**Increasing Access and Changing Demographics**

Access and enrollment in post-secondary education has grown since the late 60’s and early 70’s. Part of this growth is attributed to the passage of major federal civil rights
laws making discrimination in education illegal and opening the doors for students who have historically not been welcome within the university such as students of color, women, and those from lower socioeconomic status groups (Baum 2010; Brock 2010; Casazza and Silverman 2013). Students classified as racial/ethnic minorities and other historically underserved groups may be accessing post-secondary education at higher levels but the stark reality is that there continues to be an achievement gap. The post-secondary playing field is far from being level (Laird, et al., 2008). Data continues to show disparate completion rates for individuals with certain demographic attributes. The completion rate for students of color across all institutions (2-year and 4-year) was lower than the completion rate for White students (Laird, Chen, and Kuh, 2008). White students who did not persist (non-degree/certificate completion) were 33% while Black/African Americans and American Indian/Alaska Natives were 43% and Hispanic/Latinos were 42% (Ross et al., 2012, P.185).

**Student Background Characteristics**

This section provides an overview of four student background characteristics identified as influencing student persistence (Tinto, 1975; Hao, 2011; Thompson, Johnson-Jennings, and Nitzarim, 2013; Pascarella, Seifert, and Whitt 2008). The four characteristics addressed in this literature review include race/ethnicity, socioeconomic status, participation in developmental education, and age at point of entry. More recently, level of preparedness for college level work has been included as a variable as it closely correlates to participation in developmental education, which, correlates negatively with student persistence. Some background variables not addressed in this study, include, coming to the post-secondary education system from a poorly funded
school system, participating in post-secondary education while balancing work and family along with academic demands, having English as a second language, and being the first in the family to participate in post-secondary education (Engstrom, 2008; Aud, Fox, and Kewal-Ramani, 2010). Additional variables correlated with levels of persistence include parents' level of education, high school grade point average, and ACT/SAT test (Bremer, Center, Opsal, Medhanie, Jang, and Geise, 2013; Lohfink and Paulsen, 2005).

**Traditional and Non-traditional students**

Age is one of the primary characteristics referenced when identifying students as traditional or non-traditional. A traditional student is generally one who begins post-secondary education directly after high school, is 18-20, enrolls as a full-time student, does not work or works part-time, has no financial obligations, and is supported financially by parents (NCES, 2002). Students who enter post-secondary education several years after high school, are age 24 and older, are financially independent and or work full time are viewed as non-traditional (American Association of Community Colleges: Reclaiming the American Dream, 2012).

The National Center for Education Statistics (NCES, 2002) presents a definition of non-traditional students that more broadens the scope of who may be non-traditional. This definition is a more accurate reflection of experiences of students in the 21st century. A student may be considered non-traditional if she/he exhibits one or more of the following characteristics: does not enter post-secondary education directly after completing high school, is enrolled as a part-time student, is financially independent, works full-time, has financial dependents other than a spouse, is a single parent, or does
not have a high school diploma. Socioeconomic status, race/ethnicity, and first generation, are also indicators that suggest that a student is non-traditional. Students who are non-traditional often contend with added factors that require their focus and energy on top of academic demands that -traditional students do not have (NCES, 2002). This commitment of energy to non-academic activities may influence persistence.

The largest percentage of first-time enrollees continues to be those who are considered traditional, under age 24 and entering right out of high school. However, students who are considered non-traditional, over age 25 who did not enroll right out of high school, are steadily increasing (Advisory Committee on Student Financial Assistance, 2012). In 2007, non-traditional students were 15% of the enrolled student population (Shapiro, et al 2013). Many of the first-time enrollees who are non-traditional students are not just non-traditional by being over 24 years old. An increasing number of students also enroll with one or more of the following attributes: person of color; first generation; working full time; have financial responsibilities, and family obligations (Casazza and Silverman 2013). The *Pathways to Success Report: Integrating Learning with Life and Work to Increase National College Completion*, presented to the United States Congress and the Secretary of Education in 2012 shows that based on enrollment demographics, non-traditional students are becoming more common. The report refers to them as *21st Century Students* (2012, P. 17) because they are vastly different than students who entered in decades past.

Shapiro et al., 2013 refers to students who deviate from characteristics of traditional students as adult learners. The concept of what a college student was and should be was constructed at a time when those who participated in post-secondary
education were more homogeneous and access to post-secondary education was more limited than the present time. Casazza and Silverman (2013) support the idea that students who are currently categorized as non-traditional should instead be considered the norm. Although students who are non-traditional are becoming more common there are concerns related to this population because many of the non-traditional students are not succeeding in post-secondary education or completing degrees. Data, based on students enrolling for the first time in 2007 showed that there was a considerable divide between completion rates for students considered traditional and those who were considered non-traditional. The six-year completion rate for traditional age students was 59.7% and was 43.5% for the non-traditional or adult learner group (Shapiro et al., 2013).

Socioeconomic Status

Using data from the US Census (1940-2000) and the American Community Survey for 2006 and 2007, Bailey and Dynarski (2011) show that family income is an important variable in college entry and completion and that socioeconomic status contributed to low persistence rates for racial/ethnic groups. They also found that regardless of race/ethnicity, those in the highest two income quartiles saw the greatest gains while the lowest income quartiles saw the least gains in college entry and completion. If a student was in the top income quartile, his or her chances of entering and completing college were better than the chances of those in the lowest income quartiles (Bailey and Dynarski, 2011).

Another finding was that women, particularly those from higher income families had the highest entry and completion rates, a trend that was also true for women from lower income families. Additionally, they found that 38% of students with parents
without college degrees began in community colleges versus those students who come from families with higher incomes and parents who graduated from four-year institutions (Berkner, Choy, and Hunt-White 2008). Almost half of the students with family incomes of less than $25,000 attend community colleges and do not persist to a degree or certificate as at the same rate as those with higher incomes (US Department of Education, 2010; Aud, Fox, and Kewal-Ramani, 2010; American Association of Community Colleges: Reclaiming the American Dream, 2012).

**Race and Ethnicity**

From 1976-2010, students who identify as Hispanic/Latino increased from 3% to 13% of the college student population; those identifying as Asian/Pacific Islander tripled, increasing from 2% to 6%, and students identifying as Black/African American rose from 9% to 14%. While the numbers and percentages for students of color increased, the numbers for white students decreased from 83% in 1976 to 61% in 2010 (Aud, Fox, and Kewal-Ramani, 2010). Even though there are fewer white students enrolling, more white students are persisting to degree completion. Even with increased access to post-secondary education there continues to be an achievement gap between white students and students of color (Greene, Marti, and McLenney 2008). In 2006, data showed that more students of color started in community colleges at rates higher than white students. Fifty percent of Latinos and 38% of African American students started at community colleges compared to 28 percent of White students (Education Longitudinal Statistics Report, 2009). Many students of color who start at two-year colleges take at least one developmental education course and are less likely than white peers to obtain a degree or certificate (Greene, Marti, and McLenney 2008).
Developmental Education and persistence

Participating in developmental education courses has been identified as a variable that contributes to low levels of student persistence and degree completion (Community College Research Center, 2014; Choitz and Strawn, 2011; Brock, 2010). Students who enroll in developmental education are less likely to complete their degree or certificate within the 150% normal time, meaning after 3 years at a two-year school and after 6 years at a 4-year school (Choitz and Strawn, 2011; Ginder and Kelly-Reid, 2013). Data from schools participating in the Achieving the Dream Initiative, show that just over 30% of students enrolled in mid-level developmental math completed the sequence in a three-year time frame. Those enrolled in mid-level reading did slightly better at just under 45% (Edgecombe, 2011). For students placed three or more levels below college level their completion rates were half of those at mid-level. Only 16% completed the math sequence and 22% completed reading (Edgecombe, 2011).

The literature consistently demonstrates that at least half of all students entering post-secondary institutions fail to meet academic standards for ability to complete college level work and are directed to enroll in developmental courses (Scott-Clayton, Crosta, and Belfield 2014; Scrivener et al., 2008). The purpose of developmental courses is to assist students who for a variety of reasons need to build academic skills order to be successful in college-level courses (Higbee, Arendale, and Lundell, 2005; Brock, 2010).

High numbers of students needing remedial assistance, or developmental education is a concern for policy makers (Laird, Chen, and Kuh, 2008). Some policy makers are dissatisfied with having to pay for developmental education courses in post-secondary education. They view developmental courses as a wasteful expense,
particularly in 4-year institutions, because students were expected to master material in secondary school that would prepare them for college-level work. There is also concern that instructors will develop less rigorous courses in a move to accommodate students who are un-prepared. Others believe that instructors spending time re-teaching content considered high school level in a post-secondary institution is a misuse of funds from an increasingly smaller pot of money (Levin and Calcagno 2008; Bettinger and Long 2009; Oudenhoven, 2002; Casazza and Silverman, 2013).

The belief that costs for developmental education courses are soaring may not be accurate. In 1998, research conducted in Ohio showed that developmental courses cost between 1 and 2 billion dollars across two-year and four-year institutions in Ohio (Levin and Calcagno 2008). Bettinger and Long’s (2007) research using figures from 2006 based on Ohio post-secondary institutions shows that developmental courses cost institutions less than college level courses. They also found that in Ohio remedial courses are less expensive than college level courses at community colleges versus 4-year institutions in part due to large class size and use of part-time faculty.

The cost of developmental education is not the only issue that policy makers and researchers have; Glen and Wagner (2006) identify other hidden opportunity costs that impact the students. Participation in developmental education courses adds time to degree completion. If a student has to take a sequential series of developmental courses that can add several years to degree completion on top of the expense of courses, (Pell grants and other forms of financial aid often do not cover non-credit courses). Other costs that may impact students engaging in developmental are daycare and lost wages.
Hughes and Clayton-Scott (2011) found evidence indicating that those who take developmental education are less likely to obtain a degree. Some argue that developmental education courses also cost the institutions that provide developmental education courses. Assertions include that the curriculum becomes watered down or less rigorous; faculty feel they have to inflate grades, and the institutions loses prestige when too many students participate in developmental education (Calcagno, 2012; Costrell, 1998; Levin and Calcagno, 2012).

The previous sections provided an overview of characteristics of students classified as traditional and non-traditional along with other student background characteristics such as socioeconomic status, race/ethnicity, and participation in developmental education as variables that influence student persistence. The next section provides an in-depth examination of how developmental education became a factor that can negatively influence student persistence.

**Determining what works and the developmental education debate**

The empirical evidence regarding the effectiveness of developmental education is divided (Attewell, Lavin, Domina, and Levey, 2006; Bailey 2009). Some research shows that developmental education has no effect on degree attainment (Shields, 2005), while other research supports developmental education as effective in providing students skills needed to successfully complete a degree, certificate, or transfer to a four-year institution (Levin and Calcagno 2012). Literature examining the effectiveness of participating in developmental education is inconsistent in its focus. Some research focuses on the validity of placement tests (Scott-Clayton, Crosta, and Belifield, 2014). Other research addresses whether participating in developmental education helps or hinders academic
and labor market outcomes (Martorell and McFarlin Jr., 2011); or the role that institutional policies, student support services, and classroom practices play on student persistence (Scott-Clayton et al. 2014; Rutschow and Schneider, 2011; Bettinger, Boatman, and Long, 2013).

In California, the state with the highest population of community college students a statewide initiative instituted in 2007 assisted in increasing the level of student success at the community college level. The California Basic Skills initiative is an example of a statewide approach to addressing the limitations of developmental education in community colleges. This program, based on a solid research plan that consisted of a literature review on effective practices an assessment tool and a cost estimate for implementation of the program resulted in a set of themes that coincide with effective developmental education programs (Illowsky, 2008). The criterion for inclusion in the initiative was that a program had to have established and published data demonstrating that it was successful.

Illowsky, (2008) identifies twenty-six features from the California Basic Skills initiative that fall under four overarching components: 1. organizational and administrative practices; 2. program components; 3. staff development, and, 4. instructional practices. Best practices from the first component, the organization and administrative level, include a comprehensive approach to developmental education; one that is supported by top leadership; is well coordinated; centralized, and staffed with instructors, who understand and enjoy teaching developmental education. Component two addresses program components deemed imperative for student success. These include an orientation for all students along with assessment and appropriate course
placement. The third component is a focus on staff development. For student success, the faculty and staff must have on-going development opportunities to enhance their knowledge regarding most recent research on teaching and learning strategies. The final component focuses on the important role of instructors and instructional practices used in the classroom. Many of the strategies reviewed have limited focus on instructor interaction with students in the classroom.

A 2006 study that also references California Community Colleges, used data gathered from the Community College Survey of Student Engagement (CCSSE). The CCSSE is a variation, for community colleges, of the National Survey of Student Engagement (NSSE,) a questionnaire distributed to four-year institutions across the country. NSSE assess the level of engagement students have on college and university campuses along with how the institution directs resources and designs curriculum that positively influence student outcomes. The CCSSE is a tool, developed to assist its member schools in making decisions regarding various ways to enhance their institutions for students (McClenney, 2006).

The CCSSE concluded that there are five practices or approaches that are benchmarks for effective educational practice and methods of improving student success. The five benchmarks are active and collaborative learning, student effort, academic challenge, student-faculty interaction, and support for learners (McClenney, 2006). The benchmarks are approaches that can be adapted for use in other schools working to enhance students’ experiences. Two of the five benchmarks specifically address the role of the instructor, with a focus on active and collaborative learning, and student-faculty
interaction. The other three are either associated with student behaviors or pertain to institutional level supports.

In 2012, the Community College Research Center (CCRC) completed a national scan of instructional innovations in developmental education (Bickerstaff, Monroe-Ellis and Scaling Innovation team, 2012). The scan focused solely on instructional practices that were constructed around specific types of programs based in classrooms. While, not exhaustive, four types of programs that were deemed innovative were identified. However, none of the four directly focused on instructors’ interaction with students, whether students felt validated, or developed a sense of belonging. The four programs included boot camps, short intensive courses (two weeks or 20 hours of instruction) that focus on providing students with skills to retake or take placement exams. The second, learning communities, an approach that places students in groups or cohorts that take a series of developmental education courses together; the learning community course is often linked to either a college-level course or a student success course. A student success course is one that introduces the student to post-secondary education. It may include sessions on time-management, study skills, an overview of the resources available on campus, and information on other external resources that students might need. The third program is a series of compressed courses that move those students who need less “remediation” faster through the developmental education sequence and into college-level courses. Finally, the fourth type is a computer-based modularized course that sometimes replaces an instructor and allows students to work through lower level developmental education courses without the additional expense of a face-to-face class.
Although innovative, evaluations on these examples are showing limited positive results with developmental education students (Bickerstaff et al 2012).

**Instructor and Classroom Influence**

Much of the research directed toward improving the completion rates for students placed into developmental education focuses on interventions for the students such as; learning communities (Engstrom, 2008); acceleration programs; blended courses; and increases in support services for students (Rutschow and Schneider, 2011). Very few address how interactions between students and faculty in developmental education courses influence student persistence. Instructors are key people in the academic lives of students, especially for students who have attributes that make them non-traditional such as those who participate in developmental education, are of color, low income, and first generation (Barnett, 2011; Hurtado and Carter, 1996, Rendón, 1994; Strayhorn, 2012). Faculty who teach developmental education courses are often in the position to encourage or discourage continuation in higher education. Evidence has shown that regardless of race or ethnicity, instructors who create inclusive classroom environments that are perceived to be welcoming by students contribute to student sense of belonging, persistence, and success (Ginsberg and Wlodkowski, 2009; Umbach, 2006; Strayhorn, 2012; Tinto, 2012). Students are more likely to persist when they feel a sense of belonging and feel validated as learners through interaction with classroom faculty (Hurtado and Carter, 1996; Strayhorn, 2012; Nora Barlow, and Crips, 2005; Rendón, 1994).

Engstrom, (2008) addressed the role of faculty within learning communities at three community colleges and one four-year institution in California. She found evidence
to support that using active learning instructional methods in addition to validation of students correlated with student persistence. Pascarella, Seifert, and Whitt (2008) addressed the influence of instructor classroom practices on student achievement and found that students who were exposed to organized and clear content along with active learning delivery methods were more likely to be engaged, resulting in increased perception of institutional commitment and social integration.

This section of the literature review provided an overview of research related to developmental education, types of programs being implemented, and introduced the importance of faculty-student interaction. The next section provides a summary of three of the major student persistence theories that have been used as theoretical framework for research on student persistence. Involvement, Engagement, and Integration are the three theories that will be introduced.

**Overview of three major persistence theories**

This section of the literature review focuses on three most well-known and researched theories associated with student persistence: Involvement, Engagement, and Integration, also referred to as Interactionalist. Often these theories are used interchangeably, creating confusion because they are not the same (Wolf-Wendal, Ward, and Kinzie, 2009). Involvement theory focuses on the amount of energy, physical and psychological, that students dedicate to post-secondary activities. Engagement theory incorporates concepts related to involvement theory but expands upon them to include the additional element of the institution and the role that it plays in conjunction with the individual student behaviors.
Involvement

Involvement theory is most closely associated with Alexander Astin who presented this model of student development in 1984. The intent behind involvement as a construct was to enhance the learning environment for all students. The theory as it was initially shared, focused a great deal on the student and the amount of energy that she/he expended mentally as well as physically in activities related to education (Richmond, 1986). Involvement incorporates the aspects of “time on task” which is the amount of attention or energy expended on specific tasks. Time on task was not the only concept because it does not consider external or environmental factors that students may experience. Involvement theory as Astin proposes it recognizes that student persistence is influenced by factors other than his or her background characteristics. That the experiences the student has within the context of the environment influences the decision to persist (Astin, 1999).

Involvement at the surface seems to be a simple premise—the more a student invests in or engages with post-secondary activities the better she/he will do. Astin (1984) viewed involvement on a continuum and recognized that all students would be different regarding the amount of energy expended on similar activities (Wolf-Wendel, Ward & Kinzie, 2009). The model was especially applicable to students who resided on campus. Students who reside on-campus, who are more than likely traditional, have more opportunities for involvement due to the types of social activities that take place on post-secondary campuses. Activities that take place on campus make it more difficult for commuters or those who are non-traditional in other ways to participate in campus based activities.
For non-residential students who could not participate in social or academic activities on campus, Astin, in an interview in 1986 encouraged instructors to ensure that coursework was relevant to their lives. He proposed that doing this would enable non-traditional students to make connections to course content, helping them become involved in academic endeavors. Connecting course content to life experiences is a practice tied to Andragogy, the teaching of adults (Knowles, Holton, and Swanson, 1998). One of the assumptions of Andragogy is that adults (non-traditional students in most cases) see learning as a way to address a problem or task in his/her life and therefore connecting class content to students’ life experiences is a way to engage and encourage the adult learner (Knowles, Holton, and Swanson, 1998).

**Engagement**

Kuh’s concept of engagement has strong roots in the work of Chickering and Gamson, (1987) *Seven Principles for Good Undergraduate Education*, in which they identified several instructor behaviors that correlated with effective instruction and ways to engage students. Included in these seven principles is the amount of interaction between faculty and students along with instructors honoring a variety of learning styles, adopting active learning methods, and providing students timely feedback. According to Kuh (2009), the concept of student engagement has existed in a variety of formats for almost a century. When defining student engagement Kuh, identifies numerous researchers and theories that based on his understanding, fall under the construct of engagement. This grouping includes Tyler’s (1930) Time on task, also associated with Astin’s Involvement Theory; Quality of effort (Pace, 1960-1970’s), Chickering and Gamson’s effective practices in undergraduate education from the late 80’s along with
Tinto’s social and academic integration (1987 & 1993), and Astin’s Student Involvement (1984). One of the common threads in each of these constructs that comprise engagement is a focus on the amount of effort that the student exerts as integral to persistence. The belief is that the more effort that a student exerts that more likely she/he will be successful and persist (Kuh, 2009).

Hu and Kuh (2002) conducted a study with the goal of identifying attributes of disengaged students and characteristics of their institutions. Using data from the College Student Experiences Questionnaire (CSEQ), a questionnaire with over a thirty-year history of assessing the level of engagement of four-year colleges and universities across the country, the researchers were able to analyze data from just over fifty thousand undergraduate students enrolled between 1990 and 1998 at 123 post-secondary institutions. Several of the 14 scales identified the amount of time students put into a variety of activities that tied to academic learning along with campus based social activities. The findings indicated that the level of engagement varied based upon student and institutional characteristics but higher levels of engagement correlated with student persistence. While this study supported the role of student and institution characteristics there was a desire for a questionnaire that would be easier to administer and provide empirical data to the institutions could use to develop strategies that could influence student engagement (Hu and Kuh, 2002). The CSEQ became the basis for the National Survey of Student Engagement (NSSE).

NSSE and the Community College Survey of Student Engagement (CCSSE) are two major questionnaire initiatives that have demonstrated their reliability in measuring student engagement across institutions and time (Kuh, 2009). NSSE measures five
constructs related to student engagement in post-secondary institutions. The constructs include student perception on the level of difficulty of coursework, the teaching methods used by instructors, the amount of, and type of interaction between students and instructors, supplemental educational opportunities, and the perceived level of support provided to students by the institution (Campbell & Cabrera 2011). Although neither NSSE nor CCSSE can measure actual student learning they do measure student perception relating to the level of support available in an institution, the relationships formed with peers, and interactions with faculty and staff that are all factors that correlate with student persistence.

Integration-Interactionalist

Integration theory as presented by Vincent Tinto (1975) addressed voluntary student departure from post-secondary education. Tinto was among the first to focus on the sociological construct of interaction and introduced the concept of academic life as a culture, implying that to be integrated, students needed to learn about and share the cultural values and norms of the institution. The concept of integration was built in part on work conducted by Van Gennep, an anthropologist, who conducted research on rites of passage rituals performed by tribes in Australia and New Zealand and Durkheim (Tierney, 1992). Durkheim was a sociologist who was involved in research where he connected a successful life to establishing and maintaining a high level of integration in social institutions. For Durkheim, those who were most integrated in their society or culture were less likely to experience, anomie, a sense of alienation and purposelessness that in extreme forms resulted in suicide (Tierney, 1992). Tinto was influenced by Durkheim and Van Gennep in developing the Integration model and drew upon
Durkheim’s advocacy of integration and Van Gennep’s rites of passage to examine participation in post-secondary education as a rite of passage (Tierney 1992).

In the post-secondary setting, the rite of passage was complete when the student successfully completed the degree program. Integration and rites of passage were critical in establishing social and academic encounters as foundation for integration (Tierney, 1992). The more a student is integrated in academic and social aspects of the post-secondary educational environment, the less likely she/he is to depart² (Tierney, 1992).

In 1993 Tinto modified his theory, accounted for the sociological approach of the model and taking into consideration external factors some students contend with prior to entering post-secondary education. This modest elaboration of the model is referred to as Interactionalist. Although the 1993 model is identified as the Interactionalist Model, many still refer to it as the Integration Model. Tinto’s modification to the model in 1997 shifted the focus from the campus to classrooms but the salient components of the model continued to be levels of academic and social involvement as determinants of integration. Tinto’s model whether it was referenced as Integration or Interactionalist became one of the most well-known, reaching “paradigmatic status” in examining student persistence (Braxton, Hirschy, and McClendon, 2004).

**Common threads**

Each of the three persistence theories were presented, as individual constructs but there are common thread that lead to people using the terms interchangeably (Wolf-Wendal, Ward, and Kinzie, 2009). Involvement and Engagement both focus on the

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² Tinto advocated to the use of departing instead of “drop-out” as he felt that departure was neutral and not as judgmental as the more common term, “drop out” (Tierney 1993).
amounts of energy students may or may not put into academic work. With the correlation of the amount of energy expended directly relating to the amount of learning that takes place reflected in students’ grades. In an interview for a 2009 publication, Astin the originator of Involvement Theory stated that he did not view Involvement as different from Engagement. Kuh, who developed Engagement theory, agreed but only to a certain extent. He went on to assert that Engagement theory introduced the institution as a factor in student success whereas Involvement theory focused on the student and placed the onus for persistence or departure solely on the student with no regard to external factors or internal factors attributed to the institution. Tinto also concurs that there are very few discernible differences between the two. At the same time other researchers, Braxton and Harper posit that there are important differences between Involvement and Engagement. Braxton asserts that Engagement has more influence than Involvement and Harper supports that with the suggestion that one can be “involved with something by just showing up but not truly be engaged (Wolf-Wendel, Ward, & Kinzie, 2009 p.418)”. Engagement theory may have evolved from Involvement theory but in being adopted by the NSSE and then CCSSE, it has become one of the most used models to assess institutional effectiveness and identifying instructional best practices.
Tinto’s model is very well known and accepted by many in post-secondary educational research; but it is not without its critics. Several researchers have expressed concerns related to Tinto’s focus on integration as a predictor of persistence. The main reason for their concern involved the belief that Tinto was encouraging complete assimilation into the academic culture and structure. Researchers believed that assimilation was not the best variable to focus on for students who were non-traditional especially students of color and those who were the first in the family to participate in post-secondary education (Bean and Metzner, 1985; Tierney, 1992; Rendón, 1994; Hurtado and Carter, 1997).

Out of this concern grew additional models of student persistence. Bean and Metzner (1985) focused on identifying a model for students who were not enrolled in 4-year residential institutions. They believed that there were significant differences between traditional students and non-traditional students and what factors influenced persistence. Bean and Metzner concluded that the following three indicators would be the focus of a persistence model for non-traditional students; over age 24, does not live on campus (commuter), attends part-time, or some combination of these traits. Bean and Metzner’s model identified the following variables as most significant to non-traditional student persistence: student background characteristics; academic- combination of individual and institutional elements; GPA; external variables (outside of academic setting); psychological factors; student intent; and finally, decision to drop out (1985). Unlike Tinto’s model, where social factors in combination with academic factors were
significant indicators of integration, social factors were not included as variables in the model for non-traditional students.

Other researchers also expressed concerns about the relevance of Integration theory but from a different perspective than Bean and Metzner (1985). Hurtado, (1997; 2007), Rendón (1994), and Harper (2008) raised concerns and expressed criticisms of integration theory. Significant elements of their critique focused how influenced Tinto was by Van Genep’s rites of passage work. The rites of passage work focused on transitioning from one group to another through three stages; first, physical movement from home group to another group. This movement was followed by separation from the home group (thinking, interacting, and ways of being) with the third and final stage, complete transition into the new group (adopting the culture of and acting out the new groups social norms). Critics of Integration theory felt that integration as it was described meant that students of color would have to give up their home cultures and adopt those of the dominant culture in order to succeed in post-secondary education (Hurtado, 1997; Wolf-Wendel, Ward, and Kinzie, 2009). The notion that students would have to assimilate completely in order to successfully integrate was not acceptable. This interpretation of assimilating within academic culture while forsaking home cultures was a driving force behind the development of validation theory.

**One size does not fit all: Evolution of validation theory**

Validation theory got its start during the 90s when the U.S. Department of Education formed the National Center for Post-secondary Teaching, Learning, and Assessment. Seven researchers began studying impacts of student experiences outside of classrooms on learning and persistence. The first research initiative was a qualitative
study built upon Astin’s Involvement Theory. The research team was expecting to see themes related to involvement based on the data collected from the students. The study included interviews with 132 first year students from a variety of post-secondary institutions. These institutions included a predominately minority serving community college in the Southwest, a liberal arts college in the Mid Atlantic that was predominately white, an urban commuter state university with a predominately Black student body in the Midwest, and a large research university that was predominately white in the Mid Atlantic (Rendón Linares and Muñoz, 2011). The interviews were focus groups of students recruited by an agent of the institution. Students received $10 for their participation. The interviews were 1 to 1.5 hours in length.

Instead of themes related to involvement, two different themes surfaced. Rendón (1994) discovered that the college transition was very different for traditional students and non-traditional students. In the study, traditional students were defined as those who were not first generation, from low-income families, and did not have adult responsibilities. For the traditional group, Involvement Theory was applicable as the students’ experiences fit well into the model and level of involvement was a contributing factor in persistence. In contrast, non-traditional students, those who identified as a student of color, first generation, or from low income families revealed that that their level of involvement in college did not influence persistence. What influenced the non-traditional students the most was personal interaction with an individual or individuals who took an interest in the students. The connection that resulted led to the students feeling affirmed in his/her ability to be successful in the post-secondary setting (Rendón, 1994; Rendón Linares and Muñoz, 2011).
Instead of interactions and activities that focused on involvement within and outside of the academic classroom the non-traditional students, more often identified examples of validation that they received by those with whom they interacted with throughout the institution, classrooms, as well as those outside of the college setting. These encounters helped to enhance students’ belief that she/he could succeed in an academic environment. Instructors who made it a point to learn and use students’ names and who recognized and acknowledged the life experiences of the students are two examples of instructor actions that helped students feel like she/he belonged.

Other behaviors identified by students leading to feelings of validation include:

- Instructors connecting class content to real-life situations
- talking with students about academic goals
- providing timely feedback to students
- willingness to work one on one with students
- creating a safe classroom environment
- enacting classroom practices like collaborative assignments that allowed relationships to be built with the other students
- being available to students either before or after class

Students also felt a sense of validation when instructors provided affirmation that students were capable learners and when instructors made themselves available before and after class (Rendón Linares and Muñoz 2011). These experiences were essential to students’ developing a “can do” attitude versus an attitude of, “I don’t belong here” in school. Based on the examples of affirmation that students experienced the term “validation” was chosen by the authors to reflect the types of actions and practices that
would exemplify validating behaviors in the classroom environment. This work led to Rendón (1994) delving further into validation and building on the original construct to form the theory of validation. Using the work of Blenky, Clinchy, Goldberger, & Tarule (1986), Rendón built upon their work in *Women’s Ways of Knowing*, a groundbreaking research project that explored the evolution of a group of women learners. The women, transformed from individuals who did not think that they had much to contribute to construction of knowledge into individuals who recognized that knowledge resides not within a single authority and that their personal experiences were valid ways of contributing to knowledge construction. The key experience for the women in the study was receiving affirmation by a variety of individuals.

The important discovery was that positive and affirming feedback from external agents could counter negative disaffirming feedback from other external agents. Drawing parallels with the women’s experience and the students interviewed in the initial study Rendón (1994, 2006), Rendón Linares, and Muñoz (2011) concluded that many students who are “non-traditional” come to college with similar negative beliefs and experiences that are exacerbated if they encounter invalidating experiences within the post-secondary institution whether it is on campus or in the classroom. Rendón’s (1994) Validation Theory asserts that instead of focusing in involvement and engagement as determinants of student persistence validation within classrooms would be a better measure of persistence for non-traditional students. Students who are non-traditional, often need reassurance and guidance but in a considerate manner not one that is “patronizing” (Rendón Linares and Muñoz, 2011 p. 16). For students who are unfamiliar with post-secondary education, those who are first-generation, from lower socio-economic groups,
or returning adult students there may be many experiences of invalidation from past engagement in primary and secondary education that carry over to the post-secondary system.

**Implementing Validation Theory**

Validation is defined as actions taken by institutional agents that affirm the students’ knowledge they bring and create while engaging in post-secondary education (Rendón-Linares and Muñoz, 2011). Validation as a framework is one that any institutional agent that interacts with students may adopt. Validation can assist, “the most vulnerable students” in developing ways to persist through increased self-confidence and self-efficacy (Rendón Linares and Muñoz 2011 P.17).

**Principles of Validation Theory**

The first principle of Validation Theory is that the institution and its agents are responsible for reaching out to students to offer guidance and support. Faculty and staff can serve as liaisons to the post-secondary system and reach out instead of expecting that students, who may be unfamiliar with what to expect in college, make the first move. The second principle focuses on the potential results of students’ feelings of validation. A student who has been validated has a greater likelihood of developing confidence in his or her abilities to learn and build an enhanced sense of “self-worth” (2011, P. 17). The third principle purports that experiencing validation early in the post-secondary system is so powerful that further student development is dependent upon students’ validating experiences. In other words, if a student feels validated then she or he is more likely to become more involved or engaged in school and more likely to persist. The fourth principle states that validation can take place in and or outside of class with institutional
agents but also with non-institutional agents. The fifth and sixth principles indicate that validation is a continuum there is no set end and validation can take place at any point during the students’ tenure; however, for low-income, first-generation, and non-traditional students, validation early on in the college career is the most beneficial.

Validation can manifest in two ways, academic and inter-personal. Academic validation is established through agents of the institution including faculty, counselors, advisors, and staff whose actions include but are not limited to acknowledging students’ culture, recognizing the knowledge that students possess and bring with them into the classroom, connecting curriculum to student experiences, and focusing on student assets instead of deficits (Rendón Linares and Muñoz, 2011). Inter-personal validation focuses on “students’ personal development and social adjustment to post-secondary interactions through opportunities to interact with fellow students in out of class study groups and through in-class group assignments (Rendón Linares and Muñoz, 2011, p. 19)”.

In summary, Validation theory draws from a host of other theories that address historically underrepresented and at risk students. Validation theory is holistic in nature and asserts that students are whole beings that need support for all aspects of personhood. Validation theory allows for student voices to surface by acknowledging their experiences and incorporating them into the construction of knowledge. Validation theory is an asset-based model that asserts that all students have experiences and knowledge to share and build upon. Embracing validation theory enables faculty and students to address equity and inclusive practices and can lead to transformative behavior for students and the institutional agents. The goal of adopting a validation approach is to support students who may come with experiences that have left them feeling unable to
learn and not cut out for post-secondary education. Validation theory was generated based on interviews from students who were low-income, students of color, and non-traditional and has roots in these students’ experiences, making students the central focal point and one last important component is the shifting of responsibility from student to the institution. Stebleton, Soria, Marina, and Huesman (2012) found that validation from faculty positively contributes to student persistence. They also caution that students especially those who are most at risk, often take cues from instructors and may not initiate contact needed for positive interactions therefore, instructors must initiate communication.

The link between Rendón’s (1994) Validation Theory and Tinto’s Integration theory in exploring student persistence is students’ sense of belonging. Tinto in 2009 stated that he no longer used the term integration but rather felt that what was most important was that students developed a sense of belonging, as it is more applicable to student persistence. For this study, sense of belonging was viewed separately from sense of validation however; validation may correlate to students developing a sense of belonging influencing students’ intent to persist; this relationship will be explored in the data analysis.

**Sense of Belonging**

Sense of belonging is a complex construct comprised of two elements, cognitive and affective. Cognitive, refers to the mind and affective equates to emotions (Strayhorn, 2012). Sense of belonging as it relates to students involved in post-secondary education equates to how students think about the role they have within the classroom and or campus. Their thoughts or perceptions lead to the affective component and behaviors
that either support having a sense of belonging or feeling alienated (Strayhorn, 2012).

For students who may already be considered marginal by the post-secondary system (students of color; first generation; low income; and those less academically prepared for college) establishing a sense of belonging may influence whether a student persists or withdraws (Strayhorn, 2012, 2008; Tinto, 2009; Rendón Linares and Muñoz, 2011).

Definitions by other researchers include sense of belonging as feeling connected to and identifying with the campus community versus a sense of “isolation and alienation within their campus community (Johnson 2012 p.337)”. Hausmann, Ye, Schofield and Woods (2009) subscribe to the definition established by Hurtado and Carter’s (1997) work where sense of belonging was defined as connecting student self-identity along with attachment to post-secondary education. Hurtado and Guillermo-Wann (2013) equate student sense of belonging with feeling integrated on post-secondary campuses.

Students, regardless of race/ethnicity or gender, who have a higher sense of belonging, tend to fair better than students who have a low sense of belonging. Johnson (2012) also contends that the students of color frequently have lower sense of belonging than their white counter parts on most predominately-white campuses. In 2008, Strayhorn operationally defined sense of belonging as, “their perceived sense of integration (p.303)” which ties sense of belonging to Tinto’s concept of integration and supports Tinto’s 2009 assertion that integration is equivalent to student sense of belonging (Wolf-Wendel, Ward, and Kinzie 2009). Soria and Stebleton (2013) also assert that sense of belonging strongly correlates to level of integration experienced on the post-secondary campus.

Strayhorn (2012) addresses the origins of sense of belonging from Maslow’s hierarchy of basic needs that influences human behavior. From a post-secondary
education perspective, sense of belonging is subjective to each student and associated with how students perceive themselves as either fitting in or not fitting in within and on post-secondary campuses. Sense of belonging also includes feeling like one matters to individuals and to groups inside and outside of the classroom setting.

When students feel like they belong or fit in there are numerous positive outcomes including building positive relationships with peers, faculty, or other agents of the institution. These relationships, when incorporated into students’ support systems encourage ongoing participation in post-secondary education and can influence academic outcomes and persistence. When students do not feel like they belong or feel as if they do not fit in academics may suffer and students may opt to withdraw from post-secondary education (Strayhorn, 2012). Students who do not have a sense of belonging do not engage with peers and or faculty like students who feel like they belong.

For this study, the researcher has opted to use Strayhorn’s (2012) definition of sense of belonging as it relates to post-secondary systems. First, sense of belonging is a basic need that is powerful enough to affect behavior; second, sense of belonging is subjective, based on the levels and types of support that students perceive existing on their campus, within the institution and on an even smaller scale, within the classroom. Sense of belonging builds upon students’ perception of respect, feeling valued and accepted as a part of a class, within the department, within the institution etc. Institutional agents including faculty and staff play a role in students’ sense of belonging as do peers.
Based on his research, Strayhorn (2012; 2008; 2005) derived seven “core elements of sense of belonging”.

The seven core elements or principles include:

1. Acknowledging that sense of belonging is a basic human need that all human beings have;
2. Sense of belonging can drive motivation which influences how individuals behave;
3. Sense of belonging can increase when being new to a group, school, course and the like;
4. Sense of belonging has a connection to the concept of “mattering”, Strayhorn, defines mattering as “. . . mattering refers to feeling, rightly or wrongly, that one matters, is valued or appreciated by others (2013, P21)”.
   Another way to define mattering is to state that mattering is comparable to feeling validated;
5. The identities that each student possesses, that often intersect can influence students’ developing a sense of belonging resulting in all individuals developing a sense of belonging in different manners;
6. When students have a solid sense of belonging they are more likely to experience and exhibit other positive behaviors like being engaged with the campus;
7. Sense of belonging does not have a time limit; it is continually increasing or waning depending upon the students’ experience.
Primarily, sense of belonging is a basic human need that everyone regardless of age has. Sense of belonging drives motivation, which in turn drives behaviors that may lead to sense of belonging. Although sense of belonging is a basic human need there are contexts where the need may be greater based upon individual and intersecting social identities as well as the environment. For example, sense of belonging can be experienced within a family setting in a familiar environment with little effort. However, when the context switches to an unfamiliar environment, where one is a newcomer the need to feel a sense of belonging may increase (Strayhorn, 2012).

Sense of belonging does not just exist; there are components that need to be in place before sense of belonging develops. In an academic setting experiencing a sense of validation may be an antecedent to developing a sense of belonging. When students, have a sense of belonging there is an association with other positive academic and social outcomes (Strayhorn, 2012). When students do not develop a sense of belonging as part of the post-secondary system higher order processes that influence learning may be negatively impacted resulting in difficulty learning and feelings of marginalization (Strayhorn, 2012).

Strayhorn (2008) defines marginality as a form of isolation and subordination that can be social as well as institutional. Marginalization is a broad construct that has ramifications for students with specific characteristics and attributes who may experience marginalization because she/he is a student of color, female, first generation, or poor. College students, especially those whose characteristics and demographics place them into groups who have historically been under represented in post-secondary education may enter institutions with little to no sense of belonging in the post-secondary
environment. When these students enter, institutional agents need to create opportunities for students to have experiences that validate them and demonstrate that there is a place for them in post-secondary education and that they can be successful (Rendón, 2011).

This section introduced three major persistence theories, explained how validation theory evolved from perceived shortcomings of Involvement, Engagement, and Integration persistence theories, and provided an overview of sense of belonging and its relationship to validation. The next section focuses on the role of instructor Cultural Intelligence.

**Why Cultural Intelligence?**

As the nation becomes more racially and ethnically diverse and technological advances allows business to be conducted all over the world in what Hammer (2011) refers to as a “global community” businesses and organizations are going to need a workforce that can be effective in working across cultures. According to an article by Glenn Llopis in *Forbes Magazine* (2011), businesses are growing increasingly concerned with the ability to meet the needs of the rapidly changing face of the nation. Business leaders are fearful that the current and future employee base is not ready for the “emerging clientele base” of majority minorities. Employers desire employees with skills and abilities that enable them to connect with and be successful working across cultures (Cooper, Vellurattil, and Quinones-Boex 2014; Garran and Rozas, 2013; Hurtado and Guillermo-Wann 2013). The 2011 *National Met Life-American Teacher Survey* indicates that over half of teachers, parents, and business leaders believe that students’ need to be culturally competent to be able to compete effectively in the rapidly changing world. In
the education, social work, and healthcare fields, the focus is has been on professionals
developing cultural competence.

**Cultural Competence to Cultural Intelligence**

Cultural competence is multi-faceted construct and has a number of different names. The Social Work Standards of Practice (2001) defines cultural competence as respecting differences, through recognizing and affirming the values of individuals, their communities while maintaining individual “dignity and worth” (Garran and Rozas, 2013). The United States Army (2007) uses the term, cross-cultural competence and defines it as, “knowledge, skills, and affect/motivation that enable individuals to adapt effectively in cross-cultural environments (Abbe, Gulick, and Herman, 2007). Broadly defined cultural competence is developed through two different approaches. The first is cultural specific, and includes learning about specific cultures by studying them. The second is referred to as a culture general approach, and requires developing a broad-based overview of a variety of cultures (Early and Ang, 2003).

Although there is great support in the fields of medicine and social work there are those who struggle with cultural competence as a construct. Serious disagreements exist regarding what constructs comprise cultural proficiency or competence (Gelfand, Imai, & Fehr, 2008). Much of the disagreement stems from definitions being used interchangeably but not accurately. Cultural competence does not have a consistent operationalized definition. Regardless of the terminology used to define cultural competence the majority of definitions encompass the following attributes; an

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3 Other terms for cultural competence include cultural sensitivity, cultural empathy, multiculturalism, cross-cultural competence, and cultural awareness (Garran and Rozas 213; Gelfand, Imai, and Fehr, 2008)
individual’s ability to develop an understanding of the feelings, thoughts, and actions of those from other cultures; building at least a basic level of knowledge about the various cultures (Hawes and Kealey, 1981); abilities to adapt and adjust successfully in new or foreign cultural settings (van Oudenhoven & van der Zee, 2002); and having the ability to adapt to and function in ambiguous and stressful situations (Arthur & Bennett, 1995).

Working successfully across cultures is important for the medical, social work and education fields as well as to business and industry. The fields of business and industry have shifted from programs on cultural competence to focusing on Cultural Intelligence (CQ). Cultural Intelligence is the ability to adapt and have successful interactions across and within different cultures whether locally or internationally (Early and Ang, 2003). CQ incorporates elements of cultural competence, but differs in that CQ is not culture bound and it is grounded in constructs with theoretical connections to intelligence research (Early and Ang, 2003; Livermore, 2012).

**Defining Cultural Intelligence**

Cultural Intelligence (CQ) a measurable ability based on one’s capacity to function effectively in culturally diverse situations. Developed by Ang and Early (2003) it encompasses four loci or intelligences: metacognitive, cognitive, motivational, and behavioral. Proponents of CQ as a form of intelligence believe that the four loci together demonstrate one’s abilities to have successful cross-cultural interactions. CQ is multi-faceted and explores levels of capabilities that are not static but fluid, that can grow, and develop as one has wider experiences (Garran and Rozas 2013; Earley and Ang, 2003; Ang, Van Dyne, and Tan 2011).
Benefits of Cultural Intelligence

CQ is a type of “Ockham’s razor”, meaning that among all of the theories related to cultural competence or cultural proficiency, CQ is among the simplest, supported by an extensive research that is grounded in intelligence theory (Gelfand, Imai, & Fehr, 2008; Earley and Ang, 2003; Ang Van Dyne, and Tan, 2011; Cooper, Vellurattil, and Boex, Quinones, 2014; Crose 2011). Much of the growing interest in CQ is the result of globalization and the increasing diversity of the population of the United States. These changes create an urgent need for people who can successfully work within and across cultures. More businesses send employees to live and work in different parts of the world and schools are becoming increasingly diverse. Ramis and Krastina (2010) indicated that CQ is especially important to those teaching in multi-cultural classrooms. The medical profession and health care industry have also recognized the need for a workforce that possesses high levels of cultural intelligence (Cooper, Vellurattil, and Boex, Quinones, 2014; Crose 2011).

In post-secondary education, Greene and McClenney (2008) found that faculty who are low in cross-cultural skills might contribute to lack of persistence for students of color supporting the need to explore the relationship of perceived instructor intelligence and student intent to persist. Faculty must be prepared to address the needs of students who are non-traditional, whose first language may not be English, and who come to college less prepared than other students from more economically sound backgrounds (Crose 2011). For students whose first language is not English connecting with instructors can be the proverbial lifesaver. Often these students feel isolated and stressed
because dissonance exists between their home culture and the culture in which they find themselves (Kwon, 2009). For some students, the western way of teaching will be foreign and behaviors expected in American classes will seem disrespectful. It is up to instructors to ensure that classrooms are welcoming for all students.

The literature review has provided an overview of concerns related to student persistence levels and identified some variables that have been shown to influence student persistence, including, socioeconomic status; race/ethnicity; gender; having characteristics attributed to non-traditional students like being older or a returning student; and enrolling in developmental education. Concerns with developmental education were presented as well as some discussion on the role of the instructor in student persistence.

Three of the major persistence theories were presented, Interaction, Engagement, and Integration to lay the foundation for how validation theory was derived and how it is applicable to students in developmental education. Student perception of instructor Cultural Intelligence was introduced as a variable to explore potential impact of student perception of instructor CQ, instructor classroom practices, students’ feeling validated, and having a sense of belonging on students’ intent to persist. The information presented in this literature review supports the researcher’s choice of the two intact instruments that were modified for use in this study. Barnett’s Classroom Experiences Survey (2006) created to examine the role of instructor validation, integration, operationalized as competent membership, and student intent to persist and the Mini CQS developed by the Cultural Intelligence Center (2007) to provide individuals a way to assess their level of
cultural intelligence. The literature review also guided the development of the three research questions examined in this study.
Chapter 3: Methods

This chapter provides an overview of the research design and procedures for completion of the study. The study investigated the relationship between students’ perception of instructor CQ, students’ feeling validated, and students’ sense of belonging and students’ intent to persist. The variables in the study included: intent to persist as the dependent variable and student perception of instructor Cultural Intelligence, students’ sense of validation, students’ perception of instructor classroom practices, and students’ sense of belonging as independent variables.

Research Questions

The questions addressed in this study were derived from the literature on student persistence; Validation theory; sense of belonging and Cultural Intelligence. The questions guiding this study are:

1. How does perceived instructor CQ relate to students’ sense of belonging and students’ sense of validation?

2. Does students’ sense of validation, students’ sense of belonging, and instructor classroom practices predict students’ intent to persist?

3. To what degree does perceived level of instructor CQ, students’ sense of validation, and students’ sense of belonging predict traditional and non-traditional students’ intent to persist?
Research Design

This study employed a cross-sectional correlational approach using a questionnaire to collect data from students enrolled in first level developmental education courses offered at two of four regional campuses of The Ohio State University, OSU Mansfield, and OSU Newark. The researcher worked through the Deans at both campuses to identify students enrolled in the first level of developmental Math 1050 and English 1109. The questionnaire was a combination of two existing instruments, the “College Experience Survey” developed by Barnett, (2006) and the “Mini-CQS” which was modified with permission, by Lynne Van Dyne, one of the developers of the Mini CQS (Cultural Intelligence Center, 2007). To adjust the self-reflective questions to observer questions to allow the students to provide their perception of the instructor Cultural Intelligence the researcher also re-worded questions on the College Experience Survey (Barnett 2006) in order to reflect better the study population.

The independent variables for this study are perceived level of instructors’ Cultural Intelligence (SPICQ), instructor coursework in instructional methods/adult education (courses taken), instructor-classroom practices (ICP), student sense of validation (SSV), and student sense of belonging (SSOB). Intent to persist is the dependent variable. This study will utilize descriptive statistics, correlation coefficients, and regressions to determine levels of correlations between variables and predictability. The researcher followed all protocol from the Ohio State University Institutional Review Board. Approval to conduct the final study was received on September 15, 2014.
Study Population
The population for this study was students enrolled in first level English and Math developmental education courses at OSU Newark and OSU Mansfield, two of the regional campuses of The Ohio State University. Permission to conduct the study was granted by both Deans and the OSU Institutional Review Board (IRB). Through the deans at each institution, the researcher was provided the names and e-mail addresses of all students enrolled in English 1109 and Math 1050 from both campuses along with the instructors of each and their e-mail addresses. The census included 511 students.

Sampling Frame
All who enrolled in first level developmental Math 1050 and English 1109 for autumn semester 2014 at OSU Newark and OSU Mansfield were invited to participate in the study. The total number of students across both campuses invited to participate in the study was 511.

Measurement/Instrumentation

Variables
There is one dependent variable, intent to persist consisting of 4-Likert-type items, five independent variables, and nine control variables. The control variables, demographic in nature, were drawn from the literature and are known to have an influence on student persistence (Casazza and Silverman 2013; Thompson, Johnson-Jennings, and Nitzarim, 2013; Laird, Chen, and Kuh 2008; and Laird, Kinzie, Gonyea, Shoup, and Kuh 2008). The independent variables were also drawn from the literature on student persistence. The independent variables are Likert-type scales and the dependent variable is comprised of four-item Likert-type items. Student perception of instructor
classroom practices (ICP, 16 items); student sense of belonging (SSOB, 7 items); student sense of validation (SSV, 13 items); and student perception of instructor Cultural Intelligence (SPICQ, 12 items) were included to determine the level of relationship between the independent variables and to what degree they influence the dependent variable, intent to persist (Table 3.1).

Hurtado and Carter (1996) and Rendón, (1994) presented the idea of student validation and the importance of instructor classroom practices in their early research that provided an alternative to Tinto’s Integration Model. Pascarella, Seifert, and Whit, (2008) and Engstrom (2008) all found evidence supporting positive classroom practices as an influence on student persistence. Nora, Barlow, and Crisp (2005) and Strayhorn, (2012) discuss the importance of student sense of belonging relating to student persistence. Cultural Intelligence is a term used extensively in the business realm and is similar to cultural competence, the term that is more familiar in the education and health fields. However, given the increasing heterogeneity of the student population instructor levels of cultural intelligence/competence are important for students entering post-secondary education (Deardorff, 2011; Lee, Poch, Shaw, and Williams 2012; Irish and Scrubb, 2012; and Laden, 2004).
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<tr>
<td>Type of Student</td>
<td>Nominal/Categorical</td>
</tr>
<tr>
<td>1. Traditional</td>
<td></td>
</tr>
<tr>
<td>2. Non-traditional</td>
<td></td>
</tr>
</tbody>
</table>

Table 3.1 Variables and Levels of Measurement

Continued
Table 3.1 continued

<table>
<thead>
<tr>
<th>Instructor Classroom Practices</th>
<th>Student Sense of Validation</th>
<th>Student Sense of Belonging</th>
<th>Student Perception of Instructor CQ</th>
<th>Dependent Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 Likert-type items</td>
<td>13 Likert-type items</td>
<td>7 Likert-type items</td>
<td>12 Likert-type items</td>
<td>Student Intent to Persist</td>
</tr>
<tr>
<td>Interval</td>
<td></td>
<td></td>
<td>Interval</td>
<td>4-Likert-type items</td>
</tr>
</tbody>
</table>

**Instrumentation**

The questionnaire was a combination two intact instruments, the “College Experience Survey” developed in 2006 by Barnett, to explore students’ sense of validation and belonging on an urban community college campus and the “Mini-CQS”, a shortened version of the “Cultural Intelligence Scale” developed by the Cultural Intelligence Center, 2007 to provide individuals with his/her self-perceived level of CQ. The Mini CQS was modified to be used as an observer questionnaire to allow students to assess the demonstrated Cultural Intelligence of the instructors. The final instrument for the students included Likert-type scale questions addressing instructor behaviors identified in the literature as leading to students feeling validated and developing a sense of belonging in an academic environment.

There has been controversy related to using Likert-type scales when planning to use parametric analyses. Some argue that the Likert-type responses are ordinal whether they will be combined to form a summated scale and should only be analyzed as ordinal.
data. This stance is due to concerns related to normalcy assumptions being violated if ordinal data is analyzed using parametric procedures (Lubke and Muthen 2004; Jamieson, 2004; Glass, Peckham and Sanders, 1942). Carifio and Perla (2007) contend that those who protest Likert-type scales being analyzed as interval data are misinformed. A Likert-type scale is comprised of Likert-type items that are designed to identify latent constructs with summed responses allowing for the calculation of a mean, which is considered interval data. If a Likert-type item is not tied into a latent construct grounded in theory and analyzed on an individual basis then normalcy assumptions are violated and the data should be analyzed with non-parametric procedures. The intact instruments used in this research both used Likert-type items and analyzed the data using parametric procedures. Therefore, this research followed suit and treated the summated independent variables as interval data.

**Questionnaire**

The following section provides an overview of the history of each of the intact questionnaire instruments combined and used in this study. Barnett (2006) developed the “College Experience Survey” as the result of not being able to find a reliable questionnaire addressing student perception of faculty validation and the relationship to student persistence. Following suggestions by various experts on questionnaire development Barnett developed 55 items drawn from the extant literature on validation as well as Rendón’s inaugural work (1994) on validation theory. To ensure content validity Barnett worked with a panel of ten individuals with expertise on student persistence, validation, and on faculty and student development (2006). Based upon the feedback Barnett reduced the number of items from 55 to 27, which is the number of the final
scale. The original, paper and pencil instrument took no longer than 15 minutes and was completed during class time. All questions were seven-point Likert-type scales. The instrument was pilot tested in 2005 with a group of 35 community college students. Cronbach’s alpha values showed that the initial scale for student membership had low reliability and was switched with one developed by Hurtado and Carter, (1997) that had an alpha of .94. Questions from the CCSSE were used to determine interactions between students and faculty (Barnett 2006).

**Cultural Intelligence Scale**

The instrument measures the four facets of individual differences that comprise CQ. In order to define the four constructs Ang, Van Dyne, Koh, Ng, Templer, Tay, and Chandrasekar (2007) consulted the work of other researchers. After operationalizing the four constructs items were generated with the goal of developing an instrument that was succinct and provided an accurate measurement of each of the four dimensions. The initial instrument contained 53 items with 13 to 14 for each dimension worded positively to avoid artifacts. Following the first iteration, a panel of experts provided feedback on the level of clarity, readability, and accuracy of each of the items under the four dimensions retaining the top ten from each dimension resulting in a forty-item questionnaire. To develop the scale for the questionnaire 576 undergraduate students at a university in Singapore voluntarily completed the questionnaire as part of a course. The questionnaire contained 40 items, the rating was a seven point Likert type scale with 1- strongly disagrees, and 7- strongly agree. The majority of the respondents were female with an average age of 20 and two years of work experience (Van Dyne et al 2008 p19). Based on the responses statistical analysis led to the reduction of items based “high
residuals, low factor loadings, small standard deviations or extreme means, and low item-to-total correlations (10)”. The result was a 20-item questionnaire. Confirmatory factor analysis supported a good fit for the model (Van Dyne et al 2008).

To demonstrate generalizability of the 20-item questionnaire 447 Singaporean undergraduate students voluntarily completed the questionnaire. Again, the majority of the respondents were female with an average age of two and several years of work experience. Structural equation modeling assessed the level of fit based on the model. A third study used the 20-item questionnaire to support generalizability across time. A portion of the 447 students completed the questionnaire four months later, allowing the researchers to assess if the results were influenced or altered across time. Since the first three tests of validity used respondents from Singapore, the fourth study took place at a college in the Midwest part of the United States. In the fourth study, 337 undergraduate students voluntarily completed the 20-item questionnaire. The majority of respondents were female at 55% and the average age was 22 with one less year of work experience when compared to the Singaporean respondents. The statistical tests showed that the questionnaire was structurally sound across Singapore and the United States (Van Dyne et al 2008).

Self-report methods are acceptable but also have limitations. According to Gay, Mills, and Airasian (2006) responses may not be accurate due to concerns of whether the response is right or wrong or socially acceptable. Some respondents may respond based on what she or he thinks the researcher wants to hear. To address response bias, an observer questionnaire was developed that could be used to compare self-ratings versus
observer ratings. To determine validity across methods (self-report and observer) managers in an MBA program were given the self-assessment questionnaire in addition to completing an observer questionnaire for a classmate. The statistical analysis demonstrated that the CQ instrument was valid across methods of self-report and observer reporting.

The researchers tested discriminate and incremental reliability by having a sample of respondents from studies two and four complete an additional questionnaire that measured several non-CQ related items including cognitive ability, emotional intelligence, mental well-being, and cultural judgment and decision-making (CJDM). Statistical procedures supported CQ consisting of four distinct factors from cognitive ability, EQ, CJDM, interactional adjustment, and mental well-being. Results also supported mental capabilities demonstrated by metacognitive and cognitive CQ predicted levels of CJDM whereas motivational and behavioral CQ did not predict CJD, which is part of mental capacity. The six studies completed by Van Dyne and Ang demonstrate that the CQ four-factor model is robust and consistent across samples and methods (self-report vs. observer). The studies also validate across country and time stability and that the twenty-item questionnaire is a reliable and valid instrument (Van Dyne, Ang, & Koh, 2008). Items from the 20-item questionnaire are included in the Mini CQ Scale to determine a general level of CQ.
Measures

Instructor Classroom Practices (ICP)

The first scale consists of sixteen variables drawn from Barnett’s College Experience Survey that measures students’ perception of instructor classroom practices. Classroom practices include actions and behaviors that have been supported in the literature as helping students to feel valid as participants in post-secondary education (Rendón 1994, Rendón-Linares 2011; Barnett 2006; Its, 2011; Langelier, 2006). Items related to classroom practices are also associated with effective instruction (Engstrom 2008; Langelier 2006).

Student sense of validation (SSV)

Items 17-29 make up the second scale that addresses students’ sense of validation. These items were also drawn from the Classroom Experience Survey developed by Barnett (2006) who relied on Rendón’s seminal work regarding actions that students indicated led to feeling validated.

Student sense of belonging (SSOB)

Student sense of belonging (SSOB) are items 30-36 and gauge to what degree students feel like they belong in the classroom and on campus. These items were also drawn from the Classroom Experience Survey.

Student intent to persist (SITP)

Four questions comprised the variable. Each question asked about the students’ intent to persist, two addressed plans for the next semester and two inquired about degree completion.
Student perception of instructor Cultural Intelligence (SPICQ)

The Mini CQ Observer instrument was used to gauge students’ perception of the instructor level of cultural intelligence. Each student responded to twelve questions of the Mini CQ to give them a point of reference and then completed questions assessing their perception of instructors’ level of Cultural Intelligence.

**Internal Validity and External Validity**

Internal validity is more of a concern when conducting experimental research when the researcher manipulates the independent variables in order to influence the dependent variable/s. In this research project, the researcher is not manipulating the independent variables, as they are self-report from a questionnaire. History is not a threat; data collection took place at one point in time, during week 12 of a 16-week semester. Maturation and statistical regression are not concerns; there are no pre-test or previous scores for any of the variables. Participants are completing self-reports and students are providing perceptions based in classroom experiences. Additionally, this study is cross-sectional and does not seek to compare past and current behaviors furthermore the questionnaire takes a maximum of fifteen minutes to complete. Given that there is no pre-test, pre-test sensitization is not a threat to validity. The instrument contains elements that have been determined to be reliable and valid based on previous research. To avoid reactive arrangement or censoring due to the nature of the topic participants are assured that their responses will be kept confidential and have the opportunity to select “no answer” as one of the possible responses on the questionnaire. Participants were also told that they can skip any question that she/he is not comfortable answering.
Questionnaire

The questionnaire contained 60 questions, 52 questions grouped into five scales and a section on demographics that contained eight questions. All questions, except those addressing demographics used a seven-point Likert-type scale. Each scale on the questionnaire helped to answer one of the research questions. Based on Bartlett’s (2006) survey, the first scale addressed instructor classroom practices (questions 1-16). The second scale, asked students questions to assess the level of validation experienced in the classroom (questions 17-29). The third scale addressed students’ sense of belonging and consisted of seven questions. The fourth set of questions addressed students’ intent to persist and contained four questions, the fourth scale examined student self-perceived level of Cultural Intelligence and student perception of instructor level of Cultural Intelligence the combined number of questions addressing CQ was 24. The sixth section of the questionnaire asked questions regarding participant demographics.

Limitations

1. The scope of this study is limited to the 116 students that responded of the 511 who were enrolled in developmental education courses on two of the four regional campuses and therefore results are not generalizable to other campuses.

2. The study is descriptive in nature and it will not provide longitudinal data nor cumulative.

3. Data collection occurred after the last day to drop the class. This is a limitation because of the dependent variable measuring persistence and the data is limited to those who continued to attend class after the last day to drop.
4. Single collection point results in limited ability to follow up for those who indicated strong intent to persist.

**Assumptions**

1. Self-reporting is the most appropriate method of data collection regarding student perceptions of instructor CQ, instructor classroom practices, student sense of belonging, student sense of validation, and student intent to persist.
2. Instructor self-report on the modified CQ instrument and demographics is the most appropriate method of data collection for the variables addressed in this study.
3. Respondents will be truthful.
4. Using a web-based approach will provide easiest access for all respondents.

**Pilot Testing**

The two intact instruments combined for use in this study were found to be reliable and valid by the developers. However, the researcher modified some questions to reflect the population of the study and to address this adjustment in the questions a pilot study was conducted prior to collecting data from students at OSU Mansfield and OSU Newark.

The pilot study took place at the Agricultural Technical Institute (ATI) in Wooster, Ohio. The Agricultural Technical Institute is a two-year associate degree granting institution that is part of the College of Food, Agricultural, and Environmental Sciences. The researcher obtained permission from the Director of ATI to survey students enrolled in developmental English 1109 and Math 1050. In order to test
reliability and validity, the researcher-entered data from the pilot study into IBM SPSS version 21 to generate Cronbach’s alpha.

Pilot Study Findings

One hundred twenty-nine students and six instructors were invited to complete the questionnaire. The response rate for the instructors was not significant as only one responded resulting in no analysis conducted. The response rate for the students was 22%. Thirty-four students accessed the questionnaire and 29 completed the questionnaire with five partially completing the questionnaire. One out of four instructors completed the questionnaire. Even though the response rate was low, the researcher used the results to make some modifications to the research protocol. The pilot did not include an introductory message from the Director to the students or the instructors. Nor were incentives offered to the students at ATI. Table 3.2 shows that the majority of those completing the pilot questionnaire were white and Table 3.3 shows the majority of respondents were female.

<table>
<thead>
<tr>
<th>Frequency Table Race/Ethnicity</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cum. Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>26</td>
<td>89.7</td>
<td>89.7</td>
<td>89.7</td>
</tr>
<tr>
<td>Black/African American</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian/Alaska Native</td>
<td>1</td>
<td>3.4</td>
<td>10.3</td>
<td>10.3</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missing System</td>
<td>3</td>
<td>3.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3.2 Race/ethnicity pilot study respondents
**Frequency Table Sex**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>11</td>
<td>37.9</td>
<td>44.0</td>
<td>44.0</td>
</tr>
<tr>
<td>Female</td>
<td>14</td>
<td>48.3</td>
<td>56.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>86.2</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>System</td>
<td>4</td>
<td>13.8</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td></td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 3.3 Sex of pilot study respondents

Table 3.4 shows the age range of the group with the majority of respondents being 18-19 years old and one respondent being 25.

**Frequency Table Age**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
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<tbody>
<tr>
<td>18.00</td>
<td>15</td>
<td>51.7</td>
<td>53.6</td>
<td>53.6</td>
</tr>
<tr>
<td>19.00</td>
<td>11</td>
<td>37.9</td>
<td>39.3</td>
<td>92.9</td>
</tr>
<tr>
<td>22.00</td>
<td>1</td>
<td>3.4</td>
<td>3.6</td>
<td>96.4</td>
</tr>
<tr>
<td>25.00</td>
<td>1</td>
<td>3.4</td>
<td>3.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td></td>
<td>96.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Missing</td>
<td>System</td>
<td>1</td>
<td>3.4</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td></td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 3.4 Age of study respondents
Table 3.5 shows the scales from the questionnaire and Cronbach’s Alpha for each scale and for the scales combined. In the pilot study, the four questions were combined to create a scale of intent to persist. Reliability testing showed that if item 37 were removed, Cronbach’s Alpha would increase to .960 instead of .945. Item 37, asking about intent to return spring semester was deleted resulting in SITP consisting of items 38-40 with a Cronbach’s Alpha of .960.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Cronbach's Alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICP</td>
<td>.924</td>
<td>16</td>
</tr>
<tr>
<td>SSV</td>
<td>.989</td>
<td>13</td>
</tr>
<tr>
<td>SSOB</td>
<td>.978</td>
<td>6</td>
</tr>
<tr>
<td>SITP</td>
<td>.945</td>
<td>4</td>
</tr>
<tr>
<td>SITP*</td>
<td>.960</td>
<td>3</td>
</tr>
<tr>
<td>SPICQ</td>
<td>.952</td>
<td>12</td>
</tr>
</tbody>
</table>

Table 3.5 Cronbach's Alpha for pilot study scales

All scales are deemed reliable based on the high Cronbach’s’ Alpha scores as those that range between .7 and .9 are acceptable to excellent (Gliem and Gliem, 2003). There were no statistical analyses performed with the pilot study data related to the research questions. The next section addresses items directly related to the actual study.

To try to increase the response rate for the study, the researcher asked both of the deans at the participating institutions to send out an introductory message to the students informing them of the upcoming questionnaire. Although both deans agreed, the dean of
OSU Newark, William MacDonald, stated via e-mail, “Ok by me, but I imagine that the response rate was low because students tend to dismiss a lot of their email. They may dismiss mine, too, unfortunately”. The assistant dean, David Tovey, from OSU Mansfield shared a similar concern. In an e-mail response regarding the request to send out an introduction message, he stated:

Regional campus students tend to get 10-12 emails a day from OSU-Columbus. Regional students consider most of them spam because they are about events and deadlines, which are all Columbus-specific. The problem this creates is that regional campus students often delete large amounts of OSU emails in one swipe before looking at them closely (e-mail communication 10/7/2014).

In an effort to avoid a low response rate, the researcher had predetermined to provide $250 in incentives for student respondents. Students who participated were eligible to win one of 10 $25 Amazon.com gift cards.

Another difference in the pilot study and the actual study is the number of reminders sent, the pilot students only received the initial contact message from the researcher followed by the message with the link to the questionnaire and two reminders. For the study, potential participants received the introductory message from the deans, a message from the researcher with the link to the questionnaire and three reminder messages. The questionnaire for the study was open for three weeks versus the two for the pilot study.
Data Collection Procedures

In August, the researcher entered the instrument into Lime Survey an open-source questionnaire application for use on the web that has been used by the College of Food, Agricultural, and Environmental Sciences for the past five years. The research proposal was submitted to the Institutional Review Board (IRB) of the Ohio State University for permission to conduct the study. Pilot testing took place the week of September 15 with students enrolled at the Agricultural Technical Institute (ATI) in Wooster, Ohio. ATI also considered a branch campus of the Ohio State University. ATI is a two-year technical school located in Wooster, Ohio. ATI is a unit within the College of Food, Agricultural, and Environmental Sciences (CFAES), located on main campus of the Ohio State University in Columbus, Ohio. Students who attend ATI often complete an associate’s degree and then transfer to CFAES to complete their Bachelor of Science degree.

In September after IRB approval, the researcher was given names and e-mail addresses of students enrolled in Precollege Math 1, 1050 and Reading and Writing English 1109 both, developmental level courses for OSU Newark and OSU Mansfield in addition to the names and e-mail addresses of the instructors. As previously indicated, the researcher opted to use the census method for this study.

Based upon the 22% response rate from students at ATI the researcher asked the deans of both OSU Newark and OSU Mansfield to send an introductory message to both students enrolled in Math 1050 and English 1109 along with instructors on their prospective campuses. Following Dillman’s (2007) suggestion on having at least, four contacts with potential respondents, an introductory e-mail message was sent to students
on both campuses from the each of the deans. The message introduced the researcher and provided them with an overview of the project and making them aware of the period for questionnaire completion.

In the third week of October, a few days after the introductory message was sent the students were sent the personalized e-mail from the researcher with a link to the questionnaire. This message to the students and instructors explained voluntary participation, right to decline, confidentiality of responses, informed consent, how to enter the drawing for incentive upon completion of the questionnaire. The message included the length of time that the questionnaire link was accessible to them and that the results would be available once the study was completed. The third message, a week after the introductory message and the message containing the link was sent the last week of October as a reminder. The first week of November an additional reminder message was sent and a final message was sent the day before the questionnaire closed. The questionnaire link closed at 11:59 on November 14, 2014. The Program Development Unit of OSU Extension using a random number generator program through Microsoft Excel conducted drawings for incentives the week of November 24.

**Questionnaire Distribution and Ethical Research Practices**

Given that, all students have assigned e-mail addresses and had to apply for admission the assumption is that students have access to computers or other technological means to access the Internet therefore, a web-based questionnaire was the distribution method. By submitting and receiving approval from the Institutional Review Board of the Ohio State University, the researcher agreed to employ ethically responsible research practices including ensuring that participants understood that there would be no adverse
impact if one decided not to participate. Due to the structure of Lime Survey sending the message to individual e-mail accounts, it is impossible to trace respondents guaranteeing anonymity. The researcher and her advisors were the only ones to have access to the raw data and did not discuss any specific responses outside the scope of the research.

Based on demographic data if people were identifiable, the researcher collapsed data that may have led readers to be able to identify specific individuals in any published reports. This information was included in the invitation letter to all. An example of the questionnaire instrument along with the e-mail messages is included in Appendix A.

**Non-response plan**

The Ohio State University Extension Program Development Unit provided the researcher with updates on the number of questionnaires completed after each reminder message. After the first week, Lime Survey generated a reminder to those who were part of the initial mailing who may have started but did not complete the questionnaire as well as those who did not begin the questionnaire. A second reminder was generated a week after the first reminder and a final reminder was sent out on the second to last day, informing the participants that they only have one more day left to respond.

**Data Analysis**

At the end of the data collection, members of the OSU Extension Program Development and Evaluation Unit downloaded the data collected via Lime Survey into an Excel file. The researcher then coded and cleaned the data and imported it into IBM SPSS version 21 for analysis, the same that was used for the pilot instrument. The following procedures were applied to the data to prepare it for analysis. Prior to transferring data into IBM SPSS data were transferred from Lime Survey into Excel.
Data were reviewed and cases of respondents that clicked on the questionnaire and did not provide responses to any questions were removed. Nine cases were removed from the 125 leaving 116 for analysis. Once in IBM SPSS Little’s MCAR test was run. Results of the test were not significant $p > .05$ (Chi-square $= 1913.800$, df=1944, $p=.683$) indicating failure to reject the null hypothesis (Enders, 2010). Missing data were recoded as -999 system missing. All variables were assessed as univariates to assess the assumptions of normal distribution, independence, and heteroscedasticity. Descriptive statistics showed that several variables had skewness and kurtosis measures over the recommended +/-1. Figures 3.1 and 3.2 show histograms with the normal curve overlaid for variables that had the highest levels of skewness and or kurtosis.

Figure 3.1 Variable 29 Skewness and Kurtosis
Figure 3.2 Variable 30 Skewness and Kurtosis

**Issues of collinearity**

Initial analysis of correlation coefficients indicated multicollinearity between ICP and SSV (.918) and potentially between SSOB and ICP (.868). To control for this, variables were transformed which did reduce the coefficients to r<.9, ICP and SSV (.892) and ICP and SSV (.859) but SSOB and SSV were (.912) which is why the RLOG 10 transformed variables were used in the analysis to address question 1. Examining Tolerance and VIF indicated that multicollinearity was not a concern even with the .912.
Principal component analysis was conducted to support a two-item scale but the components were aligned with the four independent variables of interest so Pearson product moment correlation was conducted with the PCA Scales. Using the PCA scales collinearity was not an issue among any of the variables.

This chapter has provided an overview of how the data for the study was collected; the procedures used to ensure the data were suitable for analysis and the plan for how data was analyzed. Chapter 4 will provide a more in-depth review of the analysis used to address the research questions. Chapter 4 provides additional details on measures taken to meet assumptions for multivariate analysis. Once the univariate variables were deemed acceptable summated scales were created. The next chapter is comprised of three sections. The first section provides descriptive information about the study population. The second section provides details on the various procedures to prepare the data for analysis and the third provides the results of the analyses used to address the research questions.
Chapter 4 Results

Over the last 4 decades, access to post-secondary education has increased for many groups such as, students from low socioeconomic classes, students of color, first generation students, and students who are re-entering the academic setting after participation in the workforce or entering for the first time while working or as a result of experiencing job loss (Hughes, 2012; Shield, 2005; Ginder and Kelly-Reid, 2013). While post-secondary education has become accessible to more people, the numbers of students who successfully complete a degree or certificate has not kept pace (Edgecombe, 2011).

One of the roadblocks to degree completion for many students is lack of preparation for college-level course work. Between 35%-50% of first time enrollees are placed into developmental education courses, many of these students are students of color, first generation, and come from home with limited financial resources (Bailey and Dynarski, 2011; Aud, Fox, and Kewal-Ramani, 2010; Edgecombe, 2011; Scott-Clayton, et al., 2014; Brock, 2010; Hughes, 2012). For students who must complete a sequential developmental series in one or more subjects, degree completion may never materialize (Community College Research Center, 2014; Choitz and Strawn, 2011; Brock, 2010). Data continues to show disparate completion rates for individuals with certain demographic attributes. White students who did not persist (non-degree/certificate completion) were 33% for Black/African Americans and American Indian/Alaska
Natives the rate for non-persistence was 43% and Hispanic/Latinos was 42% (Ross, Kena et al., 2012, P.185).

Although student persistence has been studied for over 30 years it is still considered one of the most critical issues in post-secondary education (Tinto, 2006; Laird, Chen, and Kuh, 2008; Bettinger, Boatman, and Long, 2013; Casazza and Silverman, 2013). The role of developmental education as a factor influencing student persistence is a more recent addition to the research agenda and the evidence is divided. Some research shows that developmental education has no effect on degree attainment (Shields, 2005), while other research supports developmental education as effective in providing students skills needed to successfully complete a degree, certificate, or transfer to a four-year institution (Levin and Calcagno 2012).

Current research concentrates on what makes developmental programs effective from a delivery approach. Delivery methods that have been examined include; boot camps that focus on providing students with skills to retake or take placement exams; learning communities where students are placed into cohorts and take a series of developmental education courses together in conjunction with a linked course or a student success course; compressed courses the allow students to move more quickly through sequential developmental series; and computer-based modularized courses that sometimes replaces an instructor and allows students to work through lower level developmental education courses without the additional expense of a face-to-face class (Bickerstaff et al 2012). Other research related to developmental education focuses on the validity of placement tests (Scott-Clayton, Crosta, and Belifield, 2014); the impact of
enrollment in developmental education on academic and labor market outcomes (Martorell and McFarlin Jr. 2011); institutional policies; student support services; (Scott-Clayton et al 2014; Rutschow and Schneider, 2011; Bettinger, Boatman, and Long, 2013) with little on classroom practices and the role of the instructor.

The role of the instructor is rarely a focus even though research has shown that actions of instructors in and outside of classrooms can influence student’s intent to persist (Engstrom, 2008). Strayhorn (2012) proposes that student sense of belonging is a key factor to student persistence and degree completion. Strayhorn’s findings are complimentary to Rendón’s Validation Theory (1994) in that students who experience validation in an academic environment are also likely to develop a sense of belonging that contributes to persistence (Rendón, 1994; Strayhorn, 2012; Nora Barlow, and Crisp, 2005; Rendón Linares and Muñoz, 2011; Barnett, 2011; Morris and Price, 2008). Studies that include the relevance of students’ perception of instructor CQ and instructor actions and behaviors within the classroom setting that result in students’ feeling validated and developing a sense of belonging are limited and this research helps fill that gap.

The purpose of this study was to investigate the relationship between perceived instructor CQ (as determined by students), instructor classroom practices, students’ feeling validated, students’ sense of belonging and students’ intent to persist. The study uses students’ intent to persist as the dependent variable and perceived cultural intelligence of instructor (SPICQ); instructor classroom practices (ICP); students’ feeling validated (SSV) and students’ sense of belonging (SSOB) as independent variables. Demographic variables, sex, race/ethnicity, employment status; first in family to attend
college, first time enrolling in post-secondary education, and self-perception as a traditional or non-traditional student were used as control variables.

**Descriptive Statistics for the Study Population**

The population for this study included students enrolled in first levels of developmental Math and or English at one of two regional campuses of The Ohio State University, OSU Newark, and OSU Mansfield. Five hundred eleven students across both campuses received invitations to participate in the study. Of the 511 students in the population, 125 responded for a response rate of 26%. Out of the 125, 9 questionnaires contained no information leaving 116 with full or partial responses for use in analysis.

The nine cases with no responses were attributed to the participant clicking on the link but not completing the questionnaire. Based on recommendations from Graham (2014) related to missing data, these were removed entirely so they did not influence analysis. Of those who responded to the questionnaire, 70.4% were from OSU Newark and 29.6% were from OSU Mansfield. Across both institutions, seventy-two percent of the respondents were enrolled in Math 1050 while 28% were enrolled in English 1109.

Table 4.1 shows the demographics of the population (N) and of those who responded (n). The majority of students who completed the demographic questions were White (69%) followed by Black/African American (17%). The smallest percentages were between Asian (3.6%) and Hispanic/Latino (1.8%) demographic groups. Table 4.2 shows that more females (53%) than males (26%) responded with 21% either selecting no answer or skipping the question. The majority of respondents, 88% were in the traditional age range and 11% were in the non-traditional age range (Table 4.3). Table
4.4 shows that 53% of those who responded self-identified as traditional students and 21% as non-traditional. For the complete frequency distribution of the ages of the respondents, see Appendix B.

<table>
<thead>
<tr>
<th>Respondent Race/ethnicity</th>
<th>N</th>
<th>N Percent</th>
<th>n</th>
<th>n Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>291</td>
<td>58</td>
<td>77</td>
<td>66.4</td>
</tr>
<tr>
<td>Black/African American</td>
<td>140</td>
<td>28</td>
<td>19</td>
<td>16.4</td>
</tr>
<tr>
<td>Asian</td>
<td>8</td>
<td>1.6</td>
<td>4</td>
<td>3.4</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>21</td>
<td>4.2</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>2.6</td>
</tr>
<tr>
<td>Multiracial</td>
<td>22</td>
<td>4.2</td>
<td>6</td>
<td>5.2</td>
</tr>
<tr>
<td>Unknown/missing</td>
<td>13</td>
<td>2.6</td>
<td>5</td>
<td>4.2</td>
</tr>
<tr>
<td>Total</td>
<td>500</td>
<td></td>
<td>116</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.1 Respondent demographics

<table>
<thead>
<tr>
<th>Respondent Sex</th>
<th>N</th>
<th>N Percent</th>
<th>n</th>
<th>n Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>240</td>
<td>48</td>
<td>34</td>
<td>29</td>
</tr>
<tr>
<td>Female</td>
<td>257</td>
<td>51</td>
<td>71</td>
<td>61</td>
</tr>
<tr>
<td>Unknown/missing</td>
<td>3</td>
<td>1</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>500</td>
<td>100</td>
<td>116</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 4.2 Respondents’ sex

Out of 116 responses, 53.2% of valid responses were employed. Forty-four respondents said “no” for employment status, for a valid response rate of 46.8%. For those who reported being employed, 35.3% reported working part time and 6% reported
working full time 58.6% did not respond. For those who indicated being employed, the average number of hours worked is 23 hours a week. For the complete frequency distribution of hours worked see appendix C. The vast majority of respondents (87%) were not married and 12% were living with a spouse or partner. Seven and a half percent of those who responded indicated having financial responsibility for a family member. Approximately 4% of those who responded said they are financially responsible for a parent while just fewer than 3% indicated being financially responsible for child over 18 years and less than 2% indicated having financial responsibility for a sibling or fiancée.

The percentage of respondents who were the first in their family to enroll in post-secondary education for the first time was 40%. Sixty percent reported having siblings or parents who participated in post-secondary education. Almost 90% of those who responded were enrolling for the first time.

<table>
<thead>
<tr>
<th>Age traditional or non</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional Age</td>
<td>102</td>
<td>87.9</td>
<td>89.5</td>
<td>89.5</td>
</tr>
<tr>
<td>Non-traditional Age</td>
<td>12</td>
<td>10.3</td>
<td>10.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>114</td>
<td>98.3</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing System</td>
<td>2</td>
<td>1.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>116</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.3 Respondent age traditional and non-traditional
<table>
<thead>
<tr>
<th>Traditional Student</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>24</td>
<td>20.7</td>
<td>28.2</td>
<td>28.2</td>
</tr>
<tr>
<td>Yes</td>
<td>61</td>
<td>52.6</td>
<td>71.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>85</td>
<td>73.3</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing System</td>
<td>31</td>
<td>26.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>116</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.4 Traditional and non-traditional student (self-identified)

**Data Analysis and Assumptions**

Individual variables were grouped into components to created summated scales used as independent variables, student sense of belonging, instructor classroom practice, student sense of validation, and student intent to persist. Cronbach’s Alpha run for the pilot study were all within acceptable ranges (Table 3.5). However, when the same scales were rerun with data from the actual study there was a problem with the scale for students' intent to persist. The Cronbach’s Alpha for the dependent variable student intent to persist was .407, which is not acceptable for reliability. For a Cronbach’s Alpha score to be reliable it should be greater than .5 (Gliem and Gliem, 2003). The next section addresses how this situation was rectified.
Scale Reliability

To reconfirm scale reliability for the actual study, Cronbach’s Alpha was run on the individual variables that were summated to create each of the scales used to represent the independent and dependent variables. All of the Cronbach’s Alpha scores were in the acceptable range (> .5) for the independent variables (Gliem and Gliem, 2003). The Cronbach’s Alpha for the dependent variable students’ intent to persist was not acceptable at .407 (< .5). The output of the analysis indicated that Cronbach’s Alpha would increase if item 39, “I am likely to complete a degree on this campus” and item 40, “I am likely to complete a degree at OSU campus in Columbus, OH” were deleted. The remaining 2 items; 37, “I am likely to return to this campus for spring semester, 2015” and 38”, I am likely to enroll in classes for spring semester, 2015” had a Cronbach’s Alpha of .818. Therefore, the two-item scale was used for analysis (Table 4.5).

The two items that had the higher Cronbach’s Alpha were more indicative of intent to persist for the next semester. The questions relating to degree completion may have worked for the pilot study because ATI is a two-year school where most students obtain an associate’s degree on the Wooster campus and then come to Columbus Campus to earn a 4-year degree. Making both items 39 and 40 that pertain to degree completion more applicable to students at ATI than those at the regional campuses in part because Regional campuses offer 4-year degrees so degree completion on Columbus campus is not a necessity to obtain a 4-year degree.

OSU regional campuses are open-admissions institutions. Students who are unable to enroll on Columbus campus are often encouraged and or deferred to regional campuses to build college level competencies. Associate Dean, David Tovey of OSU
Mansfield identified other reasons that students enroll in regional campuses. In an e-mail correspondence, he indicated: “Although we don’t like to admit it to ourselves, we regional campuses are often not the destination of first-choice for many students (May 21, 2014).” Regional campuses are not often first choices for students because they were not accepted to Columbus campus or lack of financial aid at other schools. Tovey stated, “... their dreams of getting an adequate aid package from CWRU or Denison didn’t materialize” so they enroll here. Tovey (2014) in the same e-mail communication also shared that enrollments on regional campuses are often in flux because of open-admissions policies and that classes are often added or deleted at the last minute.

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor Classroom Practice (ICP)</td>
<td>16</td>
<td>.952</td>
</tr>
<tr>
<td>Student Sense of Validation (SSV)</td>
<td>13</td>
<td>.966</td>
</tr>
<tr>
<td>Student Sense of Belonging (SSOB)</td>
<td>7</td>
<td>.934</td>
</tr>
<tr>
<td>Student Sense of Instructor Cultural Intelligence (SPICQ)</td>
<td>12</td>
<td>.955</td>
</tr>
<tr>
<td>Student Intent to Persist (SITP)</td>
<td>4</td>
<td>.407</td>
</tr>
<tr>
<td>*SITP</td>
<td>3</td>
<td>.631</td>
</tr>
<tr>
<td>*SITP</td>
<td>2</td>
<td>.818</td>
</tr>
</tbody>
</table>

Table 4.5 Cronbach's Alpha

Recognizing that reliability of a 2-item scale is questionable, additional actions were taken to address concerns related to the reliability of the student intent to persist scale. Several actions were taken to establish that this two-item scale measuring student intent to persist was appropriate to use for this study. First, a search of literature on
reliability and 2-item scales was conducted. This review found evidence indicating that there is precedent in the use of two-item scales. The medical and mental health fields provided a rich variety of research on the validity of 2-item scales. Several articles described two-item scales being used to diagnose a variety of ailments such as, depression, anxiety, Post Traumatic-Stress Disorder (PTSD), stress related to diabetes, and incontinence issues (Nicholas, McGuire, and Asghari, 2015).

In the last several years, there has been increased interest in developing valid and reliable instruments that were easier for patients to complete and practitioners to administer. Nicholas, McGuire, and Asghari, (2015) used the 10-item Pain Self-Efficacy Questionnaire (PSEQ) as the basis for the two-item PSEQ. Using a variety of statistical procedures, correlation analysis, t-test for pre and post treatment and hierarchical regression they established that a two-item PSEQ was a valid and robust measure for pain. Na, West, Shamim, Mehra, Labrique, Ali, Wu, Klemm, and Christian, (2013) determined that a two-item scale was valid to use in determining food insecurity among individuals experiencing mild-to moderate food insecurity. Espie, Kyle, Hames, Gardani, Fleming, and Cape, (2014) drew from an 8-item scale to create and test a 2-item scale to assess insomnia. Chae, Chae, Tyndall, Ramirez, and Winter, (2012) found that a two-item postpartum depression scale provided statistically significant and reliable measures to diagnose postpartum depression that were comparable to a longer questionnaire. Breit, Arjan, Hageman, Menenddez, Mudgal, and Ring (2014) validated a two-item pain self-efficacy questionnaire. The two-item was found to be valid and was easier for patients with disabilities to complete.
Principal Component Analysis

The second step in addressing the reduction of the SITP scale to a two-item was to conduct Principle Component Analysis. Principle Component Analysis (PCA) was generated for the 52 variables relating to students’ sense of belonging, instructor classroom practices, students’ feeling validated, student perception of instructor Cultural Intelligence, and students’ intent to persist. Demographic variables were excluded from PCA.

Eigen values over one were used as the initial criteria to determine how many factors to extract. Eight components had Eigen values over one accounting for 81.393% total variance. The scree plot in figure 5 supports 8 components extracted. Unrotated factor loadings show most variables aligning with component 1. The variables for the two-item scale loaded as a component. Question 37 addressing intent to return loaded at .750 and question 38 asking about intent to enroll for spring semester had a factor loading of .905. The other two questions related to completion, question 39, intent to complete a degree at either OSU Mansfield or OSU Newark and question 40, asking about intent to complete on Columbus campus were included in a separate component. Details on the variables and the eight components identified can be viewed in appendix D.

The Varimax rotated matrix shows a more even distribution of the variables across the four of the eight components. The majority of the factor loadings are split between the first three components. The full matrices of the unrotated and rotated matrices can be reviewed in Appendix D. Hair, Black, Babin, Anderson, and Tatham, 2006 recommend that significance of factor loadings be determined by sample size. The
N for this study is 116 but with list wise deletion of cases with missing data, there is an N of 84. To ensure practical significance only factors with loadings >.60 were included in the components (Hair et al., 2006). The Kaiser-Meyer-Olking (KMO) was .878 indicating that the sample size is adequate. The accepted range is >.600. Bartlett’s test was significant, p<.05 meaning that the variables are highly likely to align with components (Hair et al., 2006). Using a bivariate analysis, the correlations for the components show that they are not related indicating that an orthogonal rotation method should be used.

As recommended by Hair, et al., (2006) and Mertler and Vannata, (2001) a second PCA was run with the number of factors for extraction set at 5 instead of 8. As in the first iteration the factor loading criteria was set at >.60 because of the small sample size (N=84). The model with five components extracted accounted for 74.165% of the variance compared the 81.393% with the 8-component extraction. In the five-component version, Component 1 consists of 14 factors that fit into the definition of sense of belonging with two factors that can also fit with sense of validation. The second component of the model, just as in the first, is focused on students' perception of instructor cultural intelligence and consists of eleven factors. The third component is comprised of 11 factors that are almost evenly divided between instructor classroom practice and sense of validation. The fourth and fifth components are the same as component 7 and 8 in the 8-component model. Component 4 consists of two factors, student intent to return, and student intent to enroll. Component 5 contains student intent to complete a degree at regional campus and intent to complete a degree on Columbus campus. The full model and the results of PCA that generated scales with slightly
different variables then the scales drawn from Barnett’s survey can be reviewed in Appendix D. The differences in the scales will be discussed in detail in chapter 5.
Results for Each Research Question

Question 1

What is the relationship between student perception of instructor cultural intelligence, instructor classroom practices, student sense of validation, student sense of belonging and intent to persist?

To address this question a bi-variate correlation matrix was generated using the independent and dependent variables. The correlation matrix was examined to determine the level relationship or correlation that exists between the independent variables, ICP; SSV; SSOb; SPICQ and the dependent variable SITP. The matrix in table 4.6 shows the Pearson product-moment correlation coefficients (r) for each of the untransformed variables. All of the variables are significant at the 0.01 level with a two-tailed test. However, some are more strongly correlated than others are. Based on the Pearson r coefficients shown in Table 4.6, Instructor Classroom Practices (ICP) shows strong positive correlations with Student Sense of Validation (.918), Student Sense of Belonging (.868), and Student Perception of Instructor CQ (.730). SITP was also significant with an r of (.350). Student sense of belonging and student sense of validation have correlation coefficients that exceed .8 and student sense of validation is highly correlated with classroom practices (.914), indicating multi-collinear relationships (Mertler and Vannata 2001).
**Person product-moment Correlation Coefficients unstandardized**

<table>
<thead>
<tr>
<th>Variable</th>
<th>ICP</th>
<th>SSV</th>
<th>SSOB</th>
<th>SPICQ</th>
<th>SITP</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICP</td>
<td>1</td>
<td>.918**</td>
<td>.868**</td>
<td>.730**</td>
<td>.350**</td>
</tr>
<tr>
<td>SSV</td>
<td>.918**</td>
<td>1</td>
<td>.914**</td>
<td>.748**</td>
<td>.341**</td>
</tr>
<tr>
<td>SSOB</td>
<td>.868**</td>
<td>.914**</td>
<td>1</td>
<td>.687**</td>
<td>.329**</td>
</tr>
<tr>
<td>SPICQ</td>
<td>.730**</td>
<td>.748**</td>
<td>.687**</td>
<td>1</td>
<td>.273**</td>
</tr>
<tr>
<td>SITP</td>
<td>.350**</td>
<td>.341**</td>
<td>.329**</td>
<td>.273**</td>
<td>1</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)

Table 4.6 Unstandardized Pearson Product Moment Correlation Coefficients

Table 4.7 shows the correlation coefficients using the transformed variables.

Although the coefficients are slightly different SSV and SSOB still have an r that is greater than .9 indicating multicollinearity.

**Person product-moment Correlation Coefficients Transformed**

<table>
<thead>
<tr>
<th>Variable</th>
<th>ICP</th>
<th>SSV</th>
<th>SSOB</th>
<th>SPICQ</th>
<th>SITP</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICP</td>
<td>1</td>
<td>.892**</td>
<td>.859**</td>
<td>.742**</td>
<td>.378**</td>
</tr>
<tr>
<td>SSV</td>
<td>.892**</td>
<td>1</td>
<td>.912**</td>
<td>.792**</td>
<td>.364**</td>
</tr>
<tr>
<td>SSOB</td>
<td>.859**</td>
<td>.912**</td>
<td>1</td>
<td>.742**</td>
<td>.331**</td>
</tr>
<tr>
<td>SPICQ</td>
<td>.742**</td>
<td>.792**</td>
<td>.742**</td>
<td>1</td>
<td>.361**</td>
</tr>
<tr>
<td>SITP</td>
<td>.378**</td>
<td>.364**</td>
<td>.331**</td>
<td>.361**</td>
<td>1</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)

Table 4.7 Transformed Pearson Product Moment Correlation Coefficients
To confirm collinearity among SSV, SSOB, and ICP each of the variables were entered into a multiple regression as independent variables with SITP entered as the dependent variable. The Variance inflation (VIF) =10.32 for SSV; VIF=6.40 for SSOB, and VIF=6.51 for ICP. These results (Table 4.8) indicate that SSV is collinear because the score is greater than 10. Tolerance for ICP=.15; Tolerance=.1 for SSV; Tolerance=.16 for SSOB.

A second bivariate analysis showed that with SSV removed, SSOB (r=.86), seemed to have a collinear relationship with ICP. To test this, a second multiple regression was run to determine the Tolerance and VIF without SSV as an independent variable. VIF and Tolerance scores were all within acceptable ranges indicating, that removing SSV addressed the issue of collinearity. Instructor classroom practice, VIF=4.67; SSOB, VIF=4.1; and SPICQ, VIF=2.1. Tolerance for classroom practice was .21 and for SSOB, tolerance=.24 (Table 4.9). Based on Harlow (2014) and Mertler and Vannatta (2001) VIF scores under 10 are not collinear so no action is necessary.

Regressions using the RLOG10 transformed variables were also run to determine if the transformed variables were more a better option for use in analysis. To assess potential collinearity among RLOG10SSV, RLOG10SSOB, and RLOG10ICP each of the variables were entered into a multiple regression as independent variables with RLOG10SITPR entered as the dependent variable. The Variance inflation (VIF) =8.12 for RLOG10SSV; VIF=6.40 for SSOB, and VIF=5.19 for ICP. These results, (Table 4.9) indicate that collinearity is not a concern. Tolerance for RLOG10ICP=.19; Tolerance=.12 for RLOG10 SSV; Tolerance=.16 for RLOG10SSOB (Table 4.9).
### Table 4.8 Collinearity Statistics Untransformed Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSV</td>
<td>.1</td>
<td>10.32</td>
</tr>
<tr>
<td>SSOB</td>
<td>.16</td>
<td>6.40</td>
</tr>
<tr>
<td>ICP</td>
<td>.1</td>
<td>6.51</td>
</tr>
</tbody>
</table>

### Table 4.9 Transformed Collinearity Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>RLOG10 SSV</td>
<td>.12</td>
<td>8.12</td>
</tr>
<tr>
<td>RLOG10 SSOB</td>
<td>.16</td>
<td>6.34</td>
</tr>
<tr>
<td>RLOG10 ICP</td>
<td>.19</td>
<td>5.19</td>
</tr>
</tbody>
</table>

Using the RLOG10, transformed version of the SSV variable was more appropriate than removing the variable. The decision was made based upon the literature that indicates that student sense of validation in classrooms is important to student intent to persist and the research questions all involve student sense of validation in some capacity (Rendón Linares and Munoz, 2011, Tinto, 2009). Table 4.10 shows the results of collinearity diagnostics with the summated scales generated from the PCA.
Table 4.10 Principle Component Analysis Pearson Product Moment Correlation Coefficients

<table>
<thead>
<tr>
<th></th>
<th>PCA ICP</th>
<th>PCA SSV</th>
<th>PCA SSOB</th>
<th>PCA SPICQ</th>
<th>PCA SITP</th>
<th>COMPLETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCA ICP</td>
<td>1</td>
<td>.725**</td>
<td>.784**</td>
<td>.582**</td>
<td>.187*</td>
<td>COMPLETE</td>
</tr>
<tr>
<td>PCASSV</td>
<td>.725**</td>
<td>1</td>
<td>.745**</td>
<td>.602**</td>
<td>.186*</td>
<td></td>
</tr>
<tr>
<td>PCASSOB</td>
<td>.784**</td>
<td>.745**</td>
<td>1</td>
<td>.666**</td>
<td>.140</td>
<td></td>
</tr>
<tr>
<td>PCASPICQ</td>
<td>.582**</td>
<td>.602**</td>
<td>.666**</td>
<td>1</td>
<td>.294**</td>
<td></td>
</tr>
<tr>
<td>PCASITP</td>
<td>.187*</td>
<td>.186*</td>
<td>.140</td>
<td>.294**</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Question 2

Do students’ feeling validated, students’ sense of belonging, and instructor classroom practices predict students’ intent to persist?

Using the original scale variables multiple regression, was conducted to determine if students’ feeling validated (SSV), students’ sense of belonging (SSOB) and instructor classroom practices (ICP), influenced/predicted student intent to persist (meaning return and enroll for spring semester, SITP). Prior to analysis of the model, diagnostic tests for collinearity and outliers were examined. Tolerance levels for all variables in the model were acceptable >.1 and VIF were all in the acceptable range <10. The Mahalanobis Distance was 22.256; the critical value is 16.266 based on critical values of Chi-square established by the number of variables. To assess the number of outliers the data was sorted by the Mahalanobis Distance and were
examined for scores greater than 16.266. Only two cases had cores over 16.266 and were
left in the data set. The enter method found that the combination of variables entered into
the model account for 13% of the variance in student intent to persist ($R^2 = .126$, $F(3,111)$
$=5.323, p<.05$). Examination of the Beta values in Table 4.11 show that none of the
variables were significant contributors to students’ intent to persist.
<table>
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R² = .126, F=5.323, p<.05
Table 4.11 Multiple Regression ICP, SSV, and SSOB enter method
The first model was run to answer the basic question posed which did not include any demographic variables or SPICQ and results were insignificant. A second model that added SPICQ as an independent variable and included sex (female) as a selected variable was generated. This model, (Table 4.12A) was significant and accounted for 43% of the variation in the model persist ($R^2=.429$, F (4, 63) =8.277, $p<.001$). One variable, instructor classroom practice (ICP), had a significant Beta, $p<.05 \beta=.76$. ICP contributed 76% to students’ intent to persist for females, implying that instructor classroom practices positively contribute to female students’ intent to persist. When the same model was run using males as the selected variable, neither the model nor any of the Beta coefficients indicated significance.

Table 4.12 B shows results using females as the selected variable with race/ethnicity, and self-identified as traditional or non-traditional student added to the model. The model accounts for 47% of the variance in students’ intent to persist for students who identify as female, white, and traditional, and is significant, $p<.001$. ICP and self-identified traditional or non-traditional student were significant, $p< .05 (\beta=.747)$ and (\beta=.256). The model was insignificant when males were entered as the selected variable.

The third model, (Table 4.13A) was generated with non-white as the selected variable with ICP, SSV, SSOB, SPICQ, self-identified traditional/non-traditional student and sex. This model was significant, $p<.05$ and indicated that the model accounted for 53% of the variance in non-white students’ intent to persist ($R^2=.534$, F (6, 19) =2.929, $p<.05$. None of the Beta coefficients were significant. The fourth model, (Table 4.13 B) was run with white as the selected variable. It was also significant, $p< .05$ and the Beta
coefficient for sex was significant $\beta=.013$, $p<.05$. While the model was significant, it only accounted for 25% of the variance in students’ intent to persist ($R^2=.250$, $F(6, 46) =3.913$, $p<.05$).
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<td>SPICQ</td>
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<td>Self-id Trad/Non</td>
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<th>t</th>
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Table 4.12 A. Multiple Regression ICP, SSV, SSOB, SPICAQ, female Enter method $R^2$-square=.429, F (4, 63) =8.277, p<.001

Table 4.12 B. Multiple Regression ICP, SSV, SSOB, SPICAQ, White/non-white, self-identified traditional or non-traditional student

Enter method $R^2 =.470$, F (6, 48) =5.032, p<.001
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Table 4.13A Multiple Regression, ICP, SSV, SSOB, SPICQ, Sex, Self-identified traditional or non-traditional White/Non-white ($R^2=.534$, $F (6, 19) =2.929$, $p<.05$)

Table 4.13 B Multiple Regression, ICP, SSV, SSOB, SPICQ, Sex, Self-identified traditional or non-traditional White/Non-white $R^2=.250$, $F (6, 46) =2.553$, $p<.05$
Question 3

To what degree does perceived level of instructor CQ, student sense of validation, and student sense of belonging affect traditional and non-traditional students’ intent to persist?

Multiple regression analysis was used to examine intent to persist for students who self-identified as non-traditional and for those who were considered non-traditional based on age. There were two different classification indicators used to identify non-traditional students and traditional students. One was based on age, a frequent indicator used in the literature to categorize students. Students who are over 24 years-old are classified as non-traditional. However, there are other factors that have been identified as indicators of traditional or non-traditional including, marital status, full-time work, family responsibilities are a few. Students were able to indicate how they viewed themselves and provide reasons why they were traditional or non-traditional based on their experiences and definitions.

Twelve respondents were categorized as non-traditional based on their age. Age, usually greater than 24, is one of the attributes used to determine if a student is traditional or non-traditional (Bailey and Alfonso, 2005; Brock, 2010). Twenty-four respondents self-identified as non-traditional. Table 4.14 shows the results of two multiple regressions; in the first, cases were selected for students who self-identified as non-traditional to determine if three predictors influenced student intent to persist. The second model used the same predictor variables but selected cases by students who were non-traditional based on age. The first model, (Table 4.14) indicated that for students
who self-identified as non-traditional the variables of SSV, SSOB, and SPICQ contribute 47% of the variance in predicting students’ intent to persist. However, when examining the Beta values, none of the variables alone were significant contributors to students’ intent to persist. For students who were categorized as non-traditional based on age, the model is not significant. Two additional models generated to compare students who self-identified as traditional and those traditional by age were insignificant.
<table>
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Table 4.14 multiple regression SSV, SSOB, SPICQ, traditional, nontraditional by age, and self-identified

Self-identified $R^2 = .471$, $F (3, 20) = 5.943$, $p < .05$

Non-traditional Age $R^2 = .502$, $F (3, 8) = 2.687$, $p > .05$
This section of chapter four has presented the questions and the statistical analyses implemented to address them. The next section provides a summary of qualitative data from students relating to how they see themselves as a traditional or non-traditional student.

**In Their Own Words**

In the questionnaire, students were given the option to self-identify as a traditional or non-traditional student and were invited to explain their choice. The following is an overview of some of the responses. Ten respondents in addition to identifying as a traditional student provided anecdotal reasons of why they identified themselves as a traditional student. Many of the responses mirror terms from the definition the literature. Some of the responses include references to entering college right out of high school; that opportunity to be a full time student; relying on parents, and not having to work while taking classes. Of the twenty-four students who identified as non-traditional, 10 are under age 24 and the others are age 25 and older. For students who identified as non-traditional the reasons they shared are also reflective of the literature. Themes of their comments include coming from impoverished background, having to work full time and attend classes, commuting to campus, and returning to school after a 10-year absence. All of the responses are included in Appendix E.

Using the anecdotal responses, the researcher elected to perform additional analysis using hierarchical multiple regressions. Indicators from the participants’ comments were used for these additional analyses. The demographic variables collected through the questionnaire were separated into three categories,
demographic categories like race/ethnicity, sex, and age (broken into under 24 and 25 and over), those that are “firsts” including first in family to enroll and first time enrolling, and third, those related to employment and finances. Each grouping was entered separately into the first block of the HMR and SPICQ, ICP, SSV, and SSOB were entered into the second block. The dependent variable remained intent to persist with self-identified-non-traditional as the selection factor.

The first model entered employment, full or part time, and financial responsibility into block 1 with SPICQ, ICP, SSV, and SOB entered into block two. The selection factor was whether a student self-identified as non-traditional or traditional. Preliminary analysis of the HMR indicated that there were not enough cases (N=9) for the number of independent variables included in the proposed model. A second model was run eliminating several variables that were identified as problematic due to missing cases.

For the second HMR, full or part time employment was removed from block one, leaving employed and financial responsibility. Block 2 contained the independent variables, SSV, SSOB, ICP, and SPICQ. The model was run, however collinearity statistics showed significant collinearity among three variables. ICP, SSV, and SSOB all had scores over 20 (10 is the acceptable high). ICP had the highest, 32.771 so it was removed and the analysis rerun. SSOB and SSV were still collinear and the model insignificant.

The fourth model used demographic variables, age-traditional or non-traditional, sex, and white/not-white for block 1 variables. Block two variables
included ICP, SSV, SSOB, and SPICQ, the dependent variable was SITP.

Removing the variables resulted in an N of 22, 24 respondents self-identified as non-traditional. This model was also insignificant.

Based on the insignificant models the select cases by self-identified non-traditional was removed and replaced with non-traditional by age. Given that only 10 respondents were non-traditional by age, running the HRM resulted in an insignificant model and three variables having collinearity issues. The model was rerun with students considered traditional age, table 4.1. Collinearity was not an issue with this model and the model accounts for 16% of the variance, an improvement of the constant only model of 4%. The model is statistically significant p< .05 and sex has a significant Beta value (β=.016, p<.05). The variable contributes very little to student intent to persist.
A variety of models were explored to address all of the research questions with additional analyses conducted to add depth to the research questions. Over all very few of the independent variables were statistically significant in contributing to students’ intent to persist. The small number of cases may have influenced some of the analytical procedures. This will be addressed more in chapter 5. This chapter has presented an explanation of the statistical analyses conducted to answer the research questions.

Chapter 5 will provide a summary of the research along with a discussion of the results of the analyses. The final section of chapter 5 will present implications for future research.

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<td>-.043</td>
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Table 4.16 Hierarchical Multiple Regression Traditional Age Students controlling for sex and white/non-white $R^2 = .160$, $F (6, 82) = 2.607$, $p < .05$
Chapter 5

Summary, Discussion, Implications and Recommendations for Future Research

Access to post-secondary education and degree completion rates have been part of the research agenda of post-secondary education for 40 years (Tinto, 2006). Since Civil Rights Laws of the 1960s and 1970s, made it illegal to discriminate in access to higher education and federal grant programs provided support for students from low-income families to attend post-secondary institutions increasing numbers of students of color and from lower socioeconomic groups have been accessing post-secondary education. Increased access has not resulted in increased completion rates, making student persistence a critical issue (American Association of Community Colleges, Reclaiming the Dream, 2012; Baum, et al., 2010).

Data show that many students who are entering post-secondary education for the first time are un-prepared for college level coursework. This level of unpreparedness has resulted in significant number of students enrolled in developmental education courses (Bettinger and Long, 2005). Placement in developmental education is a concern. These courses do not count for credit toward a degree or credential. For some students this adds significant time to degree completion as well as draining financial resources (Bettinger and Long, 2005). Research has shown a correlation between student participation in developmental education and non-completion, students of color and those from low socioeconomic groups are disproportionately impacted (Shield, 2004; Bailey, 2009; Bailey and Cho, 2010; Scrivener et al., 2008). This stark reality has resulted in the
increased demand for on-going research addressing how to increase college completion rates for students who enter un-prepared or under prepared for college level work.

Several scholars have identified student experience in classrooms as a factor that can influence students positively or negatively, making faculty key in research on persistence (Hurtado and Carter, 1996; Strayhorn, 2012; Nora, Barlow, and Crips, 2005; Rendón, 1994). This study examined the relationship between student perception of instructor cultural intelligence, students’ feelings of validation, students’ sense of belonging, and students’ intent to persist. The study focused on students enrolled in first level developmental Math and English classes at two regional campuses in Ohio. The next section provides an overview of the purpose of the research, the study population, data collection, and analysis and a discussion of the findings.

**Overview**

The purpose of this cross-sectional correlational study was to examine the relationship between instructor classroom practices, students’ feelings of validation, students’ sense of belonging, and perceived level of instructor cultural intelligence as independent variables with students’ intent to persist as the dependent variable. The intent was to explore if instructors who were perceived to have higher levels of cultural intelligence used classroom practices that led to students to develop feelings of validation and sense of belonging and to determine if feeling of validation and sense of belonging were correlated with students’ intent to persist on two regional campuses.

This research was conducted in two regional campuses of The Ohio State University, OSU Newark, and OSU Mansfield. Participants were students who were
enrolled in the first levels of developmental Math and English fall semester 2014. The theoretical framework of this study was based upon Tinto’s (1975, 1993) Integration Model while Rendón’s (1994) Validation model provided the conceptual framework for the study. The Integration model acknowledges that students enter post-secondary education with a variety of background characteristics, some of which may help students persist while others may hinder persistence. However, the model also puts the responsibility to become integrated on the student with little emphasis on the role of the institution.

Rendón’s (1994) model was chosen as the conceptual model because the Validation Model takes the onus off the student and places a larger portion of it on the institution and its agents. For students, especially those who are non-traditional, having a faculty or staff reach out and connect is a way to assist students in developing a comfort level within post-secondary education. Through her research, Rendón (1994) heard stories from students of faculty reaching out and encouraging them to continue, assuring them that they could be successful (Rendón, 1994; Linares-Rendón, & Muñoz, 2011). The idea that students were more likely to persist when they felt a sense of validation was a new way of exploring student persistence.
Data Collection and Analysis

Three research questions guided this cross-sectional correlational study.

1. What is the relationship between student perception of instructor cultural intelligence, instructor classroom practices, student sense of validation, student sense of belonging and intent to persist?

2. Does students’ sense of validation, students’ sense of belonging, and instructor classroom practices predict students’ intent to persist?

3. To what degree does perceived level of instructor CQ, students’ sense of validation, and students’ sense of belonging affect traditional and non-traditional students’ intent to persist?

Data for this study were collected via on-line questionnaire from students enrolled in the first level of developmental Math and or English during fall semester, 2014. Participants were from either OSU Newark or OSU Mansfield. Data were collected in November 2014. Descriptive statistics were collected on the dependent and independent variables to provide demographic data. To address the research questions, Pearson product moment correlation was used to examine relationships between dependent and independent variables. Multiple regression analysis was used to address questions 2 and 3 to determine whether perceived level of instructor CQ influenced students’ intent to persist alone or in combination with other independent variables. Additional Hierarchical Multiple Regression (HMR) was run to examine some of the questions at a deeper level.
Findings and Discussion

This section discusses the findings of the three research questions and the additional analyses that were run to generate additional data for which the structure of the original questions did not allow. Goals of the study include: determine if students’ perception of instructor Cultural Intelligence influenced their feeling validated and having a sense of belonging; exploring the role of classroom practices that have been identified as effective in leading students to develop feelings of validation and developing a sense of belonging in the classroom setting; examining if perceived levels of instructor cultural intelligence made a difference in classroom practices and how each one may contribute to students’ intent to persist.

Findings

Question 1: What is the relationship between student perception of instructor cultural intelligence, instructor classroom practices, student sense of validation, student sense of belonging and intent to persist?

The study found significant relationships (p<.01) between the five variables of interest. The strongest correlations (.687-.918) were among instructor classroom practices, students’ feelings of validation, and students’ sense of belonging. Students’ perception of instructor cultural intelligence had statistically significant results with all of the variables with the relationship between students’ intent to persist and students’ perception of instructor cultural intelligence being the lowest (.273). This finding shows that cultural intelligence is a perceptible behavior that correlates with students’ feelings of validation and having a sense of belonging. It also demonstrates that student perception of instructor cultural intelligence has a relationship with instructor classroom
practices. Because this study is correlational, the results do not indicate causation.

**Question 2:** Do students’ feeling validated, students’ sense of belonging, and instructor classroom practices predict students’ intent to persist?

This study found that for all of the students who completed the questionnaire, the variables; students’ feelings of validation, students’ sense of belonging and instructor classroom practices influenced their intent to persist. The combination of variables accounted for just 13% of the variance in students’ intent to persist. This amount of variance suggests that there are additional variables that need to be considered to account for students’ intent to persist. This study also found that instructor classroom practices became a contributing factor to intent to persist for those who are white, female, and traditional (based on age) when students’ perception of instructor cultural intelligence was added as an independent variable. This was not the case for males and students who were not white or non-traditional based upon age. For students, male and female who self-identified as non-traditional, feelings of validation and students’ perception of instructor cultural intelligence were significant contributors to students’ intent to persist. For students who white and self-identify as non-traditional, sense of belonging was a statistically significant factor in students’ intent to persist.

**Question 3:** To what degree does perceived level of instructor CQ, student sense of validation, and student sense of belonging affect traditional and non-traditional students’ intent to persist?

For students who self-identify as non-traditional, students’ feelings of validation, students’ sense of belonging, and students’ perception of instructor cultural intelligence significantly influence students’ intent to persist but the opposite is true of those who are
non-traditional based on age alone. This combination of variables did not impact traditional students who self-identified as traditional or those based on age.

**Insights from In their Own Words:**

Participant responses to the question, “Explain your response to, Are you a traditional or non-traditional student” found that students themselves tend to be in agreement with the literature on what constitutes traditional or non-traditional. For many who responded and self-identified as a traditional student the reasons included entering college right out of high school, living on campus, not working, being supported by parents, being 18, and coming from a “good school”. Some responses deviated from the literature definition of traditional student and identified things like, working hard in order to meet a goal, several commuter students who identified as traditional indicated that they were just like other students and there to work hard and complete a degree.

For those who self-identified as non-traditional there were several reasons that are familiar through literature such as returning after an extended time away from post-secondary education, having parental responsibilities, and working full time. Of interest is that out of the 24 respondents who identified themselves, as non-traditional 16 were under age 24. Several had very different reasons for identifying as non-traditional; “I consider myself non-traditional because I don’t enjoy being around large groups of people at parties, but I love the college experience so far in classes and on campus (age 20)”, another wrote, “Because I don’t go drugs or drink alcohol like everybody else in college does (age 18)”. Five others who opted to respond indicated that they identified as non-traditional students because of full time work, community, growing up poor, and having to be self-supporting. Four of the five are 19 and one is 18.
Post Hoc Analysis:

Post hoc analysis, removed instructor classroom practices from the model, but kept students’ perception of instructor cultural intelligence, students’ sense of belonging and students’ feeling of validation for students who self-identified as non-traditional generated a significant model. For those students who self-identified as non-traditional, the regression model explained 47% of the variance in students’ intent to persist. The variables that were most significant out of the combination were students’ feelings of validation and student’s perception of instructor cultural intelligence.
Implications for Theory

The findings from this research contribute to the body of knowledge on student persistence in several ways. Although they do not support a causal relationship or allow for indicating directionality of relationships, they do suggest that cultural intelligence is perceptible to students in developmental education classrooms. This research provides insight regarding students on regional campuses enrolled in first levels of developmental Math and English. Based on the findings of statistically significant relationships among students’ feelings of validation, students’ sense of belonging, and students’ perception of instructor cultural intelligence there is the potential to build a new student persistence model.

Revised Conceptual Model

Based on the findings of the research questions the initial conceptual framework presented in Chapter 1 has been revised. The revised framework (figure 5.1) shows student entry characteristics as independent variables that are constant, meaning all students have a variety of background characteristics and experiences that can influence their experiences in post-secondary classrooms. Once a student enrolls in developmental Math or English the student will interact with the instructor. In the initial model, Instructor Classroom Practices was included as an independent variable. However, post hoc analysis conducted in this study showed that without instructor classroom practices, student perception of instructor cultural intelligence along with feelings of validation and sense of belonging were statistically significant in students’ intent to persist, for students who identified as non-traditional and female. The revised model suggests that students’
perception of instructors’ level of cultural intelligence relates to students feeling validated in class and developing a sense of belonging leading to increased intent to persist.

One may theorize that instructors whom students perceive as having higher levels of cultural intelligence demonstrate behaviors that lead to students developing feelings of validation and a sense of belonging, which according to Strayhorn (2012) is an essential component of student learning and persistence. The revised model incorporates elements of both Validation and Integration theory. Academic and social experiences are essential components of Tinto’s model and are the catalyst for integration, which has been positively correlated with higher levels of persistence.

In Validation theory, a relationship with agents of the institution is an important component. Students who perceive that the instructor cares about them, values their life experience, believes in their abilities, has high expectations, are open and accessible are more likely to develop feelings of validation. This feeling of validation may be the necessary foundation for students to develop confidence in themselves and begin to develop a sense of belonging within the academic environment. In both, Integration and Validation models, interactions, and relationships within the institution and the classroom are significant contributors to student persistence. Validation Theory grew out of discontent with the applicability of Integration Theory to students identifying as non-traditional. In 2009, Tinto advocated for sense of belonging as a replacement construct for integration. He believes that students’ having a sense of belonging is a more accurate indicator of likelihood of persistence than integration.
The idea that students’ sense of belonging as a key predictor allows for continued work on operationalizing what sense of belonging and validation, in the context of post-secondary education, means. The need for additional operationalization stems from the validation being used as a descriptor of sense of belonging (Strayhorn, 2008, 2012). In this study, based on Pearson r scores greater than .9, three variables presented as collinear; students’ feelings of validation, student’s sense of belonging and instructor classroom practices. The high r scores suggest that the constructs would benefit from additional clarifications. They also suggest that there was not enough variation in the study population.

Without clear definitions about what constitutes feelings of validation and sense of belonging, these constructs may be headed down the same path as Involvement and Engagement. Initially, involvement and engagement were presented as different and unique constructs but through time, many researchers, have and continue to use them interchangeably. Even Astin who is known for establishing Involvement as a critical issue related to student persistence has changed his view. In a 2009 interview, he indicated that he sees no distinctions between involvement and engagement and had no concerns with using them interchangeably (Wolf-Wendal, Ward, Kinzie, 2009). Kuh, an advocate for Engagement acknowledges that there are definitely similarities between Involvement and Engagement but maintains that there is at least one important difference; Involvement does not focus on the institution as Engagement does (Wolf-Wendal, Ward, and Kinzie, 2009).
Figure 5.1 Revised Conceptual Model
Implications for Practice

Wide arrays of students find themselves in developmental education courses. Many of these students come from lower socioeconomic status families, are first generation, are students of color, or have English as a first language. For these students, persistence is a great concern as students with the identities referenced participate in developmental education at disproportionate levels and have lower completion rates than students from middle to upper status families with parents and even grandparents who were college educated.

Students who find themselves in developmental education courses often have a difficult time successfully completing the required sequences needed to access courses that will count toward a degree or certificate. Much of the current research on creating a pathway for students in developmental education focuses on a macro level, meaning the institution and varying delivery structures such as, boot camps, on-line delivery, and learning communities. This study addressed what can be done on a micro-level, specifically the classroom and how students perceived instructors interactions.

The results of this study provide an access point for including cultural intelligence as a variable of interest in the on-going search for methods and strategies to improve student persistence. The study also suggests that the way students perceive the classroom and the actions of the instructor may influence whether students develop a sense of belonging influencing intent to persist. The implications drawn from the findings of this study may be of particular interest to faculty who teach developmental education at regional or community college campuses as well as those who are deans and directors of those institutions.
**Instructors**

**Self-reflection**

This research focused on the first level of developmental Math and English. The first level was selected because research suggests that the earlier students who are deemed “at risk”, “underprepared” or non-traditional are able to see themselves having the ability to be successful in an academic setting the more likely she/he is to persist (Strayhorn, 2012). Individuals who teach developmental classes are in a position to influence students in positive or negative ways. Based on this study, some implications for practice are for instructors to ensure a high level of self-awareness related to concepts of implicit bias, privilege, and cultural intelligence. A second is to incorporate methods and techniques that create inclusive classrooms. Instructors, like students have a variety of intersecting identities that influence how they perceive students and themselves in relation to the larger society.

There are numerous methods to enhance self-awareness including identifying and acknowledging hidden biases; acknowledging and identifying the impact that privilege has on society; and examining cultural intelligence. Implicit biases are unconscious codes imbedded into the subconscious of individuals based on social cues observed either directly or indirectly. These codes continue to grow throughout one’s life. Implicit biases are unconscious and may be counter to what individuals consciously believe. Although subconscious, these biases influence feelings, attitudes, and actions toward certain groups of people based on race, sex, ethnicity, class, sexual orientation etc. For those who teach, understanding that these subconscious biases exist can be an asset when establishing relationships with students who have different backgrounds and experiences.
The Harvard Implicit Bias test is one of the most well-known accessible tools that can be completed anonymously to learn what implicit biases are present.

Instructors taking time to understand the concept of privilege and its impact on systemic and institutional functions that may help one group or hinder another can assist instructors to build cultural intelligence and create an inclusive classroom. Privilege, especially the concept of White privilege, is a highly contested concept within American culture because of the notion that America as a meritocratic society where everyone can be successful with enough hard work. In reality, hard work is not the issue. When looking at data on who participates in developmental education, tests lower on standardized achievement tests and is less likely to complete a degree the disproportionate representation of students of color, those from lower socioeconomic groups. Based on the argument of meritocracy, hard work and the proverbial pulling oneself up by bootstraps, those who are disproportionately represented in developmental education or do not successfully complete a degree could just not be working hard enough.

When looking at the same data through a lens that understands privilege the interpretation would be much different. A lens of privilege would acknowledge that there is unequal access to adequate education, housing, and employment opportunities. Students who come from poor school districts, whether rural or urban, are more likely to be underprepared for college level course work, not because they did not work or study hard but because they attended an underfunded school with inadequate resources. Many students in developmental education come from the poorest school districts where the majority of students qualify for free lunch and breakfast. Few students from middle and
upper socioeconomic groups participate in developmental education. Does this mean they are smarter or work harder, not necessarily. With increased financial resources, one tends have access to schools with better funding and resources, have opportunity for private tutors, and opportunity to prepare for standardized college entrance exams, or attend private schools. Understanding privilege may support instructors of developmental education to see the students in a lens based on resilience and persistence and not deficits. This can lead to interactions with students that validate their participation in postsecondary education.

Perceived levels of instructor cultural intelligence was a new variable introduced in examining student persistence. The findings of this study suggest that student perception of instructor cultural intelligence is a contributing factor to intent to persist. For this reason, one of the implications for practice is for instructors to examine their level of cultural intelligence and to consider how to continue to enhance and build upon current levels of cultural intelligence. Cultural intelligence is a measurable construct of one’s ability to be successful in cross-cultural experiences. With the demographics of the country changing and more students of color entering post-secondary institutions, it is imperative that instructors be able to develop successful cross-culture relations. In addition to the self-assessment of level of cultural intelligence, instructors can ask students and or colleagues to complete the observer cultural intelligence questionnaire, which provides feedback from peers and colleagues that can be compared to the self-assessment.

Irish and Scrubb (2012) suggest that instructors engage in critical self-analysis of cultural assumptions as the foundation of creating an inclusive learning environment for
all students. Taking the cultural intelligence assessment is one way to begin this journey of self-reflection. Irish and Scrubb (2012) also suggest that instructors that engage in activities designed to enhance their cultural understanding and capacity are more likely to be successful in creating an inclusive learning environment where students feel like they belong.

**Classroom practices**

Developmental education instructors may also want to reflect his/her actions and behaviors in classroom and assess if their current practices result in an inclusive learning environment for all students that is supportive and welcoming. Instructors can consider adopting some of the actions that this research suggests are supportive of students’ developing feelings of validation and a welcoming and inclusive classroom. Some instructor actions that may lead to students feeling validated includes:

- Learning about students-who are they, where do they come from, what are their goals
- Sharing his/her own journey through post-secondary education- can be inspiring if the instructor also had similar experiences as the students
- Connecting class content to real life experiences
- Having high expectations of all students and sharing that with them
- Making oneself available before or after class for student questions
- Showing in interest in students’ progress
- Checking in on students if they have missed class
- Providing students opportunities to share thoughts on how class is going- this can be done as part of a discussion or this can be done by handing out
note cards and asking the students to share what they have learned in class and what may not be clear. For students who are not comfortable asking questions in front of others this technique can provide them an opportunity and add to feeling cared about

**Leaders of Regional Campuses and Community Colleges**

The previous implications and suggestions for practice addressed instructors. This section contains several suggestions for deans and directors of regional campuses and community colleges. For those in positions to hire instructors, consider including questions in interviews that address philosophy on not only instructional methods but also on working with students with diverse backgrounds and or asking about past experiences with diverse students. Just as instructors are encouraged to state high expectations for students those who hire should also express high expectations of all faculty and staff of demonstrating cultural intelligence and the desire to nurture a welcoming and inclusive campus and classroom environment.

Deans and directors should consider offering workshops for all faculty and staff on cultural intelligence and provide the opportunity to take the self-assessment. Other topics can address implicit bias and privilege. Faculty and staff should receive support and training on best practices for teaching students in ways that help them feel like they belong not only in the academic classroom but also on post-secondary campuses. Deans and directors may consider recognizing faculty and staff who have been successful in enhancing student persistence. Two final thoughts related to practice, first those in leadership positions must emulate the behaviors that they encourage faculty and staff to demonstrate and second, solicit student opinions. Students are a tremendous resource.
Allow students to provide feedback related to instructor cultural intelligence and behaviors or actions that they found supportive along with those that may have felt unsupportive.

**Recommendations for Future Research**

This study was among the first to introduce the concept of Cultural Intelligence as a potential variable in student persistence to the post-secondary education literature. Although CQ alone did not make significant contributions, it was one of a combination of variables that generated statistically significant regression models in examining students’ intent to persist. The results of this study provide an array of future research topics. With more students enrolling in post-secondary education, who for a number of reasons are non-traditional, instructors are critical to a students’ decision to persist or drop out.

Increasing numbers of students who enroll in post-secondary education attend school part-time, live off campus, and have a myriad of external demands on top of school often means that the majority of students’ interaction within the post-secondary system is in the classroom. For these reasons, the role of the instructor at the classroom level warrants additional exploration; specifically the types of actions that contribute to students’ feelings of validation are warranted.

Classroom dynamics, driven by the instructor influence how students’ perceive themselves within the post-secondary education system. The ability to feel validated and a sense of belonging can be a turning point for any student but especially for those students who enter the system and are placed into developmental education. Students who test into developmental education often enter with other factors that put them in a
category of “at risk”. Having an instructor who can work with the students to help them recognize that they can succeed is important. Some of the examples of how this is accomplished are identified in the questions that address instructor classroom practices. This notion is supported by current and past research on student persistence that addressed student’s feelings of validation and students’ sense of belonging were very strongly related. Building on this body of knowledge compliments research being conducted on the types of programs that lead to increased persistence for students. Regardless of the model (boot camps, accelerated courses, etc.) there is still a human element. The next section identifies some ideas for future research.

In this study, there were collinearity issues between students’ feelings of validation and students’ sense of belonging, which may indicate that there needs to be some clarification on how each is defined. Additional research may determine if one is an antecedent to the other. In other words, through instructor classroom practices does a student develop feelings of validation and then a sense of belonging or through instructor classroom practices do students develop a sense of belonging and based on that feelings of validation? Does one have to feel validated before a sense of belonging develops?

Another direction for future research would be to redesign the instrument used in this survey using the results of the principle component analysis as well as adding variables that this survey did not address such as; parents level of education, socioeconomic status, high school class rank, and ACT/SAT test scores. For students who self-identified as non-traditional having an open-ended question asking them why she/he decided to enroll in post-secondary education could provide rich data.
When students’ perception of instructor cultural intelligence was added as an independent variable, it made a difference in female students’ intent to persist. Future research may be able to determine how cultural intelligence fits in with how instructors interact with students in classrooms and if those with higher cultural intelligence tend to employ classroom practices that lead to students’ feeling validated and like they belong. Future researchers may want to assess the instructor level of cultural intelligence the types of classroom practiced used and compare them with students’ perspectives to determine if the way instructors view themselves is in sync with how students see them.

This research focused only on classroom interactions with the faculty member. Future research can expand and include interactions with other institutional agents, like academic advisors, student services personnel, and other staff with which the student may also interact. Expanding the research to include interactions with others is aligned with Validation theory as institution staff members are also agents of the institution. For some students relating to the instructor may not be where she/he begins to develop feelings of validation or sense of belonging.

Other researchers can examine students’ perception of instructor cultural intelligence, students’ feelings of validation, students’ sense of belonging and instructor classroom practices across different levels of developmental education courses. Eventually, a cross campus study can be conducted to allow for comparing different disciplines. Data can be used to identify successful classroom practices across disciplines that can become best practices for contributing to student persistence and retention.
A final thought regarding future research is to add a piece to future research projects tied to student accountability. The focus of the current research is on instructors and the classroom it does not take into account how students’ behaviors and actions influence persistence. Some questions are: How many hours a week; How much time do you spend studying; How many classes do you miss a week; What is your level of engagement in class; and, Have you reached out to the instructor outside of class time, are just a few examples that would build a profile of the student and his/her contributions to persistence.

A final word

There are few researchers in the post-secondary field who would argue against the role that student entry characteristics, also referred to as external or environmental variables play in persistence and degree completion. The achievement gap is continuing to grow at all levels of education, primary through post-secondary. Data show that there are significant disparities among various groups (low income, first generation, limited English, people of color) and yet solutions that are generated by the largest and best funded research projects often focuses on various iterations of programs and ways to teach those in remedial courses and not how to change the systems that built the pathways to inequality. Until systemic external variables that create and feed the achievement gap are adequately addressed from a systematic, cultural, and social level, the need for developmental education will continue to grow. There is no single solution to high levels of developmental education and low persistence.
References


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http://www.cladea.net/white_paper_meaningful_access.pdf


Appendix A

Screen Shots of Questionnaire
Student Classroom Experience and Intent to Persist

There are 10 questions in this survey.

Part I, Instructor Classroom Behaviors

This first section contains 10 questions that ask about the behaviors of your instructor. There is no right or wrong answer. I am only interested in your experience. The scale is 1 for very strongly disagree to 7 if you very strongly agree.

Please choose the appropriate response for each item.

<table>
<thead>
<tr>
<th>Item</th>
<th>Very strongly disagree</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neither agree nor disagree</th>
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Part II, Sense of Validation

This section contains 13 questions and asks you to think about how you see yourself in class and on campus. Once again, 1 is very strongly disagree and 7 is very strongly agree.

Please choose the appropriate response for each item.

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<tr>
<th>Item</th>
<th>Very strongly disagree</th>
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Part III, Sense of Belonging

This section contains 7 questions. When responding think about how you feel when in class or on campus. Once again, 1 is very strongly disagree and 7 is very strongly agree.

Please choose the appropriate response for each item.

<table>
<thead>
<tr>
<th>Item</th>
<th>Very strongly disagree</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neither agree nor disagree</th>
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### Part IV: Intent to Persist

This section asks you to think about your intentions related to college. On a scale of 1-7 please indicate your level of agreement with each of the following statements (1 is very strongly unlikely and 7 is very strongly likely).

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very strongly disagree (1)</th>
<th>Strongly disagree (2)</th>
<th>Disagree (3)</th>
<th>Neither agree nor disagree (4)</th>
<th>Agree (5)</th>
<th>Strongly agree (6)</th>
<th>Very strongly agree (7)</th>
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<td>I am likely to return to Ohio State’s campus for spring semester, 2015</td>
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<td>I am likely to enroll in classes for spring semester, 2015</td>
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<td>I am likely to complete a degree at Ohio State’s campus in Columbus, OH</td>
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### Part V: Cultural Intelligence

This section of 12 questions asks you to think about yourself and your experiences with different cultures. There is no right or wrong answer. I am only interested in your perceptions. The scale is 1 for very strongly disagree to 7 if you very strongly agree.

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<th>Question</th>
<th>Very strongly disagree (1)</th>
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<td>1. I enjoy interacting with people who have a culture different from mine</td>
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<td>2. I am excited to experience different cultures</td>
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<td>3. I want to work with groups who are a variety of different cultural backgrounds</td>
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<td>4. I have knowledge of different cultures (domestic or international)</td>
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<td>5. I am aware of personal space when interacting across cultures</td>
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<td>6. I modify my body language when interacting with people whose culture is different from mine</td>
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<td>7. I change my speech pattern when I interact with people from different cultures</td>
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<td>8. I can describe similarities and differences of different cultures</td>
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<td>9. I can effectively address conflicts when they occur across cultures</td>
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<td>10. I know how to put people with different cultural backgrounds at ease</td>
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<td>11. I can see how other people’s culture influences their thoughts, feelings, and actions</td>
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### Part VI: Instructor CI

The next set of 12 questions ask you to think about your instructor (TOKENATTRIBUTE_3) and on what you have experienced or observed in the (TOKENATTRIBUTE_13) classroom setting. There is no right or wrong answer. Only your perception. The scale is 1 for very strongly disagree to 7 if you very strongly agree.

<table>
<thead>
<tr>
<th>Question</th>
<th>Very strongly disagree (1)</th>
<th>Strongly disagree (2)</th>
<th>Disagree (3)</th>
<th>Neither agree nor disagree (4)</th>
<th>Agree (5)</th>
<th>Strongly agree (6)</th>
<th>Very strongly agree (7)</th>
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<tr>
<td>12a. The instructor enjoys interacting with people who have a different culture from his/hers</td>
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<td>12b. The instructor is excited to experience different cultures</td>
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<td>12c. The instructor has knowledge about different cultures (domestic or international)</td>
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<td>12d. The instructor demonstrates awareness of personal space when interacting across cultures</td>
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<td>12e. The instructor modifies his/her body language when interacting with people whose culture is different from his/her</td>
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<td>12g. The instructor can effectively address conflicts that occur across cultures</td>
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<td>12h. The instructor knows how to put people with different cultural backgrounds at ease</td>
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<td>12i. The instructor is aware of his/her cultural assumptions when interacting with students from different cultures</td>
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<td>12j. The instructor is aware of how other people’s culture influences their thoughts, feelings, and actions</td>
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[Q9b. What is your marital status?]
Please choose only one of the following:
- Single
- Living with a spouse or partner
- Widowed
- Other, please describe: [ ]

[Q9a. How many people depend on you financially?]
Please write your answer here:
There are [ ] people who depend on me financially.

[Q9b. Are any of the people you are financially responsible for adults (i.e., 65 years old or older)?]
Only answer this question if the following conditions are met:
- Antwort yes greater than 0 if answer is "yes" for [Q9a. How many people depend on you financially?]
Please choose only one of the following:
- Yes
- No
159c. What is your relationship with the adult(s) for whom you are financially responsible?
Only answer this question if the following conditions are met:
Answer yes if any of the following apply: Are any of the people you are financially responsible for adults (18 years old or older)?
Please check all that apply:
☐ Sibling
☐ Cousin
☐ Parent
☐ Grandparent
☐ Guardian child 18 years old or older
☐ Aunt / Uncle
☐ Other: please describe

160. Do you consider yourself a traditional college student?
In the comment box provided, please share what makes you traditional or non-traditional.
Please choose only one of the following:
☐ Yes
☐ No
Make a comment on your choice here:

159b. Are you the first in your immediate family to attend college?
Please choose only one of the following:
☐ Yes
☐ No
Make a comment on your choice here:
Appendix B

Frequency Table of Respondents Age
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Appendix D

Principle Component Analysis
Figure 1 Principle Component Analysis Scree Plot
PCA Component 1 Factor loadings >.60 SSOB
I feel accepted as a person
I feel accepted as a capable student in this class
I feel a sense of belonging in this class
I see myself as part of the class community
I feel like the instructor believes in my abilities
I feel cared about by the instructor
I feel recognized by the instructor
The instructor makes me feel like I bring valuable ideas to the class
I feel that the instructor values my life experiences
The instructor seems to care genuinely about how I am doing
PCA Component 2 Factor loadings >.60 SPICQ
The instructor has knowledge about different cultures (domestic or international)
The instructor demonstrates awareness of personal space when interacting across cultures.
The instructor modifies his/her body language when interacting with people whose culture is different from his/hers.
The instructor changes his/her speech pattern when interacting with people from different cultures.
The instructor can describe similarities and differences of different cultures.
The instructor can effectively address conflicts that occur across cultures.
The instructor knows how to put people with different cultural background at ease.
The instructor is aware of his/her cultural assumptions when interacting with students from different cultures.
The instructor is aware of other people’s culture influences their thoughts, feelings and actions.

Study Summated Scale SSOB
I feel accepted as a person
I feel accepted as a capable student in this class
I feel a sense of belonging in this class
The instructor uses my name in conversation
I can generally express my honest opinion in this class
I feel a sense of belonging on OSU Newark/Mansfield campus.

Study Summated Scale SPICQ
The instructor enjoys interacting with people who have a different culture from his/hers
The instructor is excited to experience different cultures
The instructor prefers to work with students/groups who come from a variety of cultural background
The instructor has knowledge about different cultures (domestic or international)
The instructor demonstrates awareness of personal space when interacting across cultures.
The instructor modifies his/her body language when interacting with people whose culture is different from his/hers.
The instructor changes his/her speech pattern when interacting with people from different cultures.
The instructor can describe similarities and differences of different cultures.
The instructor can effectively address conflicts that occur across cultures.
The instructor knows how to put people with different cultural background at ease.
The instructor is aware of his/her cultural assumptions when interacting with students from different cultures.
The instructor is aware of other people’s culture influences their thoughts, feelings and actions.

Table 12 PCA and questionnaire prompts
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<th>PCA Component 3 Factor loadings &gt; .60 ICP</th>
<th>Study Summated Scale ICP</th>
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<td>The instructor gives me individual help when I need it</td>
<td>The instructor tries to make the class interesting</td>
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<tr>
<td>The instructor takes as long as needed to help me understand</td>
<td>The instructor has talked to me about my academic goals</td>
</tr>
<tr>
<td>The instructor interacts with me outside of class</td>
<td>The instructor interacts with me outside of class</td>
</tr>
<tr>
<td>The instructor provides the appropriate amount of feedback</td>
<td>The instructor provides the appropriate amount of feedback</td>
</tr>
<tr>
<td>The instructor has talked to me about my academic goals</td>
<td>The instructor has talked to me about my academic goals</td>
</tr>
<tr>
<td>It seems like the instructor really cares about whether I am learning</td>
<td>It seems like the instructor really cares about whether I am learning</td>
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<table>
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<td>I am certain that I can master the skills taught in this class</td>
<td>I can do a good job on all of my coursework</td>
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<tr>
<td>I can do a good job on all of my coursework</td>
<td>I am certain that I can do almost all of the work in this class if I do not give up</td>
</tr>
<tr>
<td>I am certain that I can do almost all of the work in this class if I do not give up</td>
<td>Even if the work in class is hard, I can learn it</td>
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<td>Even if the work in class is hard, I can learn it</td>
<td>I feel cared about by the instructor</td>
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<tr>
<td></td>
<td>I feel that the instructor values my life experiences</td>
</tr>
<tr>
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<td>I feel recognized by the instructor</td>
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<tr>
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<td>I feel like the instructor believes in my abilities</td>
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<td>The instructor encourages me to share my life experiences when they relate to class material.</td>
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<td>The instructor remembers my name</td>
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PCA Component 5 Factor loadings >.60
The instructor enjoys interacting with people who have a different culture from his/hers
The instructor encourages me to share my life experiences when they relate to class material

PCA Component 6 Factor loadings >.60
People of color are encouraged to contribute to class discussions
Women are encouraged to contribute to class discussions

PCA Component 7 Factor loadings >.60
Intent to return
Intent to enroll

PCA Component 8 Factor loadings >.60
Intent to complete degree at OSU Mansfield or OSU Newark
Intent to complete degree on Columbus Campus

The instructor makes me feel as though I bring valuable ideas to class
The instructor seems to care genuinely about how I am doing

Study Summated Scale SITP
Intent to return
Intent to enroll
Intent to complete degree at OSU Mansfield or OSU Newark
Intent to complete degree on Columbus Campus
**Rotated Component Matrix**

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<td>The instructor has talked to me about my academic goals</td>
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It seems like the instructor really cares about whether I am learning.
The instructor encourages me to openly share my views in class.
The instructor makes the class interesting.
The instructor encourages me to become involved on campus.
The instructor is accessible outside of the classroom.
I am certain that I can master the skills taught in this class.
I can do a good job on all of my coursework.
I am certain that I can do almost all of the work in this class.
Even if the work in this class is hard I can learn it.
The instructor remembers my name.
The instructor enjoys interacting with people with different cultural backgrounds.
The instructor encourages me to share my life experiences when appropriate in class.
The instructor prefers to work with students from different cultures.
The instructor values my personal family history in this class.
The instructor uses my name in conversation.
Appendix E

Student Responses to being Traditional or Non-traditional
Responses to Question 60 Do you consider yourself a traditional college student? Yes or No-What makes you traditional or non-traditional?

Self-identified as non-traditional:

- Because (sic) I don't do drugs or drink alcohol like everybody else in college does (Age 18)
- I come from a very poor family this makes it hard to be a "traditional" college student because of the implications that I have to face (Age 18)
- most (sic) students ive (sic) talked to don't work or don't work as many hours as me. i get off work at 12:30 and my drive is a half hour and then im up doing homework till 4 then up by 7 then at school till 3:40 and at work till 12:30 then do it all over again. (Age 19)
- I take care of myself I have no support from my family financially (Age 19)
- I am returning after a 10 year period. (Age 32)
- I have a 3 year old daughter and a husband, I go to school full time and work full time (Age 23)
- Started my education at a later time than right out of high school. (Age 25)
- i (sic)am not coming right out of high school and i have three children (Age 30)
- Im (sic) a mother of 2 (Age 26)
- I consider myself non-traditional because I don't enjoy being around large groups of people at parties, but I love the college experience so far in classes and on campus. (Age 20)
- No (sic) because I am a married working adult with a child. I have alot of responsibilities other than just school. (Age 29)
- Traditionally young people go off to live on campus and either have a job or do not have a job. I commute from home, I work at least 20 hours a week, and I travel a good bit of the year with my family. (Age 19)
- I have home cooked meals, classes are like high school classes, also I have my own room like back at home. (Age 18)

Self-identified as traditional

- I have a loan and I'm doing what I can with my week to week paycheck (Age 18)
- Im (sic) a full time student that commutes
- I come from home to go to school so I can complete my degree and dress normal like everyone. I work hard and do my best so I can succeed in a class.
- I may be traditional depending on your interpretation of "Traditional Student"
I am traditional because I went to college as soon as I graduated high school.
18 year old high school graduate.
Full-time and here to earn a degree.
I am a full time student without a job, I am financially dependent on my parents. I enrolled in college right out of high school and plan to earn my degree in four years.
Poor college student living off of his roommates blocks so I can pay the bills.
I live on campus which is normally what freshman students do and I am also a full-time student.
Going from high school right into college (young).
I am traditional because I went to a good high school and am planning on getting a four year degree as well as a career in my near future.
I am regular freshman like any other freshman.
Graduated high school in 2014.
I think I am a traditional college student because I went straight to college right after high school.
I go to school and work hard to get the things i want to accomplish done.
i share the same struggles with another student in college. worrying, stressin, etc.
I honestly have not the slightest iteration as to what traditional is supposed to mean in this context.
My sister is a freshmen at the university of mount Union we aren't twins
Swag
i commute and do my work like a typical college student.
I'm here for an education just like everyone else
Poor college student who is working to save money.