ABSTRACT

Title of Dissertation: REMOVING THE COLLEGE INVOLVEMENT "RESEARCH ASTERISK": IDENTIFYING AND RETHINKING PREDICTORS OF AMERICAN INDIAN COLLEGE STUDENT INVOLVEMENT

John L. Garland, Doctor of Philosophy, 2010

Directed By: Professor Susan R. Komives, Department of Counseling and Personnel Services

The purpose of this study was to identify campus environmental predictors of American Indian college student involvement. The American Indian research asterisk, or not including American Indian data, has prevailed over student development research for decades. As a result, student affairs professionals have been limited in their ability to develop evidence-based student development interventions for American Indian student involvement. This study addressed the research asterisk related to American Indian college student involvement through a quantitative multi-institutional study of 99 campuses with a total of 1,931 American Indian respondents. This study confirms many prior research study findings with American Indian college students that were limited in scope and context and where findings lacked transferability. Several key findings emerged from this research study including the importance of pre-college involvement in high school academic clubs and holding leadership positions as significant predictors of college student involvement. Mentor relationships with faculty and student affairs staff were also significant predictors of American Indian student involvement indicating the

importance of these types of interactions for this population. Most importantly, a sense of belonging for American Indian students was quantitatively confirmed as a significant predictor of American Indian student involvement. The concept of involvement, however, should not be limited by its historical on-campus context and should be viewed as a dynamic process whereby American Indian students are provided an opportunity to shape an involvement experience that helps to maintain their sense of self and identity while promoting a sense of belonging and collegiate success.

REMOVING THE COLLEGE INVOLVEMENT "RESEARCH ASTERISK": IDENTIFYING AND RETHINKING PREDICTORS OF AMERICAN INDIAN COLLEGE STUDENT INVOLVEMENT

by

John L. Garland

Dissertation submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
2010

Advisory Committee:

Professor Susan R. Komives, Chair
Associate Professor Vivian Boyd
Associate Professor Sharon Fries-Britt
Affiliate Associate Professor Barbara Jacoby
Associate Professor Emerita Marylu K. McEwen

Dedication

For Mema Hazel

Acknowledgements

Reaching this important milestone of my learning journey comes with the ongoing support of many family members, colleagues, friends, and students. The privilege of my successful doctoral career is due in large part to my partner, husband, and colleague, Steven Chesbro. His unwavering support and positive outlook provided me with the support and momentum needed to complete this important segment of our twenty-year journey together. Many thanks to my family in Oklahoma, particularly my parents, who always supported my educational efforts – even when they didn't quite understand exactly what it was I was studying – and provided the foundation for my educational journey.

My time with colleagues at the University of Maryland will always be among my most cherished life experiences and memories. The colleagues and lifelong friendships I made at Maryland are an embarrassment of riches. Julie Owen, John Dugan, and Wendy Wagner always make my life more fun, interesting, and meaningful – I cannot thank them enough for their true friendship and everything they do to support me. To my friends and colleagues at The Stamp, Barbara Jacoby, Craig Slack, Donna Lim, Ramsey Jabaji, Kristan Cilente, Adrienne Hamcke-Wicker, Marsha Guenzler-Stevens, and Dawn Simounet (who has since moved on to her own graduate degree!) - many thanks for your support and ongoing friendship. Knowing you're out there doing your good work with students makes going to work that much better for all of us. Thanks to my cohort members, Jesse Wise, Marchelle Payne, Kristan Vogt-Kawas and Susan Longerbeam for their model of professionalism. Very special thanks to my doctoral advisors, colleagues, and friends Susan R. Komives and Marylu K. McEwen for sharing their time and wisdom

with me on this journey. Your generosity is overwhelming and I can only repay you by continuing to be the best teacher I can possibly be. Any finally, to my Native American Network (NAN)/ACPA/NASPA Colleagues – Molly Springer, Adrienne Thunder, Stephanie Waterman, Irvin Harrison, Ruth Harper, Tim Ecklund, Karen Francis-Begay, and George McClellan for their outstanding work with American Indian students and their professional example to which I aspire.

I would like to particularly thank the Mac and Lucile McEwen Research Fund for supporting my research study with a generous research grant.

Table of Content

List of Tables

List of Figures

CHAPTER 1: INTRODUCTION

Research on college student experiences has resulted in large bodies of empirical evidence informing college and university communities about the complex college environment and its impact on student outcomes (Astin, 1982, 1984, 1993, 1996, 2001). Unfortunately, American Indian student data are rarely discussed in research where quantitative data are reported by race or ethnicity, thereby limiting understanding of American Indian college student experiences (Larimore & McClellan, 2005; Lowe, 2005). As outlined below, one of the complicating factors helping to explain this phenomenon is that American Indians represent only 1.1%, or 181,100, of the 18 million students attending college in the United States (National Center for Education Statistics [NCES], 2009). Research on college student experiences has become increasingly important for helping institutions develop effective policies and programmatic interventions to support collegiate success for historically underrepresented and less visible student populations, especially at predominantly White institutions.

A specific complicating factor related to understanding the American Indian college student experience through research occurs when American Indian data are collected, at the institutional or national levels, and then reported alongside other racial and ethnic groupings. Among racial/ethnic data groupings, American Indian data often become statistically powerless and therefore unreliable in comparison. Subsequently, American Indian data are generally not reported or discussed within quantitative research findings. This phenomenon often results in quantitative data invisibility that has been referred to as the "American Indian research asterisk" (Garland, 2007, p. 612). Asterisk associated research language, such as "not statistically significant" (Lowe, 2005, p. 39)

when referring to American Indian data, is increasingly challenged by American Indian scholars and researchers (Tierney, 1992). Since the overall American Indian population is likely to remain steady as a proportion of the U.S. population for the near future, their statistical power within quantitative studies will likely remain an ongoing challenge. Thus, new research approaches should be explored to address the many existing research gaps especially as they relate to American Indian college students. One method is to take the American Indian data that were collected among other racial/ethnic groups and analyze it separately so that findings may be reported. As a result of this ongoing research challenge, most published studies focusing on American Indian college students tend to be qualitative and institution specific and may lack a transferable quality (Pavel, 1998). Although qualitative studies are immensely useful, there are few national studies from which to build a research base. This study's use of a national data set directly addresses this issue by focusing solely on American Indian college student data. Further, this study attempts to address a critical gap in the research related to understanding American Indian college student involvement experiences.

The purpose of this multi-institutional quantitative study is to identify campus environmental variables that may contribute to American Indian student involvement in college. Involvement is an important variable to study because it directly contributes to student learning, which is a key collegiate outcome (Astin, 1985; Fischer 2007; Hoffman 2002; Moore, Lovell, McGann, & Wyrick, 1998) for all students, including American Indians (Lundberg, 2007). College involvement is typically explored as an independent environmental variable and predictor of positive collegiate outcomes such as student success. However, there are no recent national studies that have explored factors that may

directly lead to campus involvement as a dependent variable with American Indian student data. Therefore, this study will seek to identify predictive variables related to college involvement for American Indians in an effort to remove one of the college experience "research asterisks."

Researcher's Context, Background, and Beliefs

This section includes a first person narrative of the author's background providing insight into the worldview and lens by which this study was conceived and conducted. My time as a doctoral student at the University of Maryland has been one of the most extraordinary events of my life. Having lived and grown up in rural Oklahoma, just a few miles from where the Choctaw Garland family ended their long walk from Mississippi in 1834 on what came to be known as the Choctaw Trail of Tears. I did not realize how different my life experiences had been from others until I moved to Maryland. I will first provide some background contextual information about myself in order to better understand my perspective as a doctoral student and researcher.

After high school, I attended a residential two year college close enough to home that I could continue working at my hometown job on the weekends, but far enough away that daily commuting was not convenient for a full-time student. I chose the Choctaw Nation affiliated Eastern Oklahoma State "junior" College because I received a jazz saxophone scholarship as a result of an early commitment I had made to middle school music classes. I have come to understand that my journey to college began in middle school with my parents' early awareness of the importance of a college education and an attachment to my alto sax with both eventually providing the money and encouragement I needed to make it to college. In college, I became very involved in campus programs and

activities holding several student leadership positions, in both academic and social organizations and as a student government association officer. I eventually transferred to Northeastern State University (NSU) in Tahlequah, Oklahoma, home of the Cherokee Nation, once again choosing a college that was close enough to home but far enough away that daily commuting was inconvenient. NSU was originally founded as the Cherokee Female Seminary in the mid 1800s following the Cherokee Trail of Tears and later became a teacher's college. Today, NSU is a master's level regional state university with strong ties to its past teacher's college identity and to the Cherokee Nation.

More American Indians graduate with bachelor's degrees from NSU than any other university in the United States (*Diverse Issues in Higher Education*, 2009). However, NSU often seems more like a predominately White institution than one with so many Native Americans. During my time at NSU, I learned what it was like to be involved as a Lambda Chi Alpha fraternity member, to realize the unearned benefits of being able to pass as White during the winter months when my skin was lighter, and to begin exploring my identities and the many developmental milestones a traditional age college student may encounter. It was also there that I became interested in student affairs as a profession following my student employment experiences in a vice president's office and later as a full-time staff member in the president's office. While there, I also experienced the shock of seeing a campus celebratory Cherokee cultural symbol desecrated by a group of White fraternity men and a "Redmen" themed athletics department. Those early experiences that, at the time, I believed to be typical for all college students, I have come to know as uniquely Oklahoma, Cherokee, and Choctaw college experiences.

My undergraduate experiences in Tahlequah ranged from becoming friends with the airplane pilot of Chief Wilma Mankiller of the Cherokee Nation, to becoming an acquaintance of Chief Mankiller as I was frequently invited to "co-pilot" in-state flights for the Chief where she was attending meetings or giving speeches. I also had the privilege of working at the Cherokee Nation Tribal headquarters on weekends as a clerk in the Registration Department where I processed Cherokee membership applications and family genealogy forms. At the same time, I was also working as an assistant to NSU's president while I began my master's classes in student personnel services. Collectively these experiences, in addition to my precollege experiences, provided me with a unique lens through which I viewed the college experience when I accepted admission at Maryland. At Maryland, I was introduced to many new viewpoints and a new language for explaining certain phenomena related to college student development and higher education frameworks. From the members of my dissertation committee, who were specifically chosen because of their influence on my own thinking, to Black feminist scholars such as Bonnie Thornton Dill and bell hooks, and to others such as Paulo Freire, Devon Abbott Mihesuah, and Willian G. Tierney, each having influenced my approach to understanding higher education contexts and college student experiences.

I want to specifically mention the influence of William G. Tierney on my early and current thinking. Recently I reread his 1992 text, *Official Encouragement, Institutional Discouragement: Minorities in Academe – The Native American Experience.* At the time it was published, it was a groundbreaking addition to the literature on American Indians in academe and an example of the relatively new application of critical theory in the context of higher education organizations. He specifically used critical

theory as a lens for examining higher education institutions and their interactions with American Indians. In speaking about researchers from a critical theory perspective, Tierney (1992) wrote, "The assumptions of critical theory are that social scientists are embedded in the contexts and structures they investigate; they are never free from the subjectivities and values that inform their investigation. No one stands removed from the world he or she studies; in effect, no one is an objective observer" (p. 34). I agree with Tierney completely on this point and believe all higher education research should come with such a disclaimer if this type of self-disclosure is not obvious. Based on his work, I believe exploring self as researcher in relation to the higher education context is necessary for higher education research to be fully congruent and I appreciate my committee's encouragement to make this type of addition in a study whose methods would otherwise not encourage disclosure of the researcher's personal context.

I also believe that higher education research for, with, and about American Indians is at a crossroads. For example, can quantitative research be an effective approach to understanding the American Indian college student experience? Or should we foreclose on this approach since it has not served American Indian students well in the past? I believe research related to American Indian college students should be uniquely focused on American Indian student experiences whereby the research study participants' voices become the catalyst for change in higher education systems and structures. Unfortunately American Indian voices are rarely heard through quantitative research. As pointed out in this study, American Indian voices are starkly missing from many areas of current higher education research, especially when considering quantitative studies. There are published narratives of American Indian college student

experiences and several qualitative research studies from recent years highlighting the American Indian student experience, yet most seem to have received little practical notice across predominantly White institutions. This research study attempts to explore American Indian student experiences through a quantitative analysis with an American Indian voice. It is hoped that this approach for highlighting American Indian student experiences is viewed as a collective piece of the broad research puzzle that in turn supports many prior qualitative studies exploring American Indian college student experiences.

Since Tierney's (1992) important work about American Indians in academe was published, one could argue not much has really changed since his book hit the library shelves. In his 1992 text, Tierney quotes existing research pointing to dismal statistics related to high school and college completion rates for American Indians. At that time it was estimated that only 40% of American Indians who graduated from high school would go to college and of those only 15% would reach college graduation. Unfortunately these numbers are only marginally better than they were 20 years ago (National Center for Education Statistics, 2009). Certainly, I could go into all the sad and deficit-focused numbers related to today's American Indian higher education experience as Tierney did; however, I do not find this a good or efficient use of my physical or psychological energy as a researcher. Rather, what I have learned from the published research over the past 20 years is that new research and practice approaches continue to be necessary in an attempt to address the widening research gap for understanding the experiences of American Indian college students. I have chosen to take the parts of past research I believe are useful and necessary and use those findings to move research into action where it is

needed. Since 2004 I have been presenting at national conferences and discussing research issues related to the American Indian asterisk. The asterisk language has taken root and new projects are growing from these seeds including a newly contracted book on the horizon titled *Beyond the Asterisk: Understanding Native Students in Higher Education* of which I will be a contributing author and have been asked to write the foreword. These are positive signs indeed, and proof, along with this dissertation, that momentum may finally be on the side of American Indian college students.

It is tempting to want to settle into the comfort of Tierney's 20-year-old narrative about the oppressive higher education organization; how it needs to be changed to become suitable for American Indian students to succeed; and then to "ask" that higher education organizations adopt new ways of thinking or to address their Euro-centric oppressive frameworks. I understand that Tierney was using the American Indian experience as an example of where higher education organizations need transformation. I agree that these issues are real and exist, but I also believe transformation is occurring, but at a pace not suitable for improving today's American Indian student experiences. Therefore this quantitative study, while using existing frameworks, is viewed critically from an American Indian researcher perspective with American Indian respondent data in an effort to address today's research gaps while trying to positively affect the American Indian college student experience in more immediate and practical ways.

As a practical matter, the urgency for informing student development and higher education research and practice with American Indian students has continued for too long. My prior experiences as a student affairs administrator, an American Indian Student Union student group advisor, the first instructor for an American Indian

Leadership course (all at the University of Maryland), and now as tenure track faculty at Alabama State University (a Historically Black Institution), provide me with a unique perspective from which to view research related to the American Indian college student experience.

Defining and Identifying American Indian College Students

The most widely used nomenclature describing people of indigenous ancestry within the current United States of America include the terms Native American, American Indian, and Alaska Native. For consistency and clarity, this study uses the term American Indian as inclusive of the terms Native American, Native, Indian, Alaska Native, or other indigenous peoples of the United States (Pavel, 1999). However, it is important to note that American Indians may prefer to self-identify with their tribal status rather than broad pan-ethnic identities such as American Indian (Horse, 2001).

The development of various identities, especially racial identity, among traditional age college students is an important and complex experience (Evans, Forney, & Guido-DeBrito, 1998; Jones & McEwen, 2000; McEwen, 2003; Torres, Jones & Renn, 2009). Complexities surrounding identity are also true for American Indian college students (Garroute, 2003; Horse, 2001, 2005). Students identifying as American Indian may be less visible by others on campus as compared to members of other racial or ethnic groups whose physical characteristics may be less ambiguous, such as phenotype. American Indians are often visually identified by others as being White, Hispanic, or Black depending on their regional origins and lived experiences, without regard to their individual preference for racial categorization (Garroute, 2003). This issue is especially problematic when American Indians are visually (mis)identified by others for research

purposes or anecdotal data gathering. Freeman and Fox (2005) refer to research inaccuracies related to American Indian identity as racial identity instability and suggest that research study participant identification by others and racial identity questions posed by researchers in interviews can influence the respondents' racial identification. For example, many American Indians report multiracial identities (U.S. Census, 2005), yet may hold distinct ethnic identities such as tribal affiliation that may not be captured within research data. The psychosocial and historical complexities related to American Indian racial identity often complicate American Indian visibility on college campuses (Horse, 2005; U.S. Census, 2005). Although less directly true of today's college students, American Indian identity has been complicated by U.S. governmental policies from early colonization through the 1960s. In fact, past U.S. policy toward American Indians was to force their assimilation into White/Euro-American culture through mechanisms such as mandatory boarding school participation and forced relocations, among others (Takaki, 1993). Although these government policies were abandoned in the late 1960s and early 1970s, they continue to influence how American Indian families and individuals identify racially, ethnically, and culturally.

The cross-sectional nature of this research study cannot, nor attempts to, measure the respondents' racial identity development during college. American Indian participants in this study have self-reported their racial category(ies) as is afforded to all other racial/ethnic groups. Therefore all American Indian respondents are included as there is no basis in the literature to separate American Indians by those who marked this racial category solely or marked it with another race. Further, there is evidence that "blood quantum" or percentage of "Indian blood" is not a factor in shaping American Indian

college student experiences (Hoover, & Jacobs, 1992) as may be commonly perceived by others as a proxy for American Indian identity. That is not to say within group differences may not exist around phenotype or other attributes, but rather, as a group, American Indians do share common experiences regardless of their other identities.

Involvement in College

Astin (1984) has defined and quantified involvement as the amount of psychic and physical energy a student invests in his or her collegiate experience. Specifically, the more students are involved in college the more likely they are to succeed (Astin, 1993; Pascarela & Terenzini, 1991). Involvement includes both social (e.g., fraternity member, American Indian student club officer) and academic activities (e.g., time spent studying, research projects), which are not necessarily mutually exclusive (e.g., chairing a math club team project for an intercollegiate competition).

Academic-related involvement tends to be an important factor when considering student learning and success outcomes, yet co-curricular student experiences are viewed by students as having similar importance (Astin, 1993). As higher education's student involvement and engagement practices are increasingly focused on the whole student, the distinction between types of academic and social involvement is increasingly blurred, especially within the context of learning (American College Personnel Association [ACPA] & National Association of Student Personnel Administrators [NASPA], 1997). Founded on empirical research, Astin's (1984) theory of involvement is intended to provide a framework for connecting student actions to outcomes. Factors related to the campus environment become key for understanding how students are (or are not)

involved on campus. For example, when considering a student's pre-college background, incoming skill set and experiences, what is it then about the college environment that influences student involvement? Although the traditional construction of student involvement is employed as the guiding framework for this study, it is examined from a critical perspective when notions of involvement do not fit with American Indian experiences. Therefore, if and when the traditional construct of involvement does not seem to fit the American Indian student experience, the response is focused on appropriate developmental higher education responses to changing the campus involvement environment and not changing the student.

The terms involvement, engagement, and integration are increasingly used interchangeably by higher education practitioners and researchers (Wolf-Wendel, Ward, & Kinzie, 2009). However, important distinctions exist among the concepts connected to each theory or construct and care should be taken to use the terms properly, especially by researchers (Wolf-Wendel et al., 2009). The distinctions between these terms are fully outlined in Chapter 2. This study, however, specifically focuses on American Indian student involvement.

American Indian Student Involvement

American Indian college students are often described as resilient, involved, successful and persistent in research studies conducted at mostly Tribal colleges and a few predominantly White institutions in the southwest (Benjamin, Chambers, & Reiterman, 1993; Jackson et al., 2003; Shotton, Oosahwe, & Cintron, 2007). However true these descriptions may be, evidence suggests American Indian students continue to succeed, or graduate, at rates lower than all other racial and ethnic groups in college

today (NCES, 2009). As previously mentioned, American Indians comprise 1.1% (181,000) of the total college and university enrollment in the United States (NCES, 2009). Sixty-one percent of American Indian college students identify as women. Seventy-nine percent (13,600) of the 17,300 students attending tribally controlled colleges and universities identify as American Indian (NCES, 2009); thus over 90% of American Indian college students attend predominantly White institutions (PWIs).

Although there are obvious statistical reasons for why the numbers of American Indian college students account for small campus populations, perceptions of campus climate may also play a role related to American Indian invisibility, especially at predominantly White campuses (Loo & Rolison, 1986). Further, the perception of an inhospitable campus climate may limit the degree to which student involvement occurs (Hurtado, Milem, Clayton-Pedersen, & Allen, 1998). One possible variable affecting the American Indian college student experience related to involvement may a simple lack of campus compositional representation (Milem, Chang, & Antonio, 2005). In other words, American Indians students may not see or have an opportunity to interact with other American Indians and therefore not may feel welcomed on campus.

Statement of the Problem and Research Questions

Most studies on American Indian student campus involvement are qualitative in nature, single-campus studies (often at tribal colleges), region specific and tribe specific. Therefore, they may lack either a transferable or generalizable quality (Brown & Robinson Kurpius, 1997; Jackson & Smith, 2001; Jackson, Smith, & Hill, 2003; Lowe, 2005; Pavel & Padilla, 1993; Tippeconic Fox, 2005). Only two quantitative studies were found in the literature from the past decade that specifically focused on American Indian

college student involvement (Lundberg, 2007; Lundberg, Schreiner, Hovaguimian, & Slavin-Miller, 2007). However, these studies discuss involvement as an environmental independent variable and not as a desired collegiate outcome or dependent variable. Further, although there have been several recent studies exploring involvement variables for students of color using large quantitative data sets, those studies did not include American Indians (Baker, 2008; Fischer, 2007; Hoffman, 2002). In prior research related to American Indian college students, types of involvement are often employed as campus environmental variables that support outcomes related to student success. However, existing research does not inform student affairs professionals as to what types of interactions may lead to increased levels of American Indian student involvement, especially for those at predominantly White institutions. If higher education professionals, through a national quantitative research study, had baseline data from which to inform their developmental interventions for American Indian college student involvement, administrative decisions and resource allocations may be more effectively made. Therefore, this study modifies the I-E-O framework guiding this study in an attempt to identify campus environmental variables that may predict American Indian student college involvement with a goal of increasing campus involvement opportunities and ultimately collegiate success for American Indian students. There are two research questions guiding this quantitative study:

1. Is there a significant relationship between American Indian compositional campus representation and their level of involvement?

2. What campus environmental variables predict American Indian involvement in college?

Theoretical Framework

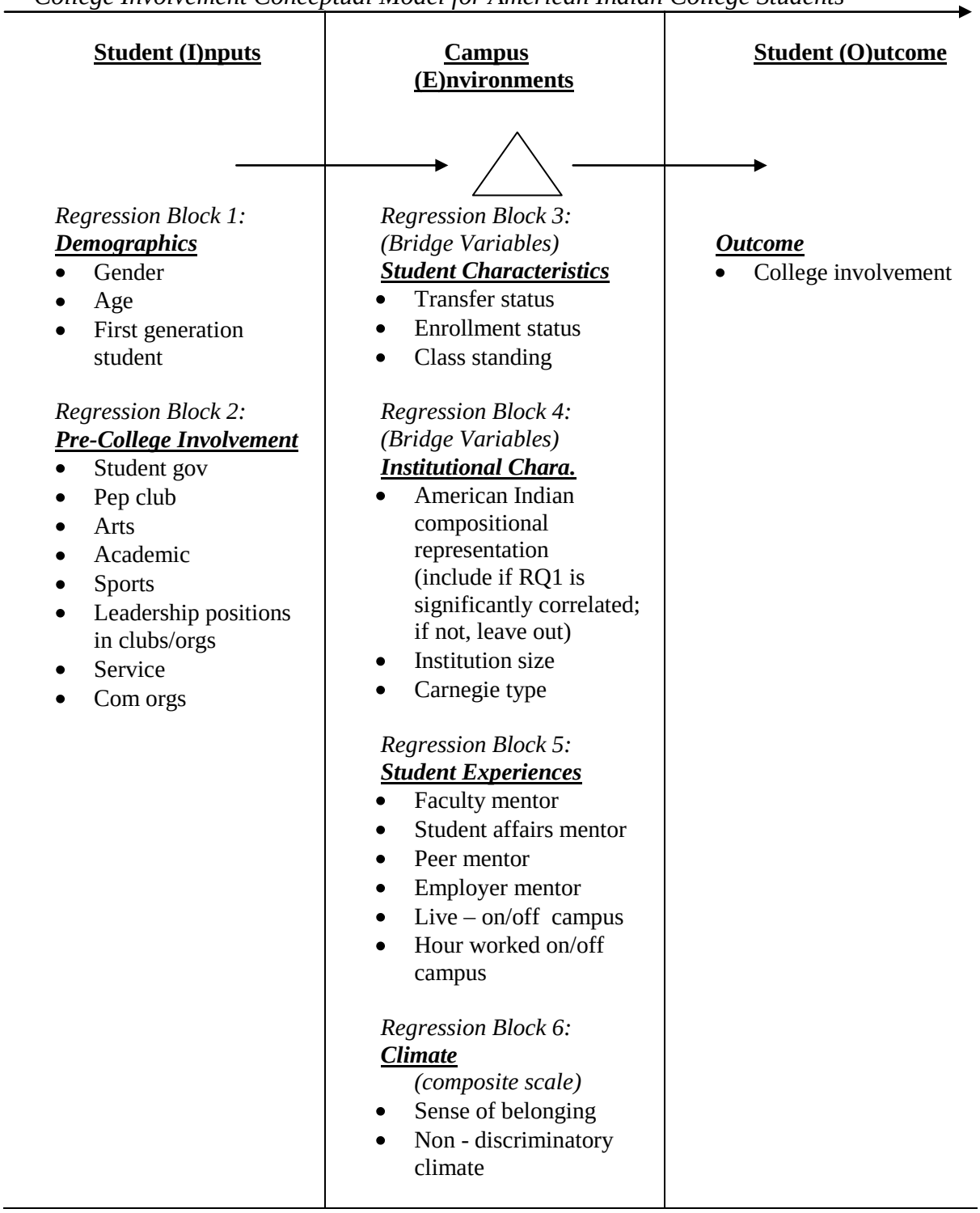
The benefits of a college education are generally well established, yet college administrators continue seeking evidence-based data to inform resource allocations for improving college experience outcomes. One of the most productive uses of limited research resources should be focused on determining how the college involvement environment influences key college outcomes (Astin, 1984, 2001). Astin (2001) stated "the real issue in research on college impact is to determine what difference college attendance makes in the development of the individual" (p. 5). Guiding this study is Astin's (1984) operationalized involvement theory known as the Input-Environments-Outcomes (I-E-O) framework, also called the college impact model (Astin, 1984).

The I-E-O model has been revised and cultivated over the past four decades while the basic premise remains constant (Astin, 1962, 1970a, 1970b, 1977, 1991). "Studying student development with the I-E-O model provides educators, students, and policy makers with a better basis for knowing how to achieve desired educational outcomes" (Astin, 2001, p. 7). The model guiding this study requires the researcher to control for pre-college characteristics so that college environment variables may be connected to collegiate outcomes. These characteristics, known as inputs, are those that students bring with them to the college environment, such as high school involvement, gender, and race/ethnicity. Astin (2001) specifically stated that "our assessment of how outcomes are affected by environments will be biased unless we measure and control for as many student input characteristics as possible" (p. 14). The environmental component of the I-E-O model includes students' exposure to the college environment through peers, faculty, student development programs and interventions, institutional policies, type, size,

and campus climate, for example. Outcome(s) are simply the change students experience as a result of engaging the environment. Using the I-E-O model, researchers may attempt to measure student change by comparing output(s) with inputs. Researchers may modify the I-E-O model in an attempt to predict a certain outcome based on campus environmental variables as was done with this study.

Figure 1.1

College Involvement Conceptual Model for American Indian College Students



Summary of Methods

This quantitative study employs a secondary data analysis from two existing national data sets, the Multi-institutional Study of Leadership (MSL) and the Integrated Post Secondary Education Data System (IPEDS). These data sources are used in a causal comparative design for this study. Pearson correlation will be utilized to test for question one, and hierarchical multiple regression analysis for question two. The MSL data provide the American Indian student involvement variables for both questions, and the IPEDS provides the MSL corresponding institutional American Indian student compositional data. The majority of data for this study are derived from the MSL, a cross-sectional survey research study, considered the largest of its kind on student leadership development (Dugan, Komives, & Segar, 2009).

Data collected through the MSL were selected for use with this particular study for two primary reasons. First, the 2009 MSL has a relatively large American Indian college student sample of 1,959 participants. Second, relevant involvement variable data required for a college impact study were collected in the MSL. The conceptual nature of the MSL allows for data analyses in this study to measure the levels of involvement while controlling for participants' pre-college involvement.

When considering the variables for this study, the 2009 MSL data set was expected to be sufficient and robust for the American Indian student sample. The 2009 MSL included 104 participating institutions from across the United States, Canada, and Mexico. One institution was unable to fully participate resulting in 103 institutions completing the study. The MSL United States national data set is comprised of s institutions.

Institutions represented in the MSL vary across institutional type, size, and population served. Of the 101 participating institutions, 50% were public, 43% research (extensive and intensive), 36% masters, and 19% baccalaureate and 2% were associate. Two-year colleges were removed from the sample resulting in a total of 99 campuses represented in this study. Two of the participating institutions were HBCU's, three were women's colleges and two were Hispanic-serving institutions. There were no Tribal colleges or American Indian serving institutions represented in this study. However, the National Center for Education Statistics (2009) reports that 92 % of American Indian college students attend non-Tribal and non-American Indian serving institutions. Since this study seeks to examine the level of involvement of American Indian college students, the MSL data set provides robust representation of American Indian students across varying types, sizes, and locations of institutions.

The MSL American Indian sample size for this study's quantitative analysis is 3.05 times larger than the most recent quantitative research study (N=643) on American Indian student involvement (Lundberg, 2007). The MSL American Indian student participant sample size of 2.07% is significantly larger than American Indian representation in higher education nationally, which is 1.1% (NCES, 2009). The large sample size of American Indians should contribute to greater external validity for population generalization (Suter, 2006) than has been available for previous studies with American Indian students.

Ethical Research and American Indians

As a researcher of college students who also holds dual citizenship status in two sovereign nations, the Choctaw Nation of Oklahoma and the Unites States of America

respectively, I am acutely aware of concerns related to the ethical treatment of American Indian research participants and their data. Following decades of well-documented unethical treatment and exploitation of American Indian research participants and subjects (Mihesuah, 2004; Mihesuah & Wilson, 2005), several contemporary American Indian scholars suggest the use of specific ethical standards when conducting research involving American Indians (Deloria, 2004; Mihesuah, 2004; Mihesuah & Wilson, 2005; Tuhiwai-Smith, 2006). From this emerging literature base related to the proper use and treatment of American Indian data by researchers, I have developed an ethical research framework for this study that may be replicated (and updated) with future studies with American Indian college students. At the end of Chapter 2, I provide a review of the relevant literature on ethical treatment standards of American Indian data and in Chapter 3, I provide an outline of how this study meets these standards.

The purpose of integrating this particular research strand throughout this study is done in an attempt to model ethical research practices one may consider when collecting, analyzing, and discussing American Indian data. This model does not imply a one-size-fits-all approach, especially when considering the specific needs of each American Indian community or those related to national or cross-tribal studies. However, there are commonly accepted standards that should be considered when working with American Indian data. One of the most important components, I believe, is related to cultural competence. Specific competencies, again, are not necessarily global, or pan-ethnic, and should be viewed in the context of each study. As a member of the Choctaw Nation of Oklahoma, although I may share common colonial experiences with those from other tribal affiliations, I know that each Western Hemisphere indigenous tribe has its own

culture, history, and often its own language. At the tribal level, competencies will likely be specific to the tribe as it relates to the context of the study (e.g., Osage nation members and diabetes research). In the context of college campuses and the experiences of American Indian college students, competencies may include a deep understanding of the American Indian college student experience and a strong background in multicultural student development, among others.

As someone who studies, works with, and teaches college students I have often struggled with the lack of data and best practices related to American Indian college students. At times, the lack of information available to guide college student educators, both in and out of the classroom, can be overwhelming. Typically, one becomes overwhelmed with too much information or data, but in the case of American Indian college students, educators may become overwhelmed by the sheer lack of information to support their work. With so many research studies being conducted by college student development and higher education researchers many research gaps are quickly being filled. However, as previously mentioned the research with American Indian college student experiences remains very limited and is often campus specific. With so few American Indians as a proportion of the population, and subsequently on college campuses, the potential for research studies to include American Indians when comparing students by race/ethnicity remains unlikely, especially within quantitative studies. So this study simply attempts to help fill an existing quantitative research gap on American Indian college student involvement while integrating an ethical research approach to using American Indian data in the college context.

Significance of Study

The results from this study will make significant contributions to the research with American Indian college student involvement. The use of a national multi-institutional data set with a large sample of American Indian participants will be the largest study of its type. Due to the large sample size, findings from this study may be more generalizable than any other research about American Indian student experiences. Further, the involvement model presented here addresses an important missing link in the involvement research chain with American Indian college students. Lundberg's (2007) foundational study on the effect of American Indian student involvement on specific learning outcomes begins with students who are already involved. Currently, there are no multi-institutional studies with large American Indian samples that provide evidence predicting what types of campus environmental variables lead to American Indian involvement, which this study does. Throughout this study, I identified key ethical practices related to American Indians and their data, and provided a new model for integrating these practices into student development research.

Summary

This study seeks to make a contribution to the involvement research with American Indian college students by conducting a study using a large national data set sample of American Indian college students. Guided by Astin's (1993) college impact model, this study's framework provides a widely accepted method for testing this study's hypotheses. The large American Indian student sample size gathered from across 99 institutions should provide useful information that could be more generalizable than with

past studies on American Indian student involvement. The next chapter provides a review of the literature.

CHAPTER 2: REVIEW OF THE LITERATURE

Studying American Indian college student involvement necessitates a thorough review of the related literature. In this chapter I review theories related to college student involvement, with an overview of American Indian college students followed by a review of the extant research related to factors influencing American Indian college student involvement. Astin's (1993) inputs-environment-outcome framework organizes this study's research analysis of known factors influencing American Indian student involvement. For clarity and consistency, the order of these factors, later referred to as variables, will follow a similar outline in Chapter 3. This chapter concludes with a review of extant literature related to generally accepted ethical practices for conducting research with American Indians and their data.

College Student Involvement

This section will outline the theory of student involvement, and an overview of the constructs and uses of involvement, engagement, and integration.

Theory of Involvement

Astin (1975, 1984) defines and quantifies involvement as the amount of psychic and physical energy a student invests in college. Overall, the more students are involved in college the more likely they are to succeed (Astin, 1993; Pascarela & Terenzini, 1991). Involvement includes both social (e.g., sorority, psychology club) and academic activities (e.g., time spent studying, research team involvement), which are not always mutually exclusive (e.g., chairing an engineering club team project for an intercollegiate competition). The extant research on student involvement focuses mostly on co-curricular involvement's direct and indirect effects on student learning and success (Fischer, 2007;

Hoffman, 2002; Moore, Lovell, McGann, & Wyrick, 1998; Pascarella & Terenzini, 2005; Wolf-Wendel, Ward, & Kenzie, 2009).

As one might expect, academic involvement tends to be an important factor when considering student learning and success outcomes, yet co-curricular student experiences are also viewed by students as important to their college experience (Astin, 1993). As higher education's student involvement and engagement practices are increasingly focused on the overall student experience, the distinction between types of academic and social involvement is increasingly blurred, especially within the context of learning (American College Personnel Association [ACPA] & National Association of Student Personnel Administrators [NASPA], 1997). Based on empirical research, Astin's (1984) theory of involvement is intended to provide a framework for linking student actions to outcomes. From this perspective, factors related to the campus environment become key for understanding how students are (or are not) involved on campus. In other words, when considering a student's pre-college background, incoming skill set and experiences, how does the college environment influence student involvement? For example, does involvement increase for American Indian students if there is a greater number of American Indians on campus? Do high levels of faculty-student interaction outside the classroom increase American Indian students' involvement on campus?

Measuring college student experiences becomes a particularly salient goal when considering campus populations who have been historically underrepresented in institutions of higher education, especially for those attending predominantly White institutions (Astin, 1982; Jackson, et al., 2003; Pike, Kuh, & Gonyea, 2003, 2007). In fact, Pike et al. (2003) found that racial minority students attending predominantly White

institutions tend to be more involved than their White counterparts. However, this finding did not differentiate between racial minority groups, and so the authors suggested further research was needed to explore each minority group's experiences. Understandably, current student experience research results are often used to inform student development practice through new and revised interventions for decreasing involvement barriers, especially among historically underrepresented students in college. As many student involvement researchers have noted, there are few studies related to smaller campus populations, such as American Indians, and therefore more research is needed to fully inform student development practice (Lowe, 2005).

Involvement, Engagement, and Integration

The terms involvement, engagement and integration are increasingly used interchangeably by higher education practitioners and researchers (Wolf-Wendel et al, 2009). However, important differences exist among the concepts connected to each theory or construct. Care should be taken to use the terms properly, especially by researchers (Wolf-Wendel et al., 2009). Simply stated, involvement includes actions students take to become involved in college (Astin 1984, 1991); engagement is an institution's practice(s) for engaging and seeking student participation (Astin, 1984; Kuh, 2001, 2005; Kuh, Schuh, Whitt & Associates, 2005; Pace, 1984), and integration focuses on how students fit (or do not) with their campus environment through retention, in particular (Tinto, 1986, 1993). The concept of integration has been criticized as it relates to American Indian and other racial/ethnic campus populations (Tierney, 1992, 1993a, 1993b). As a result, Tinto's (1993) concept of social and academic integration has been modified to be more inclusive and less assimilative (Rendon, Jalomo, & Nora, 2000).

Although the concepts of involvement, engagement, and integration often overlap in the existing literature, especially between engagement and involvement, it is important to make distinctions in research. This study of American Indian student involvement will pay particular attention to addressing the large void of research on this topic by focusing on predictors of American Indian involvement and drawing from the relevant engagement, involvement, and academic success literature where they have been used interchangeably. As will be established in this chapter, higher education practices are generally not well informed by generalizable student development research with American Indian students particularly when it comes to their college involvement.

Inputs-Environment-Outcomes (I-E-O) Model

Astin (1984) operationalized his involvement theory into an Input-Environments-Outcomes framework, also called the college impact model (1977), and this model is utilized as a guide for this study. Astin (2001) states "the real issue in research on college impact is to determine what difference college attendance makes in the development of the individual" (p. 5). A necessary element related to measuring the impact of college on students requires controlling for their pre-college student characteristics. One may suppose it might be easier to simply compare those who do not go to college with those who do for determining the impact of college on students. However, this idea quickly succumbs to the reality that comparing the experiences of college going and non-college going students becomes meaningless in this context (Astin, 2001). The benefits of a college education are generally well established, yet college administrators continue seeking evidence-based data to inform resource allocations for improving college experience outcomes and benefits. One of the most productive uses of limited research

resources should focus on determining how the college involvement environment influences key college outcomes (Astin, 1984, 2001).

The I-E-O model has been revised and cultivated over the past decades while the basic premise remains constant (Astin, 1962, 1970a, 1970b, 1977, 1991, 1993, 1996, 2001): "Studying student development with the I-E-O model provides educators, students, and policy makers with a better basis for knowing how to achieve desired educational outcomes" (Astin, 2001, p. 7). The I-E-O college impact model requires the researcher to control for pre-college characteristics. These characteristics, known as inputs here, are those that students bring with them to the college environment, such as high school involvement, gender, race/ethnicity, and others. Astin (2001) specifically stated that "our assessment of how outcomes are affected by environments will be biased unless we measure and control for as many student input characteristics as possible" (p. 14). The environmental component of the I-E-O model includes the student's exposure to the college environment through peers, faculty, student development programs and interventions, institutional policies, type, size, and campus climate. Outcome(s) are the change students experience as a result of engaging with the environment. Using the I-E-O model, researchers may attempt to measure student change by comparing output(s) with inputs. Modifications to the traditional I-E-O model are often made in an attempt to predict a certain outcome based on campus environmental variables. This is known as a modified college impact model which is employed with this study.

American Indian College Students

American Indians are not a homogenous group as is often believed, yet American Indians often have share experiences as many indigenous tribes in the United States tend

to have more in common with one another than with other groups. Overall, American Indian college students have been described as involved and persistent in the limited existing literature and research studies that were conducted at mostly Tribal colleges and a few predominantly White institutions in the Southwest (Benjamin, Chambers, & Reiterman, 1993; Jackson, et al., 2003; Shotton, et al., 2007). However true these descriptions of success may be, evidence suggests American Indian students continue to succeed at rates lower than all other racial and ethnic groups in college today indicating that college involvement activities, among other variables, require further study (NCES, 2009). Demographically, American Indians comprise 1.1% (181,000) of the total U.S. college and university enrollment (NCES, 2009), and 61% identify as women. Seventy-nine percent of the 17,300 students attending tribally controlled colleges and universities identify as American Indian (NCES). These data challenge the common misperception that most American Indians attend Tribal colleges or that all students at Tribal colleges are American Indians. As stated earlier, over 90% of American Indians attend PWIs. Another common misperception about American Indian college students is that most live on land reserves, or reservations. In fact 84% of American Indians reside outside of land reserves in urban and other rural areas (United States Census, 2005).

Most studies on American Indian student involvement tend to be qualitative in nature, single-campus studies (often Tribal colleges), region specific, tribe specific, and while informative, do not possess easily transferable results (Brown & Robinson Kurpius, 1997; Jackson & Smith, 2001; Jackson et al., 2003; Lowe, 2005; Pavel, 1999; Pavel & Padilla 1993; Tippeconic Fox, 2005). With only two quantitative studies found in the literature from the past decade specifically focused on American Indian college student

involvement (Lundberg, 2007; Lundberg et al., 2007), none were found exploring American Indian student involvement as a desired outcome. Although there have been several recent studies exploring involvement variables for students of color using large quantitative data sets, these studies do not include American Indians (Baker, 2007; Fischer, 2007; Hoffman, 2002).

A review of the limited extant published research on American Indian college students reveals mostly qualitative intra-institutional research and very limited inter-institutional findings. Tribally controlled colleges are often the primary context for recent American Indian college student experience research even though only 7.5% of the 181,000 American Indian college students attend tribally controlled colleges. The reasons for this seem quite obvious when one considers the critical mass of American Indian college students at Tribal colleges compared with their limited representation for research at predominantly White institutions. With the majority of existing research on American Indians focused on narrow sub-populations (e.g. Tribe, region), it is not surprising then to discover the college student experience literature is also contextually limited when discussing American Indian student experiences. This research limitation is further visible when comparing the depth of existing student development research on American Indian college students with other racial/ethnic groups.

Over the past decade, research with American Indian college student experiences, and research on students of color in general, has shifted from perspectives of student deficits to mostly institutional success models (Padilla, et al., 1997). In other words, instead of holding the student, or student population, solely responsible for their lack of college success, researchers are identifying institutional environments that

promote student success thereby placing more emphasis on the institutional response (Benjamin, et al., 1993; Fries-Britt, 1998; Jackson, 2003; Lundberg, 2007; Padilla, et al., 1997; Shotton et al., 2007). Although current student development research related to American Indians is limited, recent findings remain important for advancing and informing student development praxis by confirming anecdotal practices or replacing outdated practice with new evidence-based interventions.

American Indian College Student Involvement

While the use of the traditional student involvement framework is utilized in this study for addressing a major gap in the research literature, the application of involvement is viewed from a critical perspective as it relates to American Indian college students. Therefore, where traditional applications of involvement do not seem to fit the American Indian experience, the concept of involvement is revisited rather than assuming American Indian college students should fit within the traditionally adopted concept. Published research on the overall experience of American Indian college students is limited (Guillory & Wolverton, 2008; Jackson, et al., 2003; Larimore & McClellan, 2005; Lundberg, 2007; Pavel, et al., 1998; Steward, 1993). However, the limited extant research and scholarship on American Indian college students may be loosely categorized into three broad contexts: retention/persistence/success; student involvement and engagement; and access. This study specifically focuses on student involvement aspects of the American Indian college student experience. There is often considerable overlap when considering these contexts, especially related to involvement and engagement. This review will draw from all relevant college settings and is organized according to emergent factors specifically related to involvement. These factors will be briefly

outlined from the American Indian student involvement perspective and then reviewed by what Rudestam and Newton (2001) call long shots to close-ups. This means that each emergent involvement factor will be briefly introduced from the broad context of higher education, then from research involving students of color, and then as fully as possible from research related to American Indian college students. This broad-to-specific approach will ensure a comprehensive understanding of each involvement factor where empirical research related to American Indian students may be limited.

Related to the emergent involvement factors found in the literature, this section will be guided by Astin's inputs-environment-outcomes organizational framework. Specifically, the first section will review factors considered to be input variables related to American Indian involvement. The input factors from the literature include student demographics (gender, age, first generation status) and pre-college involvement. The campus environment factors found in the literature related to American Indian student involvement are thusly ordered and grouped according to student characteristics, institutional characteristics, student experiences, and campus climate. Astin (2001) suggested that with college impact studies, researchers should use their informed judgment for ordering and placing environmental variables for the study using a distal-proximal scheme.

Demographic Characteristics

Demographic characteristics that emerged in the literature for American Indian students included gender (Berry, 2008; Bitsoi, 2007; Shotton, 2008; Steward, 1993), age (Lowe, 2005), and first-generation status (Lowe, 2005; Shotton et al., 2007). The involvement literature on students of color (Flowers, 2007; Lundberg et al., 2007) and the

overall college student involvement research (Moore, Lovell, McGann, & Wyrick, 1988; Pike & Kuh, 2005; Pike et al., 2003; Terenzini et al., 1996) verify these factors. Although gender, age, and first-generation status may initially appear as discrete variables, research findings often present them in an interrelated fashion. As such, they are discussed here as both independent and interrelated involvement factors as research findings have dictated.

In two large studies using samples drawn from the College Student Experiences Questionnaire (CSEQ), traditional age college women were more likely to participate in involvement activities than men (Pike & Kuh, 2005; Pike, et al., 2003). Specifically, women were more likely to be both academically and socially involved than men (Pike, et al., 2003). Likewise, Pike and Kuh (2005) found that first-generation female students were more engaged overall, especially when living on campus, having future graduate school plans, and identifying as a racial minority. Identifying as a female and a student of color seems to increase the likelihood of campus involvement (Steward, 1993), in addition to academic success, for American Indian women (Shotton, 2008). In fact, Shotton's (2008) qualitative study ($N = 7$) of high-achieving American Indian women found that undergraduate involvement was a key to future academic success in graduate school. One interesting consideration related to findings of college women and their involvement was their demographic over-representation across many higher education settings. This is especially true for American Indians where women consistently comprise the majority (61%) of American Indian college students (NCES, 2009). Regardless, the research data indicate that gender, especially related to female college students, is an important factor for campus involvement. Although there is virtually no research

literature related to American Indian men and college involvement, Bitsoi's (2007) qualitative study of success factors for American Indian men at Harvard College found that community involvement was a key success factor.

Whereas being female and a student of color may increase the likelihood of campus involvement, first generation status often results in less campus involvement (Pike & Kuh, 2005) even though first generation students are more likely to be female than male (Terenzini et al., 1996). In their College Student Experience Questionnaire (CSEQ) sample of 1,500 first generation college students from across institutional types, Pike et al. (2003) discovered that students' first generation status was negatively related to social involvement. "Students of color (including American Indian students) and first-generation students share some common experiences and face some common obstacles, but their involvement on campus and its contribution to their learning includes dynamics that are distinct to particular groups" (Lundberg et al., 2007, p. 73).

Results from a recent national study using CSEQ data consisting of equal samples of 643 participants for each of seven racial/ethnic groups (including American Indians) and first generation status suggest that quality of involvement may be more important than type or quantity for first generation students of color (Lundberg et al., 2007). This agrees with Pace (1984) and Astin's (1991) understanding related to quality of involvement effort as more important than quantity of involvement. However, Lundberg et al. (2007) found that first generation American Indian student investment and effort in college involvement resulted in fewer desired involvement outcomes than with those among other student populations, suggesting that more research is needed in this area.

Although age is less discussed in the literature than either gender or first generation status when related to involvement, it is frequently discussed in the bifurcated terms, traditional age students and adult learners. In 2006 only 26.3% of traditional age (18-24 year old) American Indian students were enrolled in college compared to 58% of Asian American, 41% of White, 33% of African American, and 27% of Hispanic students (Freeman & Fox, 2005). The percentage of American Indian undergraduates over the age of 25 is greater compared to all other racial or ethnic groups. Nationally, of students over the age of 25, several researchers have found that adult learners benefit significantly from quality co-curricular involvement (More, Lovell, McGann, & Wyrick, 1998; Whitt, 1994). Cumulatively, this area of research suggests that gender, age, and first generation status are likely important involvement factors for American Indians, as well as for other students of color.

Pre-College Involvement

In addition to the demographic involvement factors, pre-college and high school experiences should be recognized and considered. Findings from the analysis of empirical data have established the benefits of college student involvement. More recently, studies have emerged establishing the benefits of pre-college or high school involvement to positive development in college (Eccles & Barber, 1999; Komives & Johnson 2009; Rose-Krasnor, Busseri, Willoughby, & Chalmers, 2006).

Although the link between high school involvement and college involvement as it relates to learning outcomes remains mostly unexplored (McNeal, 1995), researchers are beginning to explore the relationship between high school involvement and aspects of student development in college such as leadership development (Komives & Johnson,

2009). Much like Astin's (1991) and Pace's (1984) thoughts about quality and quantity when considering students' efforts related to college involvement, Rose-Krasnor et al. (2006) studied the breadth (number of activities) and intensity (frequency of participation) of high school student involvement. These results confirmed that there are positive developmental benefits to what they call youth involvement and, much like college involvement, the type and quality of involvement matters.

The previous section included the emergent demographic and pre-college factors found in the literature related to American Indian student involvement. Astin (2001) refers to these factors as input variables within his input-environment-output model, which serves as the basis for organizing the literature review in this study. In the next section, campus environmental variables from the literature related to American Indian student involvement will be discussed. These variables include specific institutional characteristics, student characteristics, and student experiences identified in studies as important factors influencing American Indian student involvement.

Student Characteristics

Three sets of student characteristics emerged within the literature on American Indian students and their involvement in college. Transfer status, part-time/full-time status, and class standing are factors that may influence levels of student involvement (Moore, et al.,1998).

American Indian college students make up 1.1 % of all students attending college, with the majority (55%) enrolled at community colleges, the highest percentage among all racial or ethnic groups and tied with Hispanic students (American Association of Community Colleges, 2008). Only 7.5 % of all American Indian college students were

enrolled in one of the 33 tribally controlled colleges with the remaining students enrolled in private and public 4-year and 2-year colleges and universities (NCES, 2009). Specifically, American Indians make up 1.3 % of all community college students and 0.9 % of 4-year college students (NCES, 2009). Transfer statistics between (horizontal) 4-year colleges are elusive, as are those related to American Indian students who transfer from four-year to two-year colleges (reverse-vertical).

In a longitudinal single tribal campus study of 232 American Indian students, Patterson Cross (2002) found that full-time American Indian students are more likely to transfer to four-year institutions and graduate than those attending part time. In a single predominantly White institution campus study of 2,492 incoming transfer students, Wawrzynski and Sedlacek (2003) found that transfer students of color had higher expectations for involvement with faculty and students outside of class than their White transfer peers. However, this study did not include American Indian students in the sample. Several studies have found that student involvement within the first year predicts future involvement (Berger & Milem, 1999), which was also true for students of color (Abrahamowicz, 1988; Hurtado & Carter; 1997). Not surprisingly, transfer status and class standing are inter-related in the literature. This relationship may be important since slightly more than half of American Indians begin college at the community college level, and many are likely to become transfer students at 4 year institutions.

Institutional Characteristics

Institutional factors that emerged in the literature indicating importance for American Indian student involvement included the compositional representation of

America Indians on campus and those of institutional type, size, and control. This section includes a discussion of the relevant research related to these factors.

In responding to low enrollment of historically underrepresented racial and ethnic student populations, arguments have mounted over the past two decades calling for an increase in campus racial diversity as a means to increase student success in college for historically underrepresented populations (Hurtado, Milem, et al.,1999; Milem, 2003; Milem & Astin, 1993; Rendon, et al., 2002), including American Indians (Swisher & Tippeconnic, 1999; Tippeconnic-Fox, 2005). This type of diversity is currently referred to in the literature as compositional representation (Milem, Chang, & Antonio, 2005) when considering the overall proportion and representation of historically underrepresented racial/ethnic groups on campus (Hurtado, Milem et al., 1998, 1999). Students from historically underrepresented racial and ethnic backgrounds at predominantly White institutions are likely to feel alienated if their representation on campus is too small or not visible (Loo & Rolison, 1986). Further, "underrepresentation of students of color can contribute to the maintenance of stereotypes" (Milem, 2000, p. 29). In fact, there are four documented benefits to increasing campus compositional representation of historically underrepresented racial or ethnic groups. Compositional representation benefits the individual students, the institution, private enterprise, and the broader society through increased complex thinking, reduced stereotyping, and higher creativity, among others (Milem, 2003). A few of the individual student benefits of campus compositional representation include increased campus engagement, retention, and overall satisfaction. Given this argument, it seems logical to believe that the greater the compositional representation of American Indians on campus, the more likely they

may be involved in campus life. However, as with most research, American Indian student data are literally missing from every study for which these beneficial claims are based. However, in Lin, LaCounte, and Eder's (1988) single-campus study at a PWI (95% of students identifying as White) indicated that feelings of isolation among American Indian students accounted for 23% of the study's variance in expectations of graduation for American Indian students. This finding would seem to indicate that isolation may be related to campus compositional representation. In order to verify the stated benefits of compositional representation extend to American Indian college students, a baseline of research findings needs to be developed to test the translation of individual student benefits for American Indian compositional representation.

Other institutional characteristics that emerged in the literature as influencing American Indian college student involvement included institutional type and size. It has long been believed, and reported anecdotally, that Tribal colleges are doing a better job with American Indian student success than other types of institutions primarily due to their type and size (AIHEC, 2006). However, new quantitative research examining institutional characteristics in data from the Integrated Postsecondary Education Data System 1996-2001 (IPEDS) has shown statistically significant differences in American Indian academic success across institutional characteristics (White, 2007). In findings that may seem somewhat counterintuitive, White (2007) found that the broad claims of student success at Tribal colleges when compared to predominantly White institutions were not supported.

The institutional characteristics of type and size seem to have direct implications for American Indian collegiate success (Pavel, 1999; White, 2007). Using data from the

NCAA, Pavel (1999) reported that small public institutions were the least likely to graduate American Indians within six years while large private institutions were the most likely. Interestingly, most large multi-institutional research studies indicate that student samples are more likely represented at the baccalaureate and masters levels; however, these studies do not explicitly indicate this may be a result of masters and baccalaureate institutions constituting the majority of all Carnegie types and thus enrolling more students on average (NCES, 2002). Regardless, current research indicates that for students of color, institutional size and type are characteristics that may influence student involvement (Fischer, 2007; Lundberg, et al., 2007; Moore et al., 1998). Fischer's study using the National Longitudinal Survey of Freshmen (NLS-F) data exploring involvement for students of color (Black, Hispanic, and Asian) included institutional size as a variable due to existing mixed research results (Pascarella & Terenzini, 2005) on the overall impact of size on involvement outcomes for students of color once again showing mixed results. It is worth reiterating that recent research studies specifically exploring institutional characteristics leading to student involvement across race or ethnicity generally do not include American Indian college students (Fischer, 2007; Hoffman, 2002; Lundberg, et al., 2007; Moore et al., 1998; Pike, et al., 2003) and therefore more research should be conducted to inform the literature. The next section reviews campus environmental factors influencing involvement for American Indian college students as related to specific student characteristics.

Student Experiences

The types of American Indian student experiences found in the literature indicating relevance related to campus involvement included interactions with faculty

members (Berrington, 2003; Fischer, 2007; Guillory & Wolverton, 2008; Lundberg & Schreiner, 2004), staff members (Jackson, 2003; Lundberg, 2007), and peers (Shotton, et al., 2007); and places of residence and work (Astin, 1993, 2001).

Faculty, Staff, and Peer Interactions

Interactions between students and college faculty, staff, and peers have been described in terms of formal interactions such as mentor programs and "others less so in that relationships evolve out of advising, first-year seminars, and other routine contacts" (Kuh, Kinzie, Schuh, Whitt, & Associates, 2005, p. 211). Astin's (1993, 2001) longitudinal college impact study included faculty and peer interactions as types of student involvement that resulted in direct positive effects on student collegiate outcomes. Interestingly, most prior and current research has focused on the benefits of faculty-student and peer relationships both in and out of the classroom without directly considering campus staff, especially those in student affairs (Love, 1995). Love suggested that student affairs professionals should be included within research studies on student experiences along with faculty and peers to determine the extent of direct and indirect effects of these interactions. Currently, there is limited research focused on the outcomes of the direct effects of student-student affairs staff interactions (Love, 1995). Direct effects are defined as "the unmediated influence of one variable on another" while "indirect effect[s] occur when the effect is transmitted through an intervening variable or variables" (Pascarella & Terenzini, 2005, pp. 12-13).

As with other involvement factors in this study, peer, staff, and faculty interactions are sometimes interrelated. For example, student affairs staff are increasingly engaging with students simultaneously as instructors and staff members. However, both

peer and faculty interactions with students are often constructed as distinct direct influences on student outcomes while student affairs interactions are often considered indirect (through programs and interventions) when considering desired educational outcomes (Love, 1995; Pascarella & Terenzini, 1991, 2005).

Although it has been documented that faculty and peer involvement is critical to student success (Astin, 1993; Chickering & Reisser, 1993), positive faculty-student interaction outcomes may be more of a function of student perceptions of an overall sense of supportive faculty than direct faculty interaction (Pascarella & Terenzini, 1991, 2005). Evidence also suggests that students who have close interactions with their faculty are more likely themselves to have peer academic helping behaviors (Astin, 2001). One critique of research studies that gather data related to peer interactions suggests students may not be making distinctions between types of peer interactions (e.g., interactions with peers vs. peer para-professionals) thereby possibly biasing study outcomes (Love, 1995).

For students of color, the direct effect of faculty interactions has shown mixed results. In Lundberg and Schreiner's (2004) national study of student-faculty interactions across race and ethnicity (N= 4,501) several interesting findings emerged. Although quality of faculty interactions were important, quantity of interactions between students of color were significant predictors of enjoying a satisfying relationship with faculty. American Indians and African Americans reported more frequent interactions with faculty and working harder to meet faculty expectations than their peers. However, their satisfaction with those faculty relationships was lower than that of other groups (Lundberg & Schreiner, 2004). In their single campus study of 616 American Indian students, Lin, LaCounte, and Eder (1988) found that faculty were often viewed as

creating a hostile environment and therefore relationships between American Indian students and faculty were often stymied or simply avoided. Even so, Wilson (1997) found that American Indian relationships with faculty are very important to student success. This was confirmed by Jackson's (2003) qualitative interview research study with 15 American Indian college students who reported that personal relationships with faculty, as well as student affairs staff, were positive factors in their college experience regardless of the faculty member's race.

Peer-to-peer interactions have been shown to increase desired collegiate outcomes such as persistence and supportive social climate (Milem & Berger, 1997). Student peers, often upper-class peers, may become campus paraprofessionals trained in such roles as orientation advisors or health educators, and assume a more formal interaction role. Although it has been shown that general peer interactions among minority college students result in positive college outcomes for students of color (Fischer, 2007), same race and like-group peers may provide more specific support for educational outcomes (D'Augelli & Hershberger, 1993; Fries-Britt, 1998). In their phenomenological study of American Indian college students, Shotton, et al. (2007) found (N = 7, single campus study) that formal like-peer mentor relationships supported American Indian academic success. The literature suggests that American Indian students specifically benefit from formal (Jackson, 2003) and informal peer relationship involvement (Lundberg, et al., 2007; Shotton, et al., 2007). However, similar to the findings related to faculty interactions, results are often conflicting and need further analysis to determine specific involvement benefits among faculty, peer, and student affairs interactions especially as they relate to American Indian students..

Place of Work and Residence

In Astin's (1993, 2001) longitudinal college impact study, he included where and how much students worked and where they lived as variables affecting student involvement outcomes. Astin (1993, 2001) found the most positive direct effects of involvement were associated with students who lived on campus or those who moved on or near campus from far away. Further, these students were more likely to be involved in campus activities and events compared to students living at home or close to home. In their study using data from the CSEQ with a random sample of 3,000 first and second year students, Pike and Kuh (2005) confirmed that students living on campus experience the largest positive direct effect on collegiate outcomes of any student characteristic in their study.

In a single-campus qualitative study, Krause (2007) discovered that planned small group and out-of-class involvement opportunities on campus and through virtual communities may mediate negative effects generally associated with living off campus. However, for many reservation-based American Indian students (S. Waterman, personal communication, February 14, 2009) and many students of color (Nora & Cabrera, 1996) being close to home/family and within commuting distance increased the likelihood of success in college. As with many variables in this study, the traditional view of off-campus experiences as it related to the traditional construction of involvement may need to be reexamined in light of differential findings.

Collegiate outcomes for students working full time were negatively related to involvement, as was working part time off campus (Astin, 2001). However, working part time on campus resulted in positive effects related to important collegiate outcomes.

Astin (2001) explains: "In all likelihood, the key to understanding this difference lies in the concept of involvement: compared to students who spend an equivalent amount of time working off campus, students who are employed on campus are, almost by definition, in more frequent contact with other students," (p. 388), faculty, and staff. Fischer's (2007) study using data from the National Longitudinal Survey of Freshmen confirmed Astin's (2001) findings that adjustment to college for Black, Hispanic, Asian, and White college students who maintain strong off-campus social ties, do so at the detriment of campus integration. The specific issues related to campus integration as an assimilation framework has been fully critiqued by researchers as it related to American Indians and should be understood in the context that campus integration may not be beneficial for American Indians (Tierney, 1992, 2000). Further, formal and informal on-campus connections led to greater overall satisfaction, especially for Black students (Fischer, 2007). However, college experiences for students of color cannot be discussed without also exploring the next and likely most salient variable, campus climate.

Campus Climate

Campus climate has become a ubiquitous term in higher education often accompanied by varying definitions (Hart & Fellabaum, 2008). Overall, campus climate is the term used to describe quality-of-life feelings related to campus diversity (Hart & Fellabaum). Many campuses attempt to measure and study their campus climates (Hurtado, Milem, et al., 1998) in order to understand how racism and prejudice affect collegiate outcomes (Cabrera, Nora, Terenzini, Pascarella, & Hagedorn, 1999). The primary purpose of studying the college campus climate is to seek results that help administrators enhance learning environments (Hurtado, Carter, & Kardia, 1998) and

make foundational adjustments related to findings (Harper & Hurtado, 2007). Campus climate may also be viewed in terms of a sense of campus community. Specifically, Cheng (2004) found that in order for students to feel a sense of community student affairs professionals should ensure the campus creates a culture of openness and individuality, faculty engagement, active social programming, cross-cultural interactions, celebrations of traditions, and psychological and development assistance, all of which are forms of involvement.

With the majority of students of color attending predominantly White institutions, most campus climate research is understandably conducted at PWIs. Ninety-two percent of American Indian college students attend PWIs and also experience the lowest six-year graduation rate of any student racial or ethnic group. This phenomenon is often reported in the literature as a direct result of hostile PWI campus climates for American Indians (Brown & Robinson Kurpius, 1997; Cole & Denzine, 2002; Huffman, 1991; Jackson, et al., 2003; Lin, et al., 1988). Of all the variables reflected in the literature, campus climate is the most widely discussed as related to important collegiate outcomes for American Indians. These studies too are limited in scope through single institution and often tribal or region specific data. Regardless, findings related to campus climate are consistent across the studies.

In their single campus study of American Indian student experiences at a medium size PWI in the central plains, Lin, LaCounte, and Eder (1988) found that the perception of campus hostility was one of four factors influencing levels of collegiate success. Their campus environmental study compared American Indian and White students across various factors of the campus environment. In this study, 40% of American Indian

students experienced hostility from their professors as compared to 15% of White students and the findings were consistently related to the overall campus climate. Of course, this could be an institution-specific finding and is not a generalizable result as the authors point out. However, in a qualitative study that included 15 Native American students from five four-year institutions in the southwestern United States, Jackson (2003) found that dealing with racism from faculty and peers was a common experience for every participant. The participants in this study also reported being discouraged as a result of these experiences and withdrawing from many college functions and activities. Both Jackson (2003) and Lundberg (2007) directly state that more research should be done to explore the effects of campus climate on American Indian college students so that institutions may lessen or eliminate hostile climate experiences.

This section reviewed the emergent variables shown to be relevant for American Indian student involvement and where the literature was thin the research on students of color and overall student involvement was employed. Overall several groups of variables emerged from the involvement literature. Specifically, the demographic characteristics of gender, age, and first generation status; high school involvement experiences; the student characteristics of transfer and enrollment status, and class standing; the institutional characteristics of compositional American Indian representation, campus size and Carnegie type; the student experiences of mentoring by faculty, student affairs staff, peers and employers, and living or working on/off campus; and the campus climate related to sense of belonging and non-discriminatory climate experiences all emerged as potentially important variables related to American Indian student involvement.

Ethical Research and American Indians

This section will outline current considerations for conducting ethical research with American Indian data. Four themes emerged from the literature related to ethical research and are discussed below.

Following decades of well-documented unethical treatment and exploitation of American Indian research participants and subjects (Mihesuah, 2004), several contemporary American Indian scholars suggest the use of specific ethical standards when conducting research involving American Indians (Deloria, 2004; Mihesuah, 2004, 2005; Tuhiwai-Smith, 2006; Wilson, 2004). This research study attempts to model several practices when studying American Indian college students. One such model is to integrate the literature review with a brief overview of current American Indian-centric thinking related to conducting research with and writing about American Indians. In addition to this section of the literature review, a brief section is included in Chapter 3 relating the standards discussed here with methodological implications for this study. Understandably, one might expect these types of standards to be remedied through standard institutional review board (IRB) processes for acquiring human subjects approval from this or any institution. Unfortunately, generally accepted higher education IRB protocols do not necessarily result in cultural competence on behalf of the researcher when engaging American Indian research participants. Well publicized incidents of incompetent and unethical research by university researchers has resulted in greater distrust between many American Indians and researchers, especially medical and anthropology researchers. Education fields are not immune from this distrust given American Indian communities' long struggle with the U.S. education system as a tool for

forced assimilation and acculturation that resulted in the permanent loss of language and culture for many (Takaki, 1993). Therefore, as a matter of research practice, I include this brief review of standards related to researching and writing about American Indians as part of the literature review for this study.

American Indian researchers working in higher education have collectively, and individually, proposed an array of standards and recommendations for conducting research with American Indians. (Caldwell et al., 2005; Mihesuah, 2005; Mihesuah & Wilson, 2004; Tuiwai-Smith, 2006). This section reviews the most salient suggested research standards influencing this study. Overall, four themes emerge from the literature related to research with American Indians. Overall, research should:

- be approached from a decolonizing point of view;
- be participatory, meaning that as sovereign nations, Tribes and their citizens must be willing and full participants from inception to conclusion;
- include American Indian cultural competence on the part of the researcher; and
- include beneficent research outcomes for American Indians as a primary goal.

Decolonizing Approach to Research

This particular frame of understanding is rooted in identifying and naming Western colonial imperialism related to indigenous peoples. This is especially important within institutions of higher education where understanding differing notions of intellectual and cultural property rights are often negotiated (Tuhiwai Smith, 2006). In recent decades, many American Indian tribes have regained their sovereignty, or right to govern themselves and determine what is best for their members, and are now ensuring that research is conducted *for* their people as opposed to simply *on* their people. As late

as the nineteenth century, research practices were inextricably linked to the Royal Society (London) and Paris Academy, who viewed scientific and social understanding as best researched on "more primitive" cultures (Tuhiwai Smith). Said cultures often included indigenous peoples who were intellectually constructed as expendable subjects of society. Of course, U.S. colonial actions were also influenced by this thinking as evidenced by the United States' troubled past with cultural hierarchies and social strata where human beings were classified from most civilized to least civilized. Although today these frameworks are mostly rejected within institutions of higher education, paternalism has often emerged as a philosophical approach among well meaning people. Paternalistic research, which implies the researcher fully knows what is best for the participant in the pursuit of research solutions, has often resulted in unethical treatment of participants. This has been especially true in AIDS and HIV research which resulted in broad new bioethical considerations related to past paternalistic philosophies for research in all fields (Kopelman, 2000). Participatory approaches to research, widely encouraged today when working with American Indians and their communities, fully emerged in the late 20th century as one reaction to the paternalism philosophy.

Participatory Research

Participatory research simply means that researchers and participants work together to define the research project and its purpose, determine appropriate methods of data collection, and provide outcomes that benefit American Indians. Caldwell et al. (2005) describe this approach as an "ongoing process of interaction between the researcher and research participants that allows the examination of Native strengths and emphasizes the use of Native knowledge" with solving issues (p. 8). Participatory

research involving American Indians is important because it is viewed as the process of involving participants in ways that are empowering, emancipatory, and ultimately improves quality of life (Macaulay et al., 1998). Understanding American Indian culture is crucial to full participatory research and building trust between researcher and participant. With the broad cultural differences across Native tribes in the United States, cultural competence is necessary for all researchers including those identifying as American Indian.

Cultural Competence

Cultural competence in student affairs research and practice is a broadly accepted expectation. However, there is no existing formal mechanism to ensure a researcher's cultural competence as it relates to study participants. Cultural competence in this context is defined as a skill set that enables one to effectively engage persons from culturally and racially diverse populations respectfully and ethically (D'Andrea, Daniels, & Noonan , 2003). Others expand this definition to include gender, social class, sexual orientation, and most importantly understanding how one's own worldview is used as a lens for seeing others (Constatine & Ladany, 2001; Sue & Sue, 1999). As mentioned earlier, IRB processes serve an important research review function, but study approval does not necessarily imply cultural competence on behalf of the researcher when studies include participants from other cultures and ethnicities. Over the past two decades, American Indian scholars have called for increased cultural competence when conducting research with American Indians and collecting data on American Indians (Caldwell et al. 2005; Mihesuah, 2005; Mihesuah & Wilson, 2004; Tuhiwai-Smith, 2006). Overall, these scholars suggest that researchers include American Indians in all research activities

where American Indians are involved. When American Indian involvement is not possible, the researcher should consult with a culturally competent advisory group to ensure the research process is in the best interest of the American Indian participants. This leads to the final identified standard of research with American Indians, beneficent outcomes.

Beneficent Outcomes

Overall, it is suggested that all research projects only be conducted if it is believed that American Indian participants will benefit from the entire research process including its findings (Caldwell et al., 2005). This includes how the research study is framed. For example, within the past decade, the higher education literature on college student retention has shifted from a perspective focusing on student deficits to institutional models of student success (Padilla, et al., 1997). In other words, while certain student (research participant) characteristics may contribute (or not) to success in college, the focus now is on how institutions create environments for success rather than focusing on students' perceived deficits (e.g., first generation status, students of color at predominantly White institutions, etc.). The success models guide the researcher to consider how the research outcomes may be understood and reported in ways that empower the participants and identify organizational or systemic structures impeding the best participant outcomes. Chapter 3 will include a description of how this research study addressed these four criteria.

Literature Review Summary

This chapter included the literature review of research directly related to American Indian college student involvement. Astin's (1984) modified college impact

model serves as the framework for this study and provided the basis for using collegiate involvement as an important outcome variable.

Overall the literature on American Indian college student experiences is limited related to many college studies including those related to involvement. However, several key studies on American Indians and where necessary, students of color emerged to identify the variables for this study. These campus environmental variables were grouped into four categories, institutional characteristics, student characteristics, students experiences, and campus climate.

Within the institutional characteristics, institutional size and type have shown to influence American Indian student involvement. However, existing research is often limited to campus-specific data or small sample sizes, and consensus on strength of influence is not clear. In the student characteristics category, transfer status, enrollment status, and class standing were highlighted by various research studies as important variable influences for American Indian student involvement. The research studies related to these variables were clear in their findings, but were also limited by scope and context. Similarly, mentoring experiences by faculty, student affairs staff, and peers were more prevalent in the research related to American Indian involvement experiences, yet none were positioned with involvement as the dependent variable. Further, living and working either on or off campus were shown to influence campus involvement in limited research studies related to American Indian college students. And finally, the environmental variable of campus climate included the most direct and proximal influence on how and to what extent American Indian students are involved on campus.

This chapter also points to the overall lack of research on American Indian college students as it relates to the involvement literature and included the literature on students of color where appropriate to capture possible variables and their influence on American Indian student involvement. The next chapter includes the research methods for this study.

CHAPTER 3: METHODS

This chapter presents this study's research methods for studying American Indian college student involvement. The study's purpose, research questions, hypotheses, research design and measures are presented here followed by an overview of the data samples and analysis procedures. Following the data analysis procedures, ethical research standard responses for working with American Indians are examined and finally the a summary of the study.

Purpose of the Study

The purpose of this quantitative study was to identify variables that may contribute to American Indian student involvement in college. Specifically, there were two research questions guiding this study:

1. Is there a significant relationship between American Indian compositional campus representation and their level of involvement?
2. What campus environmental variables predict American Indian involvement in college?

This study addresses an existing gap in the research on American Indian college student involvement as reviewed in Chapter 2. Involvement in college is an important outcome variable to explore because it directly contributes to student learning, which is a key collegiate outcome (Astin, 1985; Fischer, 2007; Hoffman, 2002; Moore, et al., 1998) for all students, including American Indians (Lundberg, 2007).

The findings resulting from the research questions for this study highlight the American Indian college student involvement experience that remains a relatively unexplored outcome using quantitative analysis (Lundberg, 2007). Most current data on American Indian college students have been collected and examined through small

sample sizes, single institution studies, regional foci, or tribal lenses (Larimore & McClellan, 2005). This study is unique in that it draws on a relatively large American Indian college student sample from a national study that was specifically designed for the I-E-O theoretical framework guiding this study. In addition to exploring and contributing to the research on American Indian student involvement, this study may also be an example of how to perform a secondary analysis with American Indian college student outcomes using existing national data. This is important because most quantitative national data sets collect but do not report American Indian student data in their analyses. This is primarily due to the fact that American Indian sample sizes are too small for statistical power in quantitative analysis where other racial/ethnic groups are present. As evidenced by the literature review for this study, American Indian data are rarely included or discussed within most quantitative research studies resulting in an absence of knowledge about American Indian students within the research literature on college students. American Indian research data invisibility continue to be especially noticeable within existing quantitative studies focused on student involvement, engagement, and success (Larimore & McClellan, 2005).

The first research question seeks to test the broadly documented benefits of campus compositional racial diversity (Milem, 2003) and its relationship with American Indian student involvement as an outcome. In other words, does American Indian student involvement increase as their percentage of the campus population increases? The second research question continues this line of inquiry by seeking to identify predictors of American Indian student involvement.

Research Hypothesis 1

Hypothesis 1: A positive correlation exists between American Indian student compositional representation on campus and the level of American Indian involvement in college organizations.

Research has suggested that certain campus environmental barriers exist for American Indian student involvement such as a lack of collective campus presence (Padilla, Treveño, Gonzales, & Traveño, 1997; Tanaka, 2002), low ethnic visibility on campus (Murguia, Padilla, & Pavel, 1991; Pavel & Padilla, 1993; Tanaka, 2002), and need for community (Cheng, 2004). These factors are directly related to the concept of campus compositional diversity and its known benefits. Therefore, it seems logical to suggest that increasing campus compositional representation of American Indian students may lower barriers to involvement (Jackson et al. 2003; Noel & Smith, 1996; Pavel & Padilla, 1993; Tanaka, 2002). Moreover, the broader higher education diversity literature suggests there are individual educational benefits when campuses are committed to diversity with compositional representation as a component of their mission (Milem, 2003). Again, this is important because diverse higher education learning environments not only benefit students on campus, but compositional diversity also benefits institutional culture, the private sector, and society through increased cross-cultural competence (Milem, 2003).

Research Hypothesis 2

Hypothesis 2: After controlling for personal characteristics and pre-college involvement, the campus environmental variables for this study (grouped as student

characteristics, institutional characteristics, student experiences, and campus climate) will significantly predict American Indian student involvement.

The literature on White college student involvement is well established and a growing body of research is developing focused on understanding other racial and ethnic group college involvement patterns (Fischer, 2007; Hoffman, 2002). However, as discussed in Chapter 2, American Indian college student data are limited within these bodies of literature. In fact, there was only one published multi-institutional quantitative research study found within the past decade specifically focused on American Indian college student involvement at 4-year colleges (Lundberg, 2007). As such, institutions of higher education do not have sufficient evidence to inform and guide their involvement interventions and practice with American Indian students (Brown & Robinson Kurpius, 1997; Jackson & Smith, 2001; Jackson et al., 2003; Lowe, 2005; Pavel & Padilla, 1993; Tippeconic Fox, 2005). This study seeks to address American Indian invisibility within the involvement literature by focusing on American Indian involvement data from a national study.

Research Design

This section of Chapter 3 discusses the conceptual framework for this study and provides an overview of the Multi-Institutional Study of Leadership (MSL). Secondary data from two existing national data sets, the MSL and the Integrated Post Secondary Education Data System (IPEDS), are used in a causal comparative design for this study. Pearson correlation will be utilized to test hypothesis one, and blocked hierarchical multiple regression analysis for hypothesis two. The MSL data provide the American

Indian student involvement variables for both hypotheses, and the IPEDS provides the MSL corresponding institutional American Indian student compositional data.

Conceptual Framework of Study

Astin's (1991) college impact model has been adapted and employed as a guiding conceptual framework for this study. The college impact model is particularly useful in examining the impact of the college environment on student development by pairing its inputs-environments-outcomes (I-E-O) design with statistical analysis methods such as hierarchical multiple regression (Astin, 1991). In this design, Astin (1991) posits there are two points at which to collect data over time, pre-environment and post-environment. This allows the model to measure the effects of the college environment on selected student outcome(s). The data used for this study provide a modified data collection procedure whereby data are collected only at one point in time. Students account for past experiences through retrospective questions. One adaptation of the traditional I-E-O model for this study involves including variables related to pre-college and off-campus experiences. Weidman's (1989) study of student socialization provides an example of this type of modification using non-college reference groups (e.g., community organizations), which broadened I-E-O variable measurement beyond the collegiate environment. Weidman (1989) suggested that reference groups outside the college environment, such as those included in this study, influence students during college and should therefore be controlled or measured when conducting a college impact study. The second adaptation of the college impact model includes moving involvement in campus organizations to the dependent variable location in an attempt to determine campus environmental predictors of campus involvement.

In the college impact model, Astin (1977, 1991, 1993) establishes a framework where the inputs include pre-college student characteristics, or those they bring with them to college, and the environment, referring to students' exposure to campus programs, experiences, peers, faculty, and policies. Broadly, outputs are the measurable changes, if any, students experience as a result of being exposed to the campus environment while controlling for student inputs. The conceptual model for this study follows in Figure 3.1.

Multi-Institutional Study of Leadership

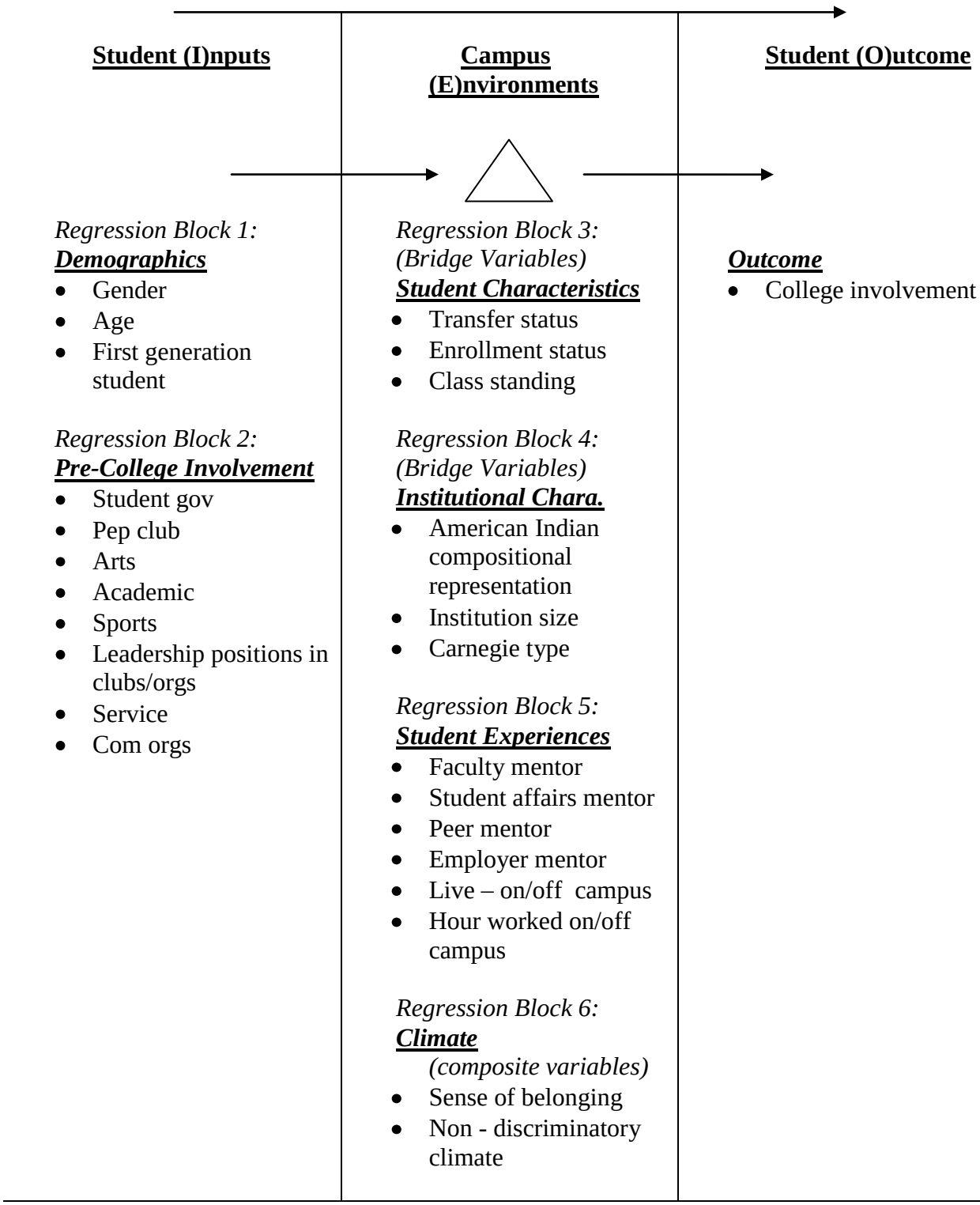
The majority of data for this study are derived from the MSL, a cross-sectional survey research study, considered the largest of its kind on student leadership development (Dugan, et al., 2007). The data collected through the MSL were selected for use with this particular study for two primary reasons. First, the 2009 MSL has a relatively large American Indian college student sample of 1,959 participants. Second, relevant involvement variable data required for a college impact study were collected in the MSL. Although not originally designed for studying American Indian student involvement, the conceptual nature of the MSL allows for data analyses in this study to measure the levels of involvement while controlling for participants' pre-college involvement. In other words, this type of quasi-pretest data is a good fit for this study's guiding framework because it allows the researcher to control for pre-college variables when seeking outcome predictive environmental variable(s).

Instrument

The MSL survey instrument was developed by a team of researchers at the University of Maryland seeking to build on prior research related to measuring socially

Figure 3.1

College Involvement Conceptual Model for American Indian College Students



responsible college student leadership. Based on the social change model of leadership development, the MSL was designed using Astin's (1991) I-E-O model as a basis for data collection to measure leadership outcomes. Content for the instrument includes research team contributions and authorized use of existing national studies (Dugan, 2008). Following human subjects approval at the University of Maryland, validity and reliability were established through pilot tests for all versions of the MSL including the 2009 iteration. After determining survey item clarity and respondent time for completion from the initial pilot test, another pilot with an updated instrument was administered to a random sample of 3,000 undergraduates. From this test, scale reliability and validity were calculated for both original and revised scales used in the MSL instruments. Two additional pilot tests were conducted for the 2009 version of the MSL where scale reliabilities remained constant or increased through the 2009 MSL administration. Although the MSL was originally developed to collect data related to student leadership development, the depth and breadth of data collected provide sufficient responses for examining variables with this study's hypotheses.

Data Sources and Sample

This section will discuss an overview of the institutional and student samples of the MSL. For research question one the compositional representation variable will be drawn from the Integrated Post Secondary Education Data System (IPEDS) and is explained in more detail below. Following these sections, a description of this study's sample and human subjects protocol are provided.

Integrated Post Secondary Education Data System

The Integrated Post Secondary Education Data System (IPEDS) collects data on "post secondary education in the United States in seven areas: institutional characteristics, institutional prices, enrollment, student financial aid, degrees and certificates conferred, student persistence and success, and institutional human and fiscal resources" (National Center for Education Statistics, 2009). MSL with IPEDS data were used in response to research question one. Specifically, each of the MSL participating institutions was matched with their corresponding IPEDS undergraduate student demographic data to calculate the percentage of American Indians on each campus.

MSL Institutional Data and Characteristics

When considering the variables for this study, the 2009 MSL data set was sufficient for a robust American Indian student sample. The 2009 MSL included 104 participating institutions from across the United States, Canada, and Mexico. In spring and summer 2008, the MSL call for institutional participation was advertised widely across student affairs and leadership development outlets including NASPA's Knowledge Community for Student Leadership Programs, ACPA's Commission on Student Involvement, the National Clearinghouse for Leadership Programs, the International Leadership Association, and others. One institution was unable to fully participate resulting in 103 institutions completing the study. The MSL United States national data set is comprised of 101 institutions.

Institutions represented in the MSL varied across institutional type, size, and population served. Of the 101 participating institutions, 50% were public, 43% research (extensive and intensive), 36% masters, 19% baccalaureate, and 2% associates.

Institutional size was distributed as follows: 24% small (3,000 or less), 37% medium (3001-10,000), and 39% large (10,001 or larger) (Cohen, 2003). Two of the participating institutions were HBCUs, three were women's colleges, and two were Hispanic-serving institutions. There were no Tribal colleges or American Indian serving institutions represented in this study. However, the National Center for Education Statistics (2009) reports that 92 % of American Indian college students attend non-Tribal and non-American Indian serving institutions. Since this study examined the level of involvement of American Indian college students, the MSL data set provided robust representation of American Indian students across varying types, sizes, and locations of institutions.

MSL Student Sample and Characteristics

At the institutional level, participant data were collected through full population samples for institutions with student enrollment less than 4,000 and simple random samples for campuses with more than 4,000 enrolled students. The confidence level was set at 95% with a confidence interval of three. Following all standardized protocols for data collection a total sample size of 337,482 participants were invited, of which 115,632 returned for a response rate of 34%. Of these, 94,367 survey responses completed 90% of the survey or more (Dugan & Komives, 2009). Of the completed cases 1,959, or 2.07%, MSL respondents identified as American Indian solely and with another race.

Study Sample

Description of Sample

The 2009 MSL data provides sufficient sample size of 1,959 American Indian respondents with which to analyze the two research questions guiding this study. The MSL racial category for American Indian included American Indian/Alaska Native as a

single category. There were no Alaska institutions represented in this study although Alaskan Native students could be attending other U.S. institutions. For the purposes of this study, data were further reduced through the selection of only those American Indian students at 4 year institutions. The rationale for this decision is due to a lack of nationally representative data from participating two year institutions in the MSL. This reduced the total number of American Indian cases by 28 for a total sample size of 1,931 across 99 institutions. American Indian respondents, who categorically identified with or without another race, were included in this study. There is no basis in the literature for distinguishing between American Indians with or without another race. The MSL American Indian sample size for this study's quantitative analysis is 3.05 times larger than the most recent quantitative research study on American Indian student involvement (Lundberg, 2007). Lundberg's study utilized the Native American student sample (*N*=643) drawn from the College Student Experiences Questionnaire (CSEQ). The MSL American Indian student participant sample size of 2.07% is significantly larger than American Indian representation in higher education nationally, which is 1.1% of college students (NCES, 2009). The large sample size of American Indians should contribute to greater external validity for population generalization (Suter, 2006) than has been available for previous studies on American Indian students. An examination of the characteristics of the students in this study revealed 67% of respondents identified as women (*n*=1284) and 33% as men (*n*=626). The average age of respondents was 23.43 (SD = 7.86) and the distribution across class standings was as follows: 20% freshmen, 21% sophomores, 27% juniors, and 32% seniors. Twenty-three percent of the sample identified as first generation (defined for this study as no parental college education of

any kind) college students, and 93% were enrolled full-time. A total of 33% of students reported transferring to their current institution. Fifty-one percent of the sample's students were enrolled at masters institutions, 34% at research institutions, and 15% at baccalaureate institutions.

Human Subjects Permission

The MSL study was initially approved by the University of Maryland's Institutional Review Board in 2005 and has been renewed on an annual basis (Appendix B). Additionally, human subjects approval was collected for each participating institution through their own review boards or by other institutional approval processes. All protocols were followed using national standards regarding human subjects. In anticipation for proposing this particular research study, this research project was included on the University of Maryland Institutional Review Board's renewal approval for the MSL (IRB # 05-4554, Appendix B).

Measures and Data Analysis Plan

In this section I will discuss the data collection process and procedures, outline the study's measures, and identify variables for each hypothesis. The statistical analysis for answering each research question are then outlined followed by a response to Chapter 1's call for addressing specific ethical research protocols when studying American Indians. Finally, a review of this study's limitations and a brief summary conclude this chapter. No missing data were present for the dependent measure and only minimal data were missing from the other variables employed in this study and was addressed with each individual analysis.

Data Collection

The MSL web-based survey instrument was administered directly to a sample of students from each participating institution during the spring semester between the third week of the academic year (2009) and before mid-term examinations. Unique identification codes were assigned to each student connecting them to their consent form. Following consent, a new identification code was assigned to ensure anonymity on the survey instrument site. Participants were encouraged by email to participate through follow-up email and campus-specific and national incentives, such as drawing entries for electronics, food coupons, and parking passes for those completing the survey (Dugan, 2009).

Measures

For this study, the *input* variables, as seen in Figure 3.1, included gender, age, and first generation status (defined for this study as no parental college education of any kind). The input variables for pre-college involvement in student groups and organizations, which also functioned as the quasi pre-test, were taken directly from the MSL. The detailed *environment* variables, previously mentioned in broad terms, specifically included the student characteristics of enrollment status, transfer status, and class standing. The institutional characteristics included American Indian compositional representation, Carnegie type, and institution size. These particular student and institutional variables are also referred to as bridge variables and are often listed as the first grouping(s) of environment variables (Astin 2001). The student experience variables include mentor relationships with faculty, staff, and/or peers and living and/or working on or off-campus; and finally, campus climate includes composite variables for sense of

belonging and discrimination. The outcome, or "the student's characteristics after exposure to the environment" (Astin, 2001, p 7), for this study was American Indian college student involvement, a one-item measure in the MSL. Figure 3.1 outlined the conceptual model for this study and its variables. Employing a secondary analysis of data collected from the MSL and IPEDS, this study was designed to examine student input and campus environmental variables that may predict the outcome of involvement in college for American Indian college students. The data were prepared and cleaned following procedures related to outliers and duplicate or falsified data (Pedhazur, 1997).

Research Hypothesis 1 Variables

Hypothesis 1: A positive correlation exists between American Indian student compositional representation on campus and their level of involvement in college organizations.

Research hypothesis one included two variables, American Indian compositional representation and level of involvement. Compositional American Indian student representation for each participating MSL institution was calculated as a percentage of total undergraduate population. This calculation was determined by matching each MSL participating institution with their IPEDS racial demographic data for Native American students and the total undergraduate enrollment. From these data a demographic percentage of American Indian students was calculated for each of the 99 campuses in the United States represented in this study. Compositional representation ranged from a high of 29.7% (at a Midwestern university) to a low of .01% at several campuses. For compositional representation, the mean was 5.95% with a standard deviation of 10.95%. Given the compositional representation of the Midwestern university as an outlier in

comparison with other colleges, further analyses were conducted to ensure its inclusion would not skew results. The regression analysis was conducted without Midwestern university's respondents and all final regression models remained constant with the full data set. The only meaningful difference was related to the campus compositional mean (0.98), as expected, and standard deviation (1.48).

Level of student involvement, as measured by the MSL, represents the dependent variable. Level of American Indian student involvement was determined by the respondents' answer to the MSL question: "*Since starting college, how often have you been an involved member in college organizations*?" Responses for this question fell along a continuum ranging from never (1) to much of the time (5). Although these data are ordinal, they were treated as continuous for data analysis. The mean score was 2.90 (*SD* = 1.50). Although multiple item measures are generally more reliable than single item dependent variables, this study does not attempt to measure any underlying latent constructs so the single item measure is appropriate for the scope of this study.

A Pearson *r* correlation statistic was calculated to test this hypothesis. If a significant correlation coefficient existed after analysis, the independent variable would be entered into the multiple regression analysis in research question two to determine if compositional representation is predictive of American Indian student involvement when considering other variables.

Figure 3.2 Research Hypothesis 1 Study Variables

Research Hypothesis 1:	A positive correlation exists between American Indian student compositional representation on campus and their level of involvement in college organizations.
Statistical Analysis:	Pearson Correlation
Correlation Variable:	American Indian campus compositional representation
Correlation Variable:	Level of involvement in college organizations (Source: MSL)

Research Hypothesis 2 Variables

Hypothesis 2: After controlling for personal characteristics and pre-college involvement, the campus environmental variables for this study (grouped together in blocks as student characteristics, institutional characteristics, student experiences, and campus climate) will significantly predict American Indian student involvement.

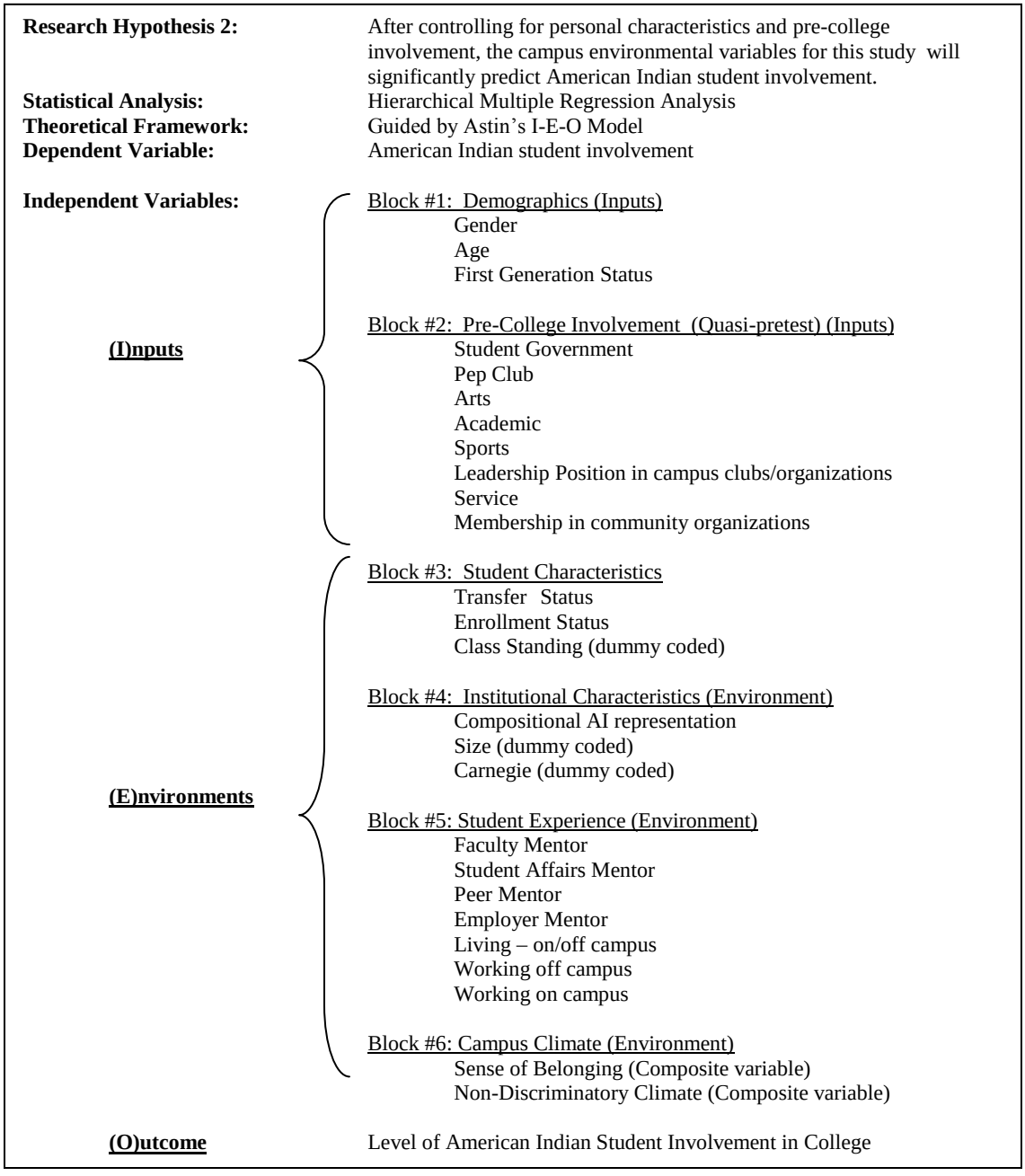
The variables for this hypothesis were grouped according to Astin's (1991) college impact I-E-O model. The input and environment variables were grouped and blocked accordingly and described below as independent variables. The college environment variables selected for this study were chosen due to their propinquity in the literature as important variables for American Indian student involvement and success in college. When the existing literature included too few studies to inform variable placement, the literature for students of color in general was used. The dependent, or outcome variable, for this study is American Indian student involvement in college. Variables for this hypothesis are illustrated in Figure 3.1 and outlined in Figure 3.3.

Input Variables

The assessment of how the outcome variable is influenced by campus environment variables may be biased unless students' incoming (input) characteristics are measured and controlled (Astin, 2001). Since this study is measuring level of student involvement in the college environment, it is necessary to measure and control for pre-college student involvement activities. This quasi pre-test information was collected as part of the MSL data and allows this study to control for pre-college involvement after controlling for standard input demographic characteristics.

The input variables for this study were organized into two regression blocks or groupings, student demographic categories and pre-college involvement. The college model guiding this study attempted to control for pre-college variables that may influence the collegiate outcome being measures. The pre-college involvement

Figure 3.3 Research Hypothesis 2 Study Variables



variables collectively represent the quasi pre-test in this study's guiding model.

Block 1- Student demographics include gender, age, and first generation status.

Block 2- Pre-college involvement included retrospective data that measured the student's level of pre-college involvement indicated in the following MSL items: student government; pep club; arts; academic; sports; leadership positions in clubs/organizations; service organizations; and community organizations. Each of the pre-college involvement measures consisted of response continuums ranging from never (1) to very often (5) and were treated as continuous data for analysis.

Environment Variables

In the second stage of data analysis using the college impact model, one attempts to determine if certain environmental variables (or college experiences) may be estimated to predict a stated outcome (Astin, 2001). For this study, American Indian student involvement in college is the outcome that may be partially predicted by selected environmental variables. These environment variables were identified in the student development literature, as likely important factors for American Indian college student involvement. Astin (1991) suggested that environment variables should be distal-proximal ordered. This means that environmental variables should range from those considered distant student experiences to variables thought to have a more direct effect on the desired outcome variable.

The environmental variables that emerged in the literature were placed into four blocks or groupings: student characteristics, institutional characteristics, campus experiences, and campus climate. Across these blocked groupings a total of 15 environmental variables are included. The variable regression blocks were arranged

following the distal-proximal order. The student and institutional characteristics, also considered bridge variables since they bridge the pre-college and campus environments, were considered the most distal measures for students in this study and therefore are the first regression block of the campus environments section. Each subsequent regression block follows as variables are believed to predict American Indian student involvement in college as outlined in the literature from Chapter 2.

Block 3 - Student characteristics include the distal variables of transfer status, enrollment status (e.g. full or part-time), and class standing. Class standing was dummy coded with seniors serving as the reference group.

Block 4 - Institutional characteristics include the variables of American Indian compositional representation (was included if research hypothesis 1 was affirmed), institutional size, and Carnegie type. Institutional size was dummy coded with large schools serving as the reference group. Institutional types included baccalaureate, masters, doctoral granting, and high research with high research serving as the reference group.

Block 5 - Student interactions include faculty mentor; student affairs staff mentor; peer mentor; employee mentor; living on or off campus; and working on or off campus. The mentoring variables represented the degree to which students identified having mentors in particular categories (i.e., faculty/instructor, student affairs professional staff, peers) that assisted in their growth or development. This was evaluated using a response continuum ranging from never (1) to often (4) and was treated as continuous data during analysis. Variables representing on-campus employment, off-campus employment are continuous variables and place of residence (i.e., either on campus or off campus) was

structured as simple dichotomous response. The discrete on campus, off campus residence response options present a limitation related to the literature and is addressed in the limitation section of Chapter 5.

Block 6 - Campus climate included composite variables for sense of belonging on campus and sense of non-discrimination on campus. Campus climate variables were determined from two MSL scales. Campus climate was defined by the MSL researchers as the degree to which members of the campus community feel connected and appreciated as measured by two distinct factors. First, sense of belonging, or how strongly an individual feels that they belong within their campus community; and second, feeling of discrimination, or perceived and actual sources of discrimination directed at an individual or group of individuals. The sense of belonging climate scale included the following statements with response options of strongly disagree, disagree, neutral, agree, strongly agree: 1) I feel valued as a person at this school; 2) I feel accepted as a part of the campus community; and 3) I feel I belong on this campus. The discriminatory climate scale included the following statements using the same response options as with the belonging climate scale: 1) I have observed discriminatory words, behaviors, or gestures directed at people like me; 2) I have encountered discrimination while attending this institution; 3) I feel there is a general atmosphere of prejudice among students; 4) Faculty have discriminated against people like me; and 5) Staff member have discriminated against people like me. Reliabilities for these composite measures have been established by the MSL researchers using factor analysis. Specifically, Cronbach alpha scores for belonging climate was .87, and non-discriminatory climate was .85. Scale reliabilities were calculated for this study's sample given that scale reliability is a function of the

population and not the instrument itself (Mertens, 2005). The Cronbach alpha for this research study's sample was .88 for belonging climate and .87 for non-discriminatory climate.

Outcome Variable

The outcome variable for this study is student involvement in college. Research has shown that college involvement is an important student outcome because it leads to student learning, development, and success (Kuh, Schuh, Whitt & Associates, 2005). There is further evidence (Lundberg, 2007) that involvement is also an important outcome for American Indian student success. Appendix A outlines all variables and their treatment for this research question. A snapshot of research question two and its variables are listed in figure 3.3.

Data Analysis Procedures

In this section, the statistical analysis plan is outlined for both proposed research questions in this study. This study employed correlation and hierarchical regression analyses to examine potential predictors of American Indian student involvement in college for research hypotheses 1 and 2, respectively. Regression analysis was a particularly appropriate statistical approach when using models guided by the college impact, or I-E-O conceptual framework (Astin, 2001).

Correlation for Hypothesis1

This research hypothesis explored whether the level of American Indian student involvement was a function of the percentage of American Indian students on campus. A linear correlation coefficient was utilized to test this hypothesis. The Pearson *r* correlation determined the degree of relationship between the two variables. If a

significant relationship existed, the American Indian compositional representation would be entered into the regression analysis for research hypothesis two as a possible predictor variable.

Regression Procedure for Hypothesis 2

This research hypothesis explored whether the level of American Indian student involvement (dependent variable) was a function of several sequentially blocked environmental variables. A hierarchical multiple regression technique was utilized for this question since it is a statistical procedure that analyzes the relationship between one dependent variable and several independent variables and a preferred analytic technique for this type of study (Howell, 2002). Regression analysis was appropriate here because it allows "prediction of the Y [dependent variable] on the basis of knowledge about the X [independent variable]" (Howell, 2002, pp. 244-245).

Tabachinick and Fidell (2001) suggest each independent variable block, as seen in Figure 3.3, be entered into a hierarchical, or sequential, regression in an "order specified by the researcher…and is assessed in terms of what it adds to the equation at its own point of entry" (p. 131). The blocks of variables were assigned to the regression equation according to a logical or theoretical basis (Tabachinick & Fidell, 2001) as supported by the literature in Chapter 2.

The statistical analysis included procedures to guard against issues related to outliers and multicollinearity (Howell, 2002; Tabachinick & Fidell, 2001) that occurs when two or more independent variables approach singularity. Correlations did not exceed .478, while the VIF ranged from 1.12 to 2.94 (should not be above 10) and

tolerance statistics (should not be less than .10) ranged from 0.360 to 0.901, all of which were within appropriate parameters (Tabachnick & Fidell, 2007).

Ethical Research and American Indians

Following documented unethical treatment and exploitation of American Indian research participants and subjects by researchers (Mihesuah 2004), several leading scholars have proposed acceptable ethical standards when conducting research involving American Indians (Deloria, 2004; Mihesuah, 2004, 2005; Tuhiwai-Smith, 2006; Wilson, 2004). From the existing literature, four themes emerged as basic standards related to research with American Indians. Having identified these standards, each is addressed related to the research methods of this study. Each standard is listed below followed by a brief discussion of this study's response.

1. *Research should be approached from a decolonizing point of view*. Response: First, this study uses data collected for the MSL. The MSL grounds its conceptualization of leadership in the Social Change Model (Dugan, et al., 2006). This model celebrates leadership through collaborations that seek outcomes for a common purpose and positive social change (Higher Education Research Institute, 1996). The values inherent in the social change model are similar to a collectivist leadership philosophy expressed by many North American Indigenous Peoples and tribes. I believe data collected through the lens of the Social Change Model account for critical perspectives related to colonization thereby setting the stage for possible decolonization of leadership constructs as they relate to college students. Second, as an American Indian identifying researcher who was trained in contemporary Western research methods, I have attempted to identify potential colonizing constructs as they

relate to the American Indian data for this study. Both the context of U.S. higher education and the theoretical model used in this study are inherently colonial. However, as Tribal colleges have proven, there are successful ways to utilize existing higher education frameworks to advance American Indian decolonization, and I believe this study exhibits this type of work.

2. *All research should be participatory*. This means that as sovereign nations, Tribes and their citizens must be willing and full participants from inception to conclusion. Response: This study utilizes a secondary analysis of an existing quantitative data set. The participants for this study voluntarily responded to the MSL survey. Their data have been protected by the study's principal investigators and access is allowed only after careful review. Proper approvals for engaging human research subjects for this study were obtained by each participating institution. I believe this study, through its stated and published research protocols, adheres to this standard.
3. *American Indian cultural competence on the part of the researcher*. Response: As an American Indian identifying researcher who studies and examines issues related to American Indian college students, I believe this study meets this standard as outlined in Chapter 1s discussion of the researcher.
4. *Beneficent research outcomes for American Indians*. Response: This study approaches data analysis from a position of American Indian and college campus empowerment. If the results of this study find that certain campus environmental factors may lead to lower levels of involvement for American Indian students, the results will be framed as a campus deficit, not as a student deficit. Further, given the lack of research available to fully understand the involvement patterns of American

Indian students, this study's results should be used as a tool for advocating higher education environmental and structural changes where appropriate in order to developmentally support American Indian college students.

Summary

This chapter has outlined the proposed methods for this quantitative study. Further, the design of this study may serve as a model for taking existing data from seemingly unrelated national studies where American Indian data were collected but not reported and repurposing it to address gaps in research. The next chapter presents the study's results.

CHAPTER FOUR: RESULTS

The purpose of this multi-institutional quantitative study was to identify campus environmental variables that may predict American Indian college student involvement. This chapter first includes a review of the sample demographic characteristics followed by hypothesis testing for both research questions. The hypothesis for research question 1 was tested using a Pearson correlation statistic and the hypothesis for research question 2 was tested using hierarchical multiple regression analysis. The specific results for each research question are included followed with a summary of this study's results.

Sample Characteristics

The 2009 MSL data provided a sample size of 1,931 American Indian respondents with which to analyze the two research questions guiding this study. An examination of the characteristics of these students revealed 67% identified as women (*n*=1284) and 33% as men (*n*=626). The average age of respondents was 23.43 (*SD* = 7.86); the distribution across class standings included 20% freshmen, 21% sophomores, 27% juniors, and 32% seniors. Twenty-three percent of the sample identified as first generation college students, and 93% were enrolled full-time. A total of 33% of students reported transferring to their current institution. Thirty-eight percent reported living on campus; 40% of American Indian students in this study reported working off campus while 28% reported working on campus.

Table 4.1 provides the means and standard deviations for frequency of involvement across categorical measures across categorical measures. These data indicate that American Indian students were involved at varying levels across the variables. American Indian students in this study were most involved when living on campus,

attending a public, doctoral, and research institutions, attending small colleges, being non-transfer and non-first generation students.

Table 4.1
Means and Standard Deviations for Frequency of Involvement across Categorical Measures (*N*=1931)

	M	*SD*
Gender		
Male	2.96	1.50
Female	2.88	1.50
Generation Status		
First-generation student	2.48	1.49
Non-first generation student	3.04	1.48
Transfer Status		
Transfer student	2.57	1.47
Non-transfer student	3.07	1.48
Enrollment Status		
Less than full-time student	2.13	1.30
Full-time student	2.96	1.49
Class Standing		
First-year	2.59	1.40
Sophomore	2.84	1.51
Junior	3.00	1.53
Senior	3.07	1.48
Institutional Size		
Small	3.27	1.41
Medium	2.91	1.50
Large	2.74	1.50
Carnegie Type		
Baccalaureate	3.10	1.45
Masters	2.70	1.49
Doctoral granting	3.18	1.44
High research	3.12	1.49
Institutional Control		
Public	3.30	1.41
Private	2.64	1.49
Place of Residence		
On-campus	3.37	1.40
Off-Campus	2.62	1.48

MSL Question: "Since starting college, how often have you been an involved member in college organizations" Answer possibilities included: (1) = never involved; (2) = once; (3) = sometimes; (4) = many times; (5) = much of the time

Compositional Representation and American Indian Student Involvement

The first hypothesis examined the relationship between American Indian compositional campus representation and their level of involvement. The null hypothesis stated that no correlation exists between American Indian student compositional representation on campus and their level of involvement in college organizations. A Pearson correlation was employed to examine this hypothesis. The null hypothesis was rejected as there was a significant correlation between the two variables (r = -.14, N = 1,931, $p < .01$), although the strength of the relationship was small and negative. The coefficient of determination was calculated to examine the amount of shared variance between the two variables by squaring the *r*-value. Compositional diversity of the American Indian population shared only 2% of the variance with level of involvement in college clubs and organizations. However, since the correlation was significant, the variable was retained for use in the second research hypothesis to examine if the relationship persisted in the context of other variables.

Hypothesis 2 Multiple Regression

Hypothesis 2 examined campus environmental variables that may predict American Indian student involvement in college clubs and organizations. The null hypothesis stated that after controlling for personal characteristics and pre college involvement, the campus environmental variables for this study will not predict American Indian student involvement. A hierarchical multiple regression analysis was employed to examine the variables for this research hypothesis. Prior to analysis, collinearity diagnostics were calculated to ensure adherence to core assumptions of the analytic technique. Diagnostic statistics assessing zero order corrections, variance inflation

factors (VIF), and tolerance levels indicated that there were no violations of the assumptions of multicollinearity. Correlations did not exceed .478, and the VIF ranged from 1.12 to 2.94 (should not be above 10) and tolerance statistics (should not be less than .10) ranged from 0.360 to 0.901, all of which were within appropriate parameters (Tabachnick & Fidell, 2007).

Table 4.2
Means and Standard Deviations of the Variables in the Study

Variables	*M*	*SD*	Coding
Demographics			
Gender	0.67	0.47	0 = Male 1 = Female
Age	23.43	7.89	Open response
First-generation college student status	0.23	0.42	0 = Non - first generation 1 = First generation
Pre-college involvement			
Student government	1.87	1.11	(Response options for all Pre-college involvement variables) 1 = Never 2= Sometimes 3= Often 4= Very often
Pep club	1.78	1.10	
Arts	2.55	1.25	
Academic	2.43	1.14	
Sports	2.64	1.29	
Leadership positions in clubs	2.68	1.23	
Service	2.53	0.94	
Membership in community organizations	2.61	1.08	
Student characteristics			
Transfer Status	0.67	0.47	0 = Started here 1 = Started elsewhere
Enrollment Status	0.93	0.25	0 = Less than full time 1 = Full time
Class standing (first-year)	0.20	0.40	Dummy coded (0, 1) with Seniors and beyond serving as the reference group
Class standing (sophomore)	0.20	0.40	
Class standing (junior)	0.27	0.44	

Institutional characteristics			
Size (small < 3,000)	0.15	0.36	Dummy coded (0,
Size (medium < 10,000)	0.49	0.50	1) with large schools serving as the reference group
Carnegie (baccalaureate)	0.15	0.35	Dummy coded (0,
Carnegie (masters)	0.51	0.50	1) with "high
Carnegie (doctoral granting)	0.08	0.27	research" serving as the reference group
Compositional Representation	5.95	10.95	
Student experiences			
Faculty mentoring	2.62	1.22	Response options
Student affairs mentoring	1.71	1.07	for all mentoring
Peer mentoring	2.44	1.28	questions
Employer mentoring	3.09	0.79	1 = Never 2 = Once 3 = Sometimes 4 = Often
Place of residence	0.62	0.49	0 = on campus 1 = off campus
Hours worked off campus	9.70	14.44	Hours
Hours worked on campus	3.56	7.26	Hours
Campus climate			
Sense of belonging experience	3.78	0.89	Composite
Non-Discriminatory climate experience	3.99	0.93	Scales 1 = Disagree 5 = Agree
Dependent Variable			
Involvement in college organizations	2.90	1.50	1 = Never 2 = Once 3 = Sometimes 4 = Many times 5 = Much of the time

Results

Overall, the results of the regression analysis indicate that this campus environment involvement model explained a significant amount of the variance of American Indian college student involvement (R^2 = .339) and therefore the null hypothesis is rejected. Table 4.2 presented the means and standard deviations for the variables of this study and Table 4.3 presents the study's regression model summary for each variable block. In both tables, the R^2, $R^2\Delta$, and the Adjusted R^2 are presented. R is the square root of R^2 and represents the correlation between the predicted and observed values of involvement. R^2 is the amount of variance in the dependent variable that is explained by the independent variables. The Adjusted R^2 accounts for the variance that may occur randomly as the independent variables entered into the analysis. The model gains strength the closer R^2 is to Adjusted R^2 (Grimm & Yarnold, 1995). All blocks were significant at the $p < .001$ level.

Block 1: Demographics

The demographic block of variables included the variables of gender, age, and first-generation status. Within this block, none of the variables proved to be significant predictors for involvement when considered independently in the model. This block accounted for 4.4% of the model's variance and was significant at the $p <.001$ level.

Block 2: Pre-college Involvement

The pre-college involvement block of variables included student government, pep club, arts club, academic club, sports club, holding leadership positions in clubs, service

Table 4.3

Final Regression Results

		American Indian Involvement in College		
		B	β	*p*
Block 1: Demographics				
Gender		-.114	-.036	.252
Age		-.008	-.041	-.243
First-generation college student status		-.159	-.045	.153
R^2	.044			
R^2 Δ	.044***			
Block 2: Pre-college involvement				
Student government		.001	.001	.979
Pep club		.019	.014	.694
Arts		.037	.031	.343
Academic		.134	.102	.004**
Sports		.055	.047	.162
Leadership positions in clubs		.114	.093	.018*
Service		.080	.051	.160
Membership in community organizations		.078	.056	.104
R^2	.156			
R^2 Δ	.113***			
Block 3: Student characteristics				
Transfer Status		.197	.062	.070
Enrollment Status		.046	.008	.812
Class standing (first-year)		-1.007	-.269	.000***
Class standing (sophomore)		-.632	-.170	.000***
Class standing (junior)		-.217	-.065	.065
R^2	.205			
R^2 Δ	.049***			
Block 4: Institutional characteristics				
Compositional AI representation		-.004	-.027	.522
Size (small)		.256	.062	.225
Size (medium)		.239	.081	.105
Carnegie (baccalaureate)		-.299	-.071	.104
Carnegie (masters)		-.321	-.107	.020*
Carnegie (doctoral granting)		-.184	-.033	.347
Control (public)		-.090	-.030	.526
R^2	.236			
R^2 Δ	.031***			

Block 5: Student experiences				
Faculty mentoring		.098	.079	.020*
Student affairs mentoring		.131	.093	.004**
Peer mentoring		.070	.060	.076
Employer mentoring		-.014	-.007	.816
Place of residence (living off campus)		-.509	-.166	.000***
Working off campus		-.007	-.064	.070*
Working on campus		.018	.086	.007**
R^2	.318			
R^2 Δ	.081***			
Block 6: Campus climate				
Sense of belonging		.241	.144	.000***
Non-discriminatory climate		-.166	-.103	.001**
R^2	.339			
R^2 Δ	.022***			
Total R^2	.339***			
Adjusted R^2	.311***			
$F_{32.757}$ = 12.14, p < .001				
N = 1,931				

* p < .05, ** p < .01, *** p < .001,.

experience, and membership in community groups. Within this block, participation in high school academic clubs and organizations was a significant positive college involvement predictor (p < .01). Holding a leadership position and participation in high school academic clubs and organizations were also a significant independent predictors (p < .05) within the model. The remaining variables did not prove to be significant predictors for the block or model when considered independently. The pre-college involvement block accounted for 11.3% of the overall model's variance, the most of any block in the model, and was significant at the p <.001 level.

Block 3: Student Characteristics

The variables entered in block three included transfer status, enrollment status, and class standing. Independently, first-year and sophomore American Indian college

students, both with negative beta weights, were significantly ($p < .001$) less likely to be involved than juniors and seniors. The remaining block variables of transfer and enrollment status did not prove to be significant predictors for the model when considered independently. The student characteristics block accounted for 4.9% of the overall variance of the model and was significant at the $p < .001$ level.

Block 4: Institutional Characteristics

As a variable block, institutional characteristics included compositional American Indian representation, institutional size, and Carnegie type. The only variable that indicated significance ($p < .05$) as an independent predictor was masters level institutions. The beta weight for this variable was negative indicating American Indian students at master level institutions are less likely to be involved than at large institutions. Compositional representation was not significant. Overall this block accounted for 3.1% of the model's variance and was significant at the $p < .001$ level.

Block 5: Student Experiences

The variables entering this block included faculty mentoring, student affairs staff mentoring, peer mentoring, employer mentoring, living on or off campus, and working on or off campus. This block contained the most variables indicating significance. Place of residence was a significant predictor ($p < .001$) of involvement for this block within the model. In this case the beta weight was negative indicating those living on campus were significantly more likely to be involved than students living off campus. Similarly, working off campus was a significant ($p < .05$) negative predictor of involvement. However, working on campus was a significant ($p < .01$) positive predictor of campus involvement. Likewise, being mentored by student affairs personnel was a significant (*p*

< .01) predictor of American Indian student involvement. Mentoring by a faculty member was also a significant ($p < .05$) predictor of involvement but was not as strongly predictive as mentoring by student affairs staff. This block accounted for 8.1% of the variance for this model, second only to pre-college involvement as the two variable blocks explaining the most variance in the model and was significant at the $p <.001$ level.

Block 6: Campus Climate

Campus climate variables in this block included the composite scales of sense of belonging and non-discriminatory climate. Both variables were significant at the $p < .001$ levels. Sense of belonging was a significant positive predictor for American Indian student involvement. Conversely, a non-discriminatory climate was a significant negative predictor for American Indian student involvement. Overall this block explained 2.2% of the variance for the regression model and was significant at the $p <.001$ level. A summary of the model's regression blocks follow in Table 4.3.

Table 4.4
Model Summary

			Adjusted	Change Statistics		
Block Description	R	R^2	R^2	R^2	F	Sig. F
1. Demographics	.209	.044	.040	.044	11.941	.000
2. Pre college involvement	.395	.156	.144	.113	12.985	.000
3. Student characteristics	.453	.205	.189	.049	9.544	.000
4. Inst. Characteristics	.486	.236	.213	.031	4.452	.000
5. Student experiences	.564	.318	.291	.081	12.913	.000
6. Campus climate	.582	.339	.311	.022	12.314	.000

*** $p < .001$, ** $p < .01$. * $p < .05$

As shown in Table 4.4, the complete regression model explained 34% of the sample's variance of the dependent variable of campus involvement. As shown by the variable regression blocks in Table 4.3, significant negative predictors of involvement

included class standing as a first-year or sophomore student, attending a master's level institution, living and working off campus, and experiencing a non-discriminatory climate. Significant positive predictors of American Indian student involvement included having been involved in academic clubs and holding leadership positions in high school, being mentored by student affairs staff or faculty members in college, and a sense of belonging on campus. Although collectively all regression blocks explained a significant proportion of the model's variance, 66% of the variance remains unexplained in this study. As previously discussed in Chapters 1 and 2, influences of family and other types of involvement not typically accounted for in the college student involvement literature may also be influencing American Indian student involvement beyond the variables used in this study.

Summary

Chapter 4 provided a comprehensive overview of the study's findings. This chapter included a review of the two research questions guiding this study, characteristics of this study's sample, statistical analyses and hypothesis testing for each research question, and a regression summary. The next and last chapter will discuss the major findings and limitations of the study and offer suggestions for future research.

CHAPTER FIVE: DISCUSSION

This chapter includes a review of the problem statement and a summary of the study's methods and results. The chapter then provides a discussion of the findings as they relate to prior research. Implications for research and practice, as well as limitations associated of the study are included. Finally, the chapter concludes with suggestions and directions for future research and conclusion.

Review of Study

American Indian college students are the most likely of all racial groups to not experience college success as it relates to retention and graduation. More than four decades of research have shown collegiate involvement to be an important factor leading to college success (Astin, 1962, 1977, 1984, 2001). However, student affairs practitioners and higher education institutions are least informed about American Indian college students when compared with the other racial/ethnic student groups. Historically, student development research and the literature on college student involvement do not adequately include findings related to American Indian college students (Lowe, 2005). In quantitative research, this is primarily because American Indian student sample sizes are often too small for statistical comparison with other student group data. Qualitative researchers have attempted to address this research gap by conducting studies that are often campus, location, tribe, and region specific, and subsequently these findings lack a transferable quality for use on other campuses.

With 92% of American Indian college students attending predominantly White institutions of higher education where they often represent 1% of the campus population or less, their quantitative and qualitative invisibility continues to challenge higher

education settings and practitioners. This challenge becomes truly evident as administrators seek to develop inclusive campuses with American Indian students only to discover a lack of research from which to develop evidence-based interventions.

This quantitative research study utilized American Indian data collected from 99 campuses and approached the problem from an institutional perspective and not from a student deficit perspective. This means that the study sought to identify institutional environments promoting developmentally appropriate American Indian student involvement and indicate areas where the concept of collegiate involvement may not be working as expected within the campus environment. Further, the traditional concept of involvement is reconsidered from the experiences of American Indian college students as informed by the literature and the study's findings.

It is tempting to foreclose many Euro-American constructs such as the United States higher education system and its inherent colonial aspects when considering educational best practices with American Indian college students. However, with Tribal colleges (and more recently, with the efforts of many predominantly White institutions), the concept and utility of a college education for American Indians is "the key to social renewal, and without question the most significant development in American Indian communities since World War II…" (Boyer, 1997, p. 1). "Early leaders of the tribal college movement understood that possession of mainstream (American) literacy was essential to their participation in this imperfect market-advantaged society" (Benham, 2003, p. 3). In fact, the ongoing adoption and retooling of existing educational frameworks has been utilized by American Indians as a method for achieving educational sovereignty (Benham, 2003). Like today, early American Indian communities were fully

engaged global citizens prior to Colonization (Debo, 1989). Overall, American Indians have always valued education, although tribal educational approaches were often different from those practiced by European colonists. Prior to Colonization my Choctaw tribe, for example, was a frequent trading partner with England, France, and Spain and often shared goods and technologies that were mutually beneficial (Debo, 1989). These partnerships also resulted in immigration with others joining the Tribe and assimilating into Choctaw culture (Debo, 1989). Trading in ideas and goods, while maintaining tribal culture, has long been a practice of many tribes. Therefore, as with the adaption of European and Euro-American constructs of higher education by Tribal colleges, the concept of collegiate involvement seems to provide a broad framework from which this research study may adapt…a concept that should not be foreclosed simply because of its Euro-American roots. Although some aspects of traditional collegiate involvement are somewhat universal when related to college success, other aspects of campus involvement may not work directly with American Indian college students and therefore should be revisited.

Review of Methods

This section will provide a review the methods of this study including, research questions, design, and analyses. The primary purpose of this quantitative study was to identify variables that may predict American Indian student involvement in college. Two research questions guided this study:

1. Is there a significant relationship between American Indian compositional campus representation and level of involvement?
2. What campus environmental variables predict American Indian student involvement in college?

College involvement has been shown to be an important predictor of student success and learning (Astin, 1985; Fischer, 2007; Hoffman, 2002; Moore, et. al 1998). This study is unique in that it draws from a large American Indian college student sample from a national study that was designed for the framework guiding this study. And, this study is likely the largest of its type with American Indian data. The theoretical framework guiding this study is Astin's (1985) research on student involvement. Applied to the college setting as the college impact model, it has been operationalized into the inputs-environment-outcome (IEO) framework. The IEO framework was modified for this particular study by moving collegiate involvement from an environmental variable to an outcome variable in an effort to identify campus environmental predictors for American Indian student involvement. The first research question tested the variable relationship between campus compositional racial diversity with American Indian student involvement. The second research question sought to identify campus environmental predictors of American Indian student involvement.

Data used for this study were originally collected in 2009 for the Multi-Institutional Study of Leadership and were secondarily analyzed for the questions guiding this study. Following is a brief review of the data analysis procedures for each research question.

The first research question explored whether the level of American Indian student involvement was a function of the percentage of American Indian students on campus. A linear correlation coefficient was utilized to test this hypothesis. The Pearson correlation coefficient (r) was used to determine the degree of relationship between the variables. If a

significant relationship existed, then the independent variable was entered into the regression analysis for research question two as a possible predictor variable.

The second research question explored whether the level of American Indian student involvement (dependent variable) was a function of several sequentially blocked environmental variables. Hierarchical multiple regression was utilized for this question since it is a statistical procedure used to analyze the relationship between one dependent variable and several independent variables, and is preferred over step-wise regression analysis due to its predictive nature (Howell, 2002).

Tabachinick and Fidell (2001) suggested each independent variable block, as outlined in Chapter 3's Table 3.3, be entered into a hierarchical, or sequential regression, in an "order specified by the researcher…and is assessed in terms of what it adds to the equation at its own point of entry" (p. 131). The blocks of variables are assigned to the regression equation according to a logical or theoretical basis (Tabachinick & Fidell, 2001) as supported by the literature in Chapter 2. The statistical analysis included procedures to guard against issues related to outliers and multicollinearity (Howell, 2002; Tabachinick & Fidell, 2001) which occurs when two or more independent variables approach singularity.

Summary of Results

This section presents the results of this study. The hypotheses for each research question are outlined below then followed with a detailed discussion related to the findings.

The 2009 MSL data provided a sample size of 1,931 American Indian respondents for analyzing the two research questions guiding this study. There were a

total of 33 independent variables examined across the two research questions. Thirty-two of these variables were associated with research question two and were organized into six hierarchical regression blocks. All six blocks were found to explain a significant proportion of the observed variance at the $p<.001$ level. American Indian college student respondents in this study reported a mean involvement score of 2.90 ($SD = 1.50$), which translates to "*sometimes involved*." This finding is consistent with existing research on the average involvement of college students (Astin, 2001). However, as this study indicated, the campus environmental impact on college student involvement has not been specifically measured for American Indian students, so this study's findings addressed the gap in the involvement research literature.

The null hypothesis for research question was rejected as there was a significant negative correlation between the two variables ($r=-.14$, $N = 1{,}931$, $p < .01$), although the strength of the relationship was small and negative, it only explained 2% of the variance. This finding will be fully discussed within the next research question as it relates to the student experience block of variables.

The null hypothesis for research question two stated that the environmental variables from the literature placed in hierarchical blocks would not contribute to the explained variance with student involvement. Collinearity diagnostics were calculated, and diagnostic statistics assessing zero order correlations, variance inflation factors, and tolerance levels indicated all results were within appropriate parameters.

Overall, the results of the regression model indicated that the modified campus environment involvement model designed for this study explained a significant amount of the variance of American Indian college student involvement ($R^2 = .339$, $F_{32, 757} =$

12.14, $p<.001$). Within the model, the regression analysis indicated specific variables in several of the blocks as significant predictors of American Indian student involvement.

Prior to college, involvement in high school academic clubs and holding leadership positions were significant predictors for collegiate involvement. The pre-college regression block accounted for 11.3% of the model's overall variance. First and second year American Indian students were significant negative predictors of collegiate involvement. In the institutional characteristics block, attending a masters-type institution was a negative predictor of American Indian involvement – and the only variable showing significance for this regression block. The student experiences regression block held the most variables indicating significant predictors of American Indian student involvement. Mentoring relationships with faculty and student affairs professionals were significant positive predictors of American Indian student involvement, while living and working off-campus were negatively predictive of involvement. However, working on campus was a positive significant predictor variable of collegiate involvement. This block explained 8.1% of the model's overall variance. In the last regression block, both campus climate variables were significant predictors of campus involvement. As composite measures, the sense of belonging variable was a significant positive predictor of student involvement, whereas the variable for experiencing a non-discriminatory climate was a significant negative predictor of collegiate involvement. The next sections will discuss the regression blocks and their variables in more depth as they confirmed and contradicted existing research, as well as new contributions to the literature.

Generalizing and American Indians

In the spirit of ethical research that benefits American Indian college students, I wish to make clear how I use and discuss the term generalizability. There are several perspectives from which to view generalizations as they relate to American Indian college students. My colleague, Shelly Lowe (2005), discusses generalizations from the perspective of how student affairs professionals should interact individually with American Indian college students.

> Never generalize; treat each student as a unique person. Understand that not all Native American students have the same backgrounds, experiences, cultural traditions, or knowledge of higher education. The worst thing to do is to stereotype Native American students or assume they all have the same problems. Instead, be sure to ask questions that allow you to get insight into that individual student's situation without seeming overly forward. Give suggestions and direction based on the individual situation. Take time to hear and learn each student's story in order to work with that student and other Native American students as well as for your own growth. The more you learn about different Native American student experiences, the more tools you will have to work with in student affairs. (p. 38)

Yet, in the same text she calls for more research and explains that footnotes in quantitative research are no longer acceptable as I too have been writing and discussing since 2004. This has presented the American Indian and higher education communities with a dilemma. How do we conduct more research knowing that some level of generalizability across institutions will be necessary to share research findings where they are often needed the most and where most American Indians attend college, predominantly White institutions.

This study's quantitative results should be interpreted in a way that supports and empowers existing studies especially those with qualitative findings where the variables are similar. Further, if this quantitative study can support greater transferability of

qualitative research that in turn supports American Indian college student development, then I believe this meets the beneficence standard of the ethical research guidelines discussed in chapters 1 through 3. Overall, this study's results should only be generalized in ways that transform institutions of higher education into places where American Indian college students easily find support for collegiate involvement without having to relinquish their sense of self. Ideally, generalizable research results should be used in practice to help connect American Indian college students to college experiences that strengthen their sense of self and identity in ways that are developmentally appropriate for each individual student and lead to graduation. Of course this requires that institutions and their faculty and staff be culturally competent through research and practice which in turn may result in a transformation experience for institutions of higher education.

Discussion of Findings

This section includes a detailed discussion of this study's findings as they relate to the existing literature. First, the involvement regression model is interpreted in relation to the extant research on American Indian college students with discussion and interpretations for each regression block's significant variables. Implications for practice are then included followed by the study's limitations and suggestions for future research.

The results of this study support previous qualitative and quantitative studies found in the literature that examined campus environmental variables and their influence on American Indian college student experiences. Some research related to American Indian college students are based on anecdotal and personal experiences of and with American Indian college students, faculty, and administrators, as well as those by non-Native student affairs professionals and higher education administrators. These

experiences, often captured in book chapters and articles, may also be supported by this research study where appropriate. Where most of the existing qualitative research on the experiences of American Indian college students was limited by context (e.g., single campus, tribe or region specific), this national quantitative study supports several prior research study findings and provides a basis for broader external application of those findings as discussed below. This study also raises new questions related to how involvement is defined and challenges the narrow application of student involvement as a construct for institutional understanding of American Indian college student involvement.

American Indian Perspective

Higher education's understanding of American Indian college student involvement is limited by research and context. Therefore this study used the traditional involvement framework as a point of departure to address this gap in the research on college student involvement. For this study, Astin's (1985) college involvement model was adapted and modified for use with campus environmental variables identified in the limited literature known to influence American Indian college student involvement. This was done in an effort to determine if these variables could be identified as predictors of American Indian involvement. However, as previously stated, where involvement was not a "fit" for American Indian students, this was not viewed or interpreted as an American Indian problem that should be solved by others, but rather calls into question the definition of and campus expectations for collegiate involvement. This breaks with the traditional use of involvement as an environmental variable used to predict outcomes such as student success. The approach used in this study provides an opportunity to examine the traditional context of involvement while allowing for flexibility to

reexamine the construct of involvement where traditional campus environmental variables may not connect with American Indian college students.

Demographic Variables

This study's findings indicated that gender, age, and first-generation status were not significant predictors of American Indian student involvement. These findings both contradict and confirm existing literature about college students in general, students of color, and American Indian students.

American Indian women are more likely to be enrolled in college than men. The national data indicate that 61% of American Indian college students are women (NCES, 2009), which closely matches the data for this study where women comprised 67% of the sample. For college students overall, women were expected to be more involved than men (Pike & Kuh, 2005; Pike, Kuh, & Gonyea, 2003) which is not reflected in the results of this study. American Indian men (M = 2.96, SD = 1.50) and women (M = 2.88, SD = 1.50) respondents reported being involved at similar levels thereby gender was not a significant predictor of involvement.

Age was also not a significant predictor of American Indian involvement. At first glance, there may be several reasons for this, including the fact that nationally American Indian college students tend to be less represented in the traditional age category (18-24) than other racial/ethnic groups (NCES, 2009). Combining the age and gender variables, research indicates that traditional age college women are expected to be more involved than traditional age college men (Pike & Kuh, 2005), possibly pointing to the reason American Indian gender is not predictive of involvement. However, the average age of American Indian students for this study's sample was 23.43 (SD = 7.86), younger than

expected (Freeman & Fox, 2005), and yet age and gender remained non-significant predictors for involvement. Somewhat overlapping with gender and age, first-generation status for women of color has shown to result in less campus involvement (Pike & Kuh, 2005). Again, first-generation status was not a significant predictor of involvement for America Indian college students. However, first generation students (M = 2.48, SD = 1.49) were less involved than their non-first generation (M = 3.04, SD = 1.48) counterparts, but not at levels significant enough to predict involvement. These data may be connected with Lundberg et al's (2007) findings on involvement for first-generation students of color, including American Indians, showing that quality of involvement is more important that quantity of involvement. This also agrees with Pace (1984) and Astin's (1991) consensus around quality over quantity of student involvement. American Indian students may be focused on navigating their academic environment and less focused on co-curricular involvement during their first and second years (Lundberg et al. 2007) therefore more careful about the quantity of involvement they seek.

This study's dependent variable of involvement in college organizations was measured with the relationship between the independent variables and whether these variables could predict an increase or decrease in involvement. Considering the average response for involvement among the American Indian sample was 2.90 (SD = 1.50) (1 = never involved to 5 = much of the time), collectively these findings indicate that American Indian students are somewhat involved, and that gender, age, and first generation status do not significantly predict more involvement. Although not statistically significant for American Indians and the dependent variable, these are important findings since this level of specificity was not previously available in the research.

Pre-college Involvement Variables

Of the pre-college involvement control variables included in this study, involvement in high school academic clubs and organizations and holding leadership positions in high school organizations were significant predictors of collegiate involvement. The literature on the effects of pre-college involvement is a growing area of research, especially as high school involvement is increasingly connected to collegiate outcomes college (Eccles & Barber, 1999; Komives & Johnson, 2009; Rose-Krasnor, Busseri, et al., 2006). The pre-college involvement regression block's variables for this study explained 11.3% of the variance for the dependent variable, the second highest of all regression blocks, and was significant at the $p < .001$ level. This confirms that pre-college experiences should be controlled when studying similar variables in the college context (Astin, 2001) for American Indians and that certain types of pre-college involvement predict college involvement (Eccles & Barber, 1999; Komives & Johnson, 2009; Rose-Krasnor, et al., 2006). Although prior studies do not specifically indicate that pre-college involvement for American Indian students predicts college involvement, this study does indicate that specific pre-college leadership experiences and academic-related club participation are significant predictors of college involvement for American Indians and thus a contribution to the literature.

American Indian involvement in high school academic related clubs and organizations may be an indication of experiencing high school academic success and therefore greater likelihood of college readiness (Perna & Thomas, 2008). However, college readiness may not automatically translate to college enrollment or collegiate involvement, especially for students from lower income families (Perna & Thomas,

2008). Nonetheless, this study indicates that for American Indian college students who were involved in high school academic clubs and held leadership positions were significantly likely to become more involved in college.

Student Characteristic Variables

The student characteristic variables identified in the extant literature for this study included transfer, enrollment status, and class standing. The results of this study indicated that American Indian class standing, at the first and second years, were each significant ($p < .001$) negative predictors of American Indian involvement and the only significant variables for this block of variables. These findings largely agree with existing research on other groups by race and ethnicity (Abrahamowicz, 1988; Hurtado & Carter, 1997). With the majority (55%) of American Indian students transferring into four-year universities from two-year colleges (NCES, 2009), which is the highest of all racial/ethnic transfer groups and similar to Latino college students, the existing research indicates that their transfer status should translate into greater involvement by students of color (Wawrzynksi & Sedlacek, 2003). However, the research basis for that conclusion did not include an American Indian sample and therefore American Indians are not represented within the "students of color" group. Informing the current literature, this research study indicates that American Indian students who transfer were somewhat less involved *(*$M = 2.57$, $SD = 1.47$) but not at a significant level in comparison to their non-transfer counterparts ($M = 3.07$, $SD = 1.47$). However, the lower than expected (33%) American Indian transfer numbers in the sample for this study also indicates that more non-transfer students were represented in the sample than anticipated. Patterson Cross's (2002) study of 232 American Indian students indicated that full-time transfer students

were more likely to graduate than their part-time counterparts indicating that full-time attendance is important to collegiate success for American Indian transfer students. Yet once again there were no significant findings between involvement by full-time (M = 2.96, SD = 1.49) and part-time (M = 2.13, SD = 1.30) status. Full-time students accounted for 93% of the American Indian sample for this study. It is quite obvious though that the involvement directions for transfer and enrollment status are in line with the existing literature. However, these findings may also indicate a differential effect related to involvement's impact on student success than what may be expected from the literature.

Institutional Characteristic Variables

The institutional characteristic variables included compositional American Indian representation, institutional size, Carnegie type, and control. The only variable shown to be predictive of American Indian college involvement was attending a masters-type institution, and that relationship was negative. This variable was significant at the $p < .05$ level and this block of variables explained a total of 3.1% of the variance with the dependent variable. Since many masters level institutions have roots as teacher's colleges and may embrace vocationally focused missions, their vocational emphasis may not result in increased student engagement (Hu & Kuh, 2003). However, this does not explain the negative relationship. Perhaps American Indian students who attend masters level institutions are more likely to work off-campus and be non-traditional students, both indicators of less student involvement, which might explain this study's results since one-third of this study's sample attended masters level institutions. The large percentage of American Indian enrollment at masters level institutions for this study is consistent with national data (NCES, 2002).

For the remaining institutional characteristics of compositional representation, size, and control, the findings seem to contradict the existing literature across these variables. Although tangentially connected to involvement, Pavel (1999) reported that American Indian students were more likely to graduate from large private institutions within six years than American Indian students at other sizes and types of institutions. For students of color, Fischer (2007) and Pascarella and Terenzini (2005) have found mixed results related to involvement and institutional size. This study seems to reduce any ambiguity in the literature for American Indian students by showing that institutional size does not appear to be predictive of involvement. However, it is interesting to note that the larger (Large - M = 2.74, SD = 1.50; Medium – M = 2.91, SD = 1.50; Small – M = 3.27, SD = 1.41) the institution the less American Indian students are involved. Although the literature presents mixed results regarding institutional size and American Indian student experiences across varying types of involvement (Fischer, 2007; Hoffman, 2002; Lundberg, et al., 2007; Moore et al., 1998; Pike, Kuh, & Gonyea, 2003), this study contributes to the literature by clarifying that for American Indians institutional size is not a significant predictor of involvement. Likewise, differences between public and private institutional control do not seem to contribute to American Indian college student involvement. These findings help to clarify the literature for these variables as they relate to involvement for American Indians.

Compositional American Indian representation was negatively correlated to involvement for the first research question of this study. However, the strength of the relationship was small (r = -.14) and explained only 2% of the variance with the dependent variable. Since there was a statistically significant correlation compositional

American Indian representation was retained as a variable for the institutional characteristics regression block but it did not gain predictive significance. Compositional representation (Milem, Chang, & Antonio, 2005) refers to the representation of historically underrepresented racial/ethnic student groups on campus. It has been argued that increasing the campus composition of underrepresented groups may result in student-level and campus-level benefits, namely campus engagement, retention, and overall satisfaction (Milem, 2003). Therefore, a logical argument could be made that the greater the compositional representation of American Indians the more they may be involved on campus. However, this study seems to complicate at least one aspect of this argument. As previously discussed, American Indians are often less visible than other racial/ethnic campus populations due to their overall small campus populations and varying phenotypes. Even if the American Indian national population was doubled overnight from 1% of the average campus population to 2%, the visible campus composition would likely appear constant. This point highlights the likely future physical invisibility of American Indians on our college campuses and therefore the potential lack of efficacy for utilizing any visible component of compositional representation as it relates to American Indians on typical college campuses, especially PWIs. Although American Indian campus compositional representation is certainly important, other factors related to American Indian representation such as numbers of support programs and activities a campus offers should be explored rather than simply anticipating an increased physical presence of American Indians will substantially impact the campus environment.

Student Experience Variables

The student experience variables were the most active group within the regression model. The variables included mentoring by faculty, student affairs staff, peers and employers; living on or off campus; and working on and off campus. The results of this regression block support many existing research findings related to American Indian (and students of color) mentor relationships with faculty and student affairs staff as they connected to types of involvement (Berrington, 2003; Fischer, 2007; Guillory & Wolverton, 2008; Jackson, 2003; Love, 1995; Lundberg & Schreiner, 2004; Lundberg, 2007; Wilson, 1997). This finding is particularly important because student affairs-student interaction data are rarely collected or discussed in the literature (Love, 1995). This study's finding that student affairs mentor relationships with American Indian students significantly predicts involvement is a specific quantitative finding that has not reported in the literature prior to this study for this study's population. However, as expected, faculty and student affairs mentoring relationships were each significant predictors of American Indian student involvement. This finding also connects with Astin's (1993, 2001) research results indicating that faculty-student interactions lead to other positive collegiate outcomes. However, peer-mentoring relationships were not a significant predictor of American Indian involvement, findings that seem to contradict involvement patterns from prior research for college students in general (Astin, 2001; Milem & Berger, 1997) and for American Indian students (Shotton, Oosahwe, & Cintron, 2007). Research on peer relationships for American Indian college students was scant and was generally not connected directly to the variables of this study. This study did not distinguish between different and same race peer relationships, which may provide

differential effects (D'Augelli & Hershberger, 1993; Fries-Britt, 1998). Results of this study indicated peer and employer relationships do not directly influence American Indian student involvement.

Consistent with the prevailing college student involvement research, living off campus was a significant negative predictor of collegiate involvement (Astin, 1993, 2001). Data related to residential proximity to campus were not available for this study; however, prior research indicates that living close to campus may have similar effects on campus involvement as living on campus does (Astin, 2001). Pike and Kuh (2005) agree that living on campus had the largest positive direct effect on important collegiate outcomes. This does not mean that American Indian students must live on or near campus to experience involvement success, but rather how involvement opportunities are designed and developed by campus administrators may need to be revisited. American Indian students who have traditional community ties and live within driving distance to campus may choose to commute as a way of maintaining important community relationships (Waterman, 2009). Involvement opportunities are often designed as on-campus activities and events, therefore privileging on-campus residents with involvement opportunities (Jacoby, 2000; Jacoby & Garland, 2004). Involvement has typically been defined and measured as an on-campus construct (Astin, 2001). However, there may be off-campus types of environments that lead to student involvement not generally measured in the involvement research as it relates to important collegiate outcomes such as graduation rates. This study also included employer mentoring as a variable for campus involvement, but it was not shown to be a significant predictor.

As expected working off-campus was significantly negatively predictive ($p < .05$) of involvement, whereas working on-campus was positively ($p < .01$) predictive of involvement. These findings are consistent with Astin's (2001) research on student employment and its relationship with campus involvement. Like many of the previous findings, these student employment data are the first nationally representative data with American Indian college students confirming or contradicting well-established findings related to student involvement.

Campus Climate Variables

The two composite variables constituting campus climate for this study included sense of belonging and experiencing a non-discriminatory climate. Both variables were significant predictors of American Indian involvement, however not as expected. As expected, American Indian student sense of belonging was significantly and positively predictive of collegiate involvement whereas experiencing a non-discriminatory climate was negatively predictive. Measuring the campus climate among underrepresented groups is important for understanding how racism and prejudice affect collegiate outcomes (Hurtado, et al., 1998; Cabrera, et al., 1999). Campus climate research for American Indian students has indicated that hostile campus climates do exist and negatively affect campus experiences such as involvement (Brown & Robinson Kurpius, 1997; Cole & Denzine, 2002; Huffman, 1991; Jackson, 2003; Lin, et al., 1988). However, past studies about American Indian campus climate experiences were often limited in scope through single institution or tribe-specific contexts. This national data study supports prior research by indicating that when American Indian students experience a sense of campus belonging ($p < .001$) they are likely to become more involved.

Conversely, when American Indian students experience a non-discriminatory climate ($p < .001$) their involvement is negatively predicted. Upon further analysis of the literature, it seems prior campus studies have not divided campus climate between the two variable constructs employed in this study as a measure of campus climate. In fact, after reviewing the campus climate literature, it seems campus climate measures are inconsistent thereby possibly measuring different experiences while naming them all campus climate which now seems to complicate direct comparisons (Brown, et al., 1997; Cole & Denzine, 2002; Huffman, 1991; Jackson, et al., 2003; Lin, et al., 1988). Regardless, these studies do indicate clear evidence that overall hostile campus climate experiences may negatively impact student experiences such as campus involvement that this study confirms.

American Indian students who experienced a non-discriminatory climate were significantly ($p < .05$) less likely to be involved. In other words, the more positive the perception of campus climate, the less likely a student may get involved in campus clubs and organizations. Although this finding may be initially confusing, American Indians who experience a non-discriminatory climate may not feel the need to join organizations for social support as they might in a discriminatory climate. Thereby in a non-discriminatory climate American Indian students may focus on quality of involvement over quantity for social support. Although current research does not make this specific link for American Indians, the connection between quality and quantity of involvement within the existing literature (Astin, 1991; Pace, 1984) indicates that within certain environments quantity and quality are factors that should be explored further. Overall the inclusion of campus climate variables in this study answered a call from prior research

(Jackson, 2003; Lundberg, 2007) to explore the effects of campus climate on American Indian collegiate outcomes.

Limitations

There are several limitations associated with this study. This section provides an overview of the limitations as related to this study's data, conceptual model, and statistical analysis plan.

First, this study used cross-sectional data that is often viewed as a limitation when using a predictive model. The primary concern with cross-sectional studies lies in the lack of ability to fully control for outcome measures. The use of a self-report retrospective design for this study's pre-college involvement block as a clear pre-college control may present concerns. Given the thorough procedures followed during the MSL data collection, concerns related to student self-reporting have been mitigated. However research has shown that self-report retrospectives are reliable for this type of study (Gonyea, 2005).

The American Indian specific data were comprised of participants who selected the American Indian racial demographic category alone, or with another race. This raises the issue of how American Indian students identify themselves in the face of an increasing opportunity to identify more than one race or as multiracial. Often complicating racial identity among American Indians, in particular, are issues related to lingering and ongoing effects of past forced assimilation, federal and state policies regarding tribal citizenship, phenotype variations, and current campus climate, among others. American Indian quantitative data are particularly sensitive to the increasing use of multiracial categorizations as these categories may lessen an already statistically

powerless percentage of American Indian data representation. Some researchers have begun exploring the impact of multiracial categories as they relate to small campus populations such as American Indian students (Inkelas et al., 2009). However, this study does not enter this discussion but rather takes the broad approach of including all American Indian student data as a basis from which to deepen understanding of the overall American Indian student involvement experience. Future research, however, may attempt to replicate this study by hypothesizing differential outcomes based on how American Indian students choose to identify themselves racially (i.e., solely American Indian, or American Indian with another race). However, I would caution against this line of inquiry using cross-sectional data because these data cannot account for racial identity development during college or racial identity instability inherent with American Indian student data. Further, this inclusive approach takes a positive, rather than restrictive or negative, developmental view of American Indian college student identity. From this approach it would be possible to examine within group differences based on how students identify, either solely American Indian or together with another race/ethnicity. Simply excluding students who mark American Indian with another race from data sets, thus assuming they are not "American Indian," is not a developmentally appropriate approach to understanding this student population and should not be done. In fact, doing so would seem to not indicate cultural competence for understanding the historical and contemporary forces affecting American Indian racial identity development. To examine within group differences among American Indian students based on how they complete racial demographic data may be an approach to inform research and practice, but should always be reported in ways that benefit the broad American Indian community.

Data for this study excluded community college students since there were no sufficient nationally representative data for this population in the MSL data set. This study and its findings are limited to the four-year college context. Further, the MSL data related to on campus and off campus residence is a dichotomous variable thereby limiting analysis related to the literature on residential proximity to campus and involvement.

The MSL single item measuring level of involvement in clubs and organizations as a one-item dependent variable may not provide the same level of sophistication as a composite measure might if it were available for this particular study. However, the measure does capture students' quality of effort in a type of involvement characterized by high degrees of peer interaction. This is important as peer interactions are identified as among the most potent of college impact factors (Astin, 1984; Newcomb, 1962; Pace, 1984; Weidman, 1989). Further, there is evidence that single-item measures may be as empirically robust as multiple-item measures (Gardner, et al., 1998).

Implications for Practice

Scholars have suggested that collegiate co-curricular involvement is an important factor leading to overall collegiate success including graduation (Astin, 2001; Pascarella & Terenzini, 2005). A major function of many colleges and universities includes institutional engagement practices specifically focused on racial and ethnic minority students and engagement practices geared to the first and second year experiences (Kuh & Hu, 2003; Kuh, et al., 2005). In fact, many campus buildings exist as primary places for campus sponsored student involvement opportunities, namely student unions, residence halls, wellness centers, and academic buildings to list a few. Within these buildings specific involvement programs are designed, developed, borrowed, and adapted

in an attempt to support and facilitate the many developmental needs of students. These programs are often based on empirical findings from one of the many strands of research on the college student experience. Unfortunately, the research strands informing today's college student development professionals related to American Indian students is modest, at best, and as a result provides the fewest findings to inform practice.

The findings of this study address several aspects of the quantitative involvement literature where American Indians have been conspicuously missing for many years. Specifically, this study draws attention to several areas of the American Indian student involvement experience including first and second year involvement, faculty and staff mentoring relationships, working and living on/off campus, and campus climate. Further, this study indicates that the concept of involvement as it is used in the context of American Indian students may not fully capture their overall involvement experience.

This study indicates that first and second year American Indian college students were significantly less involved than their junior and senior peers. Although more involvement is not necessarily better, assisting first and second year American Indian students in finding meaningful involvement opportunities that supports their specific developmental needs seems indicated. Rather than assuming an on-campus integration perspective as involvement frameworks typically dictate in this circumstance, it would seem that developing an appropriate intervention through a structured first and second year American Indian outreach program would be a better use of resources. This type of program should intentionally include both on and off campus students. A portion of this type of program should also involve connecting American Indian students with faculty and student affairs staff as mentors who are culturally competent to support the

developmental needs of American Indian students. For American Indian students who are working off-campus, opportunities should be included for them to explore on-campus employment if appropriate to their circumstance. Further, this type of outreach should not be limited to the boundaries of campus. If there are a number of off-campus American Indian students, developing off-campus support networks and involvement opportunities in their communities may be helpful. These intervention approaches, whether in part or whole, could come together to increase American Indian sense of belonging which is likely to increase meaningful involvement connections based on the findings of this study.

Implications for Future Research

This study responds to the overwhelming call for more student development research with American Indian college students. Specifically this study addresses one of the many existing gaps in research, and by extension, student affairs practice related to student involvement. As student involvement has been linked to important positive collegiate outcomes for college students, American Indian data were mostly missing from research reporting these findings. Further, the few studies that do exist related to American Indians discuss those who are already involved and therefore more likely to succeed in college. Since American Indians are the most likely of all campus racial/ethnic groups to leave college before completion (NCES, 2009), it seemed important to see if this study could identify campus environments that support American Indian student involvement.

A primary benefit of this study is that it supports many prior qualitative findings related to American Indian college student experiences. These studies were often limited

by context and scope. This study (re)calls attention to many of these prior single-campus and context specific studies that examined the college environment for American Indian students. For example, many of these studies examined campus climate and made suggestions for increasing sense of belonging and decreasing discriminatory experiences for American Indian students. Although these studies were often cited by other researchers, it is not clear whether researchers and administrators believed those suggestions for practice were applicable to their campuses. The size of this study's multi-institutional American Indian sample suggests prior study results that included similar campus environmental variables should be reexamined for inter-institutional implications.

One important discussion point of this research study involves how higher education thinks about the campus construct of involvement and what higher education does when student experiences do not seem to fit the research definition of successful involvement. Rather than using involvement as an assimilative (or Colonial) tool for a supportive campus culture, the question should become how do higher education institutions conceptualize involvement to support students who may not fit the traditional model? This research study begins this discussion as it relates to American Indian college students. With several of the traditional campus environmental variables, the influence on involvement was somewhat predictable. However, when the campus environment was not supportive of American Indian student involvement across such variables as working off campus and campus climate, this should give researchers pause before they make conclusions. More research is needed to test other types of off-campus experiences and their effect on involvement. Also, this study's dependent variable of

involvement in campus clubs and organizations could be redesigned to look at other types of off-campus involvement as predictors of retention, success, or any number of important collegiate outcomes as they relate to American Indian students. This study also indicates a direct connection between high school involvement, and collegiate involvement for American Indians should be explored further with other dependent variables. Future research related to within group involvement differences across socio-economic status, distance from home, rural and urban backgrounds, to name a few, should be conducted in order to further explore the involvement experiences of American Indian college students.

Conclusion

The American Indian research asterisk has prevailed over student development research for decades. Student affairs professionals have been limited in their ability to develop evidence-based student development interventions for American Indian student involvement. This study addressed an aspect of the research asterisk related to American Indian college student involvement through a quantitative multi-institutional study of 99 campuses with a total of 1,931 American Indian respondents. This study confirms many prior study findings with American Indian college students that were limited in scope and context and where findings lacked transferability. Several key findings emerged from this research study including the importance of pre-college involvement in high school academic clubs and holding leadership positions as significant predictors of college student involvement. This study indicated the need for specific student development interventions for first and second year American Indian students and the need for programs that develop faculty and student affairs mentor relationship opportunities. The

concept of involvement should not be limited by its historical on-campus context and should be viewed as a dynamic process whereby American Indian students are provided an opportunity to shape an involvement experience that helps to maintain their sense of self and identity while promoting a sense of belonging and collegiate success.

Appendix A

Regression block research variables with corresponding MSL survey item(s), response choices, and model variable type.

Regression Block #1: Demographics

Regression Block	Measure	Variables & Corresponding MSL Item (s)	Response Choices	Model Variable Type
Demograph-ics				
	Category	***What is your gender?*** *(MSL: Dem 7.1)*	• Female (1) • Male (2)	Input
	Numerical (continous)	***What is your age?*** *(MSL: Dem 6)*	Open Response	Input
	Category	***First Generation College Student?*** *(MSL: Dem 14.1)*	First Generation (1) Non-First Generation (2)	Input

Regression Block #2: Pre-College Involvement (Quasi pre-test)

Regression Block	Measure	Variables & Corresponding MSL Item	Response Choices	Model Variable Type
Pre-College Involvement	Category	***Looking back to when you were in high school, how often did you engage in the following activities:***		Input
		-Student council or student government (MSL: PRE3a)	Never (1) Sometimes (2) Often (3) Very Often (4)	Input
		-Pep Club, School Spirit club, or Cheerleading (MSL: PRE3b)	Never (1) Sometimes (2) Often (3) Very Often (4)	Input
		-Performing Arts (ex, band, orchestra, dance, drama, art) (MSL: PRE3c)	Never (1) Sometimes (2) Often (3) Very Often (4)	Input
		-Academic clubs (ex, science fair, math club, debate club, foreign language club, chess club, literary magazine) (MSL: PRE3d)	Never (1) Sometimes (2) Often (3) Very Often (4)	Input
		-Organized sports (ex. Varsity, club	Never (1) Sometimes (2)	Input

		sports) *(MSL: PRE3e)*	Often (3) Very Often (4)	
		Leadership Positions in student clubs, groups, sports (MSL: PRE3f)	Never (1) Sometimes (2) Often (3) Very Often (4)	Input
		-Performed community service (MSL: PRE4a)	Never (1) Sometimes (2) Often (3) Very Often (4)	Input
		Participated in community organizations (MSL: Pre4b)	Never (1) Sometimes (2) Often (3) Very Often (4)	Input

Regression Block #3:Student Characteristics

Regression Block	Measure	Variables & Corresponding MSL Item	Response Choices	Model Variable Type
Student Characteris-tics	Category	***(Transfer)*** ***Did you begin your college at your current institution or elsewhere? (Choose One)*** ***(MSL: Dem1)***	Started Here (1) Started Elsewhere (2)	Environment
	Category	***(Enrollment Status)*** ***How would you characterize your enrollment status? (Choose One)*** ***(MSL: Dem2)***	Full-Time (1) Less than full-time (2)	Environment
	Category	***(Class Standing)*** ***What is your current class level? (Choose One)*** ***(MSL: Dem3.1)***	Freshman/First-year (1) Sophomore (2) Junior (3) Senior (4th year and beyond)(4)	Environment

Regression Block #4: Institutional Characteristics

Regression Block	Measure	Variables & Corresponding MSL Item	Response Choices	Model Variable Type
Institutional Characteris-tics	Continuous	***American Indian Compositional Representation*** ***(if RQ1 is correlated /predictive)***	percentage calculated from IPEDS	Environment
	Category	***Size*** ***(institution reported)***	Small (<3,000) (1) Medium (3,001-10,000) (2) Large (10,001>) (3)	Environment

	Category	***Carnegie Type (institution reported)***	Research Extensive (1) Research Intensive (2) Masters (3) Baccaluareate (4)	Environment

Regression Block #5: Student Interactions

Regression Block	Measure	Variables & Corresponding MSL Item(s)	Response Choices	Model Variable Type
Student Experience		***Since you started at your current college/university, how often have the following types of mentors assisted you in your growth or development?***		Environment
	Category	Faculty/Instructor (MSL: ENV8b1)	Never (1) Once (2) Sometimes (3) Often (4)	Environment
	Category	Student Affairs Professional Staff (ex. Student organization advisor, career counselor, Dean of Students, residence hall coordinator) (MSL: ENV8b2)	Never (1) Once (2) Sometimes (3) Often (4)	Environment
	Category	Other Student (peer) (MSL: ENV8b6)	Never (1) Once (2) Sometimes (3) Often (4)	Environment
	Category	Employer (MSL: ENV8b3)	Never (1) Once (2) Sometimes (3) Often (4)	Environment

	Category	***Are you currently working OFF CAMPUS in a job unaffiliated with you school? (MSL: Env1)***	Yes (1) No (2)	Environment
	Category	If MSL: Env1 is not, then respondent is directed to: ***Are you currently working ON CAMPUS? (MSL: Env2)***	Yes(1) No (2)	Environment

	Category	On-campus or Off-campus Housing (MSL: ENV	On-campus (1) Off-campus (2)	Environment

Regression Block #6: Campus Climate

Regression Block	Measure	Variables & Corresponding MSL Item(s)	Response Choices	Model Variable Type
Campus Climate	Reported as a composite measure (with non-Discriminatory Climate)	Belonging Climate	Strongly Disagree (1) Disagree (2) Neutral (3) Agree (4) Strongly Agree (5)	Environment
	Reported as a composite measure (with Belonging Climabe)	Non - Discriminatory Climate	Strongly Disagree (1) Disagree (2) Neutral (3) Agree (4) Strongly Agree (5)	Environment

Appendix B

Human Subjects Approval

UNIVERSITY OF MARYLAND
INSTITUTIONAL REVIEW BOARD

2100 Lee Building
College Park, Maryland 20742-5121
301.405.4212 TEL 301.314.1475 FAX
irb@deans.umd.edu
www.umresearch.umd.edu/IRB

July 24, 2008

MEMORANDUM

Application Approval Notification

COPY

To:	Dr. Susan Komives John P. Dugan Kristen Cilente Corbin Campbell Jon Garland Ramsey Jabaji Craig Slack Julie Owen Matthew Johnson Wendy Wagner Meredith Smith Jennifer Bonnet Justin Fincher Tricia Shalka Department of Counseling and Personnel Services
From:	Roslyn Edson, M.S., CIP IRB Manager University of Maryland, College Park
Re:	**IRB Application Number: # 05-0454** **Project Title:** "Multi-Institutional Study of Leadership"
Approval Date:	**July 23, 2008**
Expiration Date:	**July 23, 2009**
Type of Application:	Renewal
Type of Research:	Non-Exempt
Type of Review For Application:	Expedited

The University of Maryland, College Park Institutional Review Board (IRB) approved your IRB application. The research was approved in accordance with 45 CFR 46, the Federal Policy for the Protection of Human Subjects, and the University's IRB policies and procedures. The IRB approves waiver of signed informed consent as per criteria in 45 CFR 46.116(d). Please reference the above-cited IRB application number in any future communications with our office regarding this research.

Recruitment/Consent: For research requiring written informed consent, the IRB-approved and stamped informed consent document is enclosed. The IRB approval expiration date has been stamped on the informed consent document. Please keep copies of the consent forms used for this research for three years after the completion of the research.

Appendix C

MSL Scale Reliabilities (For Sense of Belonging and Climate)

SCALE	PREVIOUS RELIABILITY	MSL PILOT RELIABILITY	MSL 2006 RELIABILITY	MSL 2009 PILOT	MSL 2009 PILOT2	MSL 2009
Belonging Climate	-	-	-	.83	.93	.87
Non -Discriminatory Climate	-	-	-	.83	.84	.85

Appendix D

2009 MSL Participating Institutions

SCHOOL	Size	Control	Carnegie	Selectivity	Affiliation	Setting	Consortium	Comparative
Alfred University	Small	Private	Masters	Very Competitive	Secular	Town		
Baylor University	Large	Private	Research (Very high)	Highly Competitive	Religious	City		Y
Berry College	Small	Private	Baccalaureate- A&S	Very Competitive	Secular	Rural		
Binghamton University	Large	Public	Research (Very high)	Highly Competitive	Secular	Suburb		
Bridgewater State College	Medium	Public	Masters	Competitive	Secular	Suburb		Y
Brigham Young University Hawaii	Small	Private	Baccalaureate- A&S	Very Competitive	Religious	Town		Y
Bryant University	Medium	Private	Masters	Very Competitive	Secular	Rural		
Bucknell University	Medium	Private	Baccalaureate- A&S	Most Competitive	Secular	Rural		Y
California Lutheran	Small	Private	Masters	Competitive	Religious	City		Y
California State University, Sacramento	Large	Public	Masters	Competitive	Secular	City		Y
Clemson University	Large	Public	Research (Very high)	Highly Competitive	Secular	Town		Y
Colgate University	Small	Private	Baccalaureate- A&S	Most Competitive	Secular	Town		
Colorado State University-Ft. Collins	Large	Public	Research (Very high)	Competitive	Secular	City		Y
Columbia College	Small	Private	Masters	Less Competitive	Religious	City		Y
Concordia College	Small	Private	Baccalaureate- A&S	Non Competitive	Religious	Suburb		Y
Cornell College	Small	Private	Baccalaureate- A&S	Very Competitive	Religious	Town		
CUNY Baruch College	Large	Public	Masters	Very Competitive	Secular	City		Y
CUNY Lehman College	Medium	Public	Masters	Less Competitive	Secular	City		Y
DePaul University	Large	Private	Doctoral/Research	Very Competitive	Religious	City	X	Y
Drake University	Medium	Private	Masters	Very Competitive	Secular	City		
Drexel University	Large	Private	Research (Very high)	Very Competitive	Secular	City		
Duke University	Medium	Private	Research (Very high)	Most Competitive	Religious	City		
Elmhurst College	Small	Private	Masters	Competitive	Religious	Suburb		Y
Elon University	Medium	Private	Masters	Highly Competitive	Religious	Suburb		
Furman University	Small	Private	Baccalaureate- A&S	Highly Competitive	Secular	Suburb		Y
Gallaudet University	Small	Private	Masters	Special	Secular	City		
George Mason University	Large	Public	Research (Very high)	Very Competitive	Secular	Suburb		
Georgia Southern University	Large	Public	Doctoral/Research	Very Competitive	Secular	Town		Y
Gettysburg College	Small	Private	Baccalaureate- A&S	Highly Competitive	Religious	Town		
Guilford College	Small	Private	Baccalaureate- A&S	Very Competitive	Religious	City		Y
Hamline University	Small	Private	Masters	Very Competitive	Religious	City		
Harvard	Medium	Private	Research (Very high)	Most Competitive	Secular	City		
Houghton College	Small	Private	Baccalaureate- A&S	Very Competitive	Religious	Rural		
Indiana University-Bloomington	Large	Public	Research (Very high)	Very Competitive	Secular	City		Y
Jackson State University	Medium	Public	Research (Very high)	Competitive	Secular	City		
John Carroll University	Medium	Private	Masters	Competitive	Religious	Suburb	X	Y
Kansas State University	Large	Public	Research (Very high)	Non Competitive	Secular	Town		Y
Loyola Marymount University	Medium	Private	Masters	Very Competitive	Religious	City	X	Y
Loyola University Chicago	Medium	Private	Research (Very high)	Highly Competitive	Religious	City	X	Y

SCHOOL	Size	Control	Carnegie	Selectivity	Affiliation	Setting	Consortium	Comparative
Mansfield University	Small	Public	Masters	Competitive	Secular	Rural		
Marquette University	Medium	Private	Research (Very high)	Highly Competitive	Religious	City	X	Y
Meredith College	Small	Private	Baccalaureate- A&S	Competitive	Secular	City		
Metro State College Denver	Large	Public	Baccalaureate- A&S	Less Competitive	Secular	City		Y
Millikin University	Small	Private	Baccalaureate- A&S	Competitive	Religious	City		Y
Missouri Western State University	Medium	Public	Baccalaureate- A&S	Non Competitive	Secular	City		Y
Monroe Community College	Large	Public	Associates	Not Available	Secular	Suburb		
Montgomery College, Maryland	Large	Public	Associates	Not Available	Secular	City		
Moravian College	Small	Private	Baccalaureate- A&S	Competitive	Religious	City		Y
North Carolina Central University	Medium	Public	Masters	Less Competitive	Secular	City		
North Carolina State University	Large	Public	Research (Very high)	Very Competitive	Secular	City		Y
Northeastern Illinois University	Large	Public	Masters	Competitive	Secular	City		Y
Northeastern State University	Medium	Public	Masters	Less Competitive	Secular	Town		
Northwestern University	Medium	Private	Research (Very high)	Most Competitive	Secular	City		Y
Ohio University	Large	Public	Research (Very high)	Competitive	Secular	Rural		
Pacific Lutheran University	Medium	Private	Masters	Very Competitive	Religious	Suburb		Y
Regis University	Medium	Private	Masters	Competitive	Religious	City	X	Y
Roger Williams University	Medium	Private	Baccalaureate- A&S	Competitive	Secular	Suburb		
Rollins College	Small	Private	Masters	Highly Competitive	Secular	Suburb		
Saint Joseph's University	Medium	Private	Masters	Very Competitive	Religious	City	X	Y
Saint Mary's University of Minnesota	Small	Private	Doctoral/Research	Very Competitive	Religious	Town		Y
Samford University	Small	Private	Doctoral/Research	Very Competitive	Religious	Suburb		
Seattle University	Medium	Private	Masters	Very Competitive	Religious	City	X	Y
Sonoma State University	Medium	Public	Masters	Competitive	Secular	Suburb		
Southern Methodist University	Medium	Private	Doctoral/Research	Highly Competitive	Religious	City		Y
SUNY Geneseo	Medium	Public	Masters	Highly Competitive	Secular	Town		Y
SUNY Potsdam	Medium	Public	Masters	Competitive	Secular	Town		
Temple University	Large	Public	Research (Very high)	Competitive	Secular	City		Y
Texas A & M University	Large	Public	Research (Very high)	Highly Competitive	Secular	Rural		Y
Texas Christian University	Medium	Private	Doctoral/Research	Highly Competitive	Religious	City		Y
University of Arizona	Large	Public	Research (Very high)	Very Competitive	Secular	City		Y
University of Buffalo	Large	Public	Research (Very high)	Very Competitive	Secular	City		
University of California, Berkeley	Large	Public	Research (Very high)	Highly Competitive	Secular	City		Y
University of Central Florida	Large	Public	Research (Very high)	Very Competitive	Secular	Suburb		
University of Central Oklahoma	Large	Public	Masters	Competitive	Secular	Suburb		Y
University of Chicago	Medium	Private	Research (Very high)	Most Competitive	Secular	City		
University of Colorado at Boulder	Large	Public	Research (Very high)	Very Competitive	Secular	City		
University of Detroit Mercy	Medium	Private	Masters	Competitive	Religious	City	X	Y

University of Illinois, Urbana-Champaign	Large	Public	Research (Very high)	Highly Competitive	Secular	City		Y

SCHOOL	Size	Control	Carnegie	Selectivity	Affiliation	Setting	Consortium	Comparative
University of Iowa	Large	Public	Research (Very high)	Very Competitive	Secular	City		Y
University of Kansas	Large	Public	Research (Very high)	Very Competitive	Secular	City		Y
University of Louisville	Large	Public	Research (Very high)	Very Competitive	Secular	City		
University of Maryland, College Park	Large	Public	Research (Very high)	Highly Competitive	Secular	Suburb		Y
University of Maryland, Eastern Shore	Medium	Public	Masters	Competitive	Secular	Town		
University of Massachusetts, Lowell	Medium	Public	Doctoral/Research	Competitive	Secular	Suburb		
University of Minnesota	Large	Public	Research (Very high)	Highly Competitive	Secular	City		Y
University of Monterrey	Medium	Private	Masters	Competitive	Religious	City		
University of Nevada, Las Vegas	Large	Public	Research (Very high)	Competitive	Secular	City		Y
University of North Carolina, Chapel Hill	Large	Public	Research (Very high)	Most Competitive	Secular	Suburb		Y
University of North Carolina, Greensboro	Large	Public	Research (Very high)	Competitive	Secular	City		Y
University of North Carolina, Wilmington	Large	Public	Masters	Very Competitive	Secular	City		Y
University of Richmond	Medium	Private	Baccalaureate- A&S	Most Competitive	Secular	City		Y
University of Rochester	Medium	Private	Research (Very high)	Most Competitive	Secular	City		
University of San Diego	Medium	Private	Doctoral/Research	Highly Competitive	Religious	City	X	Y
University of San Francisco	Medium	Private	Doctoral/Research	Very Competitive	Religious	City	X	Y
University of Scranton	Medium	Private	Masters	Very Competitive	Religious	City	X	Y
University of South Florida	Large	Public	Research (Very high)	Very Competitive	Secular	City		
University of Tampa	Medium	Private	Masters	Competitive	Secular	City		Y
University of Toronto	Large	Public	Doctoral/Research	Highly Competitive	Secular	City		
University of Wisconsin, Madison	Large	Public	Research (Very high)	Highly Competitive	Secular	City		Y
University of Wisconsin-La Crosse	Medium	Public	Masters	Very Competitive	Secular	City		
University of Wisconsin-Oshkosh	Large	Public	Masters	Less Competitive	Secular	City		Y
University of Wisconsin-Steven's Point	Medium	Public	Masters	Competitive	Secular	Town		Y
Wartburg College	Small	Private	Baccalaureate- A&S	Very Competitive	Religious	Town		Y
Wilson College	Small	Private	Baccalaureate- A&S	Competitive	Religious	Town		Y
Youngstown State University	Large	Public	Masters	Non Competitive	Secular	City		Y

References

Abrahamowicz, D. (1988). College involvement, perceptions, and satisfaction: A study of membership in student organizations. *Journal of College Student Development, 29*, 233-238.

American College Personnel Association & National Association of Student Personnel Administrators (2004). *Learning Reconsidered: A campus-wide focus on the student experience*. Washington, DC: Authors.

American Indian Higher Education Consortium. (2006). *Sustaining tribal college and universities and the tribal college movement: Highlights and profiles*. Retrieved from http://www.aihec.org/resources/AIMS.cfm

Astin, A. W. (1962). An empirical characterization of higher education institutions. *Journal of Education Psychology, 55,* 267-275.

Astin, A. W. (1970a). The methodology of research on college impact: Part I. *Sociology of Education, 43,* 233-254.

Astin, A. W. (1970b). The methodology of research on college impact: Part II. *Sociology of Education, 43,* 437-450.

Astin, A. W. (1975). *Preventing students from dropping out*. San Francisco, CA: Jossey-Bass.

Astin, A. W. (1977). *Four critical years*. San Francisco, CA: Jossey-Bass.

Astin, A. W. (1982). *Minorities in American higher education*. San Francisco, CA: Jossey-Bass.

Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel, 25,* 297-308.

Astin, A. W. (1985). *Achieving educational excellence: A critical assessment of priorities and practices in higher education*. San Francisco: Jossey-Bass.

Astin, A. W. (1991). *Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education*. New York: American Council on Education/ Macmillan.

Astin, A. W. (1993). *What matters in college: Four critical years revisited*. San Francisco: Jossey-Bass.

Astin, A. W. (1996). Involvement in learning revisited: Lessons we have learned. *Journal of College Student Development, 37,* 123-134.

Astin, A.W. (2001). *What matters in college: Four critical years revisited.* San Francisco: Jossey-Bass.

Astin, A. W., & Astin, H. S. (2000). *Leadership reconsidered: Engaging higher education in social change*. Battle Creek, MI: W. K. Kellogg Foundation.

Baker, C. N. (2008). Under-represented college students and extracurricular involvement: The effects of various student organizations on academic performance. *Social Psychology Education, 11,* 273-298.

Berrington, S. (2003). *Successful Native American students: Responses to challenges and barriers in college* (Doctoral Dissertation). Available from ProQuest Dissertations & Theses database. (AAT 3115314)

Berry, L. (2008). *Hearing their voices: College experiences of urban American Indian women*. (Doctoral Dissertation). Available from ProQuest Dissertations and Theses database. (AAT MR45723)

Benham, M.K.P., & Cooper, J.E. (2000). *Indigenous educational models for contemporary practice*. Lawrence Erlbaum Associates, Inc. Mahway, NJ.

Benham, M. K. P., & Stein, W. J. (2003*). The renaissance of American Indian higher education: Capturing the dream*. Mahwah, NJ: Lawrence Erlbaum.

Benjamin, D. P., Chambers, S., & Reiterman, G. (1993). A focus on American Indian college persistence. *Journal of American Indian Education*, January 1993.

Berger, J. B. & Milem, J. F. (1999). The role of student involvement and perceptions of integration in a causal model of student persistence. *Research in Higher Education, 40,* 641-664.

Bitsoi, L. M. (2007). *Native leaders in the new millennium: An examination of success factors of Native American males at Harvard College (Massachusetts)*. (Doctoral Dissertation). Available from ProQuest Dissertations and Theses database. (AAT 3255879)

Bordewich, F. M. (1996). *Killing the White man's Indian: Reinventing American Indian at the end of the twentieth century*. New York, NY: Anchor Books.

Boyer, P. (1997). *American Indian colleges: Progress and prospects*. San Francisco, CA: Jossey-Bass.

Braxton, J. (2002). *Reworking the student departure puzzle*. Nashville, TN: Vanderbilt University Press.

Brown, L.L., & Robinson-Kurpius, S.E. (1997). Psychosocial factors influencing academic persistence of American Indian college students. *Journal of College Student Development, 38*, 3-13.

Cabrera, A. F., Nora, A., Terenzini, P. T., Pascarela, E., & Hagedorn L. S. (1999). Campus racial climate and the adjustment of students to college: A comparison between White students and African American students. *The Journal of Higher Education, 70,* 134-160.

Caldwell, J. Y., Davis, J. D., Du Bois, B., Echo-Hawk, H., Erickson, J. S., Goins, R. T., Hill, C., Hillabrant, W., Johnson, S. R., Kendall, E., Keemer, K., Manson, S. M., Marshall, C., A., Running Wolf, P., Santiago, R. L., Schacht, R., & Stone, J. B. (2005). Culturally competent research with American Indians and Alaska Natives: Findings and recommendations of the first symposium of the work group on American Indian research and program evaluation methodology. American Indian and Alaska Native Mental Health Research; *The Journal of the National Center*, 12 (1), 1-21.

Cheng, D. X. (2001). Students' sense of campus community: What it means, and what to do about it. *NASPA Journal, 41*, 216-234.

Chickering, A. W., & Reisser, L. (1993). *Education and identity* (2nd ed.). San Francisco, CA: Jossey-Bass.

Choney, S. K., Berryhill-Paapke, E., & Robbins, R. R. (1995). The acculturation of American Indians: Developing frameworks for research and practice. In J. G. Ponterotto, J. M. Casa, L. A. Suzuki, & C. M. Alexander (Eds.), *Handbook of multicultural counseling* (pp. 73-92). Thousand Oaks, CA: Sage.

Cole, J. S., & Denzine, G. M. (2002). Comparing the academic engagement of American Indian and White college students. *Journal of American Indian Education, 41*(1), 19-34.

Constantine, M. G., & Ladany, N. (2001). New visions for defining and assessing multicultural counseling competence. In J. G., Ponterotto, J. M. Casas, L. A. Suzuki, & C. M. Alexander (Eds.), *Handbook of multicultural counseling* (2nd ed., pp. 482-498). Thousand Oaks, CA: Sage

Couper, M. P. (2000). Web surveys: A review of issues and approaches. *Public Opinion Quarterly, 64,* 464-494.

Crawford, S. D., Couper, M. P., & Lamias, M. J. (2001). Web surveys: Perceptions of burden. *Social Science Computer Review, 19,* 146-162.

Crawford, S., McCabe, S. E., & Pope, D. (2005). Applying web-based survey design standards. *Journal of Prevention & Intervention in the Community, 29,* 43-66.

D'Augelli, A. R., & Hershberger, S. L. (1993). Lesbian, gay, and bisexual youth in community settings: Personal challenges and mental health problems. *American Journal of Community Psychology, 21,* 421-448.

D' Andrea, M., Daniels, J., & Noonan, M. J. (2003). New developments in the assessment of multicultural competence. In D. B. Pope-Davis, H.L.K. Coleman, W. M. Liu, & R L. Toporek (Eds.), *Handbook of multicultural competencies in counseling and psychology* (pp. 287-311). Thousand Oaks, CA: Sage.

Deloria, Jr., V. (2004). Marginal and Submarginal. In D. A. Mihesuah, A. C. Wilson. (Eds.), *Indigenizing the academy* (pp. 16-30). Lincoln: University of Nebraska Press.

DeVoe, J. F., Darling-Churchill, K. E., & Snyder, T. D. (2008). *Status and trends in the education of American Indians and Alaska Native*: 2008. (NCES 2008-084). U.S.

Department of Education, National Center for Education Statistics. Washington DC.: U.S. Government Printing Office.

Dugan, J. P. (2006). Involvement and leadership: A descriptive analysis of socially responsible leadership. *Journal of College Student Development, 47,* 335-343.

Dugan, J. P., & Komives, S. R. (2007). *Developing leadership capacity in college students: Findings from a national study.* College Park, MD: National Clearinghouse for Leadership Programs.

Dugan, J. P., Komives, S. R., & Associates. (2006). *Multi-Institutional Study of Leadership: A guidebook for participating campuses.* College Park, MD: National Clearinghouse for Leadership Programs.

Dugan, J. P., Komives, S. R., & Segar, T. (2009). College student capacity for socially responsible leadership: Understanding norms and influences of race, gender, and sexual orientation. *NASPA Journal, 45*, 475-500.

Eccles, J. S., & Barber, B. L. (1999). Student council, volunteering, basketball, or marching band: What kind of extracurricular involvement matters? *Journal of Adolescent Research 14,* 10-43.

Evans, N. J., Forney, D. S., & Guido-DiBrito, F. (1998). *Student development in college: Theory, research, and practice*. San Francisco, CA: Jossey-Bass.

Falk, D. R., & Aitken, L. P. (1984). Promoting retention among American Indian college students. *Journal of American Indian Education, 23*, 24-31.

Fischer, M. J. (2007). Settling into campus life: Differences in race/ethnicity in college involvement and outcomes. *Journal of Higher Education, 78*, 125-161.

Flowers, L. A. (2004). Examining the effects of student involvement on African American college student development. *Journal of College Student Development, 45*, 633-654.

Freeman, C., and M. Fox. 2005. *Status and trends in the education of American Indians and Alaska Natives*. NCES 2005-108. Washington, DC: U.S. Government Printing Office.

Fries-Britt, S. L. (1998). Moving beyond black achiever isolation: Experiences of gifted black collegians. *The Journal of Higher Education, 69,* 556-576.

Fries-Britt, S. L., & Turner, B. (2001). Facing stereotypes: A case study of Black student on a White campus. *Journal of College Student Development, 42*, 420-429.

Garcia, R. L., & Ahler, J. G. (1992). Indian education: Assumptions, ideologies, strategies. In J. Reyhner (Ed.), *Teaching American Indian students*. Norman: University of Oklahoma Press.

Gardner, D. G., Cummings, L. L., Dunham, R. B., & Pierce, J. L. (1998). Single-item versus multiple-item measurements scales: An empirical comparison. *Educational and Psychological Measurement, 58*, 898-915.

Garland, J. L. (2007). [Review of the book *Serving Native American Students.* New Directions for Student Services]. *Journal of College Student Development, 48*, 612-614.

Garrett, M. T. (1996). *Cultural values and wellness of American Indian high school students*. (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (AAT 9632136)

Garroutte, E. M. (2003) *Real Indians: identity and the survival of Native America*. Berkley: University of California Press.

Gonyea, R. M. (2005). Self-reported data in institutional research: Review and recommendations. In P. D. Umbach (Ed.), *Survey research: Emerging issues*. (New Directions for Institutional Research No. 127, pp. 73-89). San Francisco CA: Jossey-Bass.

Groves, R. M., Fowler, F. J., Couper, M. P., Lepkowski, J. M., Singer, E., & Tourangeau, R. (2004). *Survey methodology*. Hoboken, NJ: John Wiley & Sons.

Guillory, R. M. & Wolverton, M. (2008). It's about family: Native American student persistence in higher education. *The Journal of Higher Education, 79*, 58-87.

Harper, S. R., & Hurtado, S. (2007). Nine themes in campus racial climates and implications for institutional transformation. In S. R. Harper, & L. D. Patton (Eds.), *Responding to the realities of race on campus, New directions for student services* (No. 120, pp. 7-24). San Francisco, CA: Jossey-Bass.

Hart, J. & Fellabaum, J. (2008). Analyzing campus climate studies: Seeing to define and understand. *Journal of Diversity in Higher Education,1*, 222-234.

Harvey, W.B. & Anderson, E. L. (2005). *Minorities in higher education: Twenty-first annual status report*. Washington, DC: American Council on Education.

Herring, R. D. (1990). Understanding American Indian values : Process and content concerns for counselors. *Counseling and Values*, *34*, 134-137.

Hoffman, J. L. (2002). The impact of student co-curricular involvement on student success: Racial and religious differences. *Journal of College Student Development, 43*, 712-739.

Hoover, J. J., & Jacobs, C. C. (1992). A survey of American Indian college students: Perceptions toward their study skills/college life. *Journal of American Indian Education, 32*, 21-29.

Horse, P. G. (2001). Reflections on American Indian identity. In C. L. Wijeyesinghe & B. W. Jackson III (Eds.), *New perspectives on racial identity development: A theoretical and practical anthology* (pp. 91-107). New York: New York University Press.

Horse, Perry G. (2005). Native American Identity. In M. J. Tippeconnic Fox, S. C. Lowe, & G. S. McClellan (Eds), *Serving Native American students* (New Direction for Student Services No. 109, pp. 67-68). San Francisco, CA: Jossey-Bass.

Howard, G. S. (1980). Response-shift bias: A problem in evaluating interventions with pre/post self-reports. *Evaluation Review, 4,* 93–106.

Howard, G.S., & Dailey, P.R. (1979). Respons-shift bias: A source of contamination in self-report measures. *Journal of Applied Psychology, 20*, 497-509.

Howell, D. C. (2002). *Statistical methods for psychology*. Belmont, CA: Thomson Higher Education.

Huffman, T. E. (1991). The experience, perceptions, and consequences of campus racism among northern Plains Indians. *Journal of American Indian Education, 30*(2), 25-34.

Hurtado, S., & Carter, D. F. (1997). Effects of college transition and perceptions of the campus racial climate on Latino students' sense of belonging. *Sociology of Education, 70,* 324-345.

Hurtado, S., Carter, D. F., & Kardia, D. (1999). The climate for diversity: Key issues for institutional self-study. In K. W. Bauer (Ed.), *Campus climate: Understanding the critical components of today's colleges and universities. New directions for institutional research* (No. 98, pp. 53-63). San Francisco: Jossey-Bass.

Hurtado, S., Milem, J. F., Clayton-Pedersen, A. R., & Allen, W R. (1998). *Enacting diverse learning environments: Improving the campus climate for racial/ethnic diversity in higher education*. ASHE-ERIC Higher Education Reports Series, *26*(8). San Francisco, CA: Jossey Bass.

Hurtado, S., Milem, J. F., Clayton-Pederson, A. R., & Allen, W. R. (1998). Enhancing campus climates for racial/ethnic diversity: Educational policy and practice. *The Review of Higher Education, 21*, 279-302.

Inkelas, K. K., Soldner, M., & Szelenyi, K. (2009). Select all that apply? *The pitfalls of various racial classification schemes in higher education research*. Unpublished manuscript. College Park, MD.

Jackson, A. P., & Smith, S. A. (2001). Postsecondary transitions among Navajo Indians. *Journal of American Indian Education, 40*(2), 28-47.

Jackson, A. P., Smith, S. A., & Hill, L. C. (2003). Academic persistence among Native American college students.*Journal of College Student Development, 44*, 548-565.

Jacoby, B. (2000). Involving commuter students in learning: Moving from rhetoric to learning. In B. Jacoby (Ed.), *New Directions for Higher Education* (no. 109, pp. 81–87). San Francisco: Jossey-Bass.

Jacoby, B., & Garland, J. (2004). Strategies for enhancing commuter student success. *Journal of College Student Retention, 6*(1), 61–79.

Johnson, K. K. (1997, March). *Bridging understanding, creating change: Qualitative study on American Indian students*. Paper presented at the ACPA/NASPA Conference, Chicago, IL.

Jones, S. R., & McEwen, M. K. (2000). A conceptual model of multiple dimensions of identity. *Journal of College Student Development, 41*, 405-414.

Kirkness, V. J., & Barnhardt, R. (1991). First nations and higher education: The four R's – respect, relevance, reciprocity, responsibility. *Journal of American Indian Education, 30*(3), 1-15.

Komives, S. R., Dugan, J. P., & Segar, T. C. (2006). The multi-institutional study of leadership: Understanding the project. *Concepts & Connections, 15* (1), 5-7.

Komives, S. R., & Johnson, M. (2009). Incorporating pre-college experiences into theory and research on understanding college student leadership development. *Educational Considerations Journal*, (In press)

Kopelman, L. (2000). Changing views of paternalism in research: AIDS activists demand change. In H. I. Engelhardt, Jr. (Ed), *The philosophy of medicine: Framing the field.* New York: Springer.

Krause, K. D. (2007). Social involvement and commuter students: The first-year student voice. *Journal of The First-Year Experience & Students in Transition, 19,* 27-45.

Kuh, G. D. (2001). Assessing what really matters to student learning: Inside the National Survey of Student Engagement. *Change, 33*(3), 10-17, 66.

Kuh, G. D., & Hu, S. (2003). Diversity experiences and college student learning and personal development. *Journal of College Student Development, 44*, 320-334.

Kuh, G. D., Kinzie, J., Schuh, J. H., Whitt, E. J., & Associates. (2005). *Student success in college: Creating conditions that matter*. San Francisco, CA: Jossey-Bass.

LaCounte, D.W., (1987). American Indian students in college. In D. Wright (Ed.), *Responding to the needs of todays minority students*. (New Directions for Student Services, No. 38, pp. 17-32). San Francisco: Jossey-Bass.

LaFramboise, T. D., & Rowe, W. (1983). Skills training for bicultural competence: Rationale and application. *Journal of Counseling Psychology, 30*, 589-595.

LaFramboise, T. D., Trimble, J.E. & Mohatt, G.V. (1990). Counseling intervention and American Indian tradition: An integrative approach. *The Counseling Psychologist, 18*, 628-654.

Larimore, J. A., & McClellan, G. S. (2005). Native American student retention in U.S. Postsecondary education. In M. J. Tippeconnic Fox, S. C. Lowe, & G. S. McClellan (Eds), *Serving Native American students* (New Directions for Student Services No. 109, pp. 17-32). San Francisco, CA: Jossey-Bass.

Lin, R., LaCounte, D., & Eder, J. (1988). A study of Native American students in a predominantly White college. *Journal of American Indian Education, 27*(3), 8-15.

Little Soldier, L. (1985). To soar with eagles: Enculturation and acculturation of Indian children. *Childhood Education, 61*, 185-191.

Loo, C.M. & Rollison, G. (1986). Alienation of ethnic minority students at a predominantly White university. *Journal of Higher Education, 57*, 58-77.

Love, P. G. (1995). Exploring the impact of student affairs professionals on student outcomes. *Journal of College Student Development, 36*, 162-170.

Lowe, S. C. (2005). This is who I am: Experience of Native American students. In M. J. Tippeconnic Fox, S. C. Lowe, & G. S. McClellan (Eds), *Serving Native American students* (New Direction for Student Services No. 109, pp. 33-40). San Francisco, CA: Jossey-Bass.

Lundberg, C. A. (2007). Student involvement and institutional commitment to diversity as predictors of native American student learning. *Journal of College Student Development, 48,* 405-417.

Lundberg, C. A., & Schreiner, L. A. (2004). Quality and frequency of faculty-student interaction as predictors of learning: An analysis by student race/ethnicity. *Journal of College Student Development, 45,*549-565.

Lundberg, C. A., Schreiner, L. A., Hovaguimian, K. D., Slavin-Miller, S. (2007). First-generation status and student race/ethnicity as distinct predictors of student involvement and learning. *NASPA Journal, 44,* 57-94.

Macaulay, A. C. (1994). Ethics of research in Native communities. *Canadian Family Physician, 40,*1888-1890.

Mayo, J. R., Murguia, E., & Padilla, R. V. (1995). Social integration and academic performance among minority university students. *Journal of College Student Development, 36,* 542-543.

McEwen, M. K. (2003). The nature and uses of theory. In S. R. Komives, K. B. Woodard, Jr. (Eds.), *Student services: A handbook for the profession* (4th ed. pp. 153-178). San Francisco, CA: Jossey-Bass.

Mertens, D. M. (2005). *Research and evaluatioin in education and psychology: Integrating diversity with quantitative, qualitative, and mixed methods* (2nd ed.). Thousand Oaks, CA: Sage.

Mihesuah, D.A. (2005) *So you want to write about American Indians: A guide for writers, students, and scholars.* Lincoln: University of Nebraska Press.

Mihesuah, D.A., & Wilson, A.C., (2004). *Indigenizing the academy: Transforming scholarship and empowering communities*. Lincoln: University of Nebraska Press.

Milem, J. F. (2003). The educational benefits of diversity: Evidence from multiple sectors. In M. Chang, D. Witt, J. Jones, & K. Hakuta (Eds). *Compelling interest: Examining the evidence on racial dynamics in colleges and universities*. Stanford Education: Stanford University Press.

Milem, J. F., & Astin, H. S. (1993). The changing composition of the faculty. *Change, 23* (2), 21-27.

Milem, J. F., & Berger, J. B. (1997). A modified model of college student persistence: Exploring the relationship between Astin's theory of involvement and Tinto's theory of student departure. *Journal of College Student Development, 38*, 387–399.

Milem, J. F., Chang, M. J., & Antonio, A. L. (2005). *Making diversity work on campus: A research-based perspective.* Association of American Colleges and Universities. Washington DC.

Moore, J., Lovell, C. D., McGann, T., & Wyrick, J. (1998). Why involvement matters: A review of research on student involvement in the collegiate setting. *College Student Affairs Journal, 17,* 4-26.

Murgia, E., Padilla, R. V., & Pavel, M. (1991). Ethnicity and the concept of social integration in Tinto's model of institutional departure. *Journal of College Student Development, 32*, 433-438.

Nagel, J. (1997). *American Indian ethnic renewal: Red power and the resurgence of identity and culture*. New York, NY: Oxford University Press.

National Center for Education Statistics. (2009). *Integrated postsecondary education data system.* Retrieved July 29, 2009, from http://nces.ed.gov/IPEDS/about/

Nora, A., & Cabrera, A.F. (1996). The role of perceptions in prejudice and discrimination and the adjustment of minority students to college. *Journal of Higher Education, 67*, 119-148.

Pace, C. R. (1980). *Measuring the quality of college student experiences: An account of the development and use of the College Student Experiences Questionnaire.* Los Angeles, CA: Higher Education Research Institute.

Padilla, R. V., Treveno, J., Gonzalez, K., & Trevino, J. (1997). Developing local models of minority student success in college. *Journal of College Student Development, 38*, 125-135.

Pascarella, E. T. (2006): How college affects students: Ten directions for future research. *Journal of College Student Development, 47*, 508-520.

Pascarella, E. T., & Terenzini, P. T. (1991). *How college affects students: Findings and insights from twenty years of research*. San Francisco, CA: Jossey-Bass

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research*. San Francisco, CA: Jossey-Bass.

Patterson Cross, K. (2002). *When and why American Indian/Alaska Native students graduate: A longitudinal study of student persistence in a tribal college*. (Doctoral Dissertation). Available from ProQuest Dissertations and Theses database. (AAT 3086986)

Pavel, D. M. (1999). American Indians and Alaska Native in Higher Education. In K. Swisher & J. Tippeconnic (Eds.), *Next steps: Research and practice to advance Indian Education* (pp. 193-214). Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools.

Pavel, D. M., & Padilla, R. V. (1993). American Indian and Alaska native postsecondary departure: An example of assessing a mainstream model using national longitudinal data. *Journal of American Indian Education, 32*(4), 26-32.

Pavel, D. M., Skinner, R., Farris, E., Cahalan, M, & Tippeconnic, J. (1998). *American Indians and Alaska Natives in Postsecondary Education*. Washington, DC: National Center for Education Statistics.

Pike, G. R. (1995). The relationship between self reports of college experiences and achievement test scores. *Research in Higher Education*, *36,* 1–21.

Pike, G. R., & Kuh, G. D. (2005). First- and second-generation college students: A comparison of their engagement and intellectual development. *The Journal of Higher Education, 74,* 276-300.

Pike, G.R., Kuh, G. D., & Gonyea, R. M. (2003). The relationship between institutional mission and students' involvement and education outcomes. *Research in Higher Education, 44,* 241-261.

Pike, G. R., Kuh, G. D., & Gonyea, R. M. (2007). Evaluating the rationale for affirmative action in college admissions: Direct and indirect relationships between campus diversity and gains in understanding diverse groups. *Journal of College Student Development, 48*, 166-182.

Raudenbush, S., & Bryk, A. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed). Thousand Oaks, CA: Sage.

Rendon, L. I., Jalomo, R. E., & Nora, A. (2000). Theoretical considerations in the student of minority student retention in higher. In J. Braxton (ed.), *Reworking the student departure puzzle*. Nashville, TN: Vanderbilt University Press.

Reyhner, J. (1998). *Teaching American Indian Students*. Norman: University of Oklahoma Press.

Reyhner, J., & Dodd, J. (1995, January). *Factors affecting the retention of American Indian and Alaskan Native students in higher education*. Paper presented at the Expanding Minority Opportunities: First Annual National Conference, Tempe, AZ.

Rohs, F. R. (1999). Response shift bias: A problem in evaluation leadership development with self-report pretest-postest measures. *Journal of Agricultural Education, 40*, 28-37.

Rohs, R. R. (2002). Improving the evaluation of leadership programs: Control responses shift. *Journal of Leadership Education, 1*, 1-12.

Rohs, F. R., & Langone, C. A. (1997). Increased accuracy in measuring leadership impacts. *Journal of Leadership Studies, 4*, 150-158.

Rose-Krasnor, L., Busseri, M. A., Willoughby, T., & Chalmers, H. (2005). Breadth and intensity of youth activity involvement as contexts for positive development. *Journal of Youth and Adolescence, 35,* 385-499.

Rudestam, K. E. & Newton, R. R. (2001). *Surviving your dissertation: A comprehensive guide to content and process* (2nd ed.). Newbury Park, CA: Sage.

Salter, D. W., Junco, R., & Irvin, S. D. (2004). Campus social climate correlates of environmental type dimensions. *NASPA Journal, 41,* 742-759.

Shotton, H. J. (2008). Pathway to the Ph.D.: *Experiences of high achieving American Indian females*. (Doctoral Dissertation). Available from ProQuest Dissertations and Theses database. (AAT 3304231)

Shotton, H. J., Oosahwe, E. S., & Cintron, R. (2007). Stories of success: Experiences of American Indian students in a peer-mentoring retention program. *The Review of Higher Education, 31,* 81-107.

Smart, J. C., Ethington, C. A., Riggs, R. O., & Thompson, M. D. (2002). Influences of institutional expenditure patterns on the development of students' leadership competencies. *Research in Higher Education, 43,* 115-132.

Steward, R. J. (1993). Two faces of academic success: Case studies of America Indians on a predominantly Anglo university campus. *Journal of College Student Development, 34,* 191-196.

Sue, D. W., & Sue, D. (1999). *Counseling the culturally different: Theory and practice* (3rd ed.). New York, NY: Wiley.

Suter, W. N. (2006). *Introduction to educational research: A critical thinking approach*. Thousand Oaks, CA: Sage.

Swisher, K. G., & Tippeconnic III, J. W. (Eds.). (1999). *Next steps: Research and practice to advance Indian education*. Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools. (ERIC Document Reproduction Service No. ED 427 902)

Tabachnik, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Pearson.

Takaki, R. (1993). *A different mirror-A history of multicultural America*. Toronto, Canada: Little, Brown, and Company.

Tanaka, G. (2002). Higher education's self-reflective turn: Toward an intercultural theory of student development. *Journal of Higher Education, 73,* 263-296.

Terenzini, P. T., Pascarella, E. T., & Blimling, G. S. (1996). Students' out-of-class experiences and their influence on learning and cognitive development: A literature review. *Journal of College Student Development, 37,* 149–162.

Tierney, W. G. (1992). *Official encouragement, unofficial discouragement: Minorities in academe – the American Indian experience*. Norwood, NJ: Ablex.

Tierney, W. G. (1993a), *Building communities of difference: Higher education in the twenty-first century*. Westport, CT: Bergin & Garvey.

Tierney, W. G. (1993b). The college experience of American Indians: A critical analysis. In L. Weis, & M. Fine (Eds.), *Class, race, and gender in United States schools* (pp. 269-290). Albany, NY: SUNY Press.

Tinto, V. (1986). Theories of student departure revisited. In J. Smart (Ed.), *Higher education: Handbook of theory and research*. New York NY: Agathon Press.

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). Chicago, IL: University of Chicago Press.

Tippeconic Fox, M. J. (2005) Voices from within: Native American faculty and staff on campus. In M. J. Tippeconnic Fox, S. C. Lowe, & G. s. McClellan (Eds.), *Serving Native American students (New Direction for Student Services* No. 109 pp. 49-60). San Francisco, CA: Jossey-Bass.

Tippeconnic Fox, M.F., Lowe, S.C., McClellan, G.S., (2005). Serving American Indian Students. In M. J. Tippeconnic Fox, S. C. Lowe, & G. S. McClellan (Eds.), *Serving Native American students (New Direction for Student Services* No. 109 pp. 3-4). San Francisco, CA: Jossey-Bass.

Torres, V., Jones, S. R., & Renn, K. A. (2009). Identity development theories in student affairs: Origins, current status, and new approaches. *Journal of College Student Development,* 50, 577-596.

Tabachnick, B. G. & Fidell, L. S. (2001). *Using multivariate statistics*. Needham Heights, MA: Allyn & Bacon.

Tuhiwai-Smith, L. (2006). *Decolonizing methodologies: Research and Indigenous peoples.* London, England: Zed Books.

U. S. Census Bureau. (2005). The 2005 current population survey annual social and economic supplement. Retrieved from http://www.census.gov/Press-Release/www/releases/archives/income_wealth/005647.html

Wawrzynski, M. R., & Sedlacek, W. E. (2003). Race and gender differences in the transfer student experience. *Journal of College Student Development, 44,* 489-501.

Weidman, J. C. (1989). Undergraduate socialization: A conceptual approach. In J. C. Smard (Ed.), *Higher education: Handbook of theory and research* (Vol. 5, pp. 289-322). New York, NY: Agathon.

White, P. M. III. (2007). *Assessing the factors that affect the persistence and graduation rates of Native American students in postsecondary education*. (Doctoral Dissertation). Available from ProQuest Dissertations and Theses database. (AAT 3262343)

White-Shield, R. (2004). The retention if indigenous student in higher education: Historical issues, federal policy, and indigenous resilience. *Journal of College Student Retention, 6*(1), 111-127.

Wolf-Wendel, L., Ward, K., & Kinzie, J. (2009). A tangled web of terms: The overlap and unique contribution of involvement, engagement, and integration to understanding college student success. *Journal of College Student Development, 50*, 407-428.