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Examination Of The Relationship Between Americian Indian Cultural Identity And Academic Performance Of Nursing Graduates

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EXAMINATION OF THE RELATIONSHIP BETWEEN AMERICAN INDIAN
CULTURAL IDENTITY AND ACADEMIC PERFORMANCE
OF NURSING GRADUATES

by

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Bachelor of Arts, 1973
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A Dissertation

Submitted to the Graduate Faculty

of the

University of North Dakota

In partial fulfillment of the requirements

for the degree of

Doctor of Philosophy

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2011

This dissertation, submitted by Elizabeth YellowBird in partial fulfillment of the requirements for the Degree of Doctor of Philosophy from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

Chairperson

This dissertation meets the standards for appearance, conforms to the style and format requirements of the Graduate School of the University of North Dakota, and is hereby approved.

Dean of the Graduate School

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Department Educational Leadership

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ABSTRACT

There are great health disparities within the AI/AN population according to IHS documentation. Historical events such as complex political issues, poor education, boarding schools, and loss of language have heightened this difficult healthcare situation. Furthermore, issues such as lack of health professionals (especially AI/AN nurses) and access to healthcare services add to the dilemma. The cause for the low number of AI/AN nurses who graduate from college varies, but one significant area to consider is the relationship between poor academic performance influenced by cultural conflict. The purpose of this research was to examine the relationship between cultural identities of students and their academic performances in a nursing program. This study surveyed graduates of the Recruitment/Retention of American Indians into Nursing (RAIN) Program to determine whether there is a relationship between cultural identification and academic performance. The Northern Plains Biculturalism Inventory-Revised (NPBI-R) survey instrument was utilized for this research. The findings suggest there is a relationship between cultural identity and academic performance. This means that to be academically successful an AI/AN nursing student needs to develop the knowledge and skills to cross the constructs of the home culture of his/her family, tribe, and community, to the culture of the school environment and culture of school environment.

CHAPTER I

INTRODUCTION

The healthcare of American Indians/Alaska Natives (AI/AN) is at a critical juncture, according to the U. S. Department of Health and Human Services, Indian Health Service (IHS, 2010) statistics. The 2010 IHS statistics state that Native Americans have higher than normal averages for chronic illnesses such as tuberculosis (500% higher), diabetes (195% higher), and alcoholism (519% higher) and die at higher rates from chronic illnesses, such as diabetes, obesity, infant mortality, substance abuse, tuberculosis, unintentional injuries, and mental health concerns. AI/AN born today have a life expectancy that is 4.6 years less than other populations in the U.S. (all races), according to the U. S. Department of Health and Human Services, IHS “Fact Sheets: Indian Health Disparities” (2010). Furthermore the U. S. Department of Health and Human Services IHS “Fact Sheets: Indian Population” (2009) states, “The AI/AN population has larger families, less health insurance (the number of AI/ANs without health insurance is over double that for U.S. all races), and a poverty level nearly twice that of the rest of the population” (para.1). These health disparities for AI/AN populations are even more challenging because of the widespread lack of access to dependable health care, especially in rural areas, such as North and South Dakota, according to the previously mentioned 2009, IHS Fact Sheets. The IHS is the main, and often the only, facility that most Native Americans depend on for healthcare. Unfortunately, access to a healthcare

facility is not the only issue as stated in the U. S. Department of Health and Human Services, IHS “Fact Sheets: Workforce” (2009).

Lack of AI/AN healthcare personnel is another concern. According to the U. S. Department of Health and Human Services, IHS, (2009) Workforce Fact Sheet there are 45 hospitals and over 600 other facilities operated by IHS, tribes, and Alaska Native corporations that AI/AN depend on to provide health care services. The U. S. Department of Health and Human Services, IHS (2009) Workforce Fact Sheet also reports that many of the health facilities are in isolated rural areas on or near reservations. Because of this isolation it has been extremely difficult to find personnel, especially nurses, to staff the facilities because of the quality of life concerns commonly encountered on Indian reservations such as insufficient housing, educational systems that are frequently not up to urban standards, lack of jobs for spouses, and few community activities for youth.

Another issue impacting the health of indigenous peoples is non-compliance: American Indians frequently do not or cannot complete what is prescribed by a health care professional because of issues such as poverty, lack of employment opportunities, high cost of fuel, inadequate/lack of transportation, inadequate housing conditions, and lack of water in their homes, (Urban Indian Health Commission, 2007, *Invisible Tribes: Urban Indians and Their Health in a Changing World*). Unfortunately, training to recognize these issues, was not established until 1963, according to Johnson and Rhoades (2000).

Additionally, in the Plains states, geographic isolation and extreme winter weather conditions make driving hazardous and sometimes life threatening (Afraid of Bear-Cook, 2010). Although technology is speeding across the world, the use of cell phones and

emergency communication are not readily available on many reservations or in rural areas (Brescia & Daily, 2007). Because the current health conditions of American Indians have not improved significantly, according to Johnson and Rhoades (2000), and in order to understand why these conditions exist, a brief summary of the historical aspects of the American Indian follows.

Brief Summary of Politics and American Indian History

American Indians and their tribes have a special political status and relationship with the U.S. government. Kickingbird and Rhoades (2000) argue that the numerous legal, judicial, and administrative consequences of *sovereignty* for AI/AN have collectively created a very complicated and dynamic situation and continue to influence healthcare. According to Fleming (2003), sovereignty began when Congress passed The Indian Self-determination Act in 1975, giving tribes the authority to contract with the federal government to operate programs that serve tribal members (p. 221).

Unfortunately, because of previous instances of broken contracts and treaties the tribes were unsure of this new policy. However, according to Fleming (2003), eventually, the tribes cautiously accepted the new policy of self-determination. Currently federal Indian law has grown into a mass of statutes, treaties, and thousands of judicial and administrative rulings that have resulted from disputes over what the numerous statutes and treaties mean or require the federal government to do (25 U.S. Code, Indians).

Unfortunately this lengthy and complicated series of interactions continues to have a substantial effect on the design and implementation of health programs, (Kickingbird and Rhoades, 2000).

Because of the complicated series of legal interactions and its effect on implementation of health programs, the severe underrepresentation of AI/AN nurses, remains a significant factor in the issue of AI/AN health disparities. Therefore, it is important that AI/AN attend institutions of higher education to study nursing, graduate, and return home to the reservations. However, an American Indian student must learn how to navigate the educational environment of college (nursing) in order to earn a degree, (Aikenhead, 1996). A discussion about nursing as a profession follows.

Nursing as a Profession

The definition of nursing has varied over the years. Nursing theorist Virginia Henderson (1966) writes, “Nurses help people, sick or well, to do those things needed for health or a peaceful death that people would do on their own if they had the strength, will, or knowledge” (p. 3). Wilkenson and Van Leuven (2007) continue, “Nursing has undergone a tremendous change, from the provision of mere kindness and support to full-spectrum work that is based in science but still focuses on care and nurturing” (p. 12). The American Nursing Association (ANA) (2010) defines nursing in the *Nursing’s Social Policy Statement* and provides additional information about the considerable significance of the nursing occupation, which is involved with “...the protection, promotion, and optimization of health and abilities, prevention of illness and injury, alleviation of suffering through the diagnosis and treatment of human response, and advocacy in the care of individuals, families, communities, and population” (p. 7). As the ANA (2010) definition indicates, nurses are an important part of the communities because they keep health care a priority and are committed to helping others.

It is this relationship with the care of other humans and the alleviation of suffering that has fueled the desire of many Native Americans to select nursing as their preferred occupation (Lowe & Struthers, 2001). However, despite the current easing of the nursing shortage due to the recession, the U.S. nursing shortage is projected to grow to 260,000 registered nurses by 2025 (Buerhaus, Auerbach, & Staiger, 2009). The American Association of Colleges of Nursing (AACN) (2009) indicates that 116,000 registered nurses are currently needed to fill vacant positions nationwide, an 8.1% vacancy rate.

Further, according to a 2010 U.S. Department of Health and Human Services Resources and Services Administration publication, there are 2,909,357 licensed registered nurses in the U.S., and of that population only 0.4% are American Indian or Alaska Native (AI/AN). Additionally, S. Haldane, Chief Nurse/Indian Health Service/OCPS/Division of Nursing Services, at the Indian Health Nursing Summit in October of 2008, discussed the issue of aging Native American nurses. Haldane reported, “The severe shortage issue is exacerbated by the fact there are at least two nurses in Indian Health Service (IHS) who are over 80 years of age, and many others are between the ages of 60 to 80” (p. 4). Therefore, eventually, the many nurses who are between the ages of 60 to 80 will retire, leaving a large number of nursing positions vacant. As a result, there is a great need to fill the increasing nursing vacancies inside the IHS.

American Indian Nursing Challenges

The need for Native nurses is critical, as documented by the current U. S. Department of Health and Human Services, IHS (2009) Workforce Fact Sheet; however, the task of becoming a healthcare professional has not been easy, as indicated by the low numbers of AI/AN nurse graduates. Because of the difficulties of American Indians

attaining degrees in nursing, it is important to understand the history and education of American Indians and how that has affected their graduation rate. In the 2007 report, *The Path of Many Journeys*, published by the Institute for Higher Education Policy, is a discussion regarding how higher education influenced the low number of Native American graduates.

Historically, higher education has been the main driver of improved social mobility, personal welfare, and economic prosperity. However, traditional forms of western higher education have often been unsuccessful with American Indian populations owing to the striking differences in western and American Indian traditions, pedagogical approaches, and measures of success. (p. 1)

Furthermore, the report by the Institutes of Higher Education Policy, reiterates issues of failed government policies, poverty, poor health, and lack of support within the institutions of higher education that have caused AI/AN, especially those who live on reservations, not to enroll in college to achieve degrees. But, does AI/AN cultural identity impact education or academic performance? Huffman (2001) offers, “Indeed no other single factor has been more frequently identified as a contributing reason for poor academic achievement among American Indians than cultural conflict” (p. 2).

Consequently, whether there is a relationship between cultural identity and academic performance is an important question that has provided a basis for the current study.

Aikenhead and Jegede (1999) discuss that in some cases cultural differences cause severe conflicts between the Native culture and the Western culture, which affects academic performance. For example, the categorization of minerals as “rocks” may cause a difficulty if it is traditionally believed that all things are living and have spirits. In the

Native American sweat lodge, rocks are referred to as “grandfathers” who are living spirits and who elicit energy and power. The concept that non-living carbon elements, such as rocks, possess living energy and hold power is very different from Western Modern Science (p. 270). Unfortunately, this conflict is not uncommon, as the 2007 *The Path of Many Journeys* report has previously stated. The authors also submit that Ogbu (1992), a distinguished professor of anthropology, supports this conclusion... they [Native American students] have greater difficulty with school learning and performance partly because they have greater difficulty crossing cultural/language boundaries in school. . . . (p. 5). In addition, “many adolescents are left to navigate transitions without direct assistance from persons in any of their contexts, most notably in the school, and their success in managing these transitions varies widely” (p. 224). Therefore, students who receive support academically or otherwise are more successful in institutions of higher education. In their research, authors Aikenhead and Jegede (1999) also conclude that language has a significant relevancy on the transition, on concept interpretation, and on learning. Because of the implication language has on culture, a brief discussion is provided in the next section.

Language

Historically, teaching English to AI/AN was considered another means of cultural transformation. According to Spring (2001), “Replacing the use of native languages with English, destroying Indian customs, and teaching allegiance to the U.S. government became the major educational policies of the U.S. government during the latter part of the nineteenth century (p. 27). Spring (2001) also reported that Moravian educator John Gambold supported this stance and wrote, “it is indispensably necessary for their

[AI/AN] preservation that they should learn our Language and adopt our Laws and Holy Religion” (p. 21). In another study, researchers Warren, Ballenger, Ogonowski, Rosebery, and Hudicourt-Barnes (2001) found that, in order to understand children’s diverse sense-making practices, it is important to take seriously the ideas and ways of talking and knowing of children from diverse communities. Using language as a positive rather than a negative is a way to bring together the culture and language of diverse peoples. They concluded as civilization and technology develops so does the need to revise the language to reflect new terms and knowledge.

Purpose of Research

The purpose of this research is to examine the relationship between cultural identities of students and their academic performances in a nursing program. Because we are examining academic performances, a brief summary of the undergraduate curriculum, according to the CON at the University of North Dakota (2010), describes the program:

Students must successfully complete a total of 129 semester hours of credit to receive the BSN degree. Prior to beginning courses in the nursing major, students must complete pre-requisite courses in general chemistry, organic biochemistry, human anatomy, psychology, sociology, college algebra, anatomy, physiology, microbiology, nutrition, and English composition. The College of Nursing undergraduate curriculum is based on several sets of professional standards: ANA Social Policy Statement (2003), ANA Scope & Standards of Nursing Practice (2004), ANA Code of Ethics for Nurses (2005), The Essentials of Baccalaureate Education for Professional Nursing Practice (AACN, 2008), and the North Dakota Administrative Rules and Regulations (North Dakota Board of Nursing, 2010).

These professional standards guide the formation of the curriculum to ensure a quality educational framework for preparing the baccalaureate graduate. (CCNE Self Study Report: Standard III, CON website, 2010, p. 1)

Although the standards guide the curriculum to ensure quality, the question remains if and how the standards impact students of diverse backgrounds or whether the College of Nursing implements the standards in ways that provide access for diverse learners. Basically, does the curriculum consider cultural identity and the academic performance of its diverse student populations? The key factors, concepts, and variables with their presumed relationships between them, or the conceptual framework, are described next.

Conceptual Framework

American Indians/Alaska Natives lack sufficient health care and are worried about the current health disparities as documented by previously mentioned U. S. Department of Health and Human Services, IHS Fact Sheets. Chapter I presents evidence that there is a critical shortage of nurses nationwide and even more so for the AI/AN population (U. S. Department of Health and Human Services, IHS Fact Sheets. Indian Health Disparities). Because of this serious underrepresentation of AI/AN, there is a need to explore causes for this lack of healthcare professionals. Researchers such as Deloria (1988), Aikenhead and Jegede (1996), Huffman (2001) and Ogbu (1992) have concluded that an enormous disparity in academic performance persists; this disparity is often attributed to the cultural conflict that many AI/AN experience in higher education.

The conceptual framework (Figure 1) examines the relationships between the constructs of demographics, core competencies, cultural identity, and academic performance as measured by UND cumulative GPA.

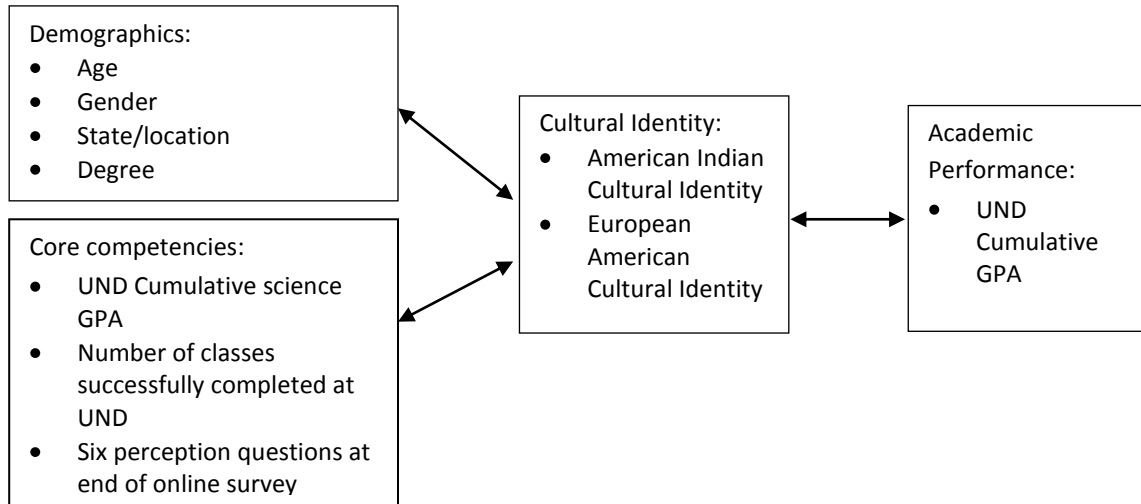


Figure 1. The conceptual framework.

The research questions that have been developed to examine the purpose of the research are as follows:

- Is there a relationship between cultural identification and demographics?
- Is there a relationship between cultural identification and core competencies?
- Is there a relationship between cultural identification and academic performance?
- Is there a relationship between cultural identification and academic performance while controlling for demographics and core competencies?

Theoretical Framework

The Orthogonal Theory of Biculturalism is the theoretical framework utilized to explore the cultural identities of the participants within the conceptual framework previously described. The research questions were developed using Oetting and Beauvais's Orthogonal Theory of Biculturalism and its premise that "it is not essential to

lose contact with one culture while adapting to another, and individuals can have a high level of involvement in both cultures” (Oetting and Beauvais, 1990-91, p. 661). A survey instrument, The Northern Plains Bicultural Inventory–Revised (NPBI-R) was designed to distinguish factors that categorize a student’s cultural identities by use of common Native American traditions and behaviors. According to Baker (2005), the NPBI-R is a 20-item biculturalism measure consisting of two factors: the American Indian Cultural Identification (AICI) and European American Cultural Identification (EACI). Cultural identity was further sorted into four categories: traditional (HL), bicultural (HH), assimilated (LH), and marginal (LL).

Significance

A critical need exists for more Native Americans to graduate and become health care professionals, given the statistical evidence of health disparities between the Native American population and other populations (IHS Fact Sheets: Health Disparities, 2010). Authors Smedley, Stith-Butler, and Bristow (2004) also describe the importance of racial and ethnic diversity *In the Nation’s Compelling Interest*, a report by the Institutes of Medicine (IOM):

The representation of many of these groups (e.g., African American, Hispanics, and Native Americans) within health professions, however, is far below their representation in the general population. Increasing racial and ethnic diversity among health professionals is important because evidence indicates that diversity is associated with improved access to care for racial and ethnic minority patients, greater patient choice and satisfaction, and better educational experiences for health professions students, among many other benefits. (p. 1)

Two U.S. government reports support the belief that increasing diversity in health care workforce will result in a decrease in health care disparities. The first report was authored by Shi and Stevens (2005), as a Public Health report, and concludes that diversity may significantly influence health care disparities. Another article, The Sullivan Commission Task Force report (2007), confirms this belief: “greater diversity among health professionals is associated with improved access to care for racial and ethnic minority patients, greater patient choice and satisfaction, better patient-provider communication. . . (p. 11). These reports substantiate how more diversity (AI/AN nurses) working at Indian health facilities is crucial and may impact the high rates of chronic illness among Native Americans, especially on rural Native reservations where most Indian Health Service clinics and hospitals are located. Furthermore, an increased understanding of the impact of American Indians navigating the institutions of higher education and returning home will hopefully increase the development of more appropriate teaching methods and provide AI/AN students with more information regarding their cultures and how to overcome the barriers created by Western modern science.

Limitations

There is little information regarding Native American culture and its relationship to academic performance specifically within the courses necessary to graduate from a nursing program. Other limitations include lack of literature regarding AI/AN cultural identity and teaching scientific concepts in the nursing curriculum. Another factor regarding this study is that many of the participants transferred to the selected university, and the grades that transferred could not be part of this study.

An issue that may have impacted this study is the changes in the nursing curriculum over the ten years, 2000-2010. According to Hansen, (2010), curriculum changes for the years 1990–2010 included online learning, simulation clinical instruction, and virtual instruction with the most substantial curricular changes in the clinical curriculum. There was a transition to the new courses, which included different content and course objectives. This study did not identify which participants enrolled or completed these courses.

Definitions

Acculturation: Acculturation is the process by which a member of one culture absorbs the culture of another society from birth onward.

Assimilation: Authors provide this statement regarding assimilation: “the underlying assumption of all assimilation models is that a member of one culture loses his or her original cultural identity as he or she acquires a new identity in a second culture” (LaFromboise, Coleman, & Gerton, 1993, p. 396).

American Indian, Native American, Native, Indigenous, Aboriginal or Native people: These terms are used interchangeably, to refer generally to those Native peoples indigenous to the United States who self-identify as Native Americans or American Indians. They maintain cultural identification as Native people through membership in a Native American tribe recognized by the state or federal government or through tribal affiliation and community recognition, also sometimes listed as American Indian/Alaska Native (AI/AN).

Biculturalism: This term refers to a person being part of one culture while “acquainting” with another, therefore identifying highly with both cultures simultaneously (Oetting & Beauvais, 1991).

Tribe: A society or division of a society whose members have ancestry, customs, beliefs, and leadership in common.

Indian Health Service: This Service is an agency within the Department of Health and Human Services responsible for providing federal health services to American Indian and Alaska Natives. The Indian Health Service is the principal federal health care provider and health advocate for Indian people and its goal is to raise their health status to the highest possible level. The IHS provides a comprehensive health service delivery system for approximately 1.9 million American Indians and Alaska Natives who belong to 562 federally recognized tribes in 35 states. The provision of health services to members of federally-recognized tribes grew out of the special government to government relationship between the federal government and Indian tribes. This relationship, established in 1787, is based on Article I, Section 8 of the Constitution, and has been given form and substance by numerous treaties, laws, Supreme Court decisions, and Executive Orders.

Conclusion

There are great health disparities within the AI/AN population according to U. S. Department of Health and Human Services (IHS Fact Sheets: Indian Health Disparities, 2010). Issues such as lack of health professionals (especially AI/AN nurses) and access to healthcare services add to the dilemma (IHS Fact Sheets: Indian Health Population, 2010; Indian Health Workforce, 2010). Furthermore, historical events such as broken treaties,

boarding schools, loss of language, and poor education have heightened this complex healthcare situation (Kickingbird & Rhoades, 2000; Fleming, 2003). One cause for the low number of AI/AN nurses has been attributed to poor academic performance influenced by cultural conflict (Huffman, 2001; Aikenhead & Jegede, 1999). The purpose of this research is to examine the relationship between cultural identities of students and their academic performances in a nursing program.

Chapter II addresses the literature concerning education, history of AI/AN, and culture. Two theoretical theories are presented, the Collateral Learning Theory and the Orthogonal Theory of Biculturalism. Chapter III focuses on the methodology which includes the population sample, the instrumentation, and the data collection. Chapter IV presents the results of the statistical analysis between demographics, core competencies, and cultural identity; and, Chapter V presents a summary of the results of this research, conclusion and discussion, and recommendations regarding cultural identities and academic performance.

CHAPTER II

LITERATURE REVIEW

Introduction

The purpose of Chapter Two was to present literature regarding the relationships between cultural identities and academic performances of American Indian/Alaska Natives in a nursing program. It was found that there is a documented shortage of American Indian/Alaska Native (AI/AN) nurses. Of the 2,909,357 licensed registered nurses in the United States, only 0.4 % are AI/AN (U.S. Department of Health and Human Services Health Resources and Services Administration (2010). According to the Chief Nurse of IHS, the critical lack of nurses is intensified by the fact there are many nurses who will retire, leaving a large number of nursing positions vacant. Because of the serious AI/AN health disparities documented by IHS, (2010), the repercussions caused by the shortage of nurses is alarming. Therefore, there is a great need for more AI/AN to graduate with nursing degrees.

There are barriers the AI/AN nursing student faces; the concern is that some students are not able to overcome those barriers and graduate. The review of literature explores possible factors that may determine the extent of the student's success in a nursing program and some possible interventions that could increase the chances for success. This chapter begins by presenting a historical context, a summary of the relationship of AI/AN tribes and the federal government, including education and culture

from the past to the present. This chapter includes how education and culture have been influenced by the historical context and its relation to the current context of the AI/AN student, primarily the AI/AN nursing student. The final section of the chapter discusses the theoretical application including the Collateral Learning Theory and the Orthogonal Theory of Biculturalism that present concepts of culture and cultural identification important for this study in relation to academic preparation and success for AI/AN nursing students.

Historical Context

The U.S. Commission on Civil Rights (2003) reported, “The federal government has a long established special relationship with Native Americans characterized by their status as governmentally independent entities” (p. ix). This special political status came with responsibilities for the United States as well as AI/AN nations. Russell (2004) describes how treaties became important for the U.S. government:

Because Indian tribes were the sole inhabitants of the North American continent, It was imperative for European nations to establish a legal concept of aboriginal land rights as a basis for treaty negotiations. Treaties became the legal basis used by encroaching settlers to appropriate Indian tribal lands. (p. 36)

The treaties were considered superior to state laws and constitutions and were equal in rank to laws passed by Congress (Fleming, 2003). Additionally, Russell (2004) relates that Indian tribes were at a distinct disadvantage during treaty negotiations because the documents were written in a language they did not understand. The documents were interpreted to tribal leaders who rarely knew what was actually written, or they were negotiated with someone who did not represent the tribe. According to Fleming (2003),

the U.S. has entered into more than 650 Indian treaties, and nearly every tribe has at least one treaty with the United States.

Loss of land and population were other issues that impacted the AI/AN. Fleming (2003) discussed the Dawes Act of 1887, stating that it proposed that reservation lands be cut up into 160-acre sections and distributed to individual Indians with the surplus eliminated. Tribes lost millions of acres. Oswalt (1988) acknowledges this solution to the “Indian problem,” contending that tribes stood in the way of control over land and all the natural resources that went with it (including gold); by the end of the eighteenth century, the once abundant population of Native peoples had been reduced, through warfare and diseases contracted from the invader, to 10% of its original size. General estimates indicate that around 150 million Native people were exterminated in the first 400 years following contact with Europeans.

Russell (2004) asserts, “The U.S. federal policy toward the Indian tribes was made without knowledge or consideration of the values of the native people themselves” (p. 37). Indian people were often forced to give up their lands in exchange for payments and/or services from the U.S. government. One of those provisions/ services included federal responsibility for the education and healthcare of the American Indian population (Johnson & Rhoades, 2000, p. 75). Educational curricula and teaching came from a Eurocentric-White perspective and completely neglected any mention of tribal ways of the life (Institute for Higher Education Policy, 2007). Because of the importance of education, the next section provides an historical aspect of AI/AN education.

Education

Before the Europeans arrived, North American Indian education taught children how to thrive, Fleming (2003). Social education taught responsibilities of the extended family and the clan, band, or tribe. Vocational education taught about child rearing, home management, farming, hunting, gathering, and fishing. Each tribe had its own religion, and children learned about their place in the cosmos through stories and ceremonies. Members of the extended family taught by example, and children copied adult activities as they played. Traditional Indian education emphasized learning by application and imitation, not by memorizing information, which is the basis of pedagogy in western systems. Etiquette, including an abiding respect for elders, was also a central part of the Indian child's traditional education (Institute for Higher Education Policy, 2007). American Indians viewed learning as sharing and cooperation, compared with the competition and individualism of mainstream American education.

In the traditional sense, Native education was informal. The whole community was responsible for ensuring that a child grew up knowing what his or her role was in the community. The approaches to learning were based on the values of each Native society that the child lived in. Fleming (2003) posits, "Each person was expected to perpetuate what he or she learned from childhood to adulthood, learning practical skills and wisdom" (p. 242). Cajete (2000) and Kawagley (1995) discussed that through observation of nature, the American Indian adapted their ways of survival, were nourished by the plant and animal worlds, and used the physical and natural materials around them to make utensils and devices they needed to live. The American Indians would teach these lessons to their children when their children were very young by

bringing them along on hunts and showing them how to use certain tools. Also, the older family members would tell them stories that included lessons about survival and explained why these older family members did certain things.

This style of education began to slowly change once Euro-American influence gained strength in America. According to Fleming (2003),

The newcomers . . . wasted no time in setting up formal education for Indian children. Over time, three different groups – religious institutions, the colonial and federal governments and the tribes themselves established education systems and each has a different philosophy about what kind of education was in the best interest of Indian children. (p. 242)

The U.S. Commission on Civil Rights (2003) contends, “The federal government initially educated Native American children with the goal of assimilation, a process it believed would eventually lead to the extinction of indigenous communities residing within the boundaries of the United States as Native children were acculturated in Euro-American society” (p. 82). Further, Deloria (1988) reported the assimilation process included removing children from their homes to spend years away from their families and communities. This process, assisted by the Civilization Fund Act of 1819, provided funding to societies (mostly religious) who worked on AI/AN improvement [education] (Mintz, 2007). Religious societies of Christian missionaries often managed the boarding schools that were established to educate AI/AN. However, Bear (2008) relates, “For tens of thousands of Indians who went to boarding schools, it’s largely remembered as a time of abuse and desecration of culture” (p. 1). Bear also conveyed that one student recounted he “remembers matrons bathing him in kerosene and shaving his head” (p. 2). It was

because of the many harmful experiences at boarding schools that eventually led to their closure.

In *Custer Died for Your Sins (1988)*, Deloria wrote that throughout the history of the United States, government agencies, schools, and churches have attempted to destroy the culture of AI/AN people through education.

Unlike white students (who were taught reading, writing, and mathematics) Native American children were educated in trades such as blacksmithing, cooking and farming. A majority of AI/AN did not complete their schooling, and those who did, found it difficult to obtain employment on or off the reservation.

(Institute for Higher Education Policy, 2007)

Those AI/AN students who returned home experienced conflict between the tribal values and the White values they had learned, while those who stayed off the reservation were never truly accepted into White society. Spring (2001) maintains that, “the creation of tribal school systems, operated by White missionary teachers, would culturally transform Native Americans in one generation” (p. 19). The “education” of AI/ANs in boarding schools with academically poor tribal school systems has been identified as a major factor in the loss of cultural identity (Deloria, 1988). The atrocities that were experienced and the complex issues still influence the perception of education by AI/AN today (Bear, C., 2008).

As a group, Native Americans students are not afforded the educational opportunities equal to other American students. They routinely face deteriorating school facilities, underpaid teachers, weak curricula, discriminatory treatment, outdated learning tools, and cultural isolation. As a result, achievement gaps

persist with Native American students scoring lower than any other racial/ethnic group in basic levels of reading, math, and history. Native American students are also more likely to drop out. The lack of educational opportunities in Native communities extends to postsecondary and vocational programs. (U.S.

Commission on Civil Rights, 2003, p. xi)

The Institute for Higher Education (2007) reported, “American Indian students found it extremely difficult to adjust to mainstream schooling” (p. 18). The children realized that they were not Indian because they were forced to learn “other” ways and yet were not true members of the dominant culture that took them away from their families, homes, and cultures. Deloria (1988) states that what developed was an intergenerational separation that still exists today and has a powerful influence on the cultural identity of many American Indians, particularly the older generation because of the large numbers who were educated in boarding schools.

It was not until 1978, in response to the alarmingly high number of Indian children being removed from their homes by both public and private agencies, that Congress passed The Indian Child Welfare Act (ICWA). This federal law seeks to keep American Indian children with American Indian families, according to the National Indian Child Welfare Association (2010). However, many organizations and individuals are still working with lost children who are trying to find their roots and resolve the pain of separation and disconnection from their families and tribes (Kreisher, 2002). In fact, the First Nations Orphan Association was formed because of these experiences. It is the combination of all of these issues that are identified as major factors in the loss or challenges of cultural identity in Indian Country today (Deloria (1988).

It seems apparent that culture cannot be separated from education, for both have a direct impact on each other both formally and informally. According to the Institute of Higher Education Policy (2007):

It is not surprising that federal policy has not achieved positive outcomes for American Indian students. Because of the disastrous effects of three centuries of wrongful policies, American Indians still lag behind the general U. S. population in high school and postsecondary education. (p. 18)

Furthermore, when AI/AN students come to a university from the reservation, it is highly likely their preparations in science will be lacking, though it is critical to students' success and graduation from a nursing program (Institute of Higher Education Policy, 2007). They will more than likely struggle with the critical reading and writing, which is essential for comprehension and application of clinical reasoning skills as well. All of these are challenges that can affect the students' abilities to successfully complete college and earn degrees. These students are entering the university system at a significant disadvantage, especially if they are coming from the reservation.

Furthermore, Huffman (2001) maintains that there is no other specific reason that has been more commonly recognized as cause for inferior academic performance among American Indians than cultural conflict. According to U.S. Commission on Civil Rights (2003), "Research shows that Native American students' experience difficulty maintaining rapport with teachers and establishing relationships with other students; feelings of isolation; racist treats; and frequent suspension" (p. 84). Ogbu (1992) states that some students have considerable difficulty learning in school partially because they need to cross cultural and language boundaries to resolve the issue of relevancy, which is

an important aspect of AI/AN learning. As stated prior, a person cannot separate culture from education, so to gain success, it is essential that an understanding of the student's cultural background is attained at even a minimal level.

Culture

The word *culture* is difficult to define, but its meaning is important in this study because it is fundamental to participant identity. Cultural historian Raymond Williams (1983) wrote that “culture” is “one of the two or three most complicated words in the English language” (p. 87). An organization within the United Nations (UNESCO, 2001) determined that the definition of *culture* involves the spiritual, material, intellectual, and emotional features of a society or people; further, it states that culture includes art, literature, lifestyles, ways of living, values, and traditions and beliefs. Additionally, Wolf (2001) reported that in an attempt to catalog and classify the term *culture*, 169 boxes of definitions were found. Anthropologist Geertz (1973) described *culture* as “an ordered system of meaning and symbols, in terms of which social interaction takes place” (p. 31). For the purpose of this study, the definition that is utilized is authored by Phelan, Davidson, and Cao (1991), who “conceptualize culture as the norms, values, beliefs, expectations, and conventional actions of a group” (p. 3).

Terminology regarding culture has led to various definitions and terms to define culture as it relates to AI/AN. Various researchers Nasir, Hand, and Taylor (2008), Whitbeck, Hoyt, Stubben, and LaFromboise (2001), and Barnhardt and Kawagley (2005) utilized the terms “cultural knowledge” and “traditional knowledge.” Nasir, Hand, and Taylor (2008) tell us that “cultural” knowledge is “knowledge derived from settings outside of school, typically in students' homes and communities” (p. 187). Barnhardt and

Kawagley (2005) contend that the information or “traditional knowledge” that developed in a community and that was adapted based on experience, continues to develop, sustains the community and its culture, and maintains the genetic resources necessary for its continued survival. The genetic resources include the elders, who are the conduits for culture and knowledge. The wisdom that an elder imparts provides balance and relevancy to the new knowledge that the student has gained along with the cultural connections to the community. The elders provide the cultural knowledge for the student alongside the new knowledge of the world of the healthcare professional, the nurse.

Aikenhead (1996) discussed the prior “traditional” knowledge of the Indigenous individual and that it is significant in processing meaning in new situations; therefore, he concludes that knowledge, learning, and the environment are connected. Furthermore, Greenfield (1997) maintains that culture plays a major part in learning and asserts that culture is an element of how societies think about things, reason, and solve problems, and it (culture) directly relates to the way in which people learn and teach in informal and school settings.

The definition of culture becomes more complicated when it is discussed in relation to today’s American Indian traditions, their values, and cultural conflicts. Allen and Crawley (1998) presented the important issue of change and evolution within culture; they state that students are “presently crossing from the 18th into the 21st” century as traditional ways strain under the pressure of the changing environment” (p. 112). The traditional “ways” of some American Indian tribes have evolved because of the changing environment, and this evolution has resulted in acculturation, assimilation, or the

biculturalism of some tribes. A brief discussion of definitions of terms relating to evolution of AI/AN cultural identity follows.

According to Ruiz (1981), the basic hypothesis of all assimilation models is that an individual from one culture loses his/her original cultural identity as he/she gains a new identity in a second culture. What differentiates this model from acculturation and biculturalism is that the assimilation approach emphasizes that individuals, their offspring, or their cultural group will eventually become full members of the majority group's culture and lose identification with their culture of origin. By contrast, the acculturation model implies that the individual, while becoming a competent participant in the majority culture, will always be identified as a member of the minority culture. The term *biculturalism* as presented by Garcia and Ahler (1992) is a specific kind of cultural change, in which one culture is modified significantly more than the other culture and, as a result, comes to resemble it. These authors theorize that biculturally competent individuals tend to have better physical and psychological health as well as academic and vocational success than those who are not bicultural. To put it simply, the authors affirm that being a bicultural individual not only necessitates behaving in certain ways but also entails keeping the values of their original heritage and identifying with both cultures. Jacobson (1996) supports this theory and states that learning another's cultural system does not necessarily mean the learners have lost their own culture but only that they have found more than one way of interpreting the experience.

Jegede and Aikenhead (1999) found that cultural groups develop skills and concepts that they need most and that student' cultures are incorporated (transitioned) into the lives and world in which they are learning to navigate. The world views and the

culture that students bring with them into the classroom may affect not only how they understand material, but also the degree to which they are willing to take part in the learning experience (Allen & Crawley, 1998). The exploration of how the AI/AN students' culture has transitioned has occurred in several theoretical perspectives. Applying theoretical tools to what is learned about a particular group, helps people gain additional perspectives of understanding a population and, generate and guide questions in regard to how culture works among a diverse group of people. In order to help AI/AN learners and students, and the educators in the classroom, Glen Aikenhead (1996), a Native Canadian, developed the Collateral Learning Theory.

Collateral Learning Theory

Aikenhead (1996) was challenged by the cultural perspective of science in the classroom and developed the Collateral Learning Theory, which he referred to as “border crossings.” Three years later, Aikenhead collaborated with Jegede (1999) and maintained that “collateral learning generally involves two or more conflicting schemata held simultaneously in long-term memory. . . and that collateral learning is when conflicting ideas interact with each other and the degree to which the conflicts are resolved” (p. 10). They explain that as students move between their everyday life-world and the world of school science, how students deal with cognitive conflicts between their everyday world and the world of school science, significantly influences how they learn. The authors believe that the conflicting concepts are not separate ideas, but positions or points on a scale, illustrating measurements of interaction or resolution. At one end of the scale of collateral learning, the conflicting schemata do not interact at all; at the opposite end of the scale, the schemata consciously interact, and the conflict is resolved.

Aikenhead (1996) states that in the student's life and in the world of science exists a need to improve the science curriculum and the instruction in the classroom, keeping in mind the student's life experiences and culture. The Collateral Learning Theory recognizes that some students resist crossing the cultural border and act out in ways, such as memorizing and not learning or understanding the concepts. The learners may find no resolution or may discover they can hold onto both ideas. Aikenhead and Jegede (1999) present a common opinion of American Indian students: that learning science is like being an alien or outsider because the ideas and concepts presented are sometimes very new and different, and crossing the border requires a lot of time and effort.

Mistry and Wu (2010) support Aikenhead and Jegede's theory in their article, "Navigating Cultural Worlds and Negotiating Identities: A Conceptual Model." The authors conducted research that included a comparison of two waves of immigration to the U.S. from an Indian subcontinent. Mistry and Wu state as follows:

The conceptual model we present includes a conceptualization of expertise in navigating multiple worlds and identities, and constructs and propositions to represent the processes through which sociocultural, economic, and community-level contexts intersect with family and individual practices, creating the conditions for developing this expertise. Although there has been considerable interest in community-level influences on development in the research literature, the contribution of our conceptual model lies in the delineation of specific features of community context that are theorized as relevant for navigating multiple worlds. Further, we hypothesize how these are instantiated in specific

features of family settings and in the meaning-making processes through which families and children interpret and deal with these features. (p. 2)

Mistry and Wu's recent research affirms the theoretical framework of the Collateral Learning Theory, in that, the community and families create the circumstances to develop an expertise to navigate multiple worlds. Further, Schwartz and Unger (2010) believe that the concept of developing an expertise in navigating across worlds appears to result in the individuals becoming bicultural. Tadmor and Tetlock (2006) assert that as more cultural conflicts are resolved, the more bicultural a person becomes. This is applicable to the example of the immigrants and their children because biculturalism represents comfort and competence with the culture of their heritage and the culture of the region in which they have decided to live (Schwartz & Unger, 2010). Further, Aikenhead and Jegede (1999) believe that resolving conflicting beliefs and thinking differently are traits that diverse cultures encounter and learn to resolve each day of their lives; dealing with conflicts are common issues with which they have to cope in order to survive.

So how does one learn to navigate these cultural borders and more effectively deal with cultural conflicts? The Orthogonal Theory of Biculturalism is presented in this research study to explore the relationship among cultural identification, cultural conflict, and academic performance, in relation to the AI/AN.

The Orthogonal Theory

The Orthogonal Theory of Biculturalism, as measured by the Northern Plains Bicultural Inventory-Revised (NPBI-R), assesses areas of social behavior in relation to attitudes, beliefs, worldviews, and acculturation relative to Northern Plains American Indian culture and European American Midwestern culture. The two factors that are

considered are as follows: American Indian Cultural Identification (AICI) and European American Cultural Identification (EACI). The participants' scores are determined by their level of identification with the AICI and/or the EACI, and the scores on the orthogonal grid. The chart utilizes a median split procedure that allows participant scores to be categorical and independent of each other as in a quadrant. In an orthogonal contrast, the scales of American Indian Cultural Identification (AICI) and the European American Cultural Identification (EACI) are independent of each other. Thus, the placement permits one to examine a person's American Indian cultural identity and his/her European American cultural identity. In 2005, research conducted by Baker found that the instrument demonstrated high internal consistency and sufficient reliability.

Oetting and Beauvais (1990-91) presented their theory in the same time period that Aikenhead introduced the Collateral Learning Theory (1996). Both theories discuss cultural identity and basically theorize that people can be part of another culture and still hold onto their original culture. Aikenhead states that cultural acquisition requires students to cross back and forth between cultural borders into the world of science, but never give up their own persona or traditional ways. Venner, Wall, Lu, and Ehlers (2006) discussed the orthogonal cultural identification model, stating the following ideas:

The Oetting and Beauvais measure, entitled the Orthogonal Cultural Identification Scale (OCIS) recognized that identification with one culture does not necessarily influence identification with other cultures and was designed to overcome the problem of heterogeneity among tribes by asking about cultural identification in a more global sense. This instrument affords measurement of identity with several cultures. Even more unique is the independent assessment of each culture with a

range from “no identification” to “strong identification.” In addition, the multidimensional cultural model is represented by including questions about several aspects of particular cultures. For example, questions include extent of participation in traditional activities, following the ways of a culture, and whether the person is successful in that culture. (p. 634)

Furthermore, Mistry and Wu (2010) hypothesize that the development of culture may be even more important than can be realized and the individuals who possess the particular expertise of navigating across cultural borders may have unique strengths common to these persons. The unique strengths are that people interact, individually and with groups, and provide the chances for others to evaluate how the person behaves and decide whether to provide positive or negative support based on cultural standards. That interaction with culture and the individuals, as hypothesized by Oetting and Beauvais (1990-91), is principal to cultural identity. Further, the Orthogonal Theory, as discussed by Baker (2008), states that cultural identification is directly related to the level of cultural competence and psychological well-being of an individual.

However, there is sometimes a separation and disconnect between the cultural identification taught by a traditional elder and AI/AN students’ academic preparation. This separation and disconnect is not uncommon and has caused many American Indians to encounter difficulties, resulting in poor academic preparation or low achievement and motivation while attending institutions of higher learning (Huffman, 2001). Struthers and Lowe (2003) agree and report that the events of forced adoption, forced education, loss of land, loss of religious freedom, and loss of personal identity are some conditions that continue to affect AI/AN people. These events have been labeled as “historical trauma”

and are significant factors affecting the academic performance and dismal graduation rates of American Indians from healthcare professions. So how does all of this translate into the academic preparation and success or unsuccessfulness of the AI/AN nursing student?

Nursing

The need for nurses has been documented by the U.S. Commission on Civil Rights (2003) who report that “IHS employs more than 15,000 individuals and the current vacancy rate for IHS health professional positions is approximately 12%. The report continues, stating that this agency is experiencing a critical shortage of nurses, pharmacists, and optometrists as well as health technicians” (p. 47). The IHS expects the shortage of registered nurses to markedly increase over the coming years due to the increasing age of the U. S. nurse population (average age is 47 years) and the decreasing numbers of nursing schools, graduates and new students (U. S. Department of Health and Human Services, IHS Workforce , 2009). It is therefore important that the issue of dismal graduation rates of AI/AN be addressed.

Van Oord (2005), a professor in Wales, believes that what culture is and how it specifically affects students in school may be difficult to understand because it is linked to other critical issues. Research studies have found that learning for AI/AN has been more difficult because American Indian student perceptions and responses to the learning environment are different than the majority cultures. According to a study by Dickerson, Neary, and Hyche-Johnson (2000), even though many American Indian nursing students successfully graduated and cognitively understood the concepts of the nursing curriculum, there were other distressing barriers: value conflicts; being on the fringe; a

lack of understanding about the Native culture; lack of Native family support; different learning styles; and a powerlessness to do anything about what they felt was not good, thereby making it difficult to learn. In another research study conducted with American Indian students at Montana State University, Yurkovich (2001) discovered that American Indian nursing students who enter the predominant Anglo environment become painfully aware that their values, beliefs, and practices are in conflict with many practices and procedures of the educational culture. Students related that they were afraid to talk because they might sound dumb, and felt uncomfortable and self-conscious. This awareness made learning more difficult because they needed to cope with the issues. The U.S. Commission on Civil Rights (2003) agrees:

Students are likely to thrive in environments that support their cultural identities while introducing different ideas. The importance of such environments cannot be overstated. Such programs motivate students, support improved academic performance, promote a positive sense of identity and self, stimulate favorable attitudes about school and others, and earn the support and positive perception of the community toward school. (p. 85)

Baker (2008) surmised that cultural identification is directly related to the level of cultural competence and psychological well-being; therefore, the academic difficulties of nursing are associated with each student's level of acculturation and depend on the individual's cultural competence and mental health.

Current Context

The combination of all of the forces presented prior has shaped the current challenges and constraints that the AI/AN face today. This portrayal is evident when

looking at the demographics of this population. There are 562 federally-recognized tribes in the U.S., and 228 of these tribes are in Alaska with 200 tribes extinct (Russell, 2004). There are 310 AI/AN reservations in the U.S., and in total they comprise 2.3% of the land within the U.S. It is important to note that not all federally recognized tribes have tribal reservation land allotted to them by the Federal Government.

Funding for programs associated with treaty promises has fallen, and efforts to raise the living conditions to the standards of others has been long in motion, but the dilemma of surviving remains. “Native Americans still suffer higher rates of poverty, poor educational achievements, substandard housing and higher rates of disease and illness. Native Americans continue to rate at or near the bottom of nearly every social, health and economic indicator” (U.S. Commission on Civil Rights, 2003, p. ix).

Concurring with the Commission on Civil Rights statements, the Institute for Higher Education Policy (2007) relates, “Factors such as geographic isolation, limited opportunities for upward mobility in rural areas and on reservations, and low labor force participation contribute to a continuous poverty cycle among American Indians” (p. 1). For example, because of the high poverty level on the Pine Ridge reservation in South Dakota, it is sometimes compared to a third world country.

The AI/AN population is relatively small according to the U.S. Commission on Civil Rights (2003): “Compared with other racial and ethnic groups in the U.S., Native Americans make up a relatively small proportion of the population” (p. 7). However, according to the 2009 IHS fact sheets, the U.S. American Indian and Alaska Native population increased by 65% from 2.0 to 3.3 million”. Further, the 2000 Census Bureau publication: *American Indians and Alaska Natives in the United States* showed that, “. . .

64.1% of the Indian population resides outside tribal areas and 33.5% of the population resides in American Indian areas”. Therefore, for AI/AN, “Their geographic location leaves those who reside, attend school, or work on reservations isolated from the rest of society” (U.S. Commission on Civil Rights, 2003, p. 7). Consequently, the issues of poverty, lack of employment and housing are even more intensified.

The National Center for Education Statistics (2008) offered additional information regarding the demographics of AI/AN. The medial age is 31 years compared to 36 years for the general population, while 29% of AI/AN children are under the age of 18 compared to 25% of the total population. In 2006, about 51% of AI/AN families with children were headed by married couples, 38% were headed by females with no spouse present, and 11% were headed by males with no spouse present. Meanwhile, in 2006, about 20% of AI/AN children ages 5-17 spoke a language other than English at home, and 3% spoke English with difficulty. In 2007, about one-third of 8th grade children reported participating in AI/AN ceremonies or gathering several times a year.

Similarly, a report by the Institute for Higher Education Policy (2007) identified characteristics of college undergraduate American Indian students asserting that AI/AN are different from other undergraduate students. The report states one-third are 30 years or older and are primarily female. The report continues, saying AI/AN students are the second most likely racial ethnic group after Black, non-Hispanic students to have dependent children while enrolled, as well as dependent grandparents, and 65% live off campus. As reported previously, AI/AN who live on the reservations are among the poorest groups in the nation. Poverty poses a serious challenge to children’s access to quality learning opportunities and their potential to succeed in school. Knowing the

demographics of the students is essential in helping bridge the barriers and level the playing field, where possible, for academic success.

Conclusion

The purpose of this research was to examine the relationship between cultural identities of students and their academic performances in a nursing program. Literature in this chapter addressed how AI/AN education and culture have been influenced by the historical events of the federal government. This chapter also presented the relationship of the AI/AN nursing student and cultural identity with the U. S. government. The last section described the two theoretical applications that give concepts of culture and cultural identification. The sample, instrumentation, and data collection are provided in Chapter III.

CHAPTER III

METHODOLOGY

Introduction

The purpose of this study was to examine the relationship between the cultural identities of students and their academic performances in a nursing program. This chapter includes eight sections: 1) Introduction, 2) RAIN program, 3) Data sources, 4) Conceptual framework, 5) Northern Plains Bicultural Inventory-Revised, 6) Survey Monkey, 7) Data collection, and 8) Statistical analysis.

This project was approved by the Institutional Review Board on September 8, 2010, at the University of North Dakota, which satisfies the regulatory requirements of human subject research (IRB-201009-048). This study was conducted with nursing students who graduated from the UND's RAIN program from 2000-2010, located in the College of Nursing. The University of North Dakota is a public, four-year, research intensive university, which was founded in 1883.

The RAIN Program

The RAIN program, a successful support program for AI/AN nurses, was utilized for this research. From 1973-1990, only 19 American Indians graduated with their Bachelors of Science in Nursing and none with a postgraduate degree. The RAIN program focuses its services on the reservations and local communities in North Dakota, Minnesota, Montana, Nebraska, South Dakota, Wisconsin, and Wyoming. Through the

advice of tribal officials and funding guidelines, it was determined that to be eligible for RAIN support services, students must provide documentation of American Indian heritage or American Indian ancestry. RAIN has documented a total of 188 American Indian nurse graduates with Bachelors of Science, Masters of Science, and Doctor of Philosophy degrees (151 BSN, 34 MS, 3 PhD). Graduates are participants from 43 tribes in seven states who have earned their degrees since 1990.

The RAIN program recognizes that AI/AN students face many challenges, academic as well as social, and has been successful in helping students maneuver through these barriers. The Coordinator of the RAIN program, Debra Wilson, is an enrolled member of a North Dakota tribe and has been working with AI/AN students since 1987. There has been only one director of RAIN; her longevity in this position and her experience and knowledge of American Indian culture has contributed to the success of students.

Data Sources

This research includes three data sources for the study: 1) Data source one was information collected from the RAIN program records, which provided the demographic information of gender, birthdate or age, tribal enrollment/tribe location, and degree earned. 2) The second data source was a 20-item cultural identity survey instrument, the NPBI-R survey. Six additional questions regarding a student's perception of his/her preparation, knowledge, and comfort while enrolled in science courses were also a part of the survey. Permission was given by Dr. Justin Douglas McDonald, who authored the survey, to use the instrument for this research study. Chapter II in the section titled Orthogonal theory provided information regarding the reliability and validity of the

instrument. 3) The third data source was information collected by the Institutional Research Office, which included cumulative grade point average at graduation.

The Conceptual Framework

The following section provides a detailed description of the constructs of demographics, cultural identity, and academic performance. These constructs are the key concepts that make up the Conceptual Framework previously presented in Chapter I.

Demographics

The demographic variables include age, gender, state/location and degree. The participants were grouped into three age categories: 23-30, 31-39, and older than 40. Gender indicated whether the participant was male or female; state/location indicated what state the participant was from; and degree was whether the student had a master's or bachelor's degree. All demographic information was collected from the RAIN program, which maintains a database of student information.

Core Competencies

The core competencies included three sets of variables. 1) The first variable is the cumulative UND science GPA of the courses that nursing students are required to complete successfully before they are allowed to graduate. Only the UND science grades were used because those grades that were completed in courses off campus were not part of the UND record. 2) The second variable of this study was the number of classes successfully completed at UND. The participants were asked whether they took a class at UND, and listed "yes" if they took one or more classes or "no" if they did not enroll in one of the listed classes at UND. 3) The third variable of the core competencies was the six additional questions regarding student's perceptions of preparation, knowledge, and

comfort while enrolled in the required science courses. Respondents were asked how prepared they felt they were in basic science and math classes (Q 21/22), if they experienced any barriers to science classes (Q 23), if they experienced thoughts of American Indian healing when in classes (Q 24), if they were comfortable with knowledge of courses (Q 25), and if they had a favorite class (Q 26). For question 22 the responses were: *not adequate*, *adequate* and *very well*. For question 23, responses indicated either *yes* or *no*. For question 24, the respondents indicated: *often*, *sometimes* or *not at all*. For question 25, the respondents could indicate how comfortable they were from *not comfortable* to *comfortable* in all courses. And for question 26, the participants could indicate if there was a class that was their favorite, from *none* to *more than one*.

Cultural Identity

Cultural identity was determined by responses to the 20 questions in the NPBI-P survey. The instrument utilized to measure cultural identities is the Northern Plains Biculturalism Inventory-Revised (NPBI-R), which was developed by Dr. McDonald (1995). The two factors considered were American Indian Cultural Identification (AICI) and European American Cultural Identification (EACI). The method used to measure cultural identity was the survey instrument designed to distinguish factors that categorize a student's cultural identities by use of common Northern Plains American Indian traditions and behaviors. The response values were measured using a Likert Scale numbering system, from a 1, indicating great comfort, to a 5, indicating no comfort; or *yes/often/high* being the same as the response *great comfort* and *no/none* being the same as the response *no comfort*. The participant scores, on the two scales, are placed on an orthogonal grid that utilizes a median split procedure and allows participant scores to be

categorical and independent of each other as in a quadrant. In an orthogonal contrast, the scales of (AICI), and (EACI) are independent of each other. Thus, the placement permits one to examine both a person's American Indian cultural identity and his/her European American cultural identity.

Academic Performance

Academic performance is the participant's overall UND GPA. The data source was records from the Institutional Research Office, which provided academic information (minus transfer grades) including each student's UND cumulative grade point averages (GPA). The GPA listed is the GPA the last time the student attended UND. All participants were graduates of UND and the College of Nursing, and successfully completed the required courses, but not all participants completed the science courses at UND. The GPA does not reflect grade changes or incompletes that may have occurred after the last date of attendance at UND. Also, the Institutional Research Office records do not include any transfer credits or other academic degrees each student may have received.

Northern Plains Bicultural Inventory-Revised

The Northern Plains Bicultural Inventory – Revised (NPBI-R) is a 20-item biculturalism instrument that measures the key independent variables in this study. Otting and Beauvais' Orthogonal Theory (1990-91) was verified, and the two subscales (AICI and EACI) of the NPBI-R were shown to be unrelated, indicating they were not measuring the same constructs and were orthogonal. The instrument measured the cultural identity of American Indians and European Americans identity separately. Therefore, it was determined that the NPBI-R can accurately classify Northern Plains

American Indian respondents into four identity categories: bicultural, assimilated, traditional, and marginal groups. The following chart illustrates these four categories of cultural identity.

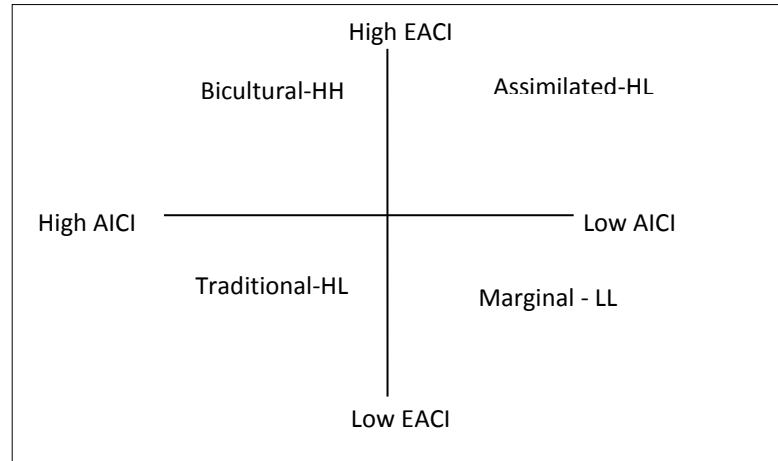


Figure 2. Cultural identity.

The four groups in which an individual may be classified are the following:

- (1) low identification with dominant culture and high identification with culture of origin (traditional-LH); meaning a low score on the EACI scale and a high score on the AICI scale, which indicated American Indian Cultural Identification on the dimensions of cultural immersion;
- (2) high identification with both cultures simultaneously (bicultural-HH); meaning high scores on both AICI and EACI scales,
- (3) high identification with one culture and moderate identification with another (assimilated-LH); meaning a high score on the EACI and a low score on the AICI scale; and
- (4) low identification with both cultures (marginal-LL); meaning if both AICI and EACI scores were below the median, the individual was identified as marginal.

Survey Monkey

This research utilized the Survey Monkey program to administer the NPBI-R to collect information regarding cultural identity of American Indians and European Americans and the six additional items. This web-based survey provider maintains that it has over 10 years of experience in survey methodology and web technology. Survey Monkey permits the researcher to create and design surveys, collect responses, analyze data, and manage accounts. It also includes an online manual and tutorials. The survey software allows the researcher to analyze the data, gather demographic information, and follow through regarding response risks.

Data Collection

The RAIN program maintains a database of graduates that includes tribal affiliation, gender, highest degree, address, current work location, birthdate, as well as grade and academic information. The researcher collected the names and UND student ID numbers of students who graduated in the years 2000-2010 from the RAIN program coordinator. The survey administration began with an announcement to the RAIN graduates through the RAIN website located within the College of Nursing website and through the RAIN Facebook on September 16, 2010, by the RAIN coordinator. The link to the Survey Monkey was sent to all graduates through email addresses on September 17; there were 80 students with email addresses. Copies of the survey were also mailed to five students without electronic addresses on September 17. The deadline for the initial response was October 31, 2010, which was later extended until November 12 to provide more time to access the survey. The first reminder was sent on October 4, and the second reminder was sent on October 15.

After a review of the number of responses on October 16, a discussion with the Coordinator of the RAIN program revealed that the majority of the students were located at IHS facilities. Therefore, IHS email addresses were verified, and a separate email was sent to only IHS employees on October 29. Finally, three email addresses were found to be invalid and are not included in the final total. The Coordinator of the RAIN program, Deb Wilson, spent many days locating and contacting students to update addresses. On the deadline date, November 12, a final count of responses took place, with 77 students responding to the survey, for a 73% response rate.

RAIN demographic data, and the data collected via the Survey Monkey was collected, sent to the Institutional Research office, and merged with the academic information. The Institutional Research office returned the file to the researcher with all identifiers removed and a new random number assigned. Table 1 is a timetable of the research that was conducted.

Statistical Analysis

This research study utilized four tests: the t- test was used to determine the association between gender, state, degree and AICI and EACI. The ANOVA test was used to test the relationship between age groups and (AICI and EACI). The ANOVA test was also used to test the relationship between GPA of science classes and AICI and EACI. The ANOVA test was used to test the relationship between number of science classes taken at UND and AICI and EACI. And linear regression was used to test the relationship of demographic and cultural variables (AICI and EACI) predicting grades. Questions 21 through question 26 ask about the participant's perceptions of preparation, knowledge, and comfort while enrolled in the required courses. The responses to these

Table 1. Research Timeline.

Material and date	Mode	Deadline
Institutional Review Board approval		September 8, 2010
Deb Wilson announces survey	Email, Facebook, and CON website, RAIN newsletter	September 16, 2010
Survey instrument sent out September 16	Email and Facebook	October 31, 2010
Survey mailed to students with no emails September 17	U.S. post office	October 31, 2010
First Reminder sent October 4	Email	October 31, 2010
Second reminder October 16	Email	October 31, 2010
Survey to only IHS RAIN student October 29	Email	November 12, 2010
Data collection ended	Review & evaluate data	November 12, 2010

questions are provided in a descriptive manner in Chapter IV. The RAIN demographics (gender, age, state/location, degree) and the Institutional Research Office information (core competencies and academic performance) were merged into a single data set and then analyzed. An alpha of .05 was utilized in the data results.

Conclusion

Chapter III described how data in this study is collected and how the data is measured. The conceptual framework described where each participant was placed on the orthogonal chart and whether there is a relationship among demographic information, cultural identification, and academic performance. Also presented were the orthogonal chart and the four categories of cultural identification. This section described that the data

were collected utilizing the Survey Monkey program and the NPBI-R survey instrument and that a median split procedure was used to score the NPBI-R. A total of 57 students responded, however, there were some students who did not respond to all questions. And although the results list 55 responses to questions 21-23 and 54 responses to questions 24-26, because 7 students did not have their identity calculated the number utilized on the tables is 50. The next chapter presents the results of the study;

CHAPTER IV

RESULTS

This chapter includes the following sections: Participant Description, NPBI-R results, Research Questions, and Responses to the Six Perception Questions. This research examined the relationship between cultural identities of students and their academic performances in a nursing program. This study utilized the RAIN program for the demographic information of this study.

Participant Description

The RAIN program is a federally funded student support program that requires collection of data to monitor student progress in the nursing program and for grant reporting purposes. The RAIN program collects and maintains a database of demographic, academic, financial, and mentoring information for each RAIN student. The RAIN database provided the list of students who were enrolled at UND 2000-2010 and who graduated from the UND College of Nursing. The following information is a summary of the demographic characteristics of the students who responded.

There were 4 (7%) males and 53 (93%) female participants in this research study. Nine (15.8%) participants had their Masters degrees, and 48 (84.2%) participants had their Bachelor's degrees in nursing. The number of participants from North Dakota was 38 (68%), and 19 (32%) participants were from five other states. There were 26 (45.6%) of the North Dakota participants from the Turtle Mountain Band of Chippewa. The

participants were grouped into three age categories: 23-30 years old, 31-39 years old, and older than 40. There were 20 (35%) participants who were 23-30 years old, 19 (33%) participants who were in the 31-39 age group, and 17 (30%) participants older than 40, and one participant did not respond.

NPBI-R Results

There were 56 responses for 11 questions and 55 responses to 9 questions on the NPBI-R survey instrument. Because some questions required different responses Table 2 headings list values of *low/no* to *high/often*. Table 2 illustrates the responses for the questions asked in the American Indian Cultural Identification category (AICI). To summarize, most students felt comfortable with their AI/AN identity and encouraged their children to learn and practice AI/AN traditional ways. Table 3 lists the responses to the seven questions about EACI or European American Cultural Identification. To summarize, most students felt comfortable around the white population. Although the participants don't think in their language, they attend traditional Indian ceremonies such as a sweat lodge or pipe ceremony occasionally. The response to question 11 indicated 28 (50%) of the students had no comfort with Indian dancing, but they belonged to Indian organizations where most members are American Indian. For question four the responses were very similar, with one percent difference in comfort regarding identification with the white culture. Question six queried about medical doctors and almost half 26 (46.4%) had confidence and strong faith in medical doctors. For question twenty, 26 (47.3%) participants believe in non-Indian creation stories.

Table 2. American Indian Cultural Identity Responses.

Question	Response values				
	(1) Low/no	(2)	(3)	(4)	(5) High/often
Q. 2– How comfortable are you encouraging your children to learn and practice Indian ways?	0	4	16	12	24
Q. 3 – How strongly to you identify with Indian culture?	0	5	17	8	26
Q. 5 – How often do you think in an American Indian language?	29	13	12	1	1
Q. 7 – How much confidence do you have in traditional Medicine men/women?	9	6	22	7	12
Q. 8 – How much is your way of thinking “family” Indian (e.g., cousins same as brothers)	4	4	16	16	16
Q. 9 – How often do you attend traditional Indian ceremonies (sweat lodge, pipe, etc.)?	14	7	23	5	7
Q. 11 – How often do you participate in Indian dancing?	28	11	11	2	4
Q. 12 – To how many social organizations do you belong where most members are Indian?	9	14	20	7	6
Q. 14 –How often do you attend Indian celebrations?	4	6	21	10	14
Q. 15 – Does anyone in your family speak an American Indian language?	23	11	15	3	3
Q. 16– To what extent do members of your family have traditional last names?	29	6	10	4	6
Q. 18 – How often do you talk about Indian topics and Indian culture in daily conversation?	1	10	24	9	11
Q. 19 – How much do you believe in any Indian creation stories?	6	4	24	8	13

Table 3. European Cultural Identification Response.

Question	Response values				
	(1) Low/no	(2)	(3)	(4)	(5) High/often
Q. 1– What is your comfort around White people?	0	0	10	13	33
Q. 4- How strongly do you identify with White culture?	0	8	16	17	15
Q. 6 – How much confidence do you have in Western medicine?	0	2	9	26	19
Q. 10 - How often do you attend Christian religious ceremonies (baptisms, christenings, etc.)?	8	8	21	7	11
Q. 13 – How often do you attend White celebrations?	6	12	20	10	7
Q. 17 – How often do you talk about White topics and White Culture in daily conversation?	3	11	23	6	12
Q. 20 – How much do you believe in Non-Indian creation stories?	4	8	26	7	10

The next section provides data results of the cultural inventory categories. Scores on the AICI scale 39 or lower (those who answered no) were below the median and defined as “low” while scores 40 or higher (those who answered yes) were defined as “high.” Using the median for the EACI, scores 21 or lower (those who answered no) were defined as “low” and 22 or higher (those who answered yes) were defined as “high.” As shown in Table 4 and Figure 3, 13 participants were bicultural with a high AICI and a high EACI; 9 were traditional with low EACI and high AICI. Table 4 also indicates 25 students were assimilated with a low AICI and high EACI; there were three marginal students with low AICI and EACI. As previously mentioned, seven people

didn't respond to all the questions and could not have their AICI and/or EACI calculated, therefore Table 4 utilizes only the 50 responses. (The scores were fairly evenly split for AICI, with yes 44% and no 56%).

Table 4. American Indian and European American Cultural Inventory Categories.

	Frequency	Percent
<u>AICI High</u>		
Yes	22	44.00
No	28	56.00
<u>EACI High</u>		
Yes	38	76.00
No	12	24.00
<u>NPBI-R</u>		
Bicultural	13	26.00
Assimilated	25	50.00
Traditional	9	18.00
Marginal	3	6.00

A scatterplot (Figure 3) is presented to provide visual evidence of the results as quadrants. As shown, the majority of the responses indicate that they were assimilated (25) (two scores were exactly the same), while bicultural was the next highest number of responses (13); nine students were traditional, and three scored in the marginal quadrant.

The mean score for AICI is 37.77; the minimum is 13 and the maximum is 65, with the mid-point (mean) being 26; and the standard deviation is 11.48. For EACI the mean score is 24.56; the minimum is 7 and the maximum is 35 with the mid-point being 9.5; the standard deviation for EACI is 4.73.

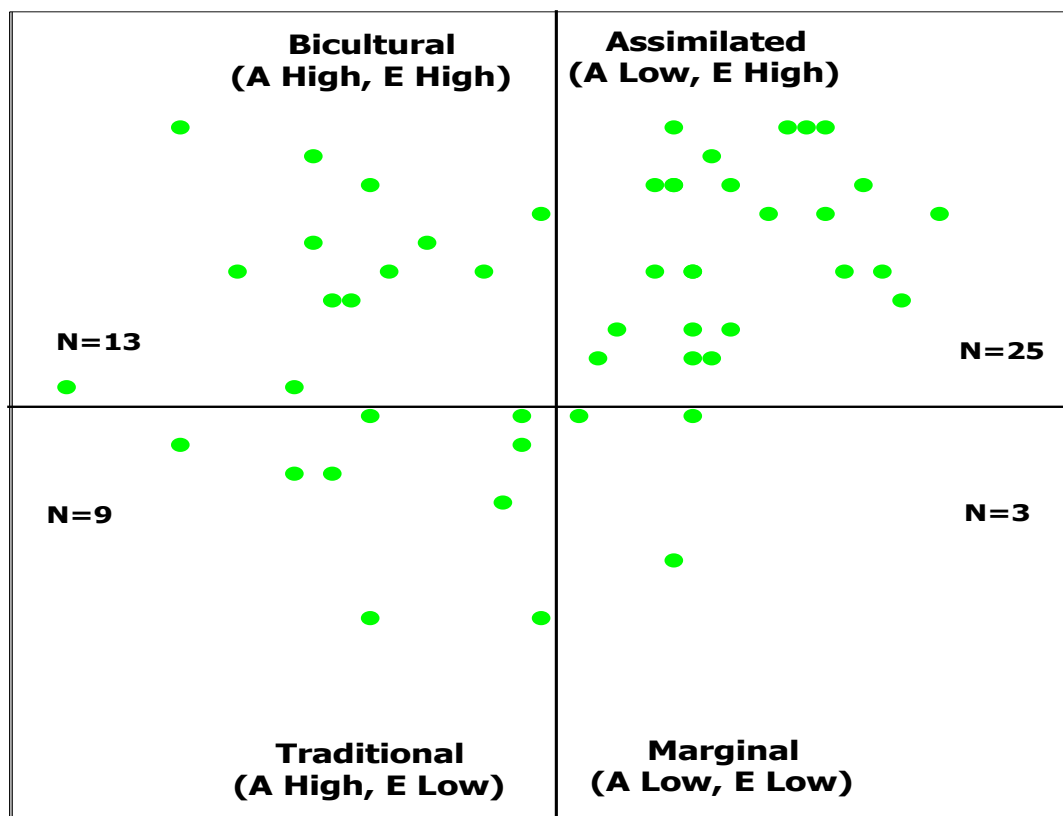


Figure 3. NPBI-R Quadrants: Bicultural, assimilated, traditional, and marginal.

Research Questions

Question #1: Is there a relationship between cultural identification and demographics (gender, state, degree, and age)?

Tables 5 through 9 show the t-test results comparing cultural identity with the demographic variables. There are significant differences in AICI scores and three demographic variables of state/location, degree, and age. Those with master's degrees and those who were older had higher AICI scores. There were no significant differences in EACI scores between any demographic variable; and no significant difference in AICI was found between other demographic variables.

The relationship between gender and AICI and EACI (Table 5) was examined using the t test. The results indicate an average AICI of 38.80 for females and 34.25 for

males, not a statistically significant difference ($t = 0.76$, $p = .45$, $df = 48$). The average EACI for females was 25.21 and 21.75 for males, also not statistically significant ($t = 1.52$, $p = 0.14$).

Table 5. Differences in AICI and EACI Between Demographic Variable of Gender.

	Response	Number	Mean	Std. Deviation	t	p
AICI	Female	46	38.80	11.55	0.76	0.45
	Male	4	34.25	10.53		
EACI	Female	46	25.21	4.32	1.52	0.14
	Male	4	21.75	5.31		

The relationship between state and AICI and EACI (Table 6) was examined using the t-test. The results indicated an average AICI of 41.43 for other states and 37.02 for ND, not a statistically significant difference ($t = 1.28$, $p = 0.20$, $df = 48$). The average EACI for other states was 23.81 and 25.47 for ND, also not statistically significant ($t = -1.24$, $p = 0.22$).

Table 6. Differences in AICI and EACI Between Demographic Variable of State.

	Response	Number	Mean	Std. Deviation	t	p
AICI	Other	16	41.43	11.23	1.28	0.20
	ND	34	37.02	11.42		
EACI	Other	16	23.81	5.30	-1.24	0.22
	ND	34	25.47	3.95		

Table 7 indicates the relationship between the degrees MS and BS, between AICI and EACI, and was examined using the t test. The results indicated an average AICI of

47.57 for MS and 36.95 for BS, which means there is a statistically significant relationship ($t = -2.38$, $p = 0.02$, $df = 48$). The average EACI for MS was 24.42 and 25.02 for BS, not a statistically significant relationship ($t = 0.33$, $p = 0.74$).

Table 7. Differences in AICI and EACI Between Demographic Variable of Degree.

	Response	Number	Mean	Std. Deviation	t	p
AICI	MS	7	47.57	10.21	-2.38	0.02
	BS	43	36.95	11.03		
EACI	MS	7	24.42	6.18	0.33	0.74
	BS	43	25.02	4.18		

The relationship between the three age groups, AICI, and EACI was examined, using the one way ANOVA (Table 8). The results indicated an $F=8.77$ with a $p < .001$, and $df=2, 47$ for AICI, a statistically significant relationship between age and cultural identity. For the older respondents, the average AICI increased from 32.28 to 46.80; however, there was not a statistically significant relationship between age and EACI. Age did not affect average EACI because the scores (ranging from 24.18 to 25.83) were not significantly different ($F = 0.62$, $p=.542$).

Question #2: Is there a relationship between cultural identification and core competencies? This question includes the six questions at end of survey. Table 10 shows no significant differences in AICI or EACI by science GPA.

The relationship between the GPA of science classes and AICI and EACI (Table 9) was examined, using a one-way ANOVA. The results indicate an $F=0.22$ with a

Table 8. Differences in AICI and EACI Between Age Groups.

	Age	Number	Mean	Std. Deviation	F	p
AICI	23-30	18	32.28	8.81	8.77	<.001
	31-39	17	37.59	9.39		
	40 +	15	46.80	11.77		
EACI	23-30	18	25.83	4.53	0.62	0.542
	31-39	17	24.18	4.61		
	40 +	15	24.73	4.27		

p-value of 0.805, and $df=2, 24$, which means no statistically significant relationship exists for AICI. The average AICI scores ranged from 31.250 to 35.000, indicating no significant change. For the EACI, the $F=0.98$ with a p-value of 0.388 means no significant difference. The average scores for EACI ranged from 23.222 to 26.142.

Table 9. Differences in AICI and EACI by GPA of Science Classes.

	GPA	Number	Mean	Std. Deviation	F	p
AICI	≤ 2.0	9	33.555	8.574	0.22	0.805
	2.0 to 3.0	14	35.000	11.522		
	> 3.0	4	31.250	8.539		
EACI	≤ 2.0	9	23.222	5.868	0.98	0.388
	2.0 to 3.0	14	26.142	4.688		
	> 3.0	4	26.000	4.082		

The relationship between the number of science classes taken at UND and AICI and EACI (Table 10) was examined, using a one way ANOVA. The results of $F=8.89$

with a p-value of 0.0005, and $df=2, 47$), indicate a statistically significant relationship between the AICI and the number of science classes taken at UND. The scores ranged from 29.80 to 43.69, indicating a statistically significant relationship for AICI. For EACI, the results indicated an $F=5.13$ with a p-value of 0.0096, which means a statistically significant relationship. The scores for EACI ranged from a 22.33 to 27.40, also a statistically significant difference. The more science classes taken at UND, the lower the AICI score and the higher the EACI score.

Table 10. Differences in AICI and EACI by Number of Science Classes Taken.

	Classes	Number	Mean	Std. Deviation	F	p
AICI	0	23	43.69	10.997	8.89	0.0005
	1 or 2	12	39.16	10.079		
	3+	15	29.80	7.912		
EACI	0	23	24.69	3.722	5.13	0.0096
	1 or 2	12	22.33	4.905		
	3+	15	27.40	4.014		

Responses to the Additional Six Perception Questions

The next section presents the responses to the six additional questions (21-26) at the end of the online NPBI-R survey. Respondents were asked how prepared they felt they were in basic science and math classes (Q# 21/22), if they experienced any barriers to science classes (Q# 23), if they experienced thoughts of American Indian healing when in science classes (Q# 24), if they were comfortable with knowledge of science courses (Q# 25), and if they had a favorite class (# 26). The respondents indicated that most felt

comfortable with their knowledge of science courses. Tables 12 and 13 showed no significant differences in AICI and EACI with preparation or comfort with science and math. Table 14 indicates that those with high AICI scores were more likely to perceive barriers and that EACI and barriers were not related. Table 15 showed that respondents with more thoughts of healing had higher AICI scores. EACI scores were not significantly related to thoughts of healing.

The relationship between perceived science preparation and AICI and EACI (Table 11) was examined, using the ANOVA procedure. The results indicated an $F=0.91$ with a p-value of .411 for AICI, and $df=2, 47$, which means not a statistically significant relationship between science preparation and cultural identity. As the respondents felt less (not) prepared in science, the average AICI increased from 37.200 to 42.800. Preparation in science did not affect average EACI, because the scores (ranging from 23.000 to 27.000) were not significantly different ($F = 2.90, p=.065$).

Table 11. Differences in AICI and EACI by Preparation for Science.

	Response	Number	Mean	Std. Deviation	F	p
AICI	Not	10	42.800	11.448	0.91	.411
	adequate	25	37.440	10.735		
	Very well	15	37.200	12.627		
EACI	Not	10	23.000	5.656	2.90	.065
	adequate	25	24.480	4.233		
	Very well	15	27.000	3.207		

The relationship between math preparation and AICI and EACI (Table 12) was examined, using the ANOVA procedure. The results indicate $F=1.04$ with a p-value of 0.361 for AICI, and $df=2, 47$, not a statistically significant relationship between math preparation and cultural identity. For the EACI, the average mean scores ranged from 23.666 to 26.529, not a statistically significant difference.

Table 12. Differences in AICI and EACI by Preparation for Math.

	Response	Number	Mean	Std. Deviation	F	p
AICI	Not adequate	9	39.333	11.726	1.04	0.361
	adequate	24	40.375	11.017		
	Very well	17	35.235	11.866		
EACI	Not adequate	9	25.333	4.415	2.21	0.121
	adequate	24	23.666	4.833		
	Very well	17	26.529	3.466		

The relationship between whether the respondents felt there were barriers to science classes and AICI and EACI (Table 13) was examined, using the t test. The results indicate a statistically significant relationship between whether the respondents felt there were barriers to science and cultural identity ($t= -2.55$, $p=0.014$, $df=48$). The average scores for AICI ranged from 36.60 to 46.77, a statistically significant difference. For the EACI, the average scores were 24.85 and 25.33, not a significant difference ($t = -0.29$, $p = 0.772$).

The relationship between whether the respondents had thoughts of AI/AN healing in science classes and AICI and EACI (Table 14) was examined, using the one way

Table 13. Differences in AICI and EACI by Barriers to Science Classes.

	Response	Number	Mean	Std. Deviation	t	p
AICI	no	41	36.60	10.27	-2.55	0.014
	yes	9	46.77	13.35		
EACI	no	41	24.85	4.51	-0.29	0.772
	yes	9	25.33	4.33		

Table 14. Differences in AICI and EACI by Having Healing Thoughts.

	Response	Number	Mean	Std. Deviation	F	p
AICI	often	6	52.000	5.932	7.46	0.001
	sometimes	25	38.840	9.633		
	Not at all	19	33.631	11.705		
EACI	often	6	24.166	5.344	0.50	0.611
	sometimes	25	24.520	5.140		
	Not at all	19	25.736	3.088		

ANOVA. The results indicate an $F=7.46$ with a p-value of 0.001, and $df=2, 47$, which means a statistically significant relationship for AICI and having healing thoughts. The average AICI scores ranged from a 33.631 to 52.000, a statistically significant difference. The results indicate an $F=0.50$ with a p-value of 0.611 for the EACI, which means not a statistically significant relationship. The average scores ranged from 24.166 to 25.736, which means not a statistically significant difference for the EACI.

The relationship between comfort with knowledge in science courses and AICI and EACI (Table 15) was examined, using the ANOVA procedure. The results indicate

an $F=0.31$ with a p-value of 0.736, and $df=2, 47$ for AICI, which means no statistically significant relationship between knowledge of science courses and AICI and EACI. The average scores for AICI ranged from 34.416 to 40.312, indicating no statistical significance. For EACI, the $F=1.15$ with a p-value of 0.325 shows no significant relationship. The average scores for EACI ranged from 23.666 to 25.954, not a statistically significant relationship.

Table 15. Differences in AICI and EACI by Comfort of Knowledge in Science Courses.

	Response	Number	Mean	Std. Deviation	F	p
AICI	2 or fewer	12	34.416	9.462	0.31	0.736
	3 or 4	16	40.312	12.694		
	5+	22	37.636	11.814		
EACI	2 or fewer	12	23.666	4.007	1.15	0.325
	3 or 4	16	24.500	4.351		
	5+	22	25.954	4.695		

The respondents listed their favorite classes: 4 listed microbiology; 4 listed chemistry; 7 listed physiology; 4 listed pharmacology; 3 listed pathophysiology; and, 3 added biology; and 3 students did not respond. The number of favorite science classes taken at UND showed no significant difference in AICI or EACI scores.

The relationship between the numbers of favorite classes the participants indicated and their AICI and EACI scores (Table 16) was examined using one-way ANOVA. The results indicated an $F= 2.85$ with a p-value of 0.068, and $df=2, 46$, which means no significant relationship between the number of favorite science classes and the

AICI. The scores ranged from 31.000 to 40.631, which mean no statistically significant difference. The results indicated an $F=1.85$ with a p-value of 0.168 for EACI, which means no statistically significant relationship exists between the number of favorite classes and EACI. The average scores ranged from 23.550 to 26.263, not a statistically significant difference.

Table 16. Differences in AICI and EACI by Number of Favorite Science Classes.

	Response	Number	Mean	Std. Deviation	F	p
AICI	0	20	40.350	11.979	2.85	0.068
	1	19	40.631	11.499		
	2+	10	31.100	7.922		
EACI	0	20	23.550	4.860	1.85	0.168
	1	19	26.263	4.420		
	2+	10	25.100	3.247		

Question #3: Is there a relationship between cultural identification and academic performance?

AICI was negatively correlated with cumulative GPA, $r = -.276$, $p = .033$; as the AICI score goes up, the GPA goes down, as shown in Figure 4. EACI was not significantly correlated with cumulative GPA, $r = .134$, $p = .181$, meaning that there was no statistical significance for the relationship of GPA with European Cultural Identity (EACI). As illustrated in Table 17 after the scatterplot, the difference in average GPA of people between high and low AICI was not significant ($p= 0.447$), nor was the difference in average GPA between high and low EACI ($p= 0.348$). The results indicate a t-value of 0.77 for AICI and -0.348 for EACI. The average scores for AICI were 3.193 to 3.277 and

3.152 to 3.270 for EACI, not a statistically significant difference. The following scatterplot provides a visual illustration of the relationship between UND cumulative GPA for the AICI.

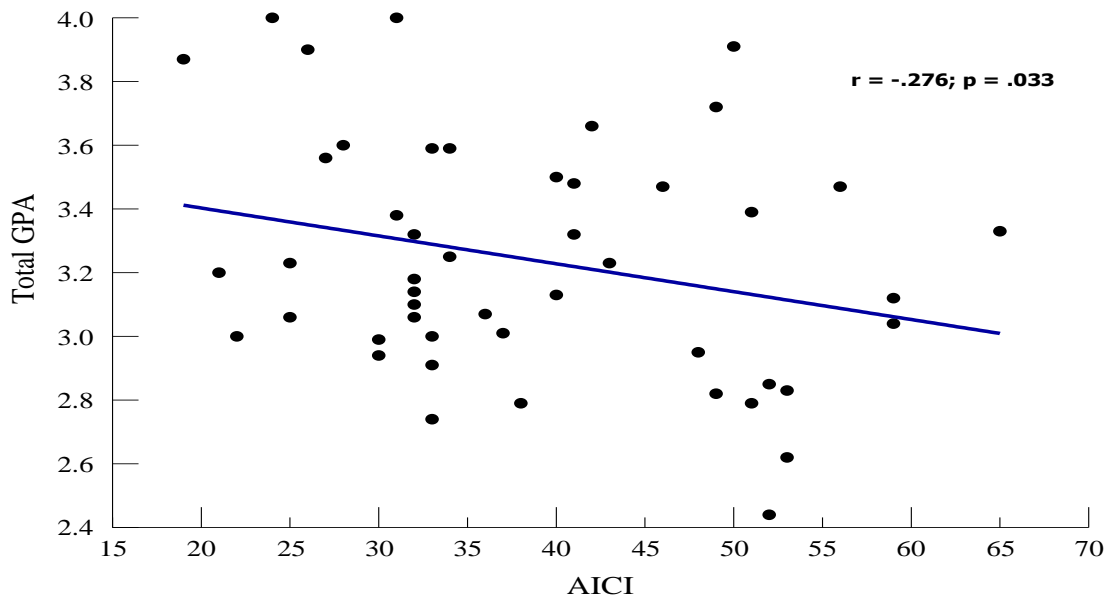


Figure 4. Scatterplot illustrating relationship between AICI and cumulative UND GPA.

Table 17. Average Total GPA by High and Low Cultural Scale Scores.

	Response	Number	Mean	Std. Deviation	t	p
AICI	Low	27	3.277	0.365	0.77	0.447
	High	21	3.193	0.384		
EACI	Low	12	3.152	0.377	-0.95	0.348
	High	36	3.270	0.370		

Question #4: Is there a relationship between cultural identification and academic performance while controlling for demographics and core competencies?

A forward stepwise regression with demographics and core competency variables with AICI and EACI was used to predict total cumulative grade point averages. Table 18

displays the results of the forward stepwise regression when AICI is in the model. As illustrated, statistically significant findings are indicated for having lower AICI scores ($b = -.016$, $p < .001$), not having a bachelor's degree ($b = -.586$, $p < .001$), not taking the chemistry class ($b = -.318$, $p = 0.011$), and question 23 regarding preparation for math ($b = .045$, $p = 0.034$).

Table 18. AICI Demographic, and Core Competencies Variable Significantly Associated With Total GPA.

Variable	b	Standard Error	t	p
<i>With AICI in the Model</i>				
Intercept	4.230			
AICI	-0.016	0.004	-3.79	<.001
Bachelor's degree	-0.586	0.141	-4.16	<.001
Chemistry class	-0.318	0.133	-2.39	0.011
Question 23 (math prep)	0.045	0.024	1.87	0.034

Table 19 shows the regression results with EACI in the model. Being younger ($b = -.114$, $p = .013$), not having a bachelor's degree ($b = -.512$, $p < 0.001$), not taking a chemistry class ($b = -.352$, $p = 0.008$), and taking more classes at UND ($b = .069$, $p = 0.044$) were statistically significant. EACI was not significantly associated with total GPA.

Table 19. EACI Demographic, and Core Competencies Variable Significantly Associated With Total GPA.

Variable	b	Standard Error	t	p
<i>With EACI in the Model</i>				
Intercept	3.934			
Age	-0.114	0.63	-2.30	.013
Bachelor's Degree	-0.512	0.123	-4.15	<0.001
Chemistry class	-0.352	0.142	-2.48	0.008
Number of classes	0.069	0.040	1.74	0.044

Conclusion

The chapter presented the results of the statistical analysis between demographics, core competencies, and cultural identity. Basically, a brief summary indicated that the majority of the participants scored in the assimilated or bicultural area. Those participants with master's degrees and who were older enrolled in more UND science courses, and had higher AICI scores. The responses to the six perception question were provided and indicate that those who perceived they were comfortable with knowledge of science and perceived science barriers had higher AICI scores. Chapter V summarizes the NPBI-R survey findings and provides interesting conclusions regarding cultural identification.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this research was to examine the relationship between cultural identities of students and their academic performances in a nursing program. Chapter V presents a summary of the overall results of this research, conclusion and discussion, and the recommendations regarding cultural identities and academic performances in a nursing program.

Summary

The results of this study suggest that there is a relationship between select demographic variables and cultural identity. The results also suggest a relationship between cultural identification, core competencies, and academic performance. The results of the AICI and EACI, as indicated by Figure 3 (NPBI-R quadrants), support the orthogonal theory, which states although the students have identified themselves as AI/AN, the majority (38) have also identified with the dominant culture (European American Culture) by scoring in the assimilated and bicultural categories.

Conclusions for Research Questions

Research Question 1: Is there a relationship between cultural identification and demographics?

The demographic variables included age, gender, state/location, and degree. Those with master's degrees and those who were older had higher AICI scores, which means that they identified more with the AI/AN culture than other respondents did.

Research Question 2: Is there a relationship between cultural identification and core competencies?

The core competencies included three parts: the first part was the cumulative science GPA of the courses that nursing students are required to complete successfully before they are allowed to graduate; the second part was the number of classes successfully completed at UND; and the third part was the six additional questions regarding a student's perception of preparation, knowledge, and comfort while enrolled in the required courses.

The results for the first part indicated that those students who successfully completed the science courses at UND scored lower in the AICI category and, thus, identified less with the AI/AN culture. The second part asked if there was a relationship between the numbers of classes successfully completed at UND and cultural identity. The responses suggested that the more science classes taken at UND, the lower the AICI score and the higher the EACI score; those students who identified more with the AI/AN culture took more science classes off campus.

The third part of this question asked about the relationship between the six perception questions at the end of the survey. The replies indicated interesting data. To begin, for questions 21 and 22, as the respondents felt less (not) prepared in science or math, the average AICI scores increased. However, for question 25, the respondents indicated most felt comfortable with their knowledge of science courses. The scores were

interesting because 22 graduates felt comfortable in 5 or more classes, 16 felt comfortable in 3-4 classes, and 12 graduates felt comfortable in 2 or less classes.

For questions 23 and 24, those with high AICI scores were more likely to perceive barriers and have more thoughts of alternative Native healing, which meant they identified more with AI/AN culture. The purpose of this question was to find out whether the topics or course content within the classes might trigger thoughts of alternative AI/AN healing methods and a deeper knowledge of AI/AN cultural traditions. The finding suggests that students who had a more traditional background thought more about traditional ceremonies, scored higher in the AICI category for this particular question.

This research found that only 9 students responded that they experienced barriers to science classes, while 41 perceived no barriers. This was a surprise because studies (Huffman, 2001; Institute of Higher Education Policy, 2007; Yurkovich, 2001), indicated many AI/AN students come to colleges perceiving barriers. Because all the participants successfully graduated, the barriers were overcome. I believe this is due to the recruitment, advisement and tracking that the RAIN program implements. The RAIN program has extensive experience working with students while they are in high schools, in tribal colleges and as pre-nursing students. The coordinator of the RAIN program has more than 40 years of vast experience with AI/AN students and is genuinely aware of what AI/AN culture brings to the campus. RAIN has recently developed a mentoring model for AI/AN nursing students based on the many years of experience and the success of its graduates.

Research Question 3: Is there a relationship between cultural identification and academic performance?

Academic performance is the participant cumulative UND GPA. As the AICI score goes up, the GPA goes down, which suggests a relationship between cultural identification and academic performance. The students who were more successful in the science courses identified more with the EACI. However, we need to remember that this is only with the UND science courses, and all the students did graduate, though many successfully completed the course off campus.

Research Question 4: Is there a relationship between cultural identification and academic performance while controlling for demographics and core competencies?

This question supports the findings that suggest that those students who are older and have master's degrees have a better chance of success in the UND nursing program. To be academically successful, an AI/AN nursing student needs to develop the knowledge and skills to cross between constructs of the home culture of their family, tribe, and community to the culture of the school environment, which RAIN has accomplished.

A factor within this study is the numbers regarding participants, for example, there were only four males while there were 53 females in this study. Did the number of responses for this variable affect the data collected?

Discussion

How can we succeed academically and still retain our cultural identity? This question is of significant value as our colleges and higher education institutions seek out students who are academically successful. Many colleges make GPA one of the principal criteria for admission. What about the highly motivated student from a poor academic background such as a reservation high school graduate? This research suggests that there

is a relationship between academic performance and cultural identity. The important conclusion is that AI/AN nursing students successfully graduated because of the support and advisement that is provided to bridge any gaps that exist for students because of their cultural identity. The more assimilated students do not generally need as much academic support; and those that are bicultural usually need to find the resources to help them succeed. The individuals who provide the support services usually helped the more culturally identified individuals succeed and monitored each student individually. The advisors were able to identify what was needed through personal and academic experience and guide students in the right direction.

The RAIN coordinator works with students on a 24 hour basis, dealing with childcare issues, financial problems and many other concerns. The personal commitment of the coordinator is a significant factor in the success of the RAIN program.

What academic performance involves is constantly changing, especially with all the new technology. The UND College of Nursing is probably not the only department that has changed its curriculum because of the importance to keep up with the times and current concepts of patient care. Thus, academic success or academic performance means not only getting good grades but also the physical and mental demonstration of understanding the curriculum concepts.

I also believe that cultural identity and culture changes. When I grew up I knew some ceremonies and rituals. In the last 10 years I have participated and learned more about these ceremonies. My knowledge and experience increased, but did my cultural identity change? I believe that people learn more about their culture and use it when they are at home, but in another environment, it may be put in the back of their minds so that

they can concentrate on things necessary to succeed in that other environment. I believe that being bicultural is knowing and keeping one's tribal values and traditions, while being part of another culture.

Recommendations

My first recommendation is to complete the study, including the academic performance data that has been collected for each student by the RAIN program, because the study was not able to utilize the all the grades of the students who transferred or completed courses off-campus. However, the difficulty remains in determining that each class offered at various institutions has been taught keeping the core concepts the same so that a valid comparison can be accomplished. But, I feel there is much information and data that has been gathered since the RAIN program began in 1990, and this abundance of information could provide someone with important documentation regarding the RAIN program students.

The NPBI-R survey responses have suggested that the RAIN nursing population who were older than 40, and had Master's degrees were *less* assimilated for this particular time and group. Identification and recruitment of AI/AN into nursing programs is a significant factor in the future of AI/AN healthcare. Therefore, an important recommendation is to identify and recruit students who are older than the average college student and who have indicated a commitment to nursing or a health career.

Academics should be a major focus at home reservation school systems. However, as previously stated, most reservation school systems are not up to normal standards, so when students get to college they are academically behind. The RAIN program has significantly improved academic success by providing support and

advisement and encouragement to all the students, especially those who are more traditional.

A more complete research study of the AI/AN student body population, whether all core curriculum meets the same standards, and implementation of a new recruiting strategy of older than average tribal members may yield more students graduating and more nurses returning to home reservations.

Appendix Survey

Impact of cultural identities on learning science in nursing

The following survey requests information about your experiences while you were enrolled in nursing science courses. The survey should only take about 10-15 minutes to complete. Your participation is voluntary and you are under no obligation to answer questions if you feel uncomfortable. All personal identifiers will be removed and only the investigator will have access to the data. The Northern Plains Biculturalism Inventory-Revised instrument, authored by Dr. Justin D. McDonald of the University of North Dakota psychology department, will be used to collect information regarding cultural orientation about both American Indian and European identification. Also, part of this study includes collection of information about grades in the six science classes required to complete the nursing program. Your grade information will be accessed by the office of institutional research only and will be coded to remove any and all personal identifiers. Six additional questions were added at the end of the survey for more demographic information. There are no right or wrong answers. For each question, please check the answer that best illustrates how you feel about the question asked.

The researcher conducting this study is Elizabeth YellowBird. If you have any questions or concerns about the research please contact Elizabeth YellowBird at 701-777-4530. The advisor for this study is Dr. Margaret Healy and her telephone number is 701-777-4255. If you have any questions regarding your rights as a research subject or if you have any concerns about the research, you may contact the University of North Dakota Institutional Review board at 701-777-4279. Thank you for your time and cooperation.

MY CONTINUED PARTICIPATION AND COMPLETION OF THIS SURVEY INDICATES THAT I CONSENT TO PARTICIPATE IN THIS STUDY.

1. What is your degree of comfort around White people?

1. no comfort 2. 3. some comfort 4. 5. great comfort

2. How comfortable are you in encouraging your children to learn and practice Indian ways?

1. no comfort 2. 3. some comfort 4. 5. great comfort

3. How strongly do you identify with American Indian culture?

1. no desire 2. 3. some desire 4. 5. great desire

4. How strongly do you identify with White culture?

1. no identification 2. 3. somewhat identify 4. 5. greatly identify

5. How often do you think in an American Indian language?

1. I rarely or never think in Indian language 2. 3. half the time I think in Indian language 4. 5. Often or always think in Indian language

6. How much confidence do you have in Western (doctors in hospitals) medicine?

1. I do not use medical doctors 2. 3. Have some faith in medical doctors 4. 5. Have strong faith in medical doctors

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7. How much confidence do you have in traditional medicine men/women?

1. I do not use the medicine man/woman 2. 3. Have some faith in the medicine man/woman 4. 5. Have strong faith in the medicine man/woman

8. How much is your way of thinking "family" Indian (cousins same as brothers and sisters, aunts/uncles as parents, everyone is related)?

1. I trace none of my ancestry according to Indian custom 2. 3. I trace some of my ancestry according to Indian custom 4. 5. I can trace all of my ancestry according to Indian custom

9. How often do you attend traditional Indian ceremonies (sweat lodge, Pipe ceremonies, Sundance, vision quest)?

1. I never attend Indian ceremonies 2. 3. I sometimes attend Indian ceremonies 4. 5. I attend Indian ceremonies frequently

10. How often do you attend Christian religious ceremonies (Christenings, baptisms, church services)?

1. I never attend Christian ceremonies 2. 3. I sometimes attend Christian ceremonies 4. 5. I attend Christian ceremonies frequently

11. How often do you participate in Indian dancing (Grass, fancy, jingle-dress, etc.)?

1. I never participate in Indian dances 2. 3. I sometimes participate in Indian dances 4. 5. I participate in Indian dances frequently

12. To how many social organizations do you belong where most of the members are Indian?

1. I belong to no Indian organizations 2. 3. I belong to some Indian organizations 4. 5. Most of the organizations I belong to are Indian organizations

13. How often do you attend White celebrations (White ethnic festivals, parades, etc)?

1. I never attend White celebrations 2. 3. I attend some White celebrations 4. 5. I attend White celebrations frequently

14. How often do you attend Indian celebrations (pow-wows, wacipis)?

1. I never attend Indian celebrations 2. 3. I attend some Indian celebrations 4. 5. I attend Indian celebrations frequently

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15. Does anyone in your family speak an American Indian language?

1. They rarely or never speak Indian 2. 3. They speak Indian part of the time 4. 5. They often or always speak Indian

16. To what extent do members of your family have traditional Indian last names (like "Kills-in-Water")?

1. None have Indian names 2. 3. Some have Indian names 4. 5. All have Indian names

17. How often do you talk about White topics and White culture in your daily conversation?

1. I never engage in topics of conversation about whites and their culture 2. 3. Sometimes engage in topics of conversation about Whites and their culture 4. 5. I engage in topics of conversation about Whites and their culture frequently

18. How often do you talk about Indian topics and Indian culture in your daily conversations?

1. I never engage in topics of conversation about Indians and their culture 2. 3. Sometimes engage in topics of conversation about Indians and their culture 4. 5. I engage in topics of conversation about Indians and their culture frequently

19. How much do you believe in any Indian Creation Stories (how earth/people/animals were made)?

1. I don't believe in any of those stories 2. 3. I believe in some of those stories 4. 5. I very strongly believe in those stories

20. How much do you believe in any non-Indian creation stories (Adam/Eve, Garden of Eden, etc)?

1. I don't believe in any of those stories 2. 3. I believe in some of those stories 4. 5. I very strongly believe in those stories

The following six questions were developed by Elizabeth YellowBird to collect more information about how you felt about the science courses you completed.

21. How prepared were you for the basic science courses required for nursing (anatomy, chemistry, microbiology, pathophysiology, physiology, pharmacology)?

1. Not prepared at all 2. 3. 4. Adequately prepared 5. 6. 7. Very well prepared

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22. How prepared were you for the basic math courses required for nursing?

1. Not prepared at all 2. 3. 4. Adequately prepared 5. 6. 7. Very well prepared

* 23. While enrolled at UND did you experience a situation that created a barrier for learning science?

- Yes No

If you answered yes please briefly describe

24. While attending UND how often did you have an educational experience in science that triggered thoughts about alternative or Native American methods of healing.

1. often 2. 3. 4. sometimes 5. 6. 7. not at all

25. How comfortable were you as far as knowledge of content in the six science courses.

1. not comfortable in any courses 2. comfortable in 1 or 2 courses 3. comfortable in 3 or 4 courses 4. comfortable in 5 or 6 courses 5. comfortable in all courses

26. Of the six science classes, was there a class that you felt was your favorite class?

1. none were my favorite
 2. there was one class that was my favorite, please list
 3. more than one class was my favorite, please list

favorite class or classes

REFERENCES

- Afraid of Bear-Cook, L. (2010). Oglala Sioux Tribe. Retrieved from www.oglalalakotanation.org.
- Aikenhead, G. S. (1996). Science education: Border crossings into the subculture of science. *Studies in Science Education*, 27, 1-52.
- Aikenhead, G. S. (1997). Toward a First Nations cross-cultural science and technology curriculum. *Science Education*, 81, 217-238.
- Aikenhead, G. S., & Jegede O. J. (1999). Cross-cultural science education: A cognitive explanation of a cultural phenomenon. *Journal of Research in Science Teaching*, 36, 269-287.
- Aikenhead, G. S., & Ogawa, M. (2007). Indigenous knowledge and science revisited. *Cultural Studies of Science Education*, 2, 539-620.
- Allen, N. J., & Crawley, F. E. (1998). Voices from the Bridge: Worldview conflicts of Kickapoo students of science. *Journal of Research in Science Teaching*. 35, 111-132.
- Allen, J. & French, C. (1994). *Northern plains biculturalism inventory: A preliminary manual*. Unpublished manual available from the authors. University of South Dakota, Vermillion, SD

- American Association of Colleges of Nursing (AACN). (September, 2009) Nursing shortage fact sheet.
- American Nursing Association. (2010). Nursing's social policy statement, (2nd ed., p. 6) 2003, p. 6 & Nursing: Scope and standards of practice, 2004, p.7. Washington, D C: Nursesbooks.org.
- Ascher, M. (2002). *Mathematics elsewhere: An exploration of ideas across cultures*. Princeton, NJ: Princeton University Press.
- Babco, E. L. (2003). *Trends in African American and Native American Participation in STEM higher education*. Commission on Professionals in Science and Technology, 1200 New York Ave., NW, Suite 390, Washington, DC 20005.
- Baker, L. I. (2008). *Convergent and discriminant validity of biculturalism and depression among northern plains American Indians*. (Doctoral Dissertation). University of North Dakota, Grand Forks, ND.
- Baker, L. I. (2005). *Bicultural identification among Northern plains American Indian: scale development and validation*. Unpublished manuscript, University of North Dakota, Grand Forks, ND.
- Baker, D., & Taylor, P. C. S. (1995). The effect of culture on the learning of science in non-western countries: The results of an integrated research review. *International Journal of Science Education*, 17, 695-704.
- Barnhardt, R., & Kawagley, A. O. (2005). Indigenous knowledge systems and Alaska Native ways of knowing. *Anthropology and Education Quarterly*, 36, 8-23.
- Bear, C. (2008). American Indian boarding schools haunt many. Retrieved from <http://www.npr.org/templates/story/story.php?storyId=16516865>.

- Bresicia, W., & Daily, T. (2007). Economic development and technology Skill needs on American Indian Reservations. *The American Indian Quarterly*, 31, 23-43.
- Broome, B., & Broome, R. (2007). Native Americans: Traditional healing. *Urologic Nursing*, 27.
- Buerhaus, P. I., Auerbach, D. I., & Staiger, D. O. (2009). The recent surge in nurse employment causes and implications. *Health Affairs*, 28, Retrieved from <http://content.healthaffairs.org/cgi/content/full/28/4/w657>.
- Cajete, G. (2000). *Native science: Natural laws of interdependence*. Skyland, NC: Kivaki Press.
- Deloria, V. (1988). *Custer died for your sins: An Indian manifesto*. Norman, OK: University of Oklahoma Press.
- Dickerson, S., Neary, M., & Hyche-Johnson, M. (2000). Native American graduate nursing students learning experiences. *Journal of Nursing Scholarship*, 32, 189-196.
- Fleming, W. C. (2003). *The complete idiot's guide to Native American history*. New York: Marie Butler-Knight.
- Garcia, R., & Ahler, J. (1992). Indian education: Assumptions, ideologies, strategies. In J. Reyhner (Ed.), *Teaching American Indian students*. (pp. 13-32). Norman, OK: University of Oklahoma Press.
- Geertz, C. (1973). *The interpretation of cultures: Selected essays*. New York: Basic Books.

- Greenfield, P. M. (1997). Culture as process: Empirical methods for cultural psychology. In J.W. Berry, Y. H. Poortinga, & J. Pandey (Eds.). *Handbook of Cross-cultural psychology* (2nd ed., pp. 301-346). Needham Heights, MA: Allyn & Bacon.
- Haldane, S. (2008, October). Indian health service nursing summit. Paper presented at the Annual Indian Health Service Nursing summit, Washington, DC.
- Hansen, D. (2010). *Curriculum review: 1909-2009*. UND College of Nursing Historical Report. University of North Dakota, College of Nursing.
- Henderson, V. (1966). *The nature of nursing: A definition and its implications for practice, research, and education*. New York: Macmillan.
- Heinrich, R., Corbine, J., & Thomas K. (1990). Counseling Native Americans. *Journal of Counseling and Development*, 69, 128-133.
- Huffman, T. (2001). Resistance theory and the transcultural hypothesis as explanations of college attrition and persistence among culturally traditional American Indian students. *Journal of American Indian Education*, 40, p. 2.
- Institute for Higher Education Policy. (2007). *The path of many journeys: The benefits of higher education for Native people and communities*. Washington, DC. Retrieved from: www.aihec.org/responses/path.cfm.
- Jacobson, W. (1996). Learning, culture, and learning culture. *Adult Education Quarterly*, 47, 15-28.
- Jegede, O. (1995). Collateral learning and the eco-cultural paradigm in science and mathematics education in Africa. *Studies in Science Education*, 97-137.

- Jegade, O. J., & Aikenhead, G. S. (1999). *Transcending cultural borders: Implications for science teaching*. Retrieved from <http://www.ouhk.edu.hk/~rewwwwmisc/Jegade.htm>
- Johnson, E., & Rhoades, E. (2000). The history and organization of Indian Health Services and systems. In Johns Hopkins University Press, *American Indian Health. Innovations in healthcare, promotion and policy*, pp.74 - 92. Baltimore, MD. Johns Hopkins University Press.
- Kawagley, A. O. (1995). *A Yupiaq worldview: A pathway to ecology and spirit*. Prospect Heights, IL: Waveland Press.
- Kickingbird, K., & Rhoades, E. (2000). The relationship of Indian nations to the U.S. government. *American Indian Health Innovations in healthcare, promotion and policy*, pp. 62-73. Baltimore, MD., Johns Hopkins University Press.
- Kreisher, K. (2002). Coming home: The lingering effects of the Indian adoption project. *Children's Voice*, March 2002.
- LaFromboise, T., Coleman, H., & Gerton, J. (1993). Psychological impact of biculturalism: Evidence and theory. *Psychological Bulletin*, 114, 395-412.
- Lewis, B. F., & Aikenhead, G. (2001). Shifting perspectives from universalism to cross-culturalism. *Science Education*, 85(1), 4-5.
- Lipka, J. (1991). Toward a culturally based pedagogy: A case study of one Yup'ik Eskimo teacher. *Anthropology and Education Quarterly*, 203-223.
- Lowe, J., & Struthers, R. (2001). A conceptual framework of Nursing in Native American culture. *Journal of Nursing Scholarship; Third Quarter*, 279-283.

- McDonald, J. D. (1995). Construct Validity of the Northern Plains Biculturalism Inventory. unpublished article.
- Mintz, S. (2007). The Civilization Act Fund. *Digital History*. Retrieved from http://www.digitalhistory.uh.edu/native_voices/voices_display.cfm?id=45
- Mistry, J., & Wu, J. (2010). Navigating cultural worlds and negotiating identities: A conceptual model. *Human Development*, 53, 5-25.
- Nasir, N., S., & Hand, V. M. (2006). Exploring sociocultural perspectives on race, culture, and learning. *Review of Educational Research*, 449-475.
- Nasir, N. S., Hand, V., & Taylor, E. V. (2008). Culture and mathematics in schools: Boundaries between “cultural” and “domain” knowledge in the mathematics classroom and beyond. *Review of Research in Education*, 32, 187-240.
- National Center for Education Statistics. (2008). *Status and Trends in the Education of American Indians and Alaska Natives: 2008*. Retrieved from http://nces.ed.gov/pubs2008/nativetrends/ind_4_4.asp.
- National Congress of American Indians. (2010) *An Introduction to Indian Nations in the United States*. Retrieved from www.ncai.org.
- National Congress of American Indians Policy Research Center. (2007). *Demographic profile of Indian Country*, January 10, 2007.
- National Indian Child Welfare Association. (2010) Retrieved from http://www.nicwa.org/children_families/.
- Native Housing Resources. (2010). Retrieved from <http://www.tribal-institute.org/lists/housing.htm>.

- Oetting, E., & Beauvais, F. (1990-91). Orthogonal culture identification theory: The cultural identification of minority adolescents. *The International Journal of the Addictions*, 25, 655-685.
- Ogbu, J. U. (1992). Understanding cultural diversity and learning. *Educational Researcher*, 21, 5-14.
- Oswalt, W. (1988). *This land was theirs; A study of North American Indians* (4th ed). Mountain View, CA: Mayfield.
- Phelan, P. M., Davidson, A., & Cao, H. (1991). Students' multiple worlds: Negotiating the boundaries of family, peer and school cultures. *Anthropology and Education Quarterly*, 22, 224-250.
- Robert Wood Johnson Foundation, Urban Indian Health Commission. (2007). *Invisible tribes: Urban Indian and their health in a changing world*. Produced by the Urban Indian Health Commission.
- Ruiz, R. (1981). Cultural and historical perspectives in counseling Hispanics. In D. Sue (Ed.). *Counseling the culturally different* (pp. 186-215). New York: Wiley.
- Russell, G. (2004). *American Indian facts of life*. Native data network. ISBN-10: 1881933121.
- Ryder, A., Alden, L., & Paulhus, D. (2000). Is acculturation unidimensional or bidimensional? A head-to-head comparison in the prediction of personality, self-identity, and adjustment. *Journal of Personality and Social Psychology*, 79, 49-65.
- Schwartz, S., & Unger, J. (2010). Biculturalism and context: What is biculturalism and when is it adaptive? *Human Development*, 53, 26-32.

- Shi, L., & Stevens, G. (2005). Disparities in access to care and satisfaction among U.S. children: The roles of race/ethnicity and poverty status. *Public Health Reports*, 120, 431-441.
- Smedley, B., Stith-Butler, A., & Bristow, L. (2004). In the Nation's compelling interest: Ensuring diversity in the healthcare workforce. Institute of Medicine of the National Academies. Washington, DC. The National Academies Press.
- Spring, J. (2001). *Deculturalization and the struggle for equality*. New York: McGraw Hill.
- Stanley, W., & Brickhouse, B. (2001). Teaching Sciences: The multicultural question revisited. *Science Education*, 85, 35-49.
- Struthers, R., Lowe, J. (2003). Nursing in the Native American culture and historical trauma. *Issues in Mental Health Nursing*, 24(3), 57-272.
doi:10.1080/01612840305275
- Sullivan Commission Task Force on Racial and Ethnic Diversity within the Schools of the Health Sciences at the University of Pittsburgh. (2007). *The urgency of now: Recruiting and retaining racially and ethnically diverse professionals in the health professions*.
- Sullivan Commission on Diversity in the Healthcare Workforce. (2004). Durham, North Carolina, School of Medicine. *Missing persons: Minorities in the health professions*.
- Sutherland, D. (2005). Resiliency and collateral learning in science in some students of Cree ancestry. *Science Education*. doi:10.1002/sce.20066

- Tadmor, C., & Tetlock, P. (2006). Biculturalism A model of the effects of second-culture exposure on acculturation an integrative complexity. *Journal of Cross-Cultural Psychology, 37*, 173-190.
- Tribal Self-Governance Demonstration Project, U.S. Code, vol 25, sec 458aa (1988).
- United Nations Educational, Scientific and Cultural Organizations (UNESCO) (2001). 2010 MDG Summit High-Level round table on culture for development. September 21, United Nations, New York. Concept Note, Culture for development.
- University of Minnesota. (2010). *Expanding the circle Expanding the circle resources. Brief history of American Indian education.*
- University of North Dakota, College of Nursing. (2010). *CCNE self-study report: Standard III*, Retrieved from www.nursing.edu
- University of North Dakota, College of Nursing (2011). About the college of nursing. Retrieved from www.nursing.edu
- United States Commission on Civil Rights. (2003). *A quiet crisis-federal funding and unmet needs in Indian Country*. Washington, DC.
- U. S. Department of Health and Human Services, Health and Human Resources and Services Administration (2010). *The Registered Nurse Population: Initial Findings from the 2008 National Sample Survey of Registered Nurses.*
- U. S. Department of Health and Human Services, Indian Health Service. (2010). *IHS fact sheets. Indian health disparities*. January, 2010.
- U. S. Department of Health and Human Services, Indian Health Service. (2010). *IHS fact sheets. Workforce*, June 2009.

- U. S. Department of Health and Human Services, Indian Health Service, (2010). *IHS fact sheets. Indian Population*, June 2009.
- U. S. Department of Health and Human Services, Health Resources and Services Administration. (2010, March). *The registered nurse population. Initial findings from the 2008 national sample survey of registered nurses*.
- Van Oord, L. (2005). Culture as a configuration of learning. *Journal of Research in International Education*, 4, 173-191.
- Venner, K., Wall, T., Lau, P., Ehlers, C. (2006). Testing of an orthogonal measure of cultural identification with adult mission Indians. *Cultural Diversity and Ethnic Minority Psychology*, 12, 632-643.
- Warren, B., Ballenger, C., Ogonowski, M., Rosebery, A. S., & Hudicourt-Barnes, J. (2001). Rethinking diversity in learning science: The logic of everyday sense-making. *Journal of Research in Science Teaching*, 38, 529-552.
- Whitbeck, L. B., Hoyt, D. R., Stubben J. D., & LaFromboise, T. (2001). Traditional culture and academic success among American Indian children in the upper Midwest. *Journal of American Indian Education*, 40, 1-20.
- Wilkenson, J., & Van Leuven, K. (2007). *Fundamentals of nursing*. F. A. Davis: Philadelphia.
- Williams, R. (1983). *Keywords: A vocabulary of culture and society*. (Rev. ed). (New York 1983, p. 87.
- Wolf, A. (2001). *Culture, culture, culture*. NEHA-Yearbook
- Yurkovich, E. E. (2001). Working with American Indians toward educational success. *Journal of Nursing Education*, 40, 259-267.