OXENDINE, DEREK, Ph.D. Examining the Impact of Education on Lumbee Identity: A Psychometric Analysis of the Multigroup Ethnic Identity Measure–Revised. (2016) Directed by Dr. Deborah J. Taub 106 pp.

The Multigroup Ethnic Identity Measure-Revised (MEIM–R; Phinney & Ong, 2007) has been used and validated with a number of ethnic groups. Unfortunately, no studies have examined the psychometric properties of the MEIM–R on an American Indian or Lumbee sample, and American Indians were not included in the sample during scale development. The MEIM–R was administered to 644 participants who culturally identified as Lumbee, regardless of their tribal enrollment status (citizenship). The purpose of this study was to investigate the reliability and validity of the MEIM–R with a Lumbee sample. In addition, this study also investigated the impact of education on Lumbee identity development as measured by the MEIM–R. A Confirmatory Factor Analysis (CFA) and reliability analysis was performed to determine the psychometric properties of the MEIM–R and model fit. The results of the CFA confirmed the *a priori* two-factor structure of the MEIM–R with a Lumbee sample. Additional analyses also demonstrated good internal consistency and provided evidence of convergent and discriminant validity. These findings are consistent with previous studies confirming the reliability and validity of the instrument. Lastly, although non-significant, this study did find evidence of a relationship between education and ethnic identity development.

EXAMINING THE IMPACT OF EDUCATION ON LUMBEE IDENTITY: A

PSYCHOMETRIC ANALYSIS OF THE MULTIGROUP

ETHNIC IDENTITY MEASURE–REVISED

by

Derek Oxendine

A Dissertation Submitted to
the Faculty of The Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Greensboro
2016

Approved by

Deborah J. Taub
Committee Chair

To my daughters, Sonata Kiona-Dayle and Aria Dawn-Margaret, "Deddy" finished writing his "book."

To my mother, Ginger Dayle Hunt, for leading by example—your perseverance and resiliency made me the man I am today.

To the Bald Man, this is for you "muh cousin."

APPROVAL PAGE

This dissertation, written by Derek Oxendine, has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

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February 3, 2016
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February 3, 2016
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ACKNOWLEDGMENTS

Two roads diverged in a wood, and I –
I took the one less traveled by,
And that has made all the difference.

~ Robert Frost

To be clear, this doctoral journal has not been about me. Numerous times I have

been asked why I moved back home to Robeson County and why I decided to commute

to complete my masters and doctoral studies. The answer is really simple. I wanted to be

home. I wanted to raise my daughters in the ancestral homeland of our tribal nation. I

wanted to give back to the community. I earned my undergraduate and two graduate

degrees, but I did not do that for me. I did it for those that came before me, for those

currently here with me, and for those who will come after me. I did it for the People. As

a man, a Lumbee man from Robeson County, I took the road less traveled by, but I did

not make this journey alone.

I want to thank my wife, Symphony Oxendine, for believing in me when I did not

believe in myself. You may have earned your doctorate first, but remember I got you

through statistics! Sonata and Aria, you two were by far the best distractions during this

journey. I am thankful the Creator blessed your mother and me with two beautiful,

loving, and caring daughters. To my family, friends, and fraternity brothers, thank you

for being supportive of this journey. I could not have done this without your love and

support.

I must also take a moment to recognize those that have been very influential along my educational journey. Agnes Chavis, Kathy Dae Locklear, Dr. Jo Ann Lowery, Rita Locklear, Dr. Letita Mason, Terri Houston, Dr. Marcus Collins, Dr. Denise Henning, Dr. Silvia Bettez, Dr. Jen Day Shaw, and Dr. Alfred Bryant; each of you have profoundly impacted my life and for that I am truly grateful.

To my homeboys and fraternity brothers Ian T. Stroud and Chad Pierce, y'all have helped me to become a better man. I greatly appreciate all the encouragement, trash talking, and laughter it took to get me through this journey.

Lastly, I would like to thank my committee, Drs. Deborah Taub, Brad Johnson, John Willse, and Stephanie Waterman. It was with your support and guidance that I was able to complete this study. I am honored to have you serve as committee members along this journey.

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CHAPTER I

INTRODUCTION

"What are you?" "You're an Indian? That is so cool!" "What is a Lumbee?"
"Can I see your Indian card?" "What is it like to live in a teepee on a reservation?" "You
sound country, where are you from?" "I did not know there were Indians in North
Carolina. I thought John Wayne killed all y'all." These are examples of a few
conversations that took place in college while attending the University of North Carolina
at Chapel Hill, a Non-Native College or University (NNCU). These experiences, along
with others, sparked a personal exploration of my Lumbee identity but also generated an
interest into the overall concept of ethnic identity.

I often wondered how my collegiate experience would have been different if I had
never left my tribal community and attended the University of North Carolina at
Pembroke (UNCP). Situated in Pembroke, NC, the capital of the Lumbee Tribe of North
Carolina, UNC Pembroke has a unique history, as it was founded to educate Lumbee
people in 1887. It still currently has a large enrollment of Lumbee students (UNCP, n.d.)
and has been designated as both a Native Serving Nontribal Institution (NSI; United
States Department of Education, 2014). Given UNCP's history within the Lumbee
community, almost half of the American Indian students enrolled annually in the
University of North Carolina system attend UNC Pembroke (University of North
Carolina, 2014). Eliades, Locklear, and Oxendine (2014) noted:

The University of North Carolina at Pembroke was originally established for the educational benefit of the Lumbee people of North Carolina. Since their contact with Europeans, the history of the Lumbees has been one of great struggle— struggle to establish a legal and political identity, gain an education, and acquire first-class citizenship. The history of the university is inseparable from that struggle and central to the success of the Lumbee people. The intertwined history of both the people and the institution is a story of success, often against great odds. To understand the history of the institution is to understand the history of the Lumbee. (p. 11)

According to Eliades et al. (2014), fighting for the rights to obtain an education in North Carolina became an important battle for Lumbee people in the 1870s. Public schools in North Carolina were established on a "separate but equal" basis, but the state legislature provided publics schools for Whites and Blacks, and none for Indians. Lumbees were not accepted into the White schools and refused to attend Black schools because they feared they would lose their status as Indians. To maintain a separate identity, Lumbees chose to attend poor-quality "Indian subscription schools" or not attend at all (Eliades et al., 2014, p. 15). Eventually, Lumbees were resolute in gaining their own school system in an effort to "establish a legal and political identity" (Eliades et al., 2014, p. 16) as they "realized that education and identity were essential for developing feelings of pride and dignity" (Eliades et al., 2014, p. 16). In 1885, legislation was passed by the General Assembly of North Carolina granting official tribal designation to Lumbees who came with a separate school system for Lumbees to control. Two years later in 1887, they were successful in petitioning for a normal school, which in time would become the University of North Carolina at Pembroke (Eliades et al., 2014; Lowery, 2010).

Statement of the Problem

The enrollment of American Indian/Alaskan Native students in higher education has steadily increased over several decades. During the fall of 1976, enrollment of American Indian/Alaskan Native students reached 76,100 (0.7% of total enrollment) whereas recently the enrollment of American Indian/Alaskan Native students reached 162,536 (0.8% of total enrollment) for fall 2013 (National Center for Education Statistics [NCES], 2014). Although the overall percentage of American Indian/ Alaskan Native students is small, there has been tremendous growth in this population pursuing a postsecondary education. However, American Indians have the lowest retention rates among college-going students (Hunt & Harrington, 2008). There is a significant amount of literature pertaining to the failures of American Indian students contributing to high attrition rates. However, recent literature has shifted from a deficit model to focus on the success of American Indian students in higher education (Shotton, Lowe, & Waterman, 2013). It is crucial to begin to understand how college influences American Indians and their identity development, so institutions and their tribal nations can be more equipped to better serve them.

Shotton et al. (2013) raise concern with American Indians being excluded from institutional data and reporting. Furthermore, American Indian students generally are not reported or discussed in findings of quantitative research primarily due to low sample sizes and seen as "statistically insignificant" (Faircloth & Tippeconnic, 2010, p. 7). This phenomenon has also been coined the "American Indian research asterisk" by Garland (2007) and Lowe (2005). The purpose of this study was to investigate the reliability and

validity of the Multigroup Ethnic Identity Measure-Revised (MEIM–R) with a Lumbee sample. In addition, this study sought to investigate the impact of education on Lumbee identity as measured by the MEIM–R.

Theoretical Framework

Horse (2001) proposes that for American Indians, identity development is directly related to relationships. There must be a relationship with family, extended family, kinship, or clanship that ultimately coalesces into a self-identity as an American Indian. Weaver (2001) introduces three facets of an Indigenous identity: self-identification, community identification, and external identification. In addition, Mihesuah (1998) also argues that Cross's Model of Nigrescence can be appropriately used to understand American Indian identity development. While these models focus on an overall larger Indigenous identity, they fail to capture identity formation rooted in a particular tribal nation. There are over 600 federal and state recognized tribal nations within the United States, with has its own culture, language, ceremonies, and customs. Given the diversity of American Indian culture, there is no single racial or ethnic identity model that has been developed for American Indians (Horse, 2001).

Lowery (2010) "tells the story of how the [Lumbee] have crafted an identity as a People, a race, a tribe, and a nation" (p. xii). Throughout her book, she argues that Lumbee identity is based on the facets of kinship, reciprocity, and relationship to land. I chose to use this model for several reasons. First and foremost, ". . . Indigenous knowledges and ways of arriving at such knowledge are context specific and rooted in the lived experiences of individuals and communities" (Brayboy, Fann, Castagno, & Solyom,

2012, p. 16). The use of this model and the sharing and attainment of new knowledge

gained by it, acknowledges the everyday existence and experiences of Lumbee people

within higher education. Secondly, Lowery's (2010) model contains the theoretical

components of Indigenous knowledge systems as defined by Brayboy et al. (2012):

> At the heart of Indigenous knowledge systems are notions of community and its concomitant survival; an understanding that lived experience is a very important form of knowledge (and subsequently informs theory); the importance of relationality; respect, and reciprocity; as well as recognition of the importance of place/space and land. In this paradigm, the survival of Indigenous community is more important than any individual. This is because individuals, through the continual process of self-discovery and selflessness, become whole; thereby ensuring community survival. (p. 16)

Finally, as a participatory researcher, I have claimed this model as the Lumbee

Indigenous knowledge system. By doing so, I hope this study informs a vision for nation

building between post-secondary institutions and the Lumbee Tribe of North Carolina, as

suggested by Brayboy et al. (2012). Through the use of Lowery's (2010) model, in future

research, I hope to validate her assumptions with empirical data and introduce a

conceptual framework that extends her model to include Lumbee dialect, sense of

belonging, and pride.

Purpose of the Study

There is a lack of quantitative research regarding American Indians in higher

education and how college impacts their identity development. Even further, the research

on Lumbee identity development is nonexistent. In fact, there are no quantitative

research studies that explore the impact of education on Lumbee identity development.

This current study sought to:

1. Contribute to the scholarship surrounding Lumbee and American Indian identity development.

2. Contribute to the scholarship surrounding American Indian students in higher education.

3. Provide higher education professionals and institutions (especially in North Carolina) with information to better serve Lumbee and other American Indian students.

4. Provide the Lumbee Tribe of North Carolina with information regarding its vital role as a tribal nation in advocating for and partnering with institutions to be supportive of its citizens pursuing higher education.

Significance of the Study

This study sought to further the work done by Phinney (1992) and Phinney and Ong (2007) in which the MEIM and MEIM–R were introduced to the psychological literature. The MEIM "incorporated key attitudinal and behavioral features of ethnic identity aspects" and is comprised of "14 self-report items that reflect feelings of affirmation and belonging, ethnic identity achievement, and ethnic behaviors" and was found to have a single-factor structure of ethnic identity (Lee & Yoo, 2004, pp. 263–265). Since its establishment, the MEIM (Phinney, 1992) has been a widely used instrument in the measurement of ethnic identity. Yet, a number of studies (Avery, Tonidandel, Thomas, Johnson, & Mack, 2007; Dandy, Durkin, McEvoy, Barber, & Houghton, 2008; Gaines et al., 2010; Roberts et al., 1999) have disagreed with the single-factor structure of the MEIM.

After further testing, Phinney and Ong (2007) confirmed that ethnic identity, as measured by the MEIM–R, consists of a correlated two-factor structure; exploration and commitment, which are separate constructs that contribute to the underlying structure of ethnic identity. Psychometric validations to examine the correlated two-factor structure of the MEIM–R have been conducted by Yoon (2011), Brown et al. (2014), and Chakawa, Butler, and Shapiro (2015)—all confirming the discriminant validity and reliability of the instrument. Unfortunately, no studies have examined the psychometric properties of the MEIM or the MEIM–R on an American Indian sample or an individual tribal nation. In addition, during scale development, Phinney's (1992) sample did not include American Indians. Brown et al. (2014) noted that MEIM–R evaluations have been limited by Phinney and Ong (2007) and Yoon (2011) due to the use of student only samples. Mirroring Brown et al. (2014) and Chakawa et al. (2015), this study used community samples to diversify age and educational ranges found in the Lumbee community.

Definition of Terms

The definitions of essential terms are provided to maintain continuity and understanding of their significance in this study. The following terminology will be used through this study:

American Indian. People who self-identify as Native American, American Indian, or Alaskan Native and maintain cultural identity to indigenous peoples of North America through membership in a North American Native American tribe recognized by state or federal government or through other tribal affiliation and community recognition

(Garrett & Pichette, 2000). The terms American Indian, Native American, Indian, Native, and Indigenous are used interchangeably throughout the document to refer to the same group.

Ethnicity. Ethnicity is socially constructed and has no clear definition. Ethnicity based on cultural characteristics, language, customs, traditions, and values (Helms, 2007).

Ethnic identity. The quality of an individual's affiliation with his or her ethnic group (Phinney & Ong, 2007).

Lumbee. A person who culturally identifies and/or legally identifies as a citizen of the Lumbee Tribe of North Carolina. The Lumbee are a sovereign nation located in their traditional homeland of Robeson and surrounding counties of North Carolina. For an historical account of the Lumbee, a review of Lowery (2010) is recommended.

Nation. Implies a specific combination of kinship, government, shared territory, worldview, and spiritual community (Champagne, 2008). Tribe or tribal nation will be used interchangeably to refer to the same concept.

Nation Building. The conscious and focused application of Indigenous people's collective resources, energies, and knowledge to the task of liberating and developing the psychic and physical space that is identified as their own (Brayboy et al., 2012). May also be referred to as tribal nation building or Native nation building.

Native Serving Institution (NSI). A designation granted by the United States Department of Education to an institution with a minimum of 10 percent American Indian undergraduate student enrollment and is not tribally controlled (United States Department of Education, 2014a).

Non-Native Colleges and Universities (NNCUs). NNCUs are used to describe those institutions that represent the predominately White population, typically used to describe predominately White institutions (PWIs; Shotton et al., 2013). Indigenous researchers use NNCU as a conscious effort to center our experience as Native people.

Research Questions

Specifically, the following research questions guided this study:

1. Are responses to the MEIM–R best described by a correlated two-factor structure?

2. What is the relationship between the factors of exploration and commitment as measured by the MEIM–R using a Lumbee sample?

3. How does ethnic identity as measured by the MEIM–R differ by educational level and institutional type using a Lumbee sample?

Researcher Standpoint

Before proceeding further, it is imperative that I disclose the standpoint I have as a researcher partaking in this study. Walter and Anderson (2013) caution researchers to identify their research standpoint and how it may impact or contribute to the research they produce. A researcher's standpoint is pre-existing and deeply influences their choice of theoretical frame and method. Standpoint is defined as "the philosophical tenets of epistemology, axiology, ontology . . . and social position" (Walter and Anderson, 2013, p. 46).

Tana'ke (hello)! I am Derek Ray Oxendine, an enrolled citizen of the Lumbee Tribe of North Carolina. I come from the Oxendine, Hunt, and Lee blood lines and was

born and raised in Back Swamp, a traditional Lumbee community located in Robeson

County, NC. Like most Lumbee people, I grew up in a small, rural farming community

consisting of my extended family, who has lived there for centuries. I went to Lumbee

community-based schools, the same schools as generations before me, and attended a

Lumbee church that my family helped establish by donating land and assisting with the

construction of the building.

Growing up in Robeson County around Lumbee people, I was never labeled as a

"minority." I assume this is due to Robeson County comprising a tri-racial make-up

(African American, American Indian, and White) with the largest population being

Lumbee. It was not until I left home to continue my education at an NNCU that I had my

first taste of being a minority. As a Lumbee tribal citizen who attended an NNCU, I

know first-hand the effects of being immersed into an environment completely different

than the one to which you are accustomed. I experienced racism, microaggressions,

challenges of speaking the Lumbee dialect, and much more while attending college. I

personally was able to be resilient and graduated while some of my peers dropped out.

My upbringing and collegiate experiences (along with the experiences of other

Lumbee students) led me to a career in higher education, to my research interest in

identity development, and to this study on Lumbee identity. I am often asked, "Why a

Ph.D.?" The answer is simple: Reciprocity, i.e., "giving back." My desire to obtain a

doctoral education is not selfish by any means. In fact, I am doing this for my People;

Lumbee people and other American Indians. My Nation and the larger American Indian

community need more Indigenous scholars and practitioners in higher education. Those

that came before me paved the way so I could have the opportunity to get an education. In return, I want to pay it forward and make sure those that come after me have better experiences than I did. This is why I am at this current place, as an emerging Lumbee scholar, and as a contemporary Lumbee warrior.

CHAPTER II

REVIEW OF THE LITERATURE

The enrollment of American Indian/Alaskan Native students in higher education has steadily increased over several decades. During the fall of 1976, enrollment of American Indian/Alaskan Native students reached 76,100 (0.7% of total enrollment) while recently the enrollment of American Indian/Alaskan Native students reached 162,536 (0.8% of total enrollment) for fall 2013 (NCES, 2014). Although the overall percentage of American Indian/Alaskan Native students is small, there has been tremendous growth within this population of those pursuing a postsecondary education. However, there has been a corresponding lack of research focusing on how college impacts American Indian identity development.

For consistency purposes, the term "American Indian" will be used throughout this chapter to refer to students whom the literature denotes as American Indian, Native American, Indian, Native, Alaskan Native, or First Nations, except when specific tribal affiliations are noted. This chapter will examine literature concerning the measurement of ethnic identity as well as a review of American Indian identity; and a brief historical overview of American Indian higher education.

Measuring Ethnic Identity

Erikson (1959, 1968) was the first person to explore psychosocial identity development in adolescents through adulthood. His eight stages of development are (a)

Basic Trust Versus Mistrust, (b) Autonomy Versus Shame and Doubt, (c) Initiative

Versus Guilt, (d) Industry Versus Inferiority, (e) Identity Versus Identify Diffusion

(Confusion), (f) Intimacy Versus Isolation, (g) Generativity Versus Stagnation, and (h)

Integrity Versus Despair (Evans, Forney, Guido, Patton, & Renn, 2010, pp. 49–51).

Marcia (1966, 1980) expanded upon Erikson's identity versus identity diffusion stage and

introduced four statuses to operationalize Erikson's theory. He categorizes individuals

into four statuses (foreclosure, moratorium, identity achievement, and diffusion) by two

aspects of identity formation (crisis/exploring and commitment; Yoon, 2011). Erikson

(1959, 1968) and Marcia (1966, 1980) are credited with inspiring researchers (Atkinson,

Morten, & Sue, 1983; Cross, 1978; Parham & Helms, 1981) who began to use their

literature on identity as frameworks for investigating ethnic and racial identity formation

of specific groups (Ong, Fuller-Rowell, & Phinney, 2010). However, Phinney (1990)

sought to further ethnic identity work:

> The most serious need in ethnic identity research is to devise reliable and valid
> measures of ethnic identity. To accomplish this, it is important to distinguish
> between general aspects of identity that apply across groups and specific aspects
> that distinguish groups. General measures would be valuable in addressing the
> important questions about ethnic identity that are raised by theory. (p. 510)

Deeply rooted in the work of Erikson (1959, 1968) and Marcia (1966), Phinney (1992)

constructed and validated a model appropriate for use on multiple ethnic groups that she

presented to the psychological literature as the Multigroup Ethnic Identity Measure

(MEIM).

The Multigroup Ethnic Identity Measure (MEIM)

The MEIM (Phinney, 1992) yielded good initial internal reliability during scale development with a Cronbach's alpha of .81 (high school sample) and .91 (college sample), and was intended for use with adults and adolescents from a variety of ethnic backgrounds (Lee & Yoo, 2004). The MEIM "incorporated key attitudinal and behavioral features of ethnic identity aspects and consisted of 14 self-report items that reflect feelings of affirmation and belonging, ethnic identity achievement, and ethnic behaviors" and was found to have a single-factor structure of ethnic identity through the use of exploratory factor analysis using principle-axis extraction (Lee & Yoo, 2004, p. 263). Since its establishment, the MEIM (Phinney, 1992) has been a widely used instrument in the measurement of ethnic identity. For example, a meta-analysis of 184 studies on ethnic identity found over 70% utilized the MEIM to measure ethnic identity (Smith & Silva, 2011) and a few revealed a comparable single-factor structure (Ponterotto, Gretchen, Utsey, Stracuzzi, & Saya, 2003; Reese, Vera, & Paikoff, 1998; Worrell, 2000).

Using exploratory and confirmatory factor analyses, Roberts et al. (1999) in their study of the MEIM consisting of participants ($n = 5423$) from diverse backgrounds, found after removing two items, the MEIM comprised two factors of ethnic identity: exploration and commitment. A comparable two-factor structure has been found by Avery et al. (2007), Dandy et al. (2008), Spencer, Icard, Harachi, Catalano, and Oxford (2000); and Yancey, Aneshensel, and Driscoll (2001). However, Juang and Nguyen (2010) found a three-factor structure in their use of the MEIM consisting of ethnic

engagement, clarity, and pride for their sample of Chinese-American youth. Lee and Yoo (2004) also found a three-factor structure consisting of exploration, clarity, and pride for their Asian American college student sample. Studying an ethnically diverse sample from the United Kingdom, Gaines et al. (2010) found a correlated three-factor model consisting of behavioral, cognitive, and affective facets of ethnic identity to be appropriate. In regards to the discrepancies, Phinney and Ong (2007) stated,

> . . . these findings may stem from the fact that most factor analytic evidence for the MEIM has been derived from exploratory factor analyses; the use of confirmatory factor analyses has been less common, and studies have not tested competing models. Thus, there remains disagreement over whether ethnic identity, as assessed by the MEIM, consists of a single-factor or of two or more factors. (p. 275)

However, the constructs of exploration and commitment were found to be consistent components of the MEIM (Phinney & Ong, 2007).

The Multigroup Ethnic Identity Measure—Revised (MEIM–R)

Further ethnic identity research consisting of interviews, focus groups, scale redesign using the 12-item MEIM (Roberts et al., 1999), and exploratory and confirmatory analyses over a two year period led to the MEIM–R (Phinney & Ong, 2007). The MEIM–R is a 6-item scale consisting of two correlated factors, exploration and commitment, which are separate constructs that contribute to the underlying structure of ethnic identity (Phinney & Ong, 2007). Fit indices were used to determine overall excellent fit of the model (e.g., $\chi^2/df = 1.91$, $p < .001$, AGFI = .96, CFI = .98, RMSEA = .04), thus validating the latent structure of ethnic identity. The correlation between the factors was .74, and reliability analyses showed good reliability: exploration (Cronbach's

alpha of .76), commitment (Cronbach's alpha of .78), and overall scale (Cronbach's alpha

of .81). Phinney and Ong (2007) concluded, "the MEIM–R provides a concise measure

of the core aspects of group identity that determine the strength and security of ethnic

identity or the degree to which ethnic identity has been achieved" (p. 278). Phinney and

Ong (2007) also endorsed using a total score of ethnic identity in addition to the factor

scores.

Three additional psychometric validation studies seeking to explore the factor

structure of the MEIM–R have been conducted by Brown et al. (2014), Chakawa et al.

(2015), and Yoon (2011). These studies, sought to examine the previous work of

Phinney and Ong (2007) by evaluating three theoretical models of the MEIM–R: a single

factor structure, an uncorrelated two-factor structure consisting of exploration and

commitment, and a correlated two-factor structure consisting of exploration and

commitment. Through the use of confirmatory factor analysis, fit indices were used to

determine overall fit of the model and validate the latent structure of ethnic identity.

Brown et al. (2014) found a correlated two-factor model best fit (e.g., χ^2_{SB} (df) = 68.99

(8), $p < .001$, SRMR = .03, CFI = .98, RMSEA [90% CI] = .07 [.06-.09], AIC =

20,391.31) their diverse sample ($n = 1463$). Chakawa et al. (2015) found a correlated

two-factor model had good fit (e.g. χ^2 (df) = 6.70 (8), $p = .57$, SRMR = .022, CFI = 1.00,

RMSEA = .00) in their sample ($n = 196$) of African American and European American

adults. Yoon (2011) found a correlated two-factor model had best fit (e.g., χ^2 (df) =

30.50 (8), $p > .05$, SRMR = .053, CFI = .98, RMSEA [90% CI] = .12 [.078-.17]) for

minorities ($n = 189$) and best fit (e.g., χ^2 (df) = 20.06 (8), $p > .05$, SRMR = .042, CFI =

.97, RMSEA [90% CI] = .12 [.056-.19]) for European Americans (*n* = 100). These studies also confirmed the reliability of the MEIM–R with internal consistency: exploration (Cronbach's alpha ranging from .76 to .91), commitment (Cronbach's alpha ranging from .78 to .91), and overall scale (Cronbach's alpha ranging from .81 to .89; Brown et al., 2014; Chakawa et al., 2015; Phinney & Ong, 2007; Yoon, 2011).

Additional Measures of Identity

Since the introduction of the MEIM (Phinney, 1992), additional scales of identity have been developed. Most of the instruments measure racial identity and were not appropriate for this study (Cross & Vandiver, 2001; Helms & Parham, 1996; Lee et al., 2007; Sellers, Rowley, Chavous, Shelton, & Smith, 1997; Vandiver, Cross, Worrell, & Fhagen-Smith, 2002) and therefore not considered. Outside of the MEIM–R (Phinney & Ong, 2007), the Ethnic Identity Scale (EIS; Umaña-Taylor, Yazedijian, & Bámaca-Gómez, 2004) is the only other ethnic identity instrument introduced to the literature. The EIS (Umaña-Taylor et al., 2004) was grounded in Tajfel's (1981) social identity theory, Erikson's (1968) ego identity formation, and Marcia's (1980) operationalization of Erikson's model (Umaña-Taylor et al., 2004, pp. 10–11). However, the EIS (Umaña-Taylor et al., 2004) has received serious criticism by Phinney and Ong (2007) and Ponterotto and Park-Taylor (2007), both questioning the factor analysis results of the EIS and negatively worded items which raise questions regarding method variance. Due to these criticisms, the use of the EIS was not considered for this study.

Summary

The MEIM (Phinney, 1992) and the MEIM–R (Phinney & Ong, 2007) are widely-used measures for use with adolescents and adults from diverse ethnic groups. Heeding Phinney's (1990) call to action, many have sought to validate the MEIM and MEIM–R as ethnic identity measures in regards to specific racial and ethnic groups. Use of the MEIM–R in ethnic identity research has been endorsed as a "best practice" by Ponterotto and Park-Taylor (2007) and Herrington (2014). Unfortunately, there are no studies that have examined the psychometric properties of the MEIM–R on an American Indian sample or a single tribal nation.

<center>**Theoretical Frameworks of American Indian Identity**</center>

This following provides an overview of the literature regarding American Indian identity.

Horse

Horse (2001) proposed that for American Indians, identity development is directly related to relationships. There must be a relationship with family, extended family, and kinship, or clan which ultimately coalesces into a self-identity as an American Indian. American Indian self-identity is rooted in knowledge of tribal creation and other stories and tribal language, if applicable, which is learned through the aforementioned relationships. Horse has taken Charles Reich's notions of consciousness in *The Greening of America* (1971) and introduced what he has coined *A Paradigm of Indian Identity*. Horse (2001) argues that one's American Indian self-identity informs one's

consciousness over time. The following, is his five-step model or what he calls a

paradigm to describe how American Indian consciousness is influenced:

1. How well one is grounded in the native language and culture;

2. Whether one's genealogical heritage as an American Indian is valid;

3. Whether one embraces a general philosophy or worldview that derives from

   distinctly American Indian ways, that is, old traditions;

4. The degree to which one thinks of him or herself in a certain way; that is,

   one's own idea of self as an American Indian person; and,

5. Whether one is officially recognized as a member of a tribe by the

   government of that tribe. (p. 100)

Horse (2001) included the political identity of American Indians in his paradigm but he

does not reference it as such. Later he argues that individuals do not validate themselves

as American Indians, that in fact tribal governments are the sole authority that can define

a person's political/legal status as American Indian (Horse, 2005).

Weaver

Weaver (2001) introduced three facets of Indigenous identity: self-identification,

community identification, and external identification. She noted that prior to European

contact, Indigenous people were able to conspicuously identify themselves from other

Indigenous people and that this practice still remains as many individuals choose to

identify as citizens of their tribal nations, instead of the overarching term Native

American or American Indian. Weaver argued that identifying via a tribal affiliation

leads into the assertion of one's self-identity. She also defined "identity" as "a

combination of self-identification and the perceptions of others" (p. 243). Therefore, self-identification as an Indigenous person is the first step in the process of developing an Indigenous identity. She also noted that whereas for some a cultural identity is synonymous with self-identity as an American Indian, and for others simply identifying as American Indian on governmental documents is enough.

Weaver's (2001) community identification is a direct contrast to self-identification. She argued that Indigenous identity is connected to people, or rather a sense of membership. Encompassed in this are traditions and ceremonies, spiritual connections to a physical place or homeland, and a shared history by a group of people. Not only does the individual have to be fully integrated into the community, one's ". . . identity can only be confirmed by others who share that same identity" (Weaver, 2001, p. 245). Even further, the sense of membership in a community is so intrinsically associated with self-identity that Indigenous people simultaneously identify with tribal affiliation and their tribal community. Weaver briefly mentioned the political/legal aspect of Indigenous identity through the process of tribal enrollment. How one is perceived within and outside of the American Indian community is directly link to enrollment or non-enrollment in a tribe.

Externally, Indigenous identity has been defined by a non-Native lens via the United States government, which has put into practice measures for authenticity (Weaver, 2001). One such example is the Federal Acknowledgement Process regulated by the Bureau of Indian Affairs, which determines if a tribe meets the criteria for federal recognition. Much like an individual has to be granted membership from a tribal

government, the Bureau of Indian Affairs acknowledges (or terminates) tribal nation status, which insures their political/legal status as a sovereign entity. Lacking recognition or having partial recognition (political status without a trust relationship) also influences how other tribal nations (with full recognition) and non-Native entities view the identity and authenticity of tribal nations (and its citizens) that do not have a relationship with the Bureau of Indian Affairs (Weaver, 2001).

Summary

There exists a tremendous gap in the literature regarding education and how it impacts American Indian identity development. In addition to the previously presented theoretical frameworks, Winters (2012) introduced a framework regarding the identity development of American Indian college students. However, an in depth review of his model is not provided due to its limited applicability to all American Indian college students, as it is only pertinent for traditional age students transitioning from an Indian reservation to a PWI. Lastly, while these theoretical models focus on an overall larger Indigenous identity, they fail to capture identity formation rooted in a particular tribal nation.

Overview of American Indian Higher Education

In an effort to fully comprehend American Indian college students, the historical association of education and American Indian people in the United States must be explored. American Indians have almost a four century long history of attendance at institutions of higher learning in the United States. Carney (1999) described the history of American Indian higher education as comprising a colonial, federal, and self-

determination eras. Prior to the formation of the United States, three of the original nine colonial colleges sought out to provide an education for American Indians. Harvard University, the College of William and Mary, and Dartmouth College failed to fulfill their mission as 47 American Indians enrolled at these schools, producing only four graduates (McClellan, Tippeconnic Fox, & Lowe, 2005).

A trustee relationship between tribes and the United States government can best sum up the federal era of American Indian higher education. During the first century of the United States's existence, almost 100 treaties were signed with tribes. For the exchange of tribal lands, the United States government would become responsible for the education of American Indians. Pewewardy and Frey (2004) describe this responsibility as an effort to civilize and de-culturalize American Indians through the obliteration of tribal cultures and languages. The goal of the federal era was to provide vocational education, promote assimilation and Christianize American Indians (McClellan et al., 2005). During this time period, the Croatan Normal School was founded in 1887 by Lumbees to educate Lumbee people. It would remain the only state supported school for American Indians until Whites began being admitted in 1953 (Eliades et al., 2014).

The self-determination era can roughly be pinpointed to the passage of the Indian Reorganization Act of 1934. The Indian Reorganization Act of 1934 affirmed tribal sovereignty and triggered the concept of self-determination. It was during this era that the first designated scholarship funds for American Indians were developed, however just like the federal era, vocational education was highly prioritized. Following on the tails of the civil-rights movement, a multi-decade series of legislation brought about the most

significant changes for American Indian higher education. This resulted in American Indians enforcing their inherent right of self-education which led to the passage of the Indian Education Act (1972), the Indian Self-Determination Act (1975), the Tribally Controlled Community College Act (1978) and the amendment of the Morrill Act (1994) to include tribal colleges and universities.

Conclusion

To know where we are headed, we must know from whence we came. Understanding the history of Indigenous peoples of this country and how that history has been intertwined with policies and practices of the United States government is crucial in comprehending the current state of American Indian higher education. For centuries, education was used as the vehicle to obliterate Indigenous knowledge systems by assimilating and marginalizing American Indian people. Deyhle and Swisher (1997) argued that American Indians are the least-studied group in higher education. When American Indians are studied, they run the risk of falling prey to the American Indian research asterisk. The lack of research and the asterisk are examples of how education is still being used as a means to marginalize Indigenous people today (Shotton et al., 2013). There is a lack of literature concerning identity development of American Indians and how education impacts that process. The next chapter presents the methodology used in this study.

CHAPTER III

METHODOLOGY

This chapter presents the research questions, research design, study population, data collection procedures, instrumentation, and data analyses that served as the basis for this study. The primary purpose of this study was to investigate the reliability and validity of the Multigroup Ethnic Identity Measure-Revised (MEIM–R) with a Lumbee sample. In addition, this study also sought to investigate the impact of education on Lumbee identity as measured by the MEIM–R.

Research Questions and Hypotheses

The following research questions and hypotheses guided this study:

1. Are responses to the MEIM–R best described by a correlated two-factor structure?

    H_0: There will be no significant difference in data fit between the correlated two-factor, uncorrelated two-factor, and single-factor structure of ethnic identity.

    H_1: The correlated two-factor structure of ethnic identity will fit the data significantly better than a single-factor or uncorrelated two-factor structure.

2. What is the relationship between the factors of exploration and commitment as measured by the MEIM–R using a Lumbee sample?

H_0: There is no relationship between the factors of exploration and commitment.

H_1: There is a relationship between the factors of exploration and commitment.

3. How does ethnic identity as measured by the MEIM–R differ by educational level and institutional type using a Lumbee sample?

H_0: There are no statistically significant mean differences in ethnic identity when comparing educational level and institutional type.

H_1: There are statistically significant mean differences in ethnic identity when comparing educational level and institutional type.

Research Design

This study employed a quantitative cross-sectional research design using a survey (see Appendices C and E) instrument that includes the MEIM–R and a series of demographic questions. A quantitative research design was chosen to determine if data collected from a Lumbee sample would fit the *a priori* correlated two-factor structure of the MEIM–R introduced by Phinney and Ong (2007) and confirmed by Brown et al. (2014), Chakawa et al. (2015), and Yoon (2011).

Study Population

Participants for this study were recruited from the Lumbee Tribe of North Carolina. Any person aged 18 or older who culturally identified and/or legally identified as a citizen of the Lumbee Tribe of North Carolina was eligible to participate. The Lumbee Tribe of North Carolina was chosen because of the researcher's interests, its

large size as a tribal nation, and its proximity to the researcher. The researcher received

support from the Education Committee of the Lumbee Tribal Council (see Appendix A).

This study employed the use of structural equation modeling and used maximum

likelihood estimation and tests of model fit, both of which are based on the assumption of

large samples (Brown, 2006; Holye, 2012; Kelloway, 1998; Kline, 2011; Schumacker &

Lomax, 2010). In maximum likelihood estimation, the $N{:}q$ rule (Jackson, 2003) requires

a minimum sample of observances (N) to the number of estimated parameters (q). For

this study, the *a priori* correlated two-factor structure contained 13 parameters. Using

Kline's (2011) suggested ratio of 20:1 as a best practice for sample size-to-parameters

ratio, the minimum sample size needed for this study was 260 participants. Due to the

large population of Lumbee tribal citizens (63,000+), most of who live within tribal

territory in North Carolina, the researcher was able to obtain 644 participants for the

study.

Data Collection Procedures

This study utilized a convenience sampling method (Rea & Parker, 1997;

Wiersma, 2000) in an attempt to maximize participation. To intentionally draw a cross-

section of tribal citizens, participants were recruited both online and in person. A script

(see Appendix B) recruiting for the online survey (see Appendix C) was publicly posted

through the use of Facebook, a social media site. It included the purpose of the study and

the online link to participate in the survey. Participants were also recruited in person (see

Appendix D) on the last day of Lumbee Homecoming, the summer festivities of the

Lumbee Tribe of North Carolina. This day consisted of a parade, a car show, tribal

dances, a fireworks show, a 5K Run/Walk, a gospel concert, and a tribal princess meet and greet. These events were open to the public and took place in the town of Pembroke, NC, capital of the Lumbee Tribe of North Carolina. The online survey was promoted, but paper copies of the survey were distributed if requested (see Appendix E).

The introduction of the online survey included the informed consent document confirming the study was approved through the UNCG Institutional Review Board (see Appendix F). For the online survey, the consent form was provided to participants both electronically and in a printed version for record keeping, and a hard copy of the consent form was provided to participants who completed the paper survey. The online participants provided consent by clicking out of the introduction and on to the first survey question. Since this study met the criteria for a waiver of signed consent, signed consent forms (see Appendix G) were not requested from participants that completed the paper survey.

Information from participants was collected via the UNCG Qualtrics system and paper surveys. No personally identifiable information was collected. The Qualtrics survey was set to not collect IP addresses, leaving responses anonymous and secured by high-end firewall systems. There were three layers of protection (locked spaces) to secure the paper surveys. Incentives were offered to interested participants. Upon completion of the online survey, participants were directed to a new website containing a "Thank You" message and a separate survey that collected contact information. Participants who completed paper surveys were provided a script (see Appendix H) on

how to enter the drawing online. If completed, this entered participants into a drawing of one of four $50.00 gift cards of their choosing.

Participants

Six hundred forty-four participants completed the study. The majority of the participants identified as Lumbee only (81.7%), with the rest identifying as Lumbee and another tribe (7.3%), or Lumbee and another ethnicity (11.0%; see Table 1).

Table 1

Participant Ethnicity by Frequency and Percentage ($n = 644$)

Ethnicity	n	$\%$
Lumbee alone	526	81.7
Lumbee and another tribe	47	7.3
Lumbee and another ethnicity	71	11.0

Four hundred thirty-six women (67.7%) and 208 men (32.3%; see Table 2) participated in the study. The age range of the participants was almost evenly distributed, with the mean age of participants being 26–35 ($M = 2.8$; see Table 3). A majority of the participants also reported growing up within Lumbee territory (81.4%; see Table 4).

Table 2

Participant Gender by Frequency and Percentage ($n = 644$)

Gender	n	$\%$
Male	208	32.3
Female	436	67.7

Table 3

Participant Age by Frequency and Percentage (*n* = 644)

Age	*n*	*%*
18–25	120	18.6
26–35	143	22.2
36–45	145	22.5
46–55	103	16.0
56+	81	12.6
Missing	52	08.1

Table 4

Participant Place Where Raised by Frequency and Percentage (*n* = 644)

Place Where Raised	*n*	*%*
Lumbee Territory	524	81.4
Non-Territory	120	18.6

Instrumentation

Multigroup Ethnic Identity Measure–Revised (MEIM–R)

Ethnic identity was measured using the MEIM–R (Phinney & Ong, 2007) which

is a revision of the MEIM (Phinney, 1992). The MEIM–R consists of six closed-ended

items that assess two factors: exploration (Items 1, 4, and 5) and commitment (Items 2, 3,

and 6). Participants responded using a 5-point Likert scale (1 = Strongly Disagree to 5 =

Strongly Agree). Sample items include "I have a strong sense of belonging to my own

ethnic group" (commitment) and "I have often done things to help me understand my

ethnic background better" (exploration). Prior studies have confirmed a correlated two-factor structure and good reliability with internal consistency: exploration (Cronbach's alpha ranging from .76 to .91), commitment (Cronbach's alpha ranging from .78 to .91), and overall scale (Cronbach's alpha ranging from .81 to .89; Brown et al., 2014; Chakawa et al., 2015; Phinney & Ong, 2007; Yoon, 2011). The researcher received permission for the use of this scale (see Appendix I). The following Cronbach's alpha scores were constructed from this study: MEIM–R ($\alpha = .88$), exploration ($\alpha = .80$), and commitment ($\alpha = .86$).

Demographic and Additional Items

In addition to the MEIM–R, the researcher added demographic items (see Appendices C and E). Several of these items were used as grouping variables (educational level, institutional type, etc.) to examine differences in ethnic identity as measured by the MEIM–R. Phinney and Ong (2007) note the MEIM–R does not encompass all aspects of ethnic identity for specific groups of people and suggest "studies of ethnic identity should include additional measures for other aspects of ethnic identity" (p. 278). As such, the researcher added items pertaining to Lowery's (2010) model (i.e.g, the Lumbee dialect, sense of belonging, and pride) as an informally-developed scale of Lumbee identity for ancillary research. Through future investigation, the researcher will explore to see if these ideas can be quantified.

Data Analysis

To test the null hypothesis for research question one, a Confirmatory Factor Analysis (CFA) was estimated using maximum likelihood estimation in LISREL 9.2

(Jöreskog & Sörbrom, 2015) to investigate model fit of three theoretical models of the

MEIM–R previously presented in the literature (Brown et al., 2014; Chakawa et al.,

2015; Phinney & Ong, 2007; Yoon, 2011). These theoretical models are a single-factor

structure, an uncorrelated two-factor structure, and the *a priori* correlated two-factor

structure. Confirmatory Factor Analysis (CFA) is a special case of structural equation

modeling technique that "deals specifically with measurement models, that is, the

relationships between observed measures . . . and latent variables or 'factors'" (Hoyle,

2012, p. 361).

Four fit indices were used to evaluate the three theoretical models to the observed

data. Recommended by Kline (2011), the following fit indices were used to evaluate

goodness of fit: the model chi-square (χ^2_M), the Steiger-Lind root mean square error of

approximation (RMSEA; Steiger, 1990), Bentler Comparative Fit Index (CFI; Bentler,

1990), and the Standardized Root Mean Square residual (SRMR). The model-chi square

is a test to determine if there are differences between the observed covariance matrix and

the covariance matrix predicted by the model. However, the chi-square statistic is known

to be sensitive to sample size, so other indicators of model fit were examined. The

RMSEA is a badness-of-fit index and Kline (2011) suggests best fit is indicated by values

of zero, good fit indicated by values at or below 0.05, and moderately good fit indicated

by values of .08 or below. The CFI is an incremental fit index and Kline (2011) suggests

a cutoff of CFI ≥ .95 for acceptable fit. The SRMR is a value that represents the mean

correlation residual and Kline (2011) suggests a score of less than 0.08 for acceptable

model fit. In addition, the standardized residuals and the standardized factor loadings

were evaluated as they provided additional information about model fit (Brown, 2006; Hoyle, 2012; Kline, 2011). Standardized residuals should be low, thus providing evidence of little to no deviation of the covariance matrix of the model to the observed covariance matrix. Brown (2006) suggests a cutoff of 2.58 as a guideline for model fit. Standardized factor loadings for each item should be high and similar in magnitude for each factor, thus providing evidence of convergent validity.

The three theoretical models previously presented in the literature (Brown et al., 2014; Chakawa et al., 2015; Phinney & Ong, 2007; Yoon, 2011) are nested, meaning one is a proper subset of the other. The chi-square difference (χ_D^2) test is used to test hypotheses about nested models with the same data (Kline, 2011). The chi-square difference (χ_D^2) test can be used to determine if there is a significant difference regarding goodness of fit between two different models. The chi-square difference (χ_D^2) test and its degrees of freedom (df_D) in fact, is the difference between the model chi-square (χ_M^2) and the degrees of freedom (df_M) of two nested models (Kline, 2011), that ultimately should find a parsimonious (simplest) model with good data fit.

A psychometric analysis of the MEIM–R was conducted via SPSS 21.0 (IBM Corp., 2012) to test the null hypothesis of research question two. In addition to examining the standardized factor loadings for convergent validity, a correlation coefficient was used to evaluate discriminant validity among the factors of the instrument. Discriminant validity is demonstrated by results showing theoretical constructs are distinctive and not correlated too highly (Brown, 2006; Harrington, 2009).

Cronbach's (1951) alpha reliability coefficient was used to establish reliability of the overall scale and each factor.

Lastly, an inferential analysis was used to test the null hypothesis of research question three. A series of one-way and two-way Analysis of Variances (ANOVA) conducted via SPSS 21.0 (IBM Corp., 2012), were used to examine if there are significant mean group differences regarding ethnic identity by educational level and institutional type.

CHAPTER IV

RESULTS

The findings of the study are reported in this chapter. First, preliminary analyses are reported, which provide an overview of the data collected. Then, the results of the analyses for each of the three research questions are presented.

Preliminary Analyses

Data Screening

Following the recommendations of Kline (2011), responses from the survey were screened to ensure no violations of the following Confirmatory Factor Analysis assumptions: accuracy of data entry, missing data, univariate and multivariate normality, and univariate and multivariate outliers.

Accuracy of data entry. The information from respondents was collected through an online survey powered by Qualtrics ($n = 449$) and paper surveys ($n = 195$). The data from the paper surveys were converted electronically by recording the information into the online survey. The data were exported from Qualtrics into Microsoft Excel for data inspection and cleaning. The data were then imported into SPSS 21.0 (IBM Corp., 2012) and inspected for errors that may have occurred during this process.

Missing data. A total of 702 participants consented to participate in the study. A thorough review of the raw data indicated that missing data were the result of incomplete surveys. Nineteen people did not meet the requirements to participate in the study, after

identifying they were not a citizen of the Lumbee Tribe of North Carolina. An additional

26 participants chose to answer only the demographic questions, and they were removed

from the study by the researcher. This left a total of 657 completed surveys.

Univariate and multivariate outliers. To determine if there was a violation of

the assumption of univariate and multivariate outliers, box plots, z-scores, and

Mahalanobis distance statistics were utilized (Kline, 2011). Figure 1 illustrates the box

plot on the analyzed data and provides a visual representation of the univariate outliers.

Kline (2011) recommends using the absolute value z-score > 3 as an indicator of

univariate outliers. Further analysis of the data revealed 13 univariate outliers with

absolute value z-sores ranging from 3.44 to 4.07. These scores were excluded from

further analyses and removed from the data set resulting in a study sample of 644 cases.

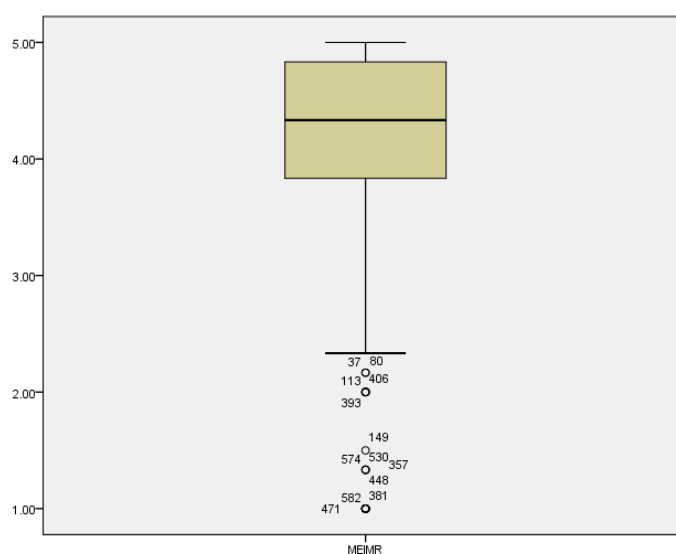Mahalnobis distance statistics were calculated; no multivariate outliers were found.

Figure 1. Box Plot of Multigroup Ethnic Identity Measure-Revised.

Univariate and multivariate normality. To determine if there was a violation of the assumption of univariate and multivariate normality, histograms, Q-Q plots, and the skew index (SI) and kurtosis index (KI) were utilized (Kline, 2011). Figure 2 illustrates the histogram for the analyzed data, and Figure 3 shows the Q-Q plot ran on the same data. The data presented in Figure 2 is non-symmetrical with a clustering of scores in the center and a clustering of scores on the high-end on the right side, all indicative of negative skewness (Howell, 2012). The curve is also leptokurtic (Howell, 2012). The data are distinctively displaying a ceiling effect, meaning a large portion of the data at or near the upper limit of potential scores (Vogt, 2005). Figure 3 provides further evidence that the obtained data from the sample is slightly non-normal. If the distribution were completely normal, the plot would form a straight line at a 45 degree angle (Howell, 2012). The SI and KI were calculated to be -0.908 and 0.755 respectively, indicating negative skewness and positive kurtosis. However, due to the large sample size, there could be issues interpreting these values, and Kline (2011) suggests using the absolute values of the SI and KI. Using this method, the absolute values of the SI and KI calculated from the obtained data fall within acceptable parameters of $SI < 3.0$ and $KI < 10.0$ and do not indicate a significant departure from normality that would warrant variable transformation (Kline, 2011).
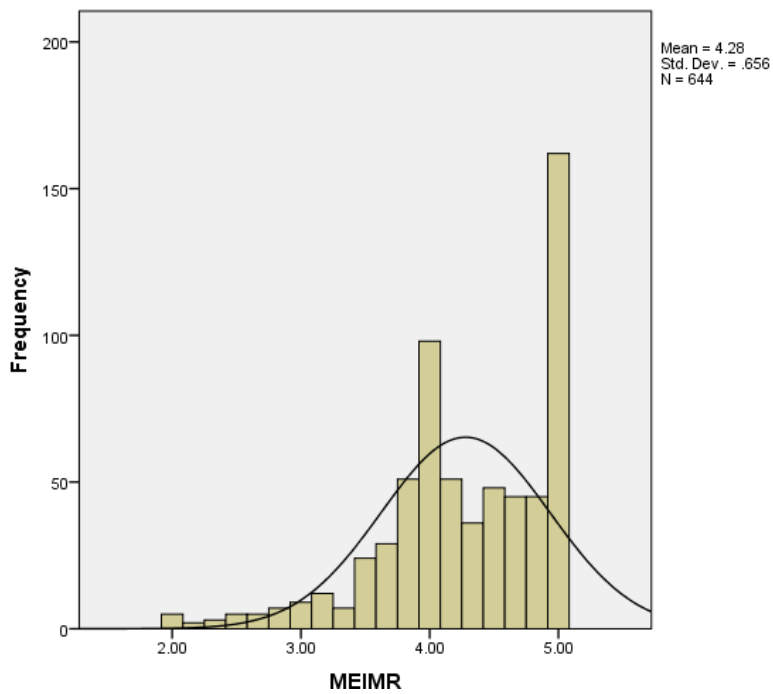
Figure 2. Histogram of Multigroup Ethnic Identity Measure-Revised.
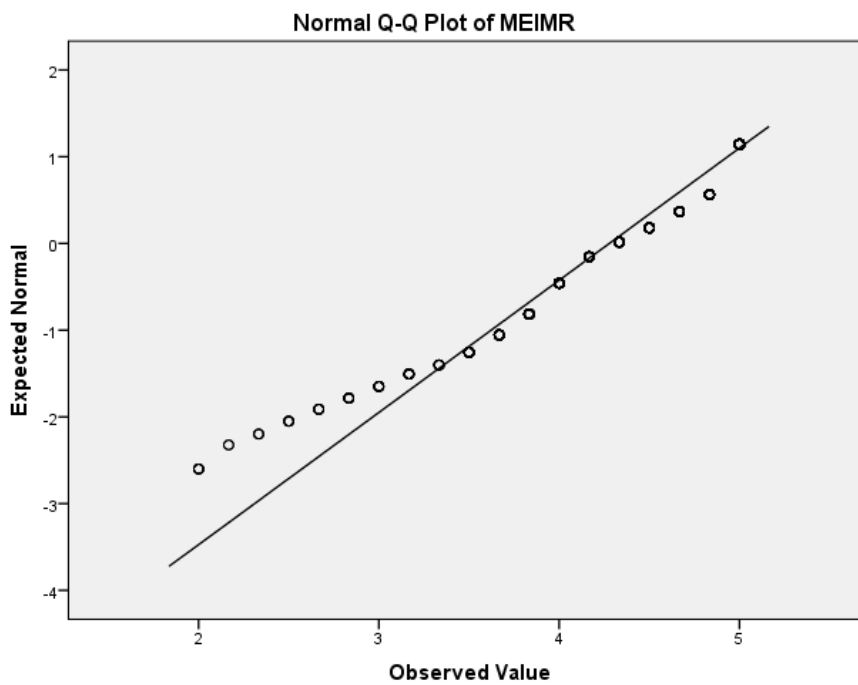
Figure 3. Normal Q-Q Plot of Multigroup Ethnic Identity Measure-Revised.

Linearity. To determine if there was a violation of the assumption of linearity a scatterplot of the Multigroup Ethnic Identity Measure-Revised (MEIM–R) subscales exploration and commitment were reviewed. Even though there is considerable spread of the data and a small slope, there is a positive linear relationship between the constructs of exploration and commitment. The scatterplot in Figure 4 shows there is considerable variation around the regression line. The R^2 value of .479 indicates that 47.9% of the variance in commitment can be explained by exploration. The correlation coefficient (r) is .69, indicating a strong correlation between exploration and commitment (Cohen, 1988).
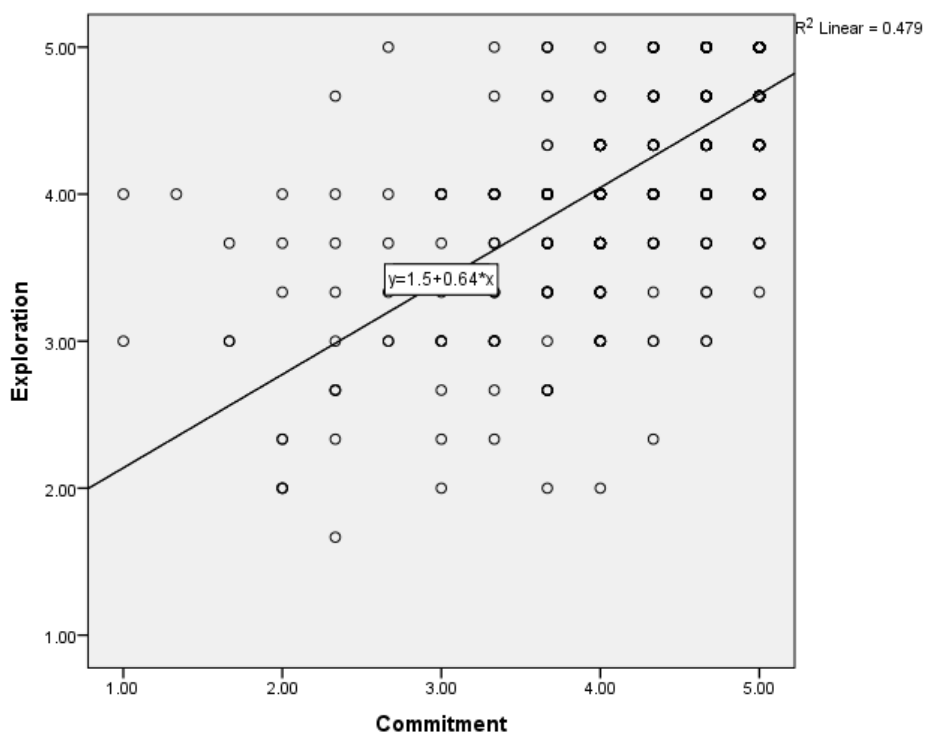
Figure 4. Scatterplot and Accompanying Regression Line for Exploration and Commitment.

Collinearity. To determine if there was enough multicollinearity to cause a problem, the Variance Inflation Factor (VIF) was utilized as suggested by Kline (2011). Collinearity occurs when variables are highly correlated and therefore become redundant (Howell, 2012). The VIF quantifies the level of correlation between variables with higher VIF scores suggesting a stronger correlation between variables. Kline (2011) suggests a VIF > 10.0 is problematic and is indicative of redundancy between variables; therefore, lower values of VIF are desired. All the VIF values between the six variables fell within acceptable ranges as they ranged from 1.547 to 2.856.

Descriptive Statistics

Means, standard deviations, and Cronbach's alphas (see Table 5) were calculated for the MEIM–R and subscales.

Table 5

Means, Standard Deviations, and Cronbach's Alphas for the MEIM–R and Subscales

Scale	*M*	*SD*	*α*
Multigroup Ethnic Identity Measure-Revised (6 items)	4.28	.66	.88
Subscale			
Exploration (3 items)	4.24	.68	.80
Commitment (3 items)	4.31	.74	.86

Research Questions

Research Question 1: *Are responses to the MEIM–R best described by a correlated two-factor structure*?

To test the null hypothesis for research question one, three Confirmatory Factor Analyses were conducted using maximum likelihood estimation in LISREL 9.2 (Jöreskog & Sörbrom, 2015) to investigate model fit of three theoretical models of the MEIM–R. These theoretical models are a single-factor structure, an uncorrelated two-factor structure, and the *a priori* correlated two-factor structure; all previously tested by Brown et al. (2014), Chakawa et al. (2015); Phinney and Ong (2007) and Yoon (2011). A total of 644 responses providing data on the MEIM–R and its two factors, exploration and commitment, were utilized for the analysis. Each construct consists of three items; therefore, six manifest variables were measured. The correlations and standard deviations for the six items are presented in Table 6.

Table 6

Correlations and Standard Deviations

	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6
Item 1	1					
Item 2	.489	1				
Item 3	.441	.678	1			
Item 4	.521	.448	.517	1		
Item 5	.574	.516	.541	.648	1	
Item 6	.492	.726	.639	.569	.654	1
SD	.8396	.8701	.8085	.8322	.7427	.8335

Unit Loading Identification (ULI) constraints set to 1.0 was utilized to scale each factor for all analyses. Throughout the analyses, each factor had at least three indicators

thus identifying the CFA models. Path diagrams describing the hypothesized one-factor structure (Measurement Model 1) are presented in Figure 5, the uncorrelated two-factor structure (Measurement Model 2) in Figure 6, and the correlated two-factor structure (Measurement Model 3) in Figure 7. All models were run based off the observed data of the current study.
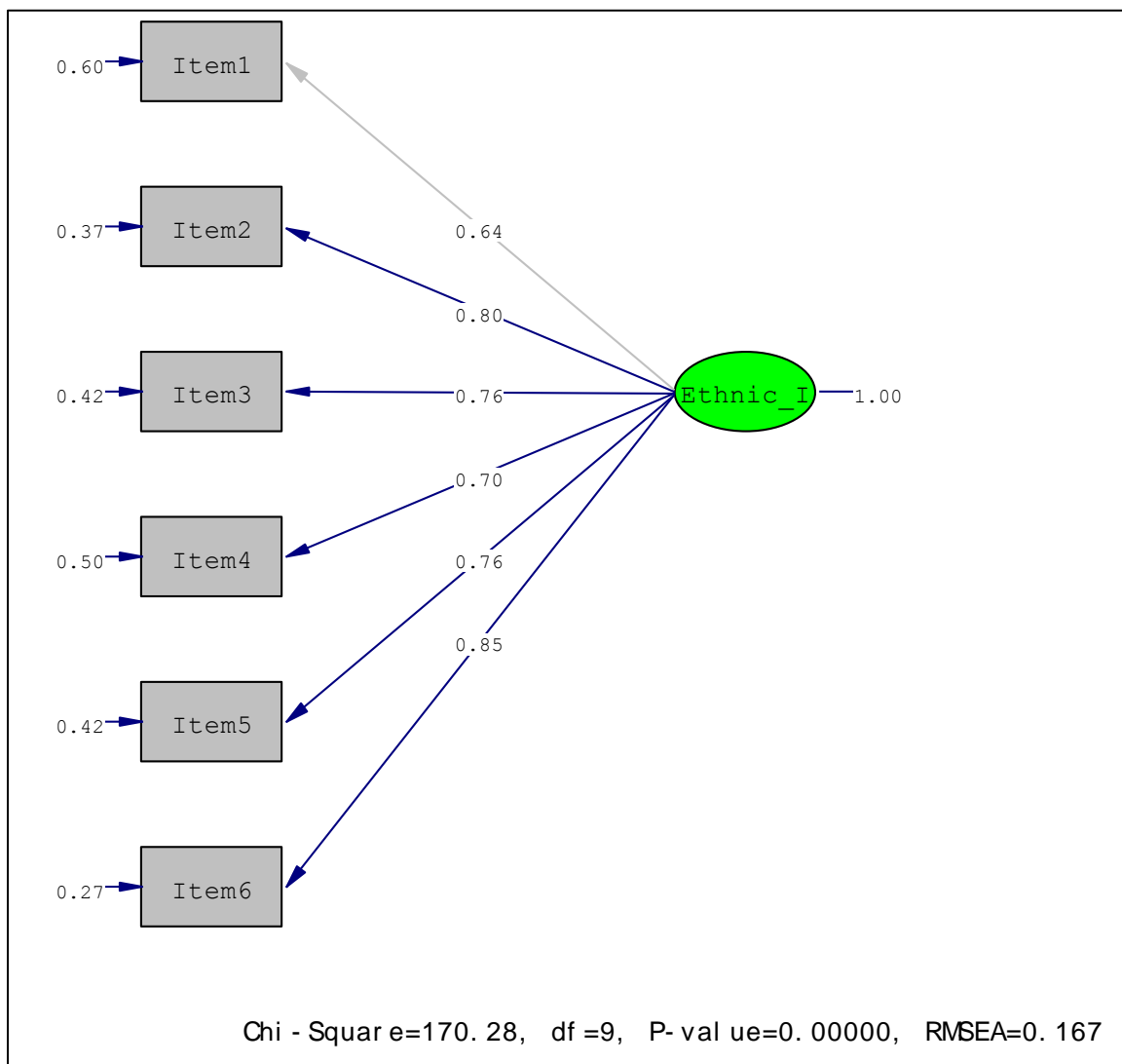
Figure 5. Path Diagram and Measurement Estimates for Measurement Model 1.
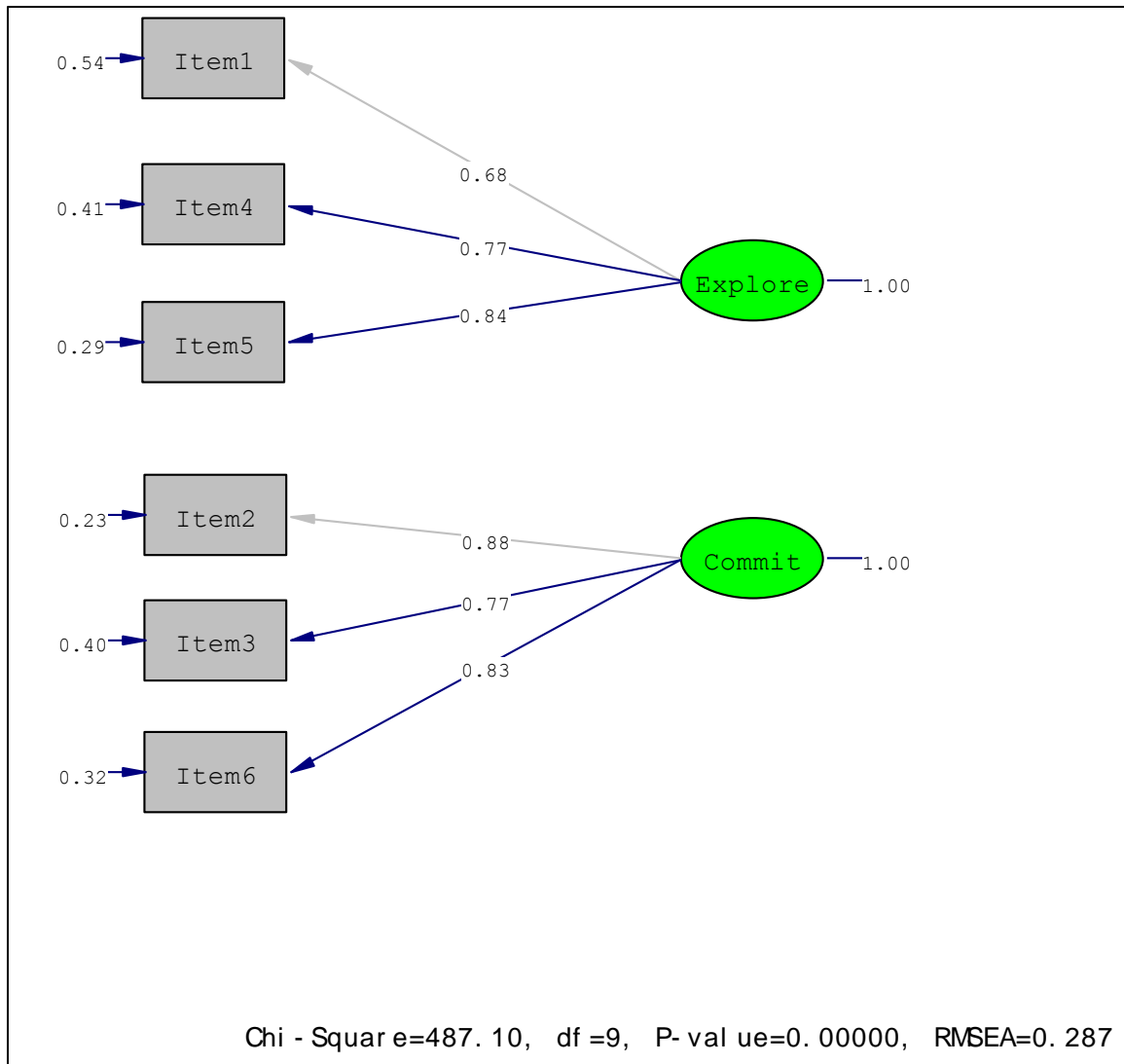
Figure 6. Path Diagram and Measurement Estimates for Measurement Model 2.
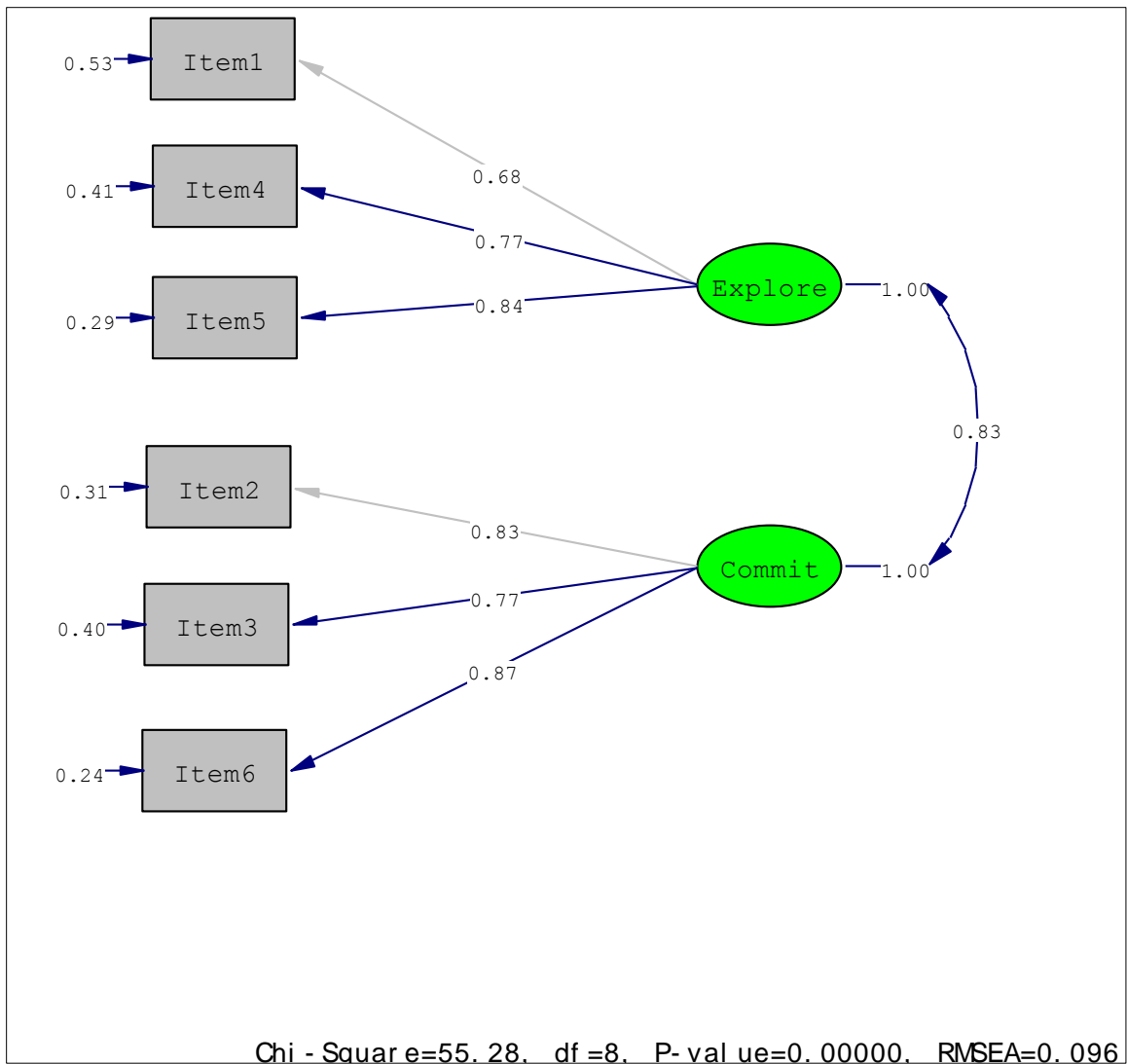
Figure 7. Path Diagram and Measurement Estimates for Measurement Model 3.

Fit Indices

Four fit indices are presented in Table 7 and were used to evaluate the three

theoretical models to the observed data. Recommended by Kline (2011), these fit indices

were used to evaluate goodness of fit: the model chi-square (χ^2_M), the Steiger-Lind root

mean square error of approximation (RMSEA; Steiger, 1990), Bentler Comparative Fit

Index (CFI; Bentler, 1990), and the Standardized Root Mean Square residual (SRMR).

The model-chi square is a test to determine if there are differences between the observed

covariance matrix and the covariance matrix predicted by the model, and it tests the

exact-fit hypothesis (Kline, 2011). However, because the chi-square statistic is known to

be sensitive to sample size, other indicators of model fit were examined. The RMSEA is

a badness-of-fit index; Kline (2011) suggests best fit is indicated by values of zero, good

fit indicated by values at or below 0.05, and moderately good fit indicated by values of

.08 or below. The CFI is an incremental fit index, and Kline (2011) suggests a cutoff of

$CFI \geq .95$ for good fit. The SRMR is a value that represents the mean correlation

residual, and Kline (2011) suggests a score of less than 0.08 for acceptable model fit.

The model chi-square statistic for Measurement Model 1 is significant indicating

that the model implied covariance matrix is significantly different than the observed

covariance matrix ($\chi_M^2 = 170.282$, $df = 9$, $p < .001$). The significant chi-square value

suggests bad fit to the data. The RMSEA value for Measurement Model 1 is 0.167 with a

90% confidence interval of 0.145 to 0.189 thus suggesting poor fit to the data. The CFI

value for Measurement Model 1 is 0.921 thus poor fit to the data. The SRMR value for

Measurement Model 1 is 0.051 thus suggesting adequate fit to the data.

The model chi-square statistic for Measurement Model 2 is significant indicating

that the model implied covariance matrix is significantly different than the observed

covariance matrix ($\chi_M^2 = 487.1$, $df = 9$, $p < .001$). The significant chi-square value

suggests bad fit to the data. The RMSEA value for Measurement Model 2 is 0.287 with

a 90% confidence interval of 0.266 to 0.309 thus suggesting bad fit to the data. The CFI

value for Measurement Model 2 is 0.767 thus suggesting bad fit to the data. The SRMR

value for Measurement Model 2 is 0.344 thus suggesting bad fit to the data.

The model chi-square statistic for Measurement Model 3 is significant indicating

that the model implied covariance matrix is significantly different than the observed

covariance matrix ($\chi^2_M = 55.283$, $df = 8$, $p < .001$). The significant chi-square value

suggests bad fit to the data. The RMSEA value for Measurement Model 3 is 0.096 with a

90% confidence interval of 0.073 to 0.12. The lower bound of the confidence interval

falls below the .08, thus suggesting moderate fit to the data. The CFI value for

Measurement Model 3 is 0.977 thus suggesting good fit to the data. The SRMR value for

Measurement Model 3 is 0.024 thus suggesting excellent fit to the data.

Table 7

Fit Indices

Measurement Model	χ^2_M	df	RMSEA	Lower	Upper	CFI	SRMR	$\chi_D{}^2$	df_D	P
1	170.282	9	0.167	0.145	0.189	0.921	0.051	--	--	--
2	487.1	9	0.287	0.266	0.357	0.309	0.344	--	--	--
3	55.283	8	0.096	0.073	0.12	0.977	0.024	115.0[*]	1	0.000

Note. $n = 644$; χ^2 = model chi-square statistic; df = degrees of freedom; RMSEA = Root Mean Square Error of Approximation with 90% confidence interval; CFI = Comparative Fit Index; SRMR = Standardized Root Mean Square Residual; $\chi_D{}^2$ = chi-square difference statistic; df_D = degrees of freedom difference; *chi-square difference test between the models with best fit when compared against each other.

Standardized Residuals and Standardized Factor Loadings

Standardized residuals. The standardized residuals were evaluated as they

provided additional information about model fit (Brown, 2006; Hoyle, 2012; Kline,

2011). Standardized residuals should be low, thus providing evidence of little to no

deviation of the covariance matrix of the model to the observed covariance matrix.

Brown (2006) suggests a cutoff of 2.58 as a guideline for model fit. The values of the

standardized residuals of Measurement Model 1 ranging from -2.824 to 2.517, suggested

only one localized area of misfit (see bolded value in Table 8). Multiple standardized

residuals of Measure Model 2 were large (see bolded values in Table 9) ranging from 0 to

16.597, indicating underestimation by the model's parameter estimates. One or more

large residuals are indicative of problems with model fit and misspecification of the

model (Hoyle, 2012). The values of the standardized residuals of Measurement Model 3

ranging from and -1.323 to 1.705, suggested there are no localized areas of misfit. The

Standardized residuals for Measurement Models 1–3 are presented in Table 8, Table 9,

and Table 10, respectively.

Table 8

Standardized Residuals for Measurement Model 1

	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6
Item 1	0					
Item 2	-.377	0				
Item 3	-.790	1.616	0			
Item 4	1.237	-1.833	**-2.824**	0		
Item 5	1.523	-2.057	-1.022	2.517	0	
Item 6	-1.114	1.009	-.204	-.725	.084	0

Table 9

Standardized Residuals for Measurement Model 2

	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6
Item 1	0					
Item 2	**12.409**	0				
Item 3	**11.191**	--	0			
Item 4	0	**12.384**	**13.120**	0		
Item 5	0	**13.095**	**13.729**	0	0	
Item 6	**12.486**	0	0	**14.440**	**16.597**	0

Table 10

Standardized Residuals for Measurement Model 3

	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6
Item 1	0					
Item 2	.744	0				
Item 3	.050	1.251	0			
Item 4	-.086	-.846	1.705	0		
Item 5	-.030	-1.323	.026	.156	0	
Item 6	-.054	.116	-.683	.385	1.355	0

Standardized factor loadings. The standardized factor loadings were evaluated as they provide additional information about model fit. Kline (2011) notes that factor loadings can be interpreted as regression coefficients since they estimate the direct effect they have on indicator (items) variables. Given this, factor loadings that are moderate to large in magnitude provide evidence of good fit. A review of the standardized factor

loadings for Measurement Models 1-3 are moderate to high and similar in magnitude suggesting good fit. In addition, all of the standardized factor loadings are significant at an alpha level of 0.01. The standardized factor loadings, unstandardized factor loadings, and factor correlations for Measurement Models 1-3 are presented in Table 11, Table 12, and Table 13, respectively.

Table 11

Standardized Factor Loadings for Measurement Models 1-3

	Measurement Model 1	Measurement Model 2		Measurement Model 3	
	Ethnicity	Explore	Commit	Explore	Commit
Item 1	$.64^{**}$	$.68^{**}$		$.68^{**}$	
Item 2	$.80^{**}$		$.88^{**}$		$.83^{**}$
Item 3	$.76^{**}$		$.77^{**}$		$.77^{**}$
Item 4	$.70^{**}$	$.77^{**}$		$.77^{**}$	
Item 5	$.76^{**}$	$.84^{**}$		$.84^{**}$	
Item 6	$.85^{**}$		$.83^{**}$		$.87^{**}$

Note. Ethnicity = total ethnic identity score on the MEIM–R; Explore = exploration; Commit = commitment; $^{**} p < 0.01$

Table 12

Unstandardized Factor Loadings for Measurement Model 3

	Measurement Model 3	
	Explore	Commit
Item 1	1.00 (.53)	
Item 2		1.00 (.31)
Item 3		0.93 (.40)

Table 12

(Cont.)

	Measurement Model 3	
	Explore	Commit
Item 4	1.12 (.41)	
Item 5	1.23 (.29)	
Item 6		1.05 (.24)

Note. Standard errors are in parentheses; Explore = exploration; Commit = commitment

Table 13

Phi Matrix (Factor Correlation) for MEIM–R

	Explore	Commit
Explore	1	
Commit	.831	1

Note. LISREL 9.2 produces the disattenuated correlation; Explore = exploration; Commit = commitment

Chi-square Difference Test

The three theoretical models used in this study are nested, meaning one is a proper subset of the other. Using the same data, the chi-square difference (χ_D^2) test was used to test the equal-fit hypotheses for two nested models (Kline, 2011). The fit indices, standardized residuals, and standardized factor loadings suggest that Measurement Model 1 has adequate fit, Measurement Model 2 has bad fit, and Measurement Model 3 has good fit. Since Measurement Model 1 and Measurement Model 3 both had the best fit of the observed data, the chi-square difference (χ_D^2) test was used to determine if there was a significant difference regarding goodness of fit between these two models in order to find

the parsimonious (simplest) model with overall good data fit. The chi-square difference test statistic between Measurement Model 1 and Measurement Model 3 is significant indicating the equal-fit hypothesis is rejected ($\chi_D^2 = 115.0$, $df = 1$, $p < .001$). This suggests that Measurement Model 1 has been oversimplified and that Measurement Model 3, as the more complex model, is preferred because it has better fit to the observed data (Kline, 2011). Chi-square difference test statistics are presented in Table 7.

Research Question 2: *What is the relationship between the factors of exploration and commitment as measured by the MEIM–R using a Lumbee sample*?

To test the null hypothesis for research question two, a psychometric analysis of the MEIM–R was conducted via SPSS 21.0 (IBM Corp., 2012) to investigate the reliability, convergent, and discriminant validity of the MEIM–R and each subscale. A Cronbach's (1951) alpha reliability coefficient was computed for the MEIM–R, exploration, and commitment to establish overall reliability of the scale and each subscale. The overall measure and two subscales exhibit good reliability (Cronbach's alpha) with the given sample: MEIM–R ($\alpha = .88$), exploration ($\alpha = .80$), and commitment ($\alpha = .86$). The reliability statistics are presented in Table 5.

Kline (2011) notes convergent validity is established when the item intercorrelations are moderate in magnitude. The item intercorrelations for *exploration* range from .521 to .648 are similar and moderate in magnitude, and the reliability of the subscale decreases if an item is deleted. The item intercorrelations for *commitment* range from .639 to .726 are similar and moderate in magnitude, and the reliability of the

subscale decreases if an item is deleted. The item intercorrelations and Cronbach's alpha if deleted for the subscales are presented in Table 14 and Table 15, respectively.

Table 14

Item Intercorrleations and Cronbach's Alpha if Deleted for Exploration Subscale

	Item 1	Item 4	Item 5	Cronbach's Alpha If Deleted
Item 1	1			.783
Item 4	.521	1		.726
Item 5	.574	.648	1	.685

Table 15

Item Intercorrleations and Cronbach's Alpha if Deleted for Commitment Subscale

	Item 2	Item 3	Item 6	Cronbach's Alpha If Deleted
Item 2	1			.779
Item 3	.678	1		.841
Item 6	.726	.639	1	.807

Convergent validity can also be established in CFA by specifying an item to load on a specific factor. By doing so, a standardized factor loading can be interpreted as a correlation estimate between an indicator and its specified factor and squared factor loadings can be interpreted as R^s_{smc}; the proportion of explained variance (Kline, 2011). If an indicator is properly converging on a CFA model, then over half ($R^s_{smc} > .50$) of the variance should be explained. The proportion of explained variance for item 2 (R^s_{smc}

= .6889), item 3 (R^s_{smc} = .5929), item 4 (R^s_{smc} = .5929), item 5 (R^s_{smc} = .7056), and item

6 (R^s_{smc} = .7569) manifest good evidence of convergent validity. Although the

proportion of explained variance for item 1 (R^s_{smc} = .4624) is slightly below Kline's

(2011) recommended guidelines, it still provides evidence of convergent validity.

A correlation coefficient can be used to evaluate discriminant validity among the

factors of the instrument. Discriminant validity is demonstrated by results showing

theoretical constructs are distinctive and not correlated too highly (Brown, 2006;

Harrington, 2009). Brown (2006) recommends using a correlation coefficient of greater

than .85 as a measure indicating poor evidence of discriminant validity. The CFA model

run in LISREL 9.2 (Jöreskog & Sörbrom, 2015) produced a factor correlation of .831

(see Table 13). Although high, the factor correlation does support the two distinct

constructs of exploration and commitment.

Research Question 3: *How does ethnic identity as measured by the MEIM–R differ by*

educational level and institutional type using a Lumbee sample?

To test the null hypothesis for research question three, a series of one-way and

two-way Analyses of Variance (ANOVA) conducted in SPSS 21.0 (IBM Corp., 2012)

were used to examine if there are significant mean group differences regarding ethnic

identity determined by educational level and institutional type. The relationship between

educational level and ethnic identity was evaluated using a one-way ANOVA. Subjects

were divided into four groups according to their education level (Group 1: GED/high

school diploma or less; Group 2: Vocational training/certification and Associate's degree;

Group 3: Bachelor's degree; Group 4: Graduate degree). The ANOVA revealed that

there was not a statistically significant mean difference in ethnic identity as measured by the MEIM–R across educational level in a Lumbee sample ($p = .088$). This suggests that on average the ethnic identity development of Lumbee people is not influenced by education. Descriptive and ANOVA statistics for MEIM–R across Educational Level can be found in Table 16 and Table 17, respectively.

Table 16

Descriptive Statistics for MEIM–R across Educational Level

Education Level	M	SD	N
GED/High School Diploma or Less	4.17	.70	166
Vocational training/Certification and Associate's	4.29	.61	118
Bachelor's	4.30	.62	185
Graduate	4.35	.70	175
Total	4.28	.66	644

Table 17

ANOVA Statistics for MEIM–R across Educational Level

Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Observed Power
Between Groups	2.888	3	.963	2.187	.088	.010	.556
Within Groups	281.690	640	.400				
Total	284.577	643					

The relationship between institutional type and ethnic identity was evaluated using a one-way ANOVA. For this analysis, subjects that had a GED/high school diploma or less ($n = 166$) were excluded. The remaining subjects were divided into two

groups based on the institutional type where they received an education (Group 1: those who attended a Non-Native College or University (NNCU) and Group: 2 those who attended a Native Serving Nontribal Institution (NSI). The ANOVA revealed that there was not a statistically significant mean difference in ethnic identity as measured by the MEIM–R across institutional type in a Lumbee sample ($p = .444$). This suggests that on average the ethnic identity development of Lumbee people is not influenced by the type of educational institution attended. Descriptive and ANOVA statistics can be found in Table 18 and Table 19, respectively.

Table 18

Descriptive Statistics for MEIM–R across Institution Type

Institutional Type	*M*	*SD*	*N*
Non-Native College or University	4.36	.62	193
Native Serving Nontribal Institution	4.31	.65	250
Total	4.33	.64	443

Table 19

ANOVA Statistics for MEIM–R across Institutional Type

Source	Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared	Observed Power
Between Groups	.239	1	.239	.587	.444	.001	.119
Within Groups	179.873	441	.408				
Total	180.112	442					

The relationship between educational level, institutional type, and ethnic identity was evaluated using a two-way ANOVA. For this analysis, subjects that had a GED/high

school diploma or less (n = 166) were excluded. The remaining subjects were divided

into three groups based on their educational level (Group 1: Vocational

training/certification and Associate's degree; Group 3: Bachelor's degree; Group 4:

Graduate degree). A two-way ANOVA did not yield a main effect for the subject's

educational level (p = .656) nor institutional type (p = .681). The interaction effect

between educational level and institutional type was also non-significant, with p = .273

(see Table 20). Descriptive statistics can be found in Table 21.

Table 20

2 X 2 ANOVA Statistics for MEIM–R by Educational Level and Institutional Type

Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Observed Power
Educational Level	.345	2	.172	.422	.656	.002	.118
Institutional Type	.069	1	.069	.169	.681	.000	.069
HEL*InstType	1.064	2	.532	1.301	.273	.006	.282
Error	178.609	437					
Total	180.112	442					

Table 21

Descriptive Statistics for MEIM–R across Educational Level and Institutional Type

Educational Level/Institutional Type	M	SD	N
Vocational training/Certification and Associate's Degree			
Non-Native College or University	4.33	.49	44
Native Serving Nontribal Institution	4.36	.58	43
Total	4.34	.53	87

Table 21

(Cont.)

Educational Level/Institutional Type	M	SD	N
Bachelor's Degree			
Non-Native College or University	4.26	.66	62
Native Serving Nontribal Institution	4.31	.60	119
Total	4.30	.62	181
Graduate Degree			
Non-Native College or University	4.43	.64	87
Native Serving Nontribal Institution	4.27	.75	88
Total	4.35	.70	175

Conclusion

This chapter has reviewed the results of statistical analyses conducted to evaluate the study's research questions and hypotheses. First, a CFA was estimated to investigate model fit of three theoretical modes of the MEIM–R. Fit indices, standardized residuals, standardized factor loadings, and a chi-square (χ^2_D) difference test were also used to evaluate model fit. The study supports the researcher's hypothesis that the correlated two-factor structure of ethnic identity would fit the data significantly better than a single-factor or uncorrelated two-factor structure. Although, it had the best fit in the study, there is room for improvement in model fit and future research should consider writing additional items.

Next, a psychometric analysis of the MEIM–R was conducted to test second hypothesis and investigate the relationship between the factors of exploration and

commitment. The analysis revealed good reliability of the MEIM–R and its subscales of exploration and commitment. A review of the item intercorrelations, standardized factor loadings, and factor correlations provided evidence of convergent and discriminant validity; thus further supporting the constructs of exploration and commitment as components of ethnic identity. The study supports the researcher's hypothesis that there is a relationship between the factors of exploration and commitment.

Finally, research question three was analyzed using a series of ANOVAs. A one-way ANOVA was conducted to determine if ethnic identity differed by educational level. The analysis revealed positive mean scores, but there was no evidence to support significant mean differences in ethnic identity for any of the groups. A one-way ANOVA was conducted to determine if ethnic identity differed by institutional type. There was no evidence to support significant mean differences for ethnic identity in Lumbees who attended a Non-Native College or University and Lumbees who attended a Native Serving Nontribal Institution. Lastly, a two-way ANOVA was conducted to determine if ethnic identity differed by the interaction effect between the independent variables of educational level and institutional type. The two-way ANOVA provided no evidence to support significant mean differences in any of the groups. The study supports the hypothesis that there are no statistically significant mean differences in ethnic identity when comparing educational level and institutional type.

Supplemental Analysis

There were two data collection methods for this study: an online survey and a paper survey. The majority of the participants completed the survey online ($n = 449$;

69.72%) while the rest of the sample completed a paper survey ($n = 195$, 30.28%).

Independent t-tests were conducted to compare scores of the total MEIM–R, exploration,

and commitment subscales for online ($M = 4.24$, $SD = .67$; 4.20, $SD = .70$;

$M = 4.27$, $SD = .74$) and paper surveys ($M = 4.38$, $SD = .64$; $M = 4.34$, $SD = .64$;

$M = 4.41$, $SD = .74$). The analyses revealed significant mean differences for the

MEIM–R, $t (642) = -2.514$, $p = .012$; exploration, $t (642) = -2.243$, $p = .025$; and

commitment, $t (642) = -2.125$, $p = .034$.

CHAPTER V

SUMMARY AND DISCUSSION

The purpose of this study was to investigate the reliability and validity of the Multigroup Ethnic Identity Measure-Revised (MEIM–R) with a Lumbee sample. In addition, this study sought to investigate the impact of education on Lumbee identity as measured by the MEIM–R. There is a lack of quantitative research regarding American Indians in higher education and how college impacts their identity development. Even further, the research on Lumbee identity development is sparse. In fact, there are no quantitative research studies that explore the impact of education on Lumbee identity development as measured by the MEIM–R. Given the lack of quantitative research on education and Lumbee identity, this study sought to fill that gap.

Phinney (1990) argued that developing reliable and valid measures of ethnic identity was the most serious need in ethnic identity research and that "general measures would be valuable in addressing the important questions about ethnic identity that are raised by theory" (p. 510). In time, Phinney (1992) introduced the Multigroup Ethnic Identity Measure (MEIM) as an instrument appropriate for use on multiple ethnic groups. Since its establishment, the MEIM (Phinney, 1992) has become a widely used instrument in the measurement of ethnic identity (Smith & Silva, 2011) but has also been widely criticized as well (Avery et al., 2007; Dandy et al., 2008; Gaines et al., 2010; Lee & Yoo, 2004; Roberts et al., 1999; Spencer et al., 2000; Yancey et al., 2001).

Further ethnic identity research by Phinney and Ong (2007) led to the Multigroup Ethnic Identity Measure-Revised (MEIM–R). Further psychometric validation studies conducted by Yoon (2011), Brown et al. (2014), and Chakawa et al. (2015) confirmed the discriminant validity and reliability of the MEIM–R. No studies have examined the psychometric properties of the MEIM or the MEIM–R on an American Indian sample or an individual tribal nation. Additionally, American Indians were not included in the sample during scale development (Phinney, 1992) or during scale modification (Phinney & Ong, 2007).

This chapter contains a discussion of the findings, acknowledgement of the limitations, discussions regarding the significance of the study, implications for practice, implications for future research, and a conclusion.

Discussion

Research question one investigated model fit of three theoretical models of the MEIM–R. Findings from this study support the researcher's hypothesis that a correlated two-factor structure of ethnic identity would provide best fit. The correlated two-factor structure of ethnic identity found in this study supports recommendations by Phinney and Ong (2007) inviting researchers to use the 6-item MEIM–R in place of the MEIM. Additionally, consistent with Brown et al. (2014) and Chakawa et al. (2015), the hypothesized correlated two-factor structure of ethnic identity held among the sample of community-based adults. Furthermore, the correlated two factor structure of ethnic identity found in this study also supports the findings by Yoon (2011), Brown et al. (2014), and Chakawa et al. (2015), that the MEIM–R can be used to measure ethnic

identity in minority groups. Finally, based on the results with a Lumbee sample, the items of the MEIM–R measure the appropriate categories of exploration and commitment, and when combined measure the construct of ethnic identity appropriately using a correlated two-factor structure.

Research question two investigated the relationship between the factors of exploration and commitment. The first factor, exploration ($M = 4.24$), suggests participants in this study have sought out information and experiences relevant to being Lumbee. The second factor, commitment ($M = 4.31$), suggests participants in this study have a sense of belonging with being Lumbee. Findings from this study support the researcher's hypothesis that exploration and commitment are two distinct factors that are related ($r = .831$), which is consistent with the MEIM–R literature (Brown et al., 2014; Chakawa et al., 2015; Phinney & Ong, 2007; Yoon, 2011). Although the study supports the MEIM–R as consisting of two distinct constructs, these constructs have a stronger relationship ($r = .831$) with a Lumbee sample when compared to previous ethnic identity studies (Pearson's r ranging from .67 to .76) utilizing the MEIM–R (Brown et al., 2014; Chakawa et al., 2015; Phinney & Ong, 2007; Yoon, 2011). From a theoretical standpoint, a strong relationship between exploration and commitment is expected, as a certain degree of commitment is needed for exploration to occur and further exploration would be expected to lead to a stronger commitment (Phinney & Ong, 2007).

Unlike previous studies (Brown et al., 2014; Chakawa et al., 2015; Phinney & Ong, 2007; Yoon, 2011) consisting of heterogeneous samples from varying racial demographics, this study consisted of a homogeneous sample explicitly focusing on the

Lumbee as an indigenous nation. In comparison, the current study produced higher mean scores with a lower degree of variability for the subscales of exploration and commitment ($M = 4.24$, $SD = .68$; $M = 4.31$, $SD = .74$), than did Brown et al. (2014; $M = 3.13$, $SD = .95$; $M = 3.68$, $SD = .83$) and Chakawa et al. (2015; $M = 3.08$, $SD = 1.08$; $M = 3.42$, $SD = 1.10$). Unfortunately, Phinney and Ong (2007) and Yoon (2011) did not provide descriptive statistics for exploration and commitment, therefore comparisons cannot be established. Nonetheless, the strong relationship between the constructs found in this study is most likely due to its homogeneous sample. Participants in this study self-identified as Lumbee; therefore, it is plausible that they all held shared beliefs regarding Lumbee identity resulting in a lesser degree of variance among exploration and commitment scores.

Research question three sought to explore the relationship between ethnic identity, educational level, and institutional type. The researcher hypothesized there would be statistically significant mean differences in ethnic identity when comparing educational level and institutional type. However, findings support that there are no statistically significant mean differences in ethnic identity when comparing educational level ($F = 2.187$, $p = .088$), institutional type ($F = .587$, $p = .444$), and the interaction effect between educational level and institutional type ($F = 1.301$, $p = .273$). Although no significant differences were found, it is important to note, the data from the study do show that ethnic identity scores of the Lumbee people in this study increased as educational attainment increased. The lowest ethnic identity scores were found in participants who had a GED/high school diploma or less, whereas the highest ethnic

identity scores were found in participants with graduate degrees. These findings suggest there is a relationship between ethnic identity and education. This is consistent with previous education research on Lumbee students (Bryant, 1998; Bryant & Baker, 2003; Bryant & LaFromboise, 2005; Collins, 2015; Scott, 2008). There is no current research that has looked at the impact of education on ethnic identity as measured by the MEIM–R.

Limitations

There are several limitations to this study particularly with data collection methods and participants. There were two data collection methods for this study: an online survey and a paper survey. Independent t-tests were conducted and the analyses revealed significant mean differences for the MEIM–R, $t(642) = -2.514$, $p = .012$; exploration, $t(642) = -2.243$, $p = .025$; and commitment, $t(642) = -2.125$, $p = .034$. It makes sense theoretically for the paper surveys to have higher scores because they were completed at a tribal gathering. Conceivably, participants attending Lumbee Homecoming had a higher sense of belonging and were actively seeking out information and experiences relevant to being Lumbee. The researcher intentionally recruited participants at this event as an effort to increase variability within the sample. Although the paper surveys have higher scores, they account for less than one-third of all scores and a small percentage (35.8%) of the upper limit scores received. Over a quarter (25.16%) of the participants scored at the upper limit (5) on the MEIM–R, thus resulting in a ceiling effect and restricting the amount of variability in ethnic identity scores (Vogt, 2005).

The sample in this study exclusively represented citizens of the Lumbee tribe of North Carolina. Although the MEIM–R was found to be a valid and reliable measure of ethnic identity with a Lumbee sample, the results are not generalizable to all American Indians, as there are over 600 federal and state recognized tribal nations within the United States. Further research is needed in order to confirm the factor structure and to provide additional validity and reliability evidence to support its use with American Indians. Measurement invariance is needed to confirm construct validity across different tribal nations, gender, age, and geographic location. A theoretical validation of the MEIM–R was not considered for this study. A K-means cluster analysis is recommended for future research to confirm Marcia's (1980) four (2 X 2) statuses of the MEIM–R.

Significance of the Study

The purpose of this study was to investigate the reliability and validity of the Multigroup Ethnic Identity Measure-Revised (MEIM–R) with a Lumbee sample. In addition, this study sought to investigate the impact of education on Lumbee identity as measured by the MEIM–R. The findings of this study are significant for several reasons. First, the MEIM–R was confirmed to be an empirically sound measure of ethnic identity for Lumbee people. As the only study to examine the psychometric properties with an Indigenous sample, it contributes to the literature on the construct validity and reliability of measuring ethnic identity through the use of the MEIM–R from an Indigenous perspective. Furthermore, due to the diversity of tribal nations, there are no ethnic identity models for American Indians (Horse, 2001). Pending replication, the findings in this study support the use of the MEIM–R as an empirically sound instrument in

measuring ethnic identity in American Indians. Lastly, this study contributes to the

literature both on American Indians as well as Lumbees and the impact of education on

identity development. Finally, a limited amount of research has focused on the

educational experience of students from a single tribal nation (Larrimore & McClellan,

2005). This study contributes to the literature on Lumbee identity and the role education

plays in ethnic identity development.

Implications for Practice

Findings from this study show there is a relationship between ethnic identity and

education. Therefore, it is imperative that institutions enrolling Lumbee and other

American Indians, strongly consider adopting a tribal nation building approach to best

serve students, their families, and their communities. By doing so, an institution

acknowledges that higher education for American Indians must be understood within the

context of "sovereignty, self-determination, Indigenous knowledge systems, and

culturally responsive schooling" (Brayboy et al., 2012, p. 10), which then informs

policies and practices in hopes of increasing recruitment, retention, and student success.

Brayboy et al. (2012) reaffirms this:

> . . . institutions of higher education must also acknowledge that Indigenous
> students and communities may not always be interested in pursuing or framing
> success in the same ways or for the same reasons as other students and
> communities. Institutions of higher education, leaders within colleges and
> universities, policy makers, and faculty and staff must be able to hold these two
> points in constant, and creative, tension if the goal is to serve Indigenous students
> and communities better. (pp. 2–3)

Prior research has documented the vital connection between ethnic identity and educational experiences of American Indian college students (Brayboy, 1999, 2005; Guillory, 2002, 2009; Guillory & Wolverton, 2008; Heavy Runner & DeCelles, 2002; Huffman, 2003, 2010, 2011; Jackson, Smith, & Hill, 2003; Okagaki, Helling, & Bingham, 2009; Shotton, Oosawhe, & Cintrón, 2007; Waterman, 2007). As such, tribal nation building should be used as a practice to promote identity development of American Indian students in an effort to provide culturally relevant and positive educational experiences. In the current study, I found that the strength of ethnic identity increased as educational attainment increased.

Implications for Future Research

Pending replication of this study, the findings suggest the MEIM–R is an empirically sound instrument for measuring ethnic identity in American Indians. Therefore, the MEIM–R is a promising instrument that can be used in quantitative research to further the understanding of American Indian college students. Future research should explore the relationship between ethnic identity and persistence of American Indian students by developing a retention model utilizing ethnic identity as a variable. Future research could adapt this study to specific institutions serving American Indian students to investigate the relationship between education and ethnic identity development from a quantitative or mixed-methods perspective. Future research should explore gender differences in regards to exploration, commitment, and overall strength of ethnic identity. The type of community one was raised in also should be explored in regards to ethnic identity as there may be differences by reservation, urban, and rural

upbringings. The geographic location of tribal nations (southeast, southwest, southern plains, etc.) also should be considered. In addition, the researcher would recommend future research looking at the type of institution a student attends (NNCU, NSI, and tribal college/university) in regards to differences in ethnic identity development.

Conclusion

Deyhle and Swisher (1997) argued that American Indians are the least-studied group in higher education. Yet, when American Indians are studied, they run the risk of falling prey to the American Indian research asterisk (Garland, 2007; Lowe, 2005); that is, they typically are not reported or discussed in quantitative research (Shotton et al., 2013) and seen as "statistically insignificant" (Faircloth & Tippeconnic, 2010). This study, focusing on the Lumbee as a tribal nation, establishes Indigenous statistical space (Walter & Anderson, 2013) and challenges the concept that American Indian quantitative data is unreliable and insignificant. Although, this study departs from research done "our way" (that is, qualitatively; Walter & Anderson, 2013), it should still be regarded with equal importance. As a variation of how stories are told, this study provides participants a voice through numbers, and tells a story concerning the experiences of Lumbee people and education. Our stories define who we are as a people (Brayboy, 2005; Lowery, 2010), and as a Lumbee scholar I felt it was time for this story to be told.

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APPENDIX A

LETTER OF SUPPORT

UNCG Institutional Review Board
The Office of Research Integrity
The University of North Carolina at Greensboro
2718 MHRA Building, 1111 Spring Garden Street
Greensboro, NC 27412
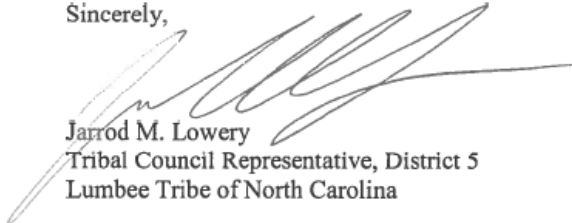
Dear Colleagues,

I am writing to inform you of my support for the dissertation study entitled "Examining the Impact of Education on Lumbee Indian Identity: A Psychometric Analysis of the Multigroup Ethnic Identity Measure-Revised" which will be conducted by Derek Oxendine. The researcher has shared and discussed the study with myself, co-chair of the Education Committee of the Tribal Council of the Lumbee Tribe of North Carolina.

The implications of this study will contribute to the scholarship of ethnic identity development for American Indians. In addition, the results of this study will serve as a catalyst for the Lumbee Tribe of North Carolina in advocating for and supporting its tribal citizens pursuing higher education.

As a member of the Lumbee Tribal Council and co-chair of the Education Committee, I support Mr. Oxendine recruiting for prospective participants during Lumbee Homecoming, our tribal summer festivities. I agree with all procedures and believe that the data obtained will be beneficial.

Sincerely,

Jarrod M. Lowery
Tribal Council Representative, District 5
Lumbee Tribe of North Carolina

APPENDIX B

SOCIAL MEDIA SCRIPT

The following would be posted on social media sites such as Facebook, Twitter, etc.:

Hello Everyone!

I am Derek Oxendine, a citizen of the Lumbee Tribe of North Carolina. I am currently doing a study for my doctoral degree at the University of North Carolina at Greensboro.

My study will investigate the reliability and validity of the using the Multigroup Ethnic Identity Measure-Revised and examine the impact of education on Lumbee identity development. If you are 18 or older and identify as Lumbee, which includes anyone who self-identifies as a member of the Lumbee Tribe of North Carolina regardless of their tribal enrollment status, you are eligible to participate in this research study. By completing this survey, you may be helping to better understand ethnic identity development of American Indians.

Link: https://uncg.qualtrics.com/SE/?SID=SV_8bTTwpq4Kt8NahT

Your participation will be approximately 15 minutes and is anonymous, completely voluntary, and you will not be contacted again in the future. There is no compensation for participating in this research; you will not be paid for being in this study. However, if you do decide to participate, you will have the opportunity to enter a drawing for one of the four $50.00 Gift Cards after completing the survey. Completing this survey involves minimal risk to you. Recipients of the gift cards will be contacted in November 2015 and the gift cards will be mailed out two days after recipients provide their contact information.

If you have questions, I can be reached via email, droxendi@uncg.edu, or you can contact my dissertation advisor (Deborah J. Taub) at djtaub@uncg.edu.

Thank you so much!!!

APPENDIX C

DISSERTATION SURVEY—ONLINE

UNIVERSITY OF NORTH CAROLINA AT GREENSBORO

CONSENT TO ACT AS A HUMAN PARTICIPANT

Project Title: Examining the Impact of Education on Lumbee Identity: A Psychometric Analysis of the Multigroup Ethnic Identity Measure-Revised

Principal Investigator: Derek Oxendine

Faculty Advisor: Dr. Deborah J. Taub

What are some general things you should know about research studies?
You are being asked to take part in a research study. Your participation in the study is voluntary. You may choose not to join, or you may withdraw your consent to be in the study, for any reason, without penalty.

Research studies are designed to obtain new knowledge. This new information may help people in the future. There may not be any direct benefit to you for being in the research study. There also may be risks to being in research studies. If you choose not to be in the study or leave the study before it is done, it will not affect your relationship with the researcher or the University of North Carolina at Greensboro.

Details about this study are discussed in this consent form. It is important that you understand this information so that you can make an informed choice about being in this research study.

You will be given a copy of this consent form. If you have any questions about this study at any time, you should ask the researchers named in this consent form. Their contact information is below.

What is the study about?
This is a research project for a dissertation. Your participation is voluntary. This study will investigate the reliability and construct validity of the Multigroup Ethnic Identity Measure-Revised (MEIM–R) with a Lumbee sample and examine the impact of education on Lumbee identity.

Why are you asking me?
This survey will sample members of the Lumbee Tribe of North Carolina. Eligible participants are those who self-identify as a member of the Lumbee Tribe of North

Carolina regardless of their tribal enrollment status. Participants must be at least 18 years of age to participate.

What will you ask me to do if I agree to be in the study?
If you agree to participate in this study you will take a survey that will take approximately 15 minutes of your time. The survey will ask you questions about your attitudes and beliefs regarding your ethnic identity. You will not be compensated for participating in this study. You are free to contact the investigator at the above address and phone number to discuss the study. You must be at least 18 years old to participate.

Is there any audio/video recording?
There will be no audio/video recording in this study.

What are the dangers to me?
The Institutional Review Board at the University of North Carolina at Greensboro has determined that participation in this study poses minimal risk to participants. There are no foreseen risks and/or inconveniences, other than the time it takes to complete the survey. If any of the questions on the survey make you feel uncomfortable you may choose to skip/not answer any particular question. If you have questions, want more information or have suggestions, contact Derek Oxendine (Principal Investigator) at droxendi@uncg.edu or by phone at 910-736-1210 or Deborah J. Taub (Faculty Advisor) at djtaub@uncg.edu or by phone at 336-334-3437.

If you have any concerns about your rights, how you are being treated, concerns or complaints about this project or benefits or risks associated with being in this study please contact the Office of Research Integrity at UNCG toll-free at (855)-251-2351.

Are there any benefits to society as a result of me taking part in this research?
This study may provide information to better understand ethnic identity development of American Indians.

Are there any benefits to *me* for taking part in this research study?
There are no direct benefits to the participants.

Will I get paid for being in the study? Will it cost me anything?
There are no costs to you or payments made for participating in this study. However, after the completion of the survey, you can elect to include your name and email address to be entered in a drawing for one of four $50.00 gift cards. If you choose to be entered in the drawing, you will be taken to another screen to enter in your information to ensure anonymity.

How will you keep my information confidential?
No personally identifying information will be collected. Demographic information that is collected (e.g., institution) will be recoded to ensure that participants cannot be

personally identified. All information obtained in this study is strictly confidential unless disclosure is required by law. Absolute confidentiality of data provided through the Internet cannot be guaranteed due to the limited protections of Internet access. Please be sure to close your browser when finished so no one will be able to see what you have been doing.

The information from respondents in this survey will be collected and stored via UNCG Qualtrics system. There will be no personally identifiable information collected. The survey is set to not collect IP addresses for the surveys. Qualtrics uses Transport Layer Security (TLS) encryption (also known as HTTPS) for all transmitted data. Qualtrics also protect surveys with passwords and HTTP referrer checking.

What if I want to leave the study?
"You have the right to refuse to participate or to withdraw at any time, without penalty. If you do withdraw, it will not affect you in any way. If you choose to withdraw, you may request that any of your data which has been collected be destroyed unless it is in a de-identifiable state. The investigators also have the right to stop your participation at any time. This could be because you have had an unexpected reaction, or have failed to follow instructions, or because the entire study has been stopped."

What about new information/changes in the study?
If significant new information relating to the study becomes available which may relate to your willingness to continue to participate, this information will be provided to you.

Voluntary Consent by Participant:
By clicking "I Agree" in this survey you are agreeing that you read and you fully understand the content of this document and are openly willing consent to take part in this study. All of your questions concerning this study have been answered. By clicking "I Agree", you are agreeing that you are 18 years of age or older and are agreeing to participate in this study. You may print copies of this consent documents for your own records by clicking this link and printing the form from your personal computer.

❍ Yes (1)
❍ No (2)

Q47 Do you identify as a citizen of the Lumbee Tribe of North Carolina?
❍ Yes (1)
❍ No (2)

Q2 Do you identify as also belonging to any other racial/ethnic or American Indian group(s)? If yes, please list the group(s) below. If not, please write "NA".

Q3 Are you a currently enrolled citizen of the Lumbee Tribe of North Carolina?

❍ Yes (1)
❍ No, but I am eligible to be enrolled (2)
❍ No (3)

Q4 What is your gender?

❍ Male (1)
❍ Female (2)

Q5 What year were you born?

Q6 The Lumbee Tribe of North Carolina defines its territory as Robeson, Scotland, Cumberland, and Hoke Counties in North Carolina. Please select the tribal district you grew up in.

❍ I did not grow up in Lumbee Territory. (1)
❍ District 1 (Gaddy, Rowland, Orrum, Sterlings, Whitehouse, and Thompson) (2)
❍ District 2 (Back Swamp, Fairmont, and Smyrna) (3)
❍ District 3 (Lumberton and West Howellsville) (4)
❍ District 4 (Red Springs and Philadelphus) (5)
❍ District 5 (Oxendine and Prospect) (6)
❍ District 6 (Raft Swamp and North Pembroke) (7)
❍ District 7 (South Pembroke and Union) (8)
❍ District 8 (Burnt Swamp) (9)
❍ District 9 (Saddletree) (10)
❍ District 10 (Shannon, Rennert, and South St. Pauls) (11)
❍ District 11 (Hoke County) (12)
❍ District 12 (Scotland County, Maxton, and Alfordsville) (13)
❍ District 13 (Cumberland County, Parkton, Lumber Bridge, and North St. Pauls) (14)
❍ District 14 (East Howellsville, Wisharts, and Britts) (15)

Q7 The Lumbee Tribe of North Carolina defines its territory as Robeson, Scotland, Cumberland, and Hoke Counties in North Carolina. Please select the tribal district where you currently reside.

- ❍ I do not currently reside in Lumbee Territory. (1)
- ❍ District 1 (Gaddy, Rowland, Orrum, Sterlings, Whitehouse, and Thompson) (2)
- ❍ District 2 (Back Swamp, Fairmont, and Smyrna) (3)
- ❍ District 3 (Lumberton and West Howellsville) (4)
- ❍ District 4 (Red Springs and Philadelphus) (5)
- ❍ District 5 (Oxendine and Prospect) (6)
- ❍ District 6 (Raft Swamp and North Pembroke) (7)
- ❍ District 7 (South Pembroke and Union) (8)
- ❍ District 8 (Burnt Swamp) (9)
- ❍ District 9 (Saddletree) (10)
- ❍ District 10 (Shannon, Rennert, and South St. Pauls) (11)
- ❍ District 11 (Hoke County) (12)
- ❍ District 12 (Scotland County, Maxton, and Alfordsville) (13)
- ❍ District 13 (Cumberland County, Parkton, Lumber Bridge, and North St. Pauls) (14)
- ❍ District 14 (East Howellsville, Wisharts, and Britts) (15)

Q8 What is your highest level of education?

- ❍ Some high school (1)
- ❍ GED (2)
- ❍ High school diploma (3)
- ❍ Vocational training/certificate (4)
- ❍ Associates Degree (5)
- ❍ Bachelor's Degree (6)
- ❍ Master's Degree (7)
- ❍ Doctoral Degree (8)

Q9 Please list the name of the institution where you received your Associates or Bachelor's degree. If you do not have a degree, please write "NA."

Q10 Are you currently enrolled at a college or university?

- ❍ No, I am not enrolled at a college or university. (1)
- ❍ Yes, I am enrolled at a 2-year institution pursuing a GED, diploma, certificate, or Associates degree. (2)
- ❍ Yes, I am enrolled at a 4-year institution pursuing a Bachelor's degree. (3)
- ❍ Yes, I am enrolled at a 4-year institution pursuing a graduate degree. (4)

Q11 Please list the name of the institution where you are currently a student. If you are not a student, please write "NA."

Q12 Did either one of your parents receive a degree from a community college or four-year college/university?
- ○ Yes, from a community college. (1)
- ○ Yes, from a four-year college/university. (2)
- ○ Yes, both from a community college AND a four-year college/university. (3)
- ○ No (4)

Q13 Are you a military veteran or currently serving in the military?
- ○ Yes (1)
- ○ No (2)

Q14 I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

Q15 I have a strong sense of belonging to my own ethnic group.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

Q16 I understand pretty well what my ethnic group membership means to me.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

Q17 I have often done things that will help me understand my ethnic background better.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

Q18 I have often talked to other people in order to learn more about my ethnic group.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

Q19 I feel a strong attachment towards my own ethnic group.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

Q21 I strongly identify as Lumbee.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

Q22 I am proud to be Lumbee.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

Q23 I see myself as a part of the Lumbee community.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

Q24 I feel that I am a part of the Lumbee community.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

Q25 I feel a sense of belonging to the Lumbee community.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

Q26 I am aware that Lumbee people have a different type of speech/dialect than non-Lumbee people.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

Q27 I can identify my Lumbee family back several generations.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

Q28 I attend a Lumbee church.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

Q29 I seek help/advice from my elders when needed.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

Q30 I have many responsibilities in my Lumbee family.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

Q31 I feel obligated to take care of others in the community.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

Q32 It is important for me to give back to the Lumbee community.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

Q33 It is important for me to be a good role model for the Lumbee community.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

Q34 I speak and/or understand the Lumbee dialect.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

Q35 No matter where I live, Lumbee territory will always be my "home."
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

Q36 I feel a spiritual connection to the land, swamps, and the river in Lumbee territory.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

Q37 I feel unbalanced when I am away from Lumbee territory for too long.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

Q38 My extended Lumbee family (cousins, aunts/uncles) are just as important to me as my immediate Lumbee family.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

Q39 I appreciate Lumbee family values and traditions.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

Q40 I know about or participate in tribal or social activities with other Lumbee people.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

Q41 My family owns land that has been passed down and maintained through generations.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

Q42 I have used or understand the meaning of some of the following words/phrases: cooter, gallanipper, chicken bog, in the pines, heist, the house, since the shake, on the swamp, toten, juvember, Lum, ellick, & bes.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

Q43 My family speaks and/or understands the Lumbee dialect.
- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)

APPENDIX D

IN-PERSON SCRIPT

The following script will be used during in-person recruiting:

Excuse me, sir/ma'am.

My name is Derek Oxendine and I am a citizen of the Lumbee Tribe of North Carolina. I am here today to recruit participants for my research. I am currently doing a study for my doctoral degree at the University of North Carolina at Greensboro regarding the impact of education on Lumbee identity development.

Do you have a minute to speak with me regarding my research study?
- If the individual says "I'm not interested" then I will stop and thank them for their time.
- If the individual says "yes", then I will continue with the following script.

My study will investigate the reliability and validity of the using the Multigroup Ethnic Identity Measure-Revised and examine the impact of education on Lumbee identity development. I am approaching you because I am looking for people age 18 or older that identify as Lumbee, which includes anyone who self-identifies as a member of the Lumbee Tribe of North Carolina regardless of their tribal enrollment status, to participate in my study. By completing a survey, you may be helping to better understand ethnic identity development of American Indians.

Are you interested in completing a paper survey in-person right now or completing it at a later time online?
- If the individual says "I'm not interested", then I will stop and thank them for their time.
- If the individual says "yes" and opts to complete the online survey, then I will provide them a copy of the text for recruiting participants via social media and thank them for their time.
- If the individual says "yes" and opts to complete the paper survey, then I will continue with the following script and provide them with a paper copy of the consent form and the survey.

Your participation will be approximately 15 minutes and is anonymous, completely voluntary, and you will not be contacted again in the future. There is no compensation for participating in this research; you will not be paid for being in this study. However, if you do decide to participate, you will have the opportunity to enter a drawing for one of the four $50.00 Gift Cards after completing the survey. Completing this survey involves minimal risk to you. Recipients of the gift cards will be contacted in November 2015 and

the gift cards will be mailed out two days after recipients provide their contact information.

If you have questions, I can be reached via email, droxendi@uncg.edu , or you can contact my dissertation adviser (Deborah J. Taub) at djtaub@uncg.edu

Thank you so much!!!

APPENDIX E

DISSERTATION SURVEY—PAPER

Survey

1. Do you identify as a citizen of the Lumbee Tribe of North Carolina?
   a. Yes
   b. No

IF YOU SELECTED "NO" TO QUESTION 1, PLEASE DO NOT PROCEED FURTHER.

2. Do you identify as also belonging to any other racial/ethnic or American Indian group(s)?
   a. Yes
   b. No

If yes, please list the group(s) in the space below.

_____

3. Are you a currently enrolled citizen of the Lumbee Tribe of North Carolina?
   a. Yes
   b. No, but I am eligible to be enrolled
   c. No

4. What is your gender?
   a. Male
   b. Female

5. What year were you born?
   a. _____

6. The Lumbee Tribe of North Carolina defines its territory as Robeson, Scotland, Cumberland, and Hoke Counties in North Carolina. Please select the tribal district you grew up in.
   a. I did not grow up in Lumbee Territory
   b. District 1 (Gaddy, Rowland, Orrum, Sterlings, Whitehouse, and Thompson)
   c. District 2 (Back Swamp, Fairmont, and Smyrna)
   d. District 3 (Lumberton and West Howellsville)
   e. District 4 (Red Springs and Philadelphus)
   f. District 5 (Oxendine and Prospect)
   g. District 6 (Raft Swamp and North Pembroke)
   h. District 7 (South Pembroke and Union)
   i. District 8 (Burnt Swamp)
   j. District 9 (Saddletree)
   k. District 10 (Shannon, Rennert, and South St. Pauls)
   l. District 11 (Hoke County)
   m. District 12 (Scotland County, Maxton, and Alfordsville)

n. District 13 (Cumberland County, Parkton, Lumber Bridge, and North St. Pauls)
o. District 14 (East Howellsville, Wisharts, and Britts)

7. The Lumbee Tribe of North Carolina defines its territory as Robeson, Scotland, Cumberland, and Hoke Counties in North Carolina. Please select the tribal district where you currently reside.
   a. I do not reside in Lumbee Territory
   b. District 1 (Gaddy, Rowland, Orrum, Sterlings, Whitehouse, and Thompson)
   c. District 2 (Back Swamp, Fairmont, and Smyrna)
   d. District 3 (Lumberton and West Howellsville)
   e. District 4 (Red Springs and Philadelphus)
   f. District 5 (Oxendine and Prospect)
   g. District 6 (Raft Swamp and North Pembroke)
   h. District 7 (South Pembroke and Union)
   i. District 8 (Burnt Swamp)
   j. District 9 (Saddletree)
   k. District 10 (Shannon, Rennert, and South St. Pauls)
   l. District 11 (Hoke County)
   m. District 12 (Scotland County, Maxton, and Alfordsville)
   n. District 13 (Cumberland County, Parkton, Lumber Bridge, and North St. Pauls)
   o. District 14 (East Howellsville, Wisharts, and Britts)

8. What is your highest level of education?
   a. Some high School
   b. GED
   c. High school diploma
   d. Vocational training/certificate
   e. Associates degree
   f. Bachelor's degree
   g. Master's degree
   h. Doctoral degree

9. Please list the name of the institution where you received your Associates or Bachelor's degree. If you do not have a degree, please write "NA."

_____

10. Are you currently enrolled at a college or university?
    a. No, I am not enrolled at a college or university
    b. Yes, I am enrolled at a 2-year institution pursuing a GED, diploma, certificate, or Associates degree.
    c. Yes, I am enrolled at a 4-year institution pursuing a Bachelor's degree.
    d. Yes, I am enrolled at a 4-year institution pursing a graduate degree.

11. Please list the name of the institution where you are currently a student? If you are not a student, please write "NA."

_____

12. Did either one of your parents receive a degree from a community college or four-year college/university?
    a. Yes, from a community college.
    b. Yes, from a four-year college/university.
    c. Yes, both from a community college AND a four-year college/university.
    d. No

13. Are you a military veteran or currently serving in the military?
    a. Yes
    b. No

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
14. I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs.	1	2	3	4	5
15. I have a strong sense of belonging to my own ethnic group.	1	2	3	4	5
16. I understand pretty well what my ethnic group membership means to me.	1	2	3	4	5
17. I have often done things that will help me understand my ethnic background better.	1	2	3	4	5
18. I have often talked to other people in order to learn more about my ethnic group.	1	2	3	4	5
19. I feel a strong attachment towards my own ethnic group.	1	2	3	4	5
20. I strongly identify as Lumbee.	1	2	3	4	5
21. I am proud to be Lumbee.	1	2	3	4	5
22. I see myself as a part of the Lumbee community.	1	2	3	4	5
23. I feel that I am a member of the Lumbee community.	1	2	3	4	5

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
24. I feel a sense of belonging to the Lumbee community.	1	2	3	4	5
25. I am aware that Lumbee people have a different of speech/dialect than non-Lumbee people.	1	2	3	4	5
26. I can identify my Lumbee family back several generations.	1	2	3	4	5
27. I attend a Lumbee church.	1	2	3	4	5
28. I seek help/advice from my Elders when needed.	1	2	3	4	5
29. I have many responsibilities in my Lumbee family.	1	2	3	4	5
30. I feel obligated to take care of others in the Lumbee community.	1	2	3	4	5
31. It is important for me to give back to the Lumbee community.	1	2	3	4	5
32. It is important for me to be a good role model for the Lumbee community.	1	2	3	4	5
33. I speak and/or understand the Lumbee dialect.	1	2	3	4	5
34. No matter where I live, Lumbee territory will always be my home."	1	2	3	4	5
35. I feel a spiritual connection to the land, swamps, and the river in Lumbee territory.	1	2	3	4	5
36. I feel unbalanced when I am away from Lumbee territory for too long.	1	2	3	4	5

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
37. My extended Lumbee family (cousins/aunts/uncles) are just as important to me as my immediate Lumbee family.	1	2	3	4	5
38. I appreciate Lumbee family values and traditions.	1	2	3	4	5
39. I know about or participate in tribal or social activities with other Lumbee people.	1	2	3	4	5
40. My family owns land that has been passed down and maintained through generations.	1	2	3	4	5
41. I have used or understand the meaning of the following words/phrases: cooter, gallaniper, chicken bog, in the pines, heist, the house, since the shake, on the swamp, toten, juvember, Lum, ellick, & bes.	1	2	3	4	5
42. My family speaks and/or understands the Lumbee dialect.	1	2	3	4	5

APPENDIX F

IRB APPROVAL

APPENDIX G

IRB CONSENT FORM—PAPER

UNIVERSITY OF NORTH CAROLINA AT GREENSBORO

CONSENT TO ACT AS A HUMAN PARTICIPANT

Project Title: Examining the Impact of Education on Lumbee Identity: A Psychometric Analysis of the Multigroup Ethnic Identity Measure-Revised

Principal Investigator: Derek Oxendine

Faculty Advisor: Dr. Deborah J. Taub

What are some general things you should know about research studies?
You are being asked to take part in a research study. Your participation in the study is voluntary. You may choose not to join, or you may withdraw your consent to be in the study, for any reason, without penalty.

Research studies are designed to obtain new knowledge. This new information may help people in the future. There may not be any direct benefit to you for being in the research study. There also may be risks to being in research studies. If you choose not to be in the study or leave the study before it is done, it will not affect your relationship with the researcher or the University of North Carolina at Greensboro.

Details about this study are discussed in this consent form. It is important that you understand this information so that you can make an informed choice about being in this research study.

You will be given a copy of this consent form. If you have any questions about this study at any time, you should ask the researchers named in this consent form. Their contact information is below.

What is the study about?
This is a research project for a dissertation. Your participation is voluntary. This study will investigate the reliability and construct validity of the Multigroup Ethnic Identity Measure-Revised (MEIM–R) with a Lumbee sample and examine the impact of education on Lumbee identity.

Why are you asking me?
This survey will sample members of the Lumbee Tribe of North Carolina. Eligible participants are those who self-identify as a member of the Lumbee Tribe of North

Carolina regardless of their tribal enrollment status. Participants must be at least 18 years of age to participate.

What will you ask me to do if I agree to be in the study?
If you agree to participate in this study you will take a survey that will take approximately 15 minutes of your time. The survey will ask you questions about your attitudes and beliefs regarding your ethnic identity. You will not be compensated for participating in this study. You are free to contact the investigator at the above address and phone number to discuss the study. You must be at least 18 years old to participate.

Is there any audio/video recording?
There will be no audio/video recording in this study.

What are the dangers to me?
The Institutional Review Board at the University of North Carolina at Greensboro has determined that participation in this study poses minimal risk to participants. There are no foreseen risks and/or inconveniences, other than the time it takes to complete the survey. If any of the questions on the survey make you feel uncomfortable you may choose to skip/not answer any particular question. If you have questions, want more information or have suggestions, contact Derek Oxendine (Principal Investigator) at droxendi@uncg.edu or by phone at 910-736-1210 or Deborah J. Taub (Faculty Advisor) at djtaub@uncg.edu or by phone at 336-334-3437.

If you have any concerns about your rights, how you are being treated, concerns or complaints about this project or benefits or risks associated with being in this study please contact the Office of Research Integrity at UNCG toll-free at (855)-251-2351.

Are there any benefits to society as a result of me taking part in this research?
This study may provide information to better understand ethnic identity development of American Indians.

Are there any benefits to *me* for taking part in this research study?
There are no direct benefits to the participants.

Will I get paid for being in the study? Will it cost me anything?
There are no costs to you or payments made for participating in this study. However, after the completion of the survey, you can elect to include your name and email address to be entered in a drawing for one of four $50.00 gift cards. If you choose to be entered in the drawing, you will be provided information on how to enter into the drawing online to ensure anonymity.

How will you keep my information confidential?
No personally identifying information will be collected. Demographic information that is collected (e.g., institution) will be recoded to ensure that participants cannot be

personally identified. All information obtained in this study is strictly confidential unless disclosure is required by law. All information obtained in this study will be stored in a locked file cabinet and kept for no longer than one year. At the conclusion of the study, all hard copies of information will be destroyed via paper shredding.

What if I want to leave the study?
"You have the right to refuse to participate or to withdraw at any time, without penalty. If you do withdraw, it will not affect you in any way. If you choose to withdraw, you may request that any of your data which has been collected be destroyed unless it is in a de-identifiable state. The investigators also have the right to stop your participation at any time. This could be because you have had an unexpected reaction, or have failed to follow instructions, or because the entire study has been stopped."

What about new information/changes in the study?
If significant new information relating to the study becomes available which may relate to your willingness to continue to participate, this information will be provided to you.

Voluntary Consent by Participant:
By completing the survey, you are agreeing that you read and you fully understand the contents of this document and are openly willing consent to take part in this study. All of your questions concerning this study have been answered. By completing the survey, you are agreeing that you are 18 years of age or older and are agreeing to participate in this study.

APPENDIX H

IN-PERSON DRAWING

The following will be provided to an individual in-person who participates in the study by completing a paper survey:

Thank you for your participation in this study regarding the impact of education on Lumbee identity development. If you would like to enter into a drawing for one of the four $50.00 Gift Cards, please visit the following link to complete a brief survey by providing your contact information. Completing this survey involves minimal risk to you. Recipients of the gift cards will be contacted in November 2015 and the gift cards will be mailed out two days after recipients provide their contact information.

link - http://tinyurl.com/lumbeestudy

Thank you so much!!!

APPENDIX I

PERMISSION TO USE INSTRUMENT

Spartan

Derek Oxendine <droxendi@uncg.edu>

Request for MEIM-R

Anthony D. Ong <ado4@cornell.edu>
To: "droxendi@uncg.edu" <droxendi@uncg.edu>

Thu, May 14, 2015 at 10:06 AM

Dear Derek,

Thank you for your interest. I have attached the 2007 article and also a copy of the MEIM-R with some additional information. You are welcome to use the measure in your research.

Sincerely,

Anthony Ong

---

2 attachments

📄 **07-JCP-EID-ConcMeas.pdf**
96K

📄 **MEIM-R-2007.doc**
27K