DIFFERENCES IN THE EXTENT OF USE OF CULTURE IN THE CLASSROOM BETWEEN INDIGENOUS AND NON-INDIGENOUS TEACHERS AND THE RELATIONSHIP TO STUDENT REPORTED ACADEMIC ACHIEVEMENT IN READING AND MATH

by

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ABSTRACT

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Under the Supervision of Tracy Posnanski, Ph.D.

With the historical lack of academic achievement of American Indian/ Alaskan Native (AI/AN) students in public schooling, Indigenous communities have expressed the need to emphasize Indigenous culture in the education of AI/AN students. This study investigated if the relationship between the use of Indigenous culture and academic achievement can be validated through the use of the National Indian Education Survey database. This study examined (1) if there is a difference in the extent of AI/AN culture used in the classroom between Indigenous teachers and non-Indigenous teachers, (2) if there is a relationship between the student reported academic achievement of AI/AN students in mathematics and the extent of the use of AI/AN culture in the classroom, and (3) if there is a relationship between the student reported academic achievement of AI/AN students in reading and extent of the use of AI/AN culture in the classroom.

In conducting the study, the National Indian Education Study (NIES) Part II Grade Four Student and Teacher survey questionnaire database was utilized. Ten of the NIES questionnaire items pertaining to the use of culture in the classroom were used to create a new construct; Cronbach's alpha analysis was conducted to test this scale for reliability and was found to have high reliability with a Cronbach's alpha = .877.

Using the new scale construct for extent of culture use in the classroom, classroom teachers of Indigenous (AI/AN/NH/PI) background were compared to classroom teachers of non-Indigenous background to determine if there was a difference in the extent of culture used in the classroom between the two; results of the t-test, $t(2357) = -22.241$, $p < .05$, indicate there is a significant difference in the extent of the use of culture in the classroom used by Indigenous and non-Indigenous teachers.

Chi-square analysis was performed to determine if there was significance to the relationship of the extent of use of culture in the classroom and academic achievement. There was no significance $\chi^2 (6) = 9.83$, $p = .132$ for reported academic achievement in mathematics in relation to the extent of culture use in the classroom; however, there was significance $\chi^2 (6) = 18.325$, $p = .005$ for the relationship between student reported academic achievement for reading and the extent of use of culture in the classroom.

Alyx, Gigi, and Roni,

Words don't express my gratitude for your smiles, hugs, and kisses each day.

Hopefully I was able to find balance most of the time between being a mom and being a student; for those times that I leaned too heavy on being a student, I thank the three of you for your patience and sacrifice.

The three of you are my light.

love, mom

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Epigraph

What we have is because someone stood up before us.
What our Seventh Generation will have is a consequence of our actions today.
-Winona LaDuke, Annishnabe

Terminology Used

Within this document multiple terms (First Nations, American Indian, Native American, Tribal peoples, Indigenous, First Americans) are used referencing Indigenous peoples. The terms can be used somewhat interchangeably according to preference, but may have somewhat different connotations; these connotations may also be contextually bound. Furthermore, some terms may have a legally recognized definition that may be different from a colloquial definition. Indigenous peoples themselves are not in agreement of what term is preferred—for example, Michael Yellow Bird (1999) strongly rejects the terms "American Indian," "Native American," and "Indian" as terms of colonization and favors "Indigenous" and "First Nations," while Christina Berry (2013) states that the particular term used is less important than the intention. However, it is commonly preferred that specific Tribal Nations be identified as such.

For the purposes of this dissertation the author generally uses the term "American Indian/Alaskan Native" because it is the term used by the Department of Education to conduct the National Assessment of Educational Progress (NAEP) and National Indian Education Study (NIES). However, other terms will be used either to respect the writing of previous authors when referencing their work, or when using the author's voice. Definitions for other terms used within this study which may be useful to the reader follow in alphabetical order.

AIM- American Indian Movement, an organization founded in 1968 in Minneapolis, MN to address concerns of urban Indians in Minneapolis, but quickly drew members from across the U.S. and Canada. AIM gained notoriety for the occupation of Alcatraz from 1969-1971, the occupation of the BIA national headquarters in 1972, and the standoff at

Wounded Knee on the Pine Ridge Reservation in 1973. Although AIM has split into two main factions, it still remains active today.

BIA- the Bureau of Indian Affairs (BIA) is an agency of the federal government of the United States within the Department of the Interior. The BIA is responsible for the administration and management of tribal land held in trust[1] by the United States.

BIE- the Bureau of Indian Education (BIE) is an agency of the U. S. Department of Interior under the Assistant Secretary for Indian Affairs. The BIE is responsible for the management of 183 elementary, secondary, residential and off-reservation dormitories across 23 states. 126 schools are tribally controlled under P.L 93-638 (Indian Self Determination Contracts) or P.L 100-297 (Tribally Controlled Grant Schools Act), 57 schools are operated by the BIE. Additionally, the BIE oversees Haskell Indian Nations University and Southwestern Indian Polytechnic Institute.

Dominant culture- although the term is used by others as well, the term "dominant culture" is used by American Indians to express a distinction between indigenous culture and the dominant culture (Anglo, white, middle class, etc.) of America as a whole.

Historical trauma- the cumulative emotional and psychological wounding across generations, including the lifespan, which originates from massive group trauma (Brave Heart, 1998, 2003).

Indian Country- the more formal definition is land that is either within an Indian reservation or federal trust land (land that is technically owned by the federal government and managed by the BIA but is held in trust for a tribe or tribal member); however,

[1] Under the General Allotment Act of 1887, Indian land allotees were deemed incompetent to manage their land affairs, thus the federal government retained legal title of the land as a trustee for the allotee. Land owned by an individual Indian or a tribe may be held in trust by the federal government.

"Indian Country" is also colloquially used to encompass all Tribal peoples across the U.S., which is the definition the author uses within this writing.

Self-Determination- refers to the social movements, legislation, and beliefs by which tribes in the U.S. exercise self-governance and decision making on issues that affect their own people meant to reverse the paternalistic relationship of the U.S. government to Tribal Nations. Self-Determination is the means by which sovereign powers are exercised.

Tribal Nation- Sovereign Nations that reside within the geographical boundaries of the United States.

Tribal Sovereignty- tribal sovereignty refers to the fact that each Tribal Nation has the inherent right to govern itself. Tribal Sovereignty has been affirmed through U. S. Supreme Court rulings in Cherokee Nation v. Georgia in 1831, Worcester v. Georgia in 1832, as well as the more recent 1978 United States v. Wheeler.

CHAPTER ONE: INTRODUCTION

Overview

Historical policies and practices of termination and assimilation have systematically attacked the culture of Indigenous Nations resulting in communities reeling from the effects of being marginalized and coping with historical trauma. One of the impacts of marginalization and historical trauma is low academic performance for students. Although the educational system began to move away from looking at American Indian/Alaska Native (AI/AN) students in the deficiency model and began to acknowledge cultures beyond the White middle-class model as being valued, AI/AN youth still remain as some of the lowest performing students academically (Rampey, Lutkus, & Weinder, 2006).

For over twenty years, AI/AN education activists have argued that schools are still lacking in providing their youth with an education that is from a cultural perspective (Indian Nations at Risk Task Force, 1991). Furthermore, they, and others, contend that if students were educated through culture, by individuals sharing their culture, that student academic achievement would increase (Ladson-Billings, 1995; Nieto, 1992; Pewewardy, 2005; Sleeter & Grant, 1988). In reviewing the literature, Demmert & Towner (2003) reported one experimental/quasi-experimental study and eight non-experimental comparative studies which investigated the effects of utilizing culturally based education on academic achievement; these limited studies were location specific.

In 2005, the National Center for Education Statistics in conjunction with the National Assessment of Education Progress conducted the National Indian Education Study. This nationwide study was the first gathering of data on the cultural context of

education of AI/AN students on a national level. Using this national database, this current study sought to examine if teachers of Indigenous ethnicity use Indigenous culture in the classroom to a greater extent than teachers of non-Indigenous ethnicity and if there is a relationship between AI/AN student reported academic achievement and the extent of the use of culture in the classroom.

Background of the Problem

Large numbers of students have not experienced academic success in traditional public schooling (Slaughter-Defoe, Stevenson, Arrington, & Johnson, 2012); this is demonstrated by high student dropout rates/low graduation rates (Orfield, Losen, Wald, & Swanson, 2004), lack of achievement on standardized testing (Madaus & Clarke, 2001), and dissatisfaction with schooling (Plucker, Spradlin, & Whiteman, 2011).

Although American Indian/Alaskan Native students share commonalities with other students of marginalized backgrounds, the AI/AN educational experience also has a unique context based on historical factors, the legal obligations of the federal government, and Tribal Sovereignty rights. It is within this context that the academic achievement of American Indian/ Alaskan Native students tends to be the lowest performing. According to Education Week (2013), 51% of Native American students in the class of 2010 earned a high school diploma; this compares to 62% for black students, 68% for Latinos, and 80% for white students. The graduation gap discrepancy is not a new phenomenon. In 1990, among the total population aged twenty-five or older, 75% had completed high school; however, of the American Indian population, only 66% had completed high school (Pavel, Skinner, Farris, Cahalan, & Tippeconnic III, 1988; Pavel et al., 2000).

The counterpart to graduation rates is dropout rates. The AI/AN dropout rate is the highest of all minority students nationwide (St. Germaine, 1995). During the 2000-01 school year, American Indian/ Alaskan Native students dropped out in higher percentages in nearly every state than did all other ethnicities (Young, 2003). Reports from American Indian tribal leaders and other sources indicate that the dropout rates for American Indian students may be even higher than reported by many school districts (Franklin & Waukechon, 1995). A report from the Center for Indian Education, derived from longitudinal studies conducted between 1969 and 1989, stated that the best estimate of the American Indian dropout rate was 24% to 48% (Swisher & Hoisch, 1992). This high drop-out effect may continue through post-secondary schooling; as high as 93% of American Indian post-secondary students will drop out (Bowker, 1993). The high drop-out effect results in only nine percent of Native Americans obtaining a Bachelor's Degree or higher compared to 20% of the general population (Pavel, et al., 2000).

Academic attainment discrepancies exist at a more local level as well. According to the Department of Public Instruction Wisconsin Information Network for Successful Schools (WINSS) data analysis, in 2010-11, 11.05% of Milwaukee Public School district's American Indian/Alaskan Native high school students dropped out compared to 6.71% of all students. This also contrasts with the state-wide American Indian/Alaskan Native high school dropout rate of 4.79%.

Dropout rates are not the only evidence of academic attainment discrepancies. Rather, discrepancies are illustrated through standardized testing as well. Statewide testing shows a large gap between AI/AN students scoring proficient and advanced on the Wisconsin Knowledge and Concepts Examination (WKCE) as compared to all students

and White students. The proficiency gap continues to widen along racial lines the further along in schooling students advance. Furthermore, with a greater percentage of American Indian/ Alaskan Native students dropping-out along the way, as compared to other students, there is likely a greater discrepancy between groups in achievement than what is represented through the WKCE results. Table 1 below expresses the gap in proficiency and advanced scores of the WKCE. At every grade level, in each of the subjects, a lower percentage of American Indian/Alaskan Native students than White students or All students combined attain proficient or advanced scoring on the WKCE. Furthermore, American Indian/Alaskan Native students have a larger decrease in the percentage of students attaining proficient or advanced scoring from grade four through grade ten; for example, in the math subject exam 16.6% fewer American Indian/Alaskan Native students obtained a scoring of proficient or advanced at grade ten than did at grade four, while for White students there was only a 6.4% decrease in the number of students scoring proficient or advanced on the WKCE math subject exam from grade four to grade ten.

Table 1.

Percent of Students Scoring Proficient or Advanced on Wisconsin Knowledge and Concepts Examinations (WKCE's) During the 2010-11 School Year by Race

	Reading			*Math*			*Science*		
	AI/AN	All	White	AI/AN	All	White	AI/AN	All	White
Grade 4	77.7	83.1	88.5	71.3	79.4	85.3	70.0	77.6	84.1
Grade 8	81.2	86.5	91.0	67.9	78.3	85.0	68.6	77.4	84.2
Grade 10	68.6	74.7	81.6	54.7	70.9	78.9	60.8	74.0	82.0
Decrease	9.1	8.4	6.9	16.6	8.5	6.4	9.2	3.6	2.1

Source: http://data.dpi.state.wi.us

The American Indian/Alaskan Native student test score gap is not a new phenomenon, nor is American Indian parental dissatisfaction with the way traditional public schools serve—or fail to serve—their students as demonstrated by the creation of schools aimed at serving American Indian students specifically. Emerging out of the era of self-determination, American Indian private schools, tribal schools (schools operated and funded by the tribe), as well as magnet schools[2], have arisen as alternatives to traditional public schooling. For example, in Milwaukee, American Indian parental dissatisfaction resulted in the creation of the Indian Community School (Krouse, 2003). Founded by three American Indian mothers who were displeased with the public school system for their children, Indian Community School (ICS) began in the fall of 1970 in a living room with ten students. The school continued to gain in enrollment and a convergence of American Indian Activism and education occurred on August 17, 1971. Under the auspices of the 1868 Treaty of Fort Laramie, the Milwaukee chapter of the American Indian Movement (AIM) staged a takeover of the abandoned Coast Guard Station on August 14th. Several of the women involved with Indian Community School were also active in the Milwaukee AIM movement and they began holding children's Indian craft and storytelling classes at the Coast Guard Station four days into the occupation. As September approached, they decided to move the school into the Coast Guard Station enrolling 40 students, which grew to 70 students by the end of November. The school legitimized the occupation giving it a purpose rather than merely taking over the facility as an act of civil disobedience (Krouse, 2009).

[2] Magnet schools are public elementary and secondary schools with a specific focus (i.e. performing arts, technology, language immersion, gifted & talented). There are no entrance criteria but magnet schools typically aspire to serve a diverse population (Magnet Schools of America, 2013).

While ICS remains privately funded, other American Indian schools are taking advantage of charter school legislation in the wake of a temporary moratorium on any new BIA educational programs issued by Congress in 1995. Nah Tah Wahsh Public School Academy (a.k.a. Hannahville School) in Wilson, MI was established in 1976 to address the unique needs of the students of their community and was converted to a charter school in 1995 (Oppenheim, 2009). During the conversion to a charter school, a childcare facility was added to the school enabling parents that otherwise may not be able to continue their education.

ICS and Nah Tah Wahsh Public School Academy are just two examples of the demonstrated dissatisfaction with traditional public schooling for American Indian children that also illustrate the sort of culturally based alternatives students, families, and communities often seek. While these examples are demonstrated to be effective by their continued operation, there is little experimental research on the effectiveness of culturally based education (Demmert & Towner, 2003).

Additionally, there is a lack of measurement of the extent of the use of Indigenous culture in the classroom and the relationship to American Indian/Alaskan Native academic success on a national level. In 2005, the National Center for Education Statistics (NCES) in conjunction with the National Assessment of Educational Progress (NAEP) testing conducted the National Indian Education Study (NIES). A nationwide study, the NIES sought to gather data on the educational experience of American Indian and Alaskan Native students.

Purpose of the Study

As indicated previously, there is a growing body of literature identifying what aids and/or hinders American Indian/Alaskan Native student achievement, and education through Indigenous culture is the preferred direction of many AI/AN communities. However, there is a dearth of research examining the relationship between the use of Indigenous culture in the classroom and achievement of AI/AN students. The purpose of this current study was to examine if Indigenous teachers used AI/AN culture in the classroom to a greater extent than non-Indigenous teachers. Additionally, this current study sought to examine if there is a relationship between student reported academic achievement and the extent of the use of AI/AN culture in the classroom. The 2005 NIES database was used to analyze these inquiries.

Research Questions

The following three questions were investigated:

1. Is there a difference in the extent of AI/AN culture used in the classroom between Indigenous teachers and non-Indigenous teachers?
2. Is there a relationship between the student reported academic achievement of AI/AN students in mathematics and the extent of the use of AI/AN culture in the classroom?
3. Is there a relationship between the student reported academic achievement of AI/AN students in reading and the extent of the use of AI/AN culture in the classroom?

Significance of the Study

American Indian students comprise approximately one percent of the total student population in the United States. Although this percentage is small relative to the larger student population of all students in the United States, the school age population of American Indian/Alaskan Native students is 597,094 (National Center for Education Statistics (NCES), 2012). This number is deflated as it only accounts for AI/AN students with one racial classification only, this discounts AI/AN students who are more than one race.

Perseverance and dedication of Indigenous activists, educators, and researchers have made policy makers cognizant that improvement of Native Americans' academic achievement is critical to the future of Indian communities (White House conference on Indian education. Final Report. Executive Summary, 1992). The attainment of higher education for Native people paves the way for the ability to self-determine and reverse the legacy of social and legal tribulations that Native people face and combat on a daily basis due to the historical ramifications of federal policies of termination and assimilation (National Indian Education Association [NIEA], 2012).

Research on American Indian students has focused on the innate qualities of the American Indian students' familial and socio-economic background (Coutinho, Oswald, & Best, 2002; Greenbaum & Greenbaum, 1983; Kaufman, Bradby, & Owings, 1992; Reardon, 2011) and learning styles of American Indians (Backes, 1993; Chrisjohn & Peters, 1989; Diessner & Walker, 1989; Dumont, 1972; More, 1987, 1989; Wauters, Bruce, Black, & Hocker, 1989). Although student identification with culture and academic achievement has been studied (Willeto, 1999), there yet exists a national level

quantitative analysis on the use of culture in the classroom and the relationship to the academic achievement of American Indian/Alaskan Native students.

Legislation, such as PL 103-382 passed in 1994, requires schools to meet the academic and cultural needs of AI/AN students. Parents and activists argue those needs are still not being met for many AI/AN students. Since 1970 the National Indian Education Association (NIEA) has led efforts to ensure quality education in harmony with the unique cultural and academic needs of Indigenous students. Moreover, the NIEA seeks to preserve and integrate traditional culture, language, and values into curriculum, to provide valuable resources and networks for educators and schools serving American Indian/Alaskan Native populations and to advocate for the reassertion of tribal control over education. This is done with the intention that all students should be educated to become self-determined and active members of their communities. The NIEA works to accomplish these ideas through advocacy, research, and capacity building (NIEA, 2013).

In the 2012 State of Native Education address, NIEA President Roman Nose articulated five priority objectives including: development of focused-strategies for asserting tribal control over education, greater investigation and attention to the specialized needs of urban Native youth, backing cultural and language revitalization efforts, training and supporting Native teachers and educational leaders, and enhancing federal aid and support of Native education initiatives. The work in this study supports all of these objectives as well as the focus of NIEA.

The American Indian and Alaska Native Education Research Agenda (Strang & von Glatz, 2001) reports on the need for research in areas of best practices and reform

models that have demonstrated effectiveness in enhancing academic achievement, the need to incorporate language and culture into schooling, and the influence of the use of Native language and culture within the school on educational attainment. This current research contributes to this call by examining the relationship between the use of Indigenous culture in the classroom and academic achievement. Additionally this current research contributes to the call to exercise sovereignty within the context of "Indian people doing research for Indian people" (Lomawaima, 2000).

This current study examined if teachers of Indigenous ethnicity use culture in the classroom to a greater extent than non-Indigenous teachers, and if the use of culture in the classroom has a relationship to the academic achievement of American Indian/ Alaskan Native students to determine if the emphasis placed on Indigenous culture in educating American Indian/Alaskan Native students to combat educational disparities can be supported through the NIES data. The results of this study may contribute to the already existing research base in the field of American Indian education.

Philosophical Framework of the Study

Sovereignty has been defined as the absolute power of a nation to determine its own course of action with respect to other nations. When the United States government signed treaties with Tribal Nations, it recognized the inherent sovereignty of the tribes. Furthermore, Congress affirmed Tribal Nations sovereignty under House Concurrent Resolution 331 (*Concurrent Resolution 331*, 1988). All of the sovereign powers were once held by Tribal Nations, at no point did Tribal Nations give up their sovereign powers, nor was a great war waged that conquered Tribal Nations, rather treaties were developed between individual Tribal Nations and the U.S. Government allowing the U.S.

Government land while Tribal Nations retained inherent rights and powers. One of the aspects of sovereignty is the ability to exert power to enforce the sovereignty. In the context of American Indian Nations of today Deloria (1996) writes:

> …it has become increasingly clear that the idea of Indian sovereignty is not simply a legal concept. Numerous references to sovereignty cite the notion of a distinct people, separate from others, as the chief characteristic of Indian sovereignty indicating that so long as the cultural identity of Indians remains intact no specific political act undertaken by the United States government can permanently extinguish Indian peoples as sovereign entities (pp. 25-26).

With the historical government policies of assimilation and termination many Tribal Nations have been faced with culture loss, the very essence of what defines Tribal Nations and peoples as distinct, and thus sovereign. Wilkins (2002) speaks to this idea when he wrote, "Tribal sovereignty is the intangible and dynamic cultural force inherent in a given Indigenous community, empowering that body toward the sustaining and enhancement of political, economic, and cultural integrity" (p.339).

Linda Tuhiwai Smith (1999) articulated the need to decolonize methodologies and to define an "Indigenous Research Agenda" that aims to replace the Western academic methods. Indigenous scholars such as Shawn Wilson (2008) and Margaret Kovach (2009) have begun to articulate and provide examples of an Indigenous methodology. Cornel Pewewardy (2005) voices the ideology of "post-AIM" scholarship, which rejects the canon of the academy and seeks to create a discourse for Indigenous peoples; "This scholarship is unapologetically partisan" (Pewewardy, 2005, p. 150).

The author of this current study aligns with these perspectives on research and normally produces work that is for the use of American Indian communities and entities and not intended for sharing with those outside of these communities unless the communities who retain ownership deem it appropriate to do so. This current study, while still essentially conforming to the Western paradigm of a research study and produced for an academic audience, is still done with the intent of privileging the work of Indigenous knowledge and as a small expression of sovereign rights.

Organization of the Study

Chapter One provided the reader with an introduction, statement of the problem, purpose of the study and research questions. The significance of the study and philosophical framework which raised issues of Tribal Sovereignty followed.

In Chapter Two, the literature review begins with key points in federal involvement in AI/AN education that have set up policies and practices in the relationship between tribal entities and the federal and state governments. This is followed by a continuation of the examination of the status of AI/AN student academic achievement. Research on learning styles suggests that there is an incongruency between AI/AN preferred learning styles and the methods used in traditional schooling, however there is little evidence that the research has been effective in remediating the achievement gap. Multicultural education is also discussed as a means of effecting an improvement in academic success of AI/AN students, and a rationale for why multicultural education does not fully address the context of AI/AN education is articulated. This is followed by successful examples of education grounded in Indigenous culture.

Chapter Three articulates the goals and approach of the study and the research questions, explains the NIES survey, and explains the study procedure. While Chapter Four presents the findings of the study and responds to the three research questions.

Chapter Five discusses the findings of the study. A discussion of the implications for the education of AI/AN students in context of the findings and a possible means of being able to use culture as the mode of education as an expression of Tribal Sovereignty as well as the federal government honoring it's Nation-to-Nation obligations is presented. Additionally, proposed recommendations for consideration for future NIES studies are articulated and limitations of the study are identified.

The appendix includes the specific NIES questionnaire items used to create the "extent of culture use" construct used in the analysis.

CHAPTER TWO: LITERATURE REVIEW

This literature review will provide the reader with a historical synopsis of some major points in federal involvement in AI/AN education and the effect federal AI/AN education policies have on the current status of academic achievement for AI/AN students, in particular the results of the past five administrations of the NAEP mathematics and reading assessments will be reviewed in comparison to students of other ethnic backgrounds. As it has been hypothesized that the lower achievement of AI/AN students is due to differences in their culture juxtaposed to the dominant culture, research on learning style differences is highlighted. Then a broad look at the five approaches of multicultural education as articulated by Sleeter and Grant (1988) is presented, as well as why their framework fails to fully account for the AI/AN experience. The literature review will conclude with successful examples of education grounded in Indigenous culture.

Federal Involvement in American Indian/ Native Alaskan Education

Pre-contact

Prior to contact, Indigenous tribes living on Turtle Island[3] had systems of education that were in harmony with their belief systems and provided a purpose and place to each member of the tribe (Pewewardy, 2005). Indian children were traditionally educated by working with and imitating their elders (Haig-Brown, 1988). Children ventured freely throughout the community, dependent on cultural norms of the tribe,

[3] Turtle Island is a term used by some American Indian Tribal Cultures, for example the Iroquois and the Anishinaabe, in reference to North America. For the Iroquois, the term emanates from their origin story of Sky-Women falling to the earth. The term is used here to emphasize pre-contact context.

children may have either asked questions or simply observed. Skills were acquired by working alongside adults, helping in small ways to gain confidence and ability (Haig-Brown, 1988). The children would mimic the activities, conversations, and manners and acquire socially acceptable behaviors and roles. Ceremonies would help to transition youth into adulthood. Education in this manner prepared children for life, their roles in society were determined, and the tribal culture was passed on from generation to generations (Carney, 1999).

European Contact

Since contact, these traditional ways of situating youth to their purpose and place in the community have been attacked by policies and practices of termination and assimilation. The desire for cheap labor and exploitation of lands and resources is what drove the Europeans to educate the original inhabitants (Adams, 1946). Boarding schools were used to separate children from their tribal communities and culture in attempt to assimilate youth into the individualistic mentality the colonists favored. These colonial assimilationist approaches to schooling devalued Indigenous knowledge and shattered the intergenerational transmission of culture that had been effective for Indigenous communities (Singh & Reyhner, 2013) setting course for "kill the Indian, save the man" federal policies and practices (Adams, 1995), broken treaties (American Indian Movement, 1972), and under/un-funded mandates (Brescia, 1992).

Missionaries held the sole responsibility and supervision of Indian education until 1793 when the President appointed resident agents to take over small educational projects (Adams, 1946). This action was the seed of federalizing Indian education. In 1802 Congress approved annual appropriations "to provide Civilization among the aborigines"

(Adams, 1946) and in 1819 the Civilization Fund Act was established (Reyhner, 1992b; Thompson, 1978). By 1838 the United States government was operating six manual training schools for American Indian children with eight hundred students and eighty-seven boarding schools for American Indian children with approximately 2,900 students (Reyhner, 1992b). The curriculum was orientated towards Christianizing and labor instruction, with students spending a significant amount of the day laboring to maintain the operation of the schools (Adams, 1995).

Pratt's Assimilation Methods of Education

In April 1875 General Richard H. Pratt, a veteran of the Indian Wars, was placed in charge of a group of seventy-two Indian prisoners from several tribes. The prisoners were transported from the plains to Fort Marion, St. Augustine, Florida. This would be a profound event as Pratt instituted policies and practices of education that corresponded with his belief of education, "kill the Indian, save the man," that would later become federal policy. At Fort Marion, General Pratt developed a prison school to acculturate his prisoners into white society immersing the prisoners in white culture. Prisoners were stripped of their clothing, their hair was cut, and they were clothed in military garb. The English language and rudimentary reading and writing were taught to the prisoners, and Christianity was emphasized. Pratt would bring the prisoners out into the community from time to time for further interaction and acculturation to white culture. Although the Fort Marion School came to an abrupt end in 1878 when the War Department determined the prisoners could return west, General Pratt convinced the Secretary of War to allow him to establish an independent Indian school (Huff, 1997). Pratt opened Carlisle Industrial Training School November 1st, 1879. This first off-reservation boarding school

isolated the students from their tribal cultures, banned Native languages, and attempted to fully assimilate the students into the White societies' lifestyle, albeit at a lower social standing (Adams, 1995). A key element to Pratt's system of education was the "outing system" which contracted out student labor to local farmers and other businesses with the students receiving some of the wages earned. This system furthered the indoctrination of white society values by placing the students in living situations with the dominant culture (Adams, 1995).

The practices of stripping culture from the students was put into federal policy with the 1880 Indian Bureau issuing regulations that all instruction must be done in English or the schools would lose government funding (Reyhner, 1992b), the 1885 ban on all traditional religions and ceremonies, and the 1886 regulation requiring all Indian men to cut their hair. Between 1879 and the early 1900's Congress appropriated funds to build 106 off-reservation boarding schools, agreeing that Indian education should be based on Indian assimilation into mainstream society (Huff, 1997). Legalized coercion was used to remove children from the home and keep them in boarding schools from the ages of six to sixteen (Adams, 1995; Huff, 1997), although many children never came back as malnutrition and tuberculosis took the lives of many children (Lomawaima, Child, & Archuleta, 2000).

Shifting From Boarding Schools to Public Schools

In 1914 Congress shifted from support of off-reservation boarding schools to placing Indian children into public schools (Adams, 1995) and in 1919 the closing of boarding schools began (Carney, 1999) resulting in the number of Indian students in public schools outnumbering those in federal schools for the first time in 1920

(Thompson, 1978). However, protest over Indian children attending public schools was raised. In an effort to squelch the protest, Congress passed the Synder Act in 1921 which provided for the subsidizing of Indian students enrolled in public schools (Huff, 1997).

The next significant piece of legislation was the passage of the Johnson-O'Malley Act (JOM) on April 16th, 1934. JOM allowed for the federal government to contract with states to provide for Indian students to be educated in public schools. The Indian Reorganization Act of 1934 in effect repealed the Dawes Act allowing for the stabilization of tribal organizations and stopping the elimination of Indian lands; more pertinent to education, was that it introduced the teaching of Indian history and culture in BIA schools for the first time. Unfortunately, the progressive minded Director of Indian Education, Dr. W. Carson Ryan was replaced by Williard Beatty in 1936 returning to an emphasis on vocational training (Carney, 1999; Szasz, 1999).

Moving Toward Self-Determination

Following WWII, Indian self-determination gained momentum with Indian veterans returning home with a new perspective on the condition of their people. The G.I. Bill was utilized by some veterans to attend college enabling for the furthering of self-determination and reform (Carney, 1999). American Indians enrolled in college in the 1960's in larger numbers (Clark, 1972) and pushed for tribal control over education to a larger degree (Carney, 1999). The push for more tribal control over education was aided by the Senate Special Subcommittee on Indian Education report of November 3, 1969 (more commonly referred to as the Kennedy Report) (Bowker, 1993). The Kennedy Report in essence echoed the Meriam Report of 1928; many of the same problems described in the Meriam Report—poor living conditions, health factors,

misappropriation of funds—were still problems 41 years later (Brookings Institution, 1928; Special Subcommittee on Indian Education, 1969).

In 1972 the American Indian Education Act (P.L. 92-318) provided funding for special programs for Indian children in reservation schools as well, for the first time, provided funds for urban American Indian children attending public schools (Reyhner, 1992b). The Indian Self-Determination and Educational Assistance Act (P.L. 93-638) (The Indian Self-Determination and Educational Assistance Act, 1975) gave federally recognized tribes the authority to contract with the BIA for funding of schools enabling the tribes to determine education programs suitable for their children. These two Acts brought K-12 Indian education under more localized control by requiring committees of American Indian parents to be involved in the oversight and guidance of the special school programs. Furthermore, amendment guidelines also encouraged community-run schools and culturally relevant reforms in curriculum, such as bilingual curriculum materials (Wooocock & Alawiy, 2001). The American Indian Education Act was reauthorized in 1988 as Title V and in 1994 as Title IX (Indian, Native Hawaiian and Alaskan Native Education) as part of P.L. 103-382, the Improving America's Schools Act of 1994. Title IX provided for a legal need of schools with more than 10 American Indian students to provide culturally relevant material (Franklin & Waukechon, 1995).

President George H. G. Bush appointed an Indian Nations At-Risk Task Force in 1990 to study the status of American Indian Education (Bowker, 1993). It has been more than two decades since the Indian Nations at Risk Task Force (1991) recommended reforms for schools that educated American Indian/ Alaskan Native students, but many of the task force recommendations have yet to be implemented. Ten of the

recommendations by the Indian Nations at Risk Task Force (1991) that remain pertinent today include: (1) "integrate the contemporary, historical, and cultural perspectives of American Natives, (2) "develop, recruit, and retain top-quality teachers and administrators, (3) "welcome parents, tribal leaders, and other members of the community as partners. Show them how to become involved in their children's education, (4) "help students explore the connection between what they learn in school and what they need to know to experience productive and satisfying lives, (5) "promote tribal/community responsibility and accountability for the education of all students, (6) "establish tribal/community education plans that define the purposes of education and outline the goals and strategies necessary to carry out those purposes, (7) "appoint tribal leaders to work directly with local and state agencies to promote the tribe's education goals and to ensure the representation of these goals in local education plans and initiatives, (8) "give the principals direct authority and responsibility for building partnerships and improving schools, (9) "allocate specific funding for schools serving Native children to develop and use linguistically, culturally, and developmentally appropriate curricula, and (10) "enact legislation that implements Title I of P.L. 101-477, the Native American Languages Act of October 30, 1990, in public schools" (pp. 24-27).

The report was the impetus for Executive Order 13096 signed by President Clinton on August 6, 1998. E.O. 13096 finally recognized the obligation the federal government has to Indian education, reading:

> The Federal Government has a special, historic responsibility for the education of American Indian and Alaska Native students. Improving educational achievement and academic progress for American Indian and Alaska Native students is vital to

> the national goal of preparing every student for responsible citizenship, continued learning, and productive employment. The Federal Government is committed to improving the academic performance and reducing the dropout rate of American Indian and Alaska Native students (Clinton, 1998).

In addition to other mandates, E.O. 13096 specifically required the (1) establishment of baseline data on academic achievement and retention of AI/AN students; (2) the evaluation of promising practices used with those students; and (3) the evaluation of the role of native language and culture in the development of educational strategies. E.O. 13096 was reauthorized as E.O. 13336 by George W. Bush in 2004 and essentially reiterated the calls made in E.O. 13096.

In 2005, the National Center for Education Statistics (NCES) conducted the National Indian Education Survey (NIES) for the U.S. Department of Education with support from the Office of Indian Education. The study was in response to Section three of E.O. 13336 which called for "…the compilation of comprehensive data on the academic achievement and progress of American Indian and Alaska Native students toward meeting the challenging student academic standards of the No Child Left Behind Act of 2001…[and] assessment of the impact and role of native language and culture on the development of educational strategies to improve academic achievement." The NIES survey data collected for the first time offers the ability to examine the relationship of culture to academic achievement for AI/AN students.

To understand the significance of this exploration, the reader must understand the impact—and lack of impact—of these policies thus far on the success of AI/AN students. The federal policies of the last half century to right the wrongs of the attempts at

deculturization of Indigenous peoples for the past millennia have largely proven ineffective in translating to academic success for AI/AN students. The following section will highlight the current status of AI/AN student achievement as measured through graduation rates and performance on standardized achievement tests.

American Indian/Alaska Native Student Achievement

As identified earlier in the background of the problem, there is a history of AI/AN student underachievement in traditional schooling. This achievement gap will be further illustrated here through recent graduation rates as reported by the most current annual Editorial Project in Education (EPE) Research Center findings and by examining the National Assessment of Education Progress (NAEP) trends for the last five administrations.

One-fourth of all public high school students fail to graduate in the United States (EPE Research Center, 2013b). Approximately seven in ten Latino/a students and six in ten Black students will graduate nationwide, while American Indian students have about a fifty-fifty chance of graduating nationwide. Nearly eight in ten White students will graduate high school. Depending on where in the United States a student of color resides, there may be even larger disparities in graduation rates between students of color and White students. For example, in Iowa, 84.9% of White students graduated in 2010, while only 66.9% of Latino/a students and 59.4% of Black students graduated; even more disheartening, the graduation rate for American Indian/Alaskan Native students in living in Iowa in 2010 was 28.9% (EPE Research Center, 2013a).

The failure rate of American Indian students in traditional Euro-educational[4] institutions is well documented. Some of this documentation has already been shared with the reader, another source of documentation comes from the National Assessment of Educational Progress and National Indian Education Study results. The 2011 National Indian Education Study (NIES) reported 4th and 8th grade American Indian/Alaskan Native (AI/AN) students had lower average score in reading and math than the average of all other students in the nation and a higher percentage of American Indian/ Alaskan Native students failed to reach the basic level of achievement than all other students.

The congressionally mandated National Assessment of Educational Progress (NAEP) began in 1969. This national assessment provides a standard to gauge the effectiveness of educational progress (Goldenstein, 2006). Looking at the trend of the last five administrations of the mathematics and reading assessments with fourth grade students, AI/AN students were among the lowest performing students. Despite the fact Black students have a lower average scale score on the 4th grade mathematics assessment, they demonstrate a statistically significant gain in the average scale score from 2005 to 2013 (220 to 224); likewise Hispanic students demonstrate a statistically significant gain in the average scale score from 2005 to 2013 (226 to 231). Meanwhile AI/AN students did not demonstrate a statistically significant gain, and in fact had declines in scores from 2009 to 2011. Furthermore, AI/AN students are the only ethnic group that does not

[4] Euro-educational institutions refers to the typical perspective of what American society views as a school. In the United States, beginning with the colonial schoolhouse (students sitting at a desk with a teacher at the front of the room with a blackboard and students with their slates). As schooling progressed in the United States the common school would reflect schools that have hierarchical school organizations (e.g., state education agencies headed by a superintendent, schools headed by a principal, and classroom teachers), (2) represent a consolidation of small school districts into a large school district, (3) standardization of educational methods and instruction (McNergney & McNergney, 1995, 2004).

follow a continuing growth trend line in mathematics at the fourth grade level (see figure 1).

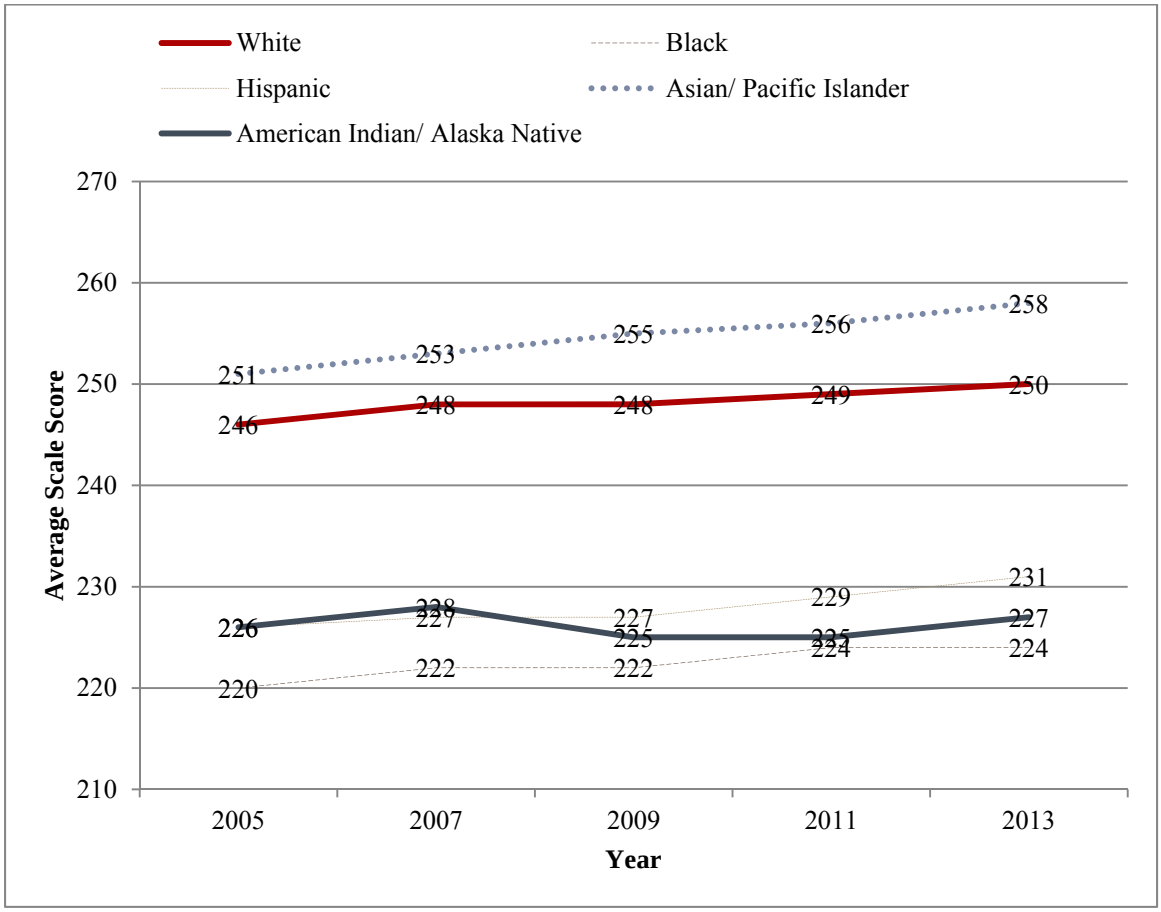

Figure 1.

Average Scale Score on NAEP 4th Grade Mathematics Assessment by Race and Year of Testing

Source: NAEP Data Explorer http://nces.ed.gov/nationsreportcard/naepdata/

The results of the reading assessment over the same period of time demonstrates that AI/AN students were outperforming Hispanic and Black students in 2005 with an average scale score of 204 but declined to the lowest scoring ethnic group in 2013 with an average scale score of 205. Hispanic and Black students demonstrated a continuing

growth trend line in reading over the time period, while the average scale score of AI/AN students rises and falls over the time period (see figure 2).

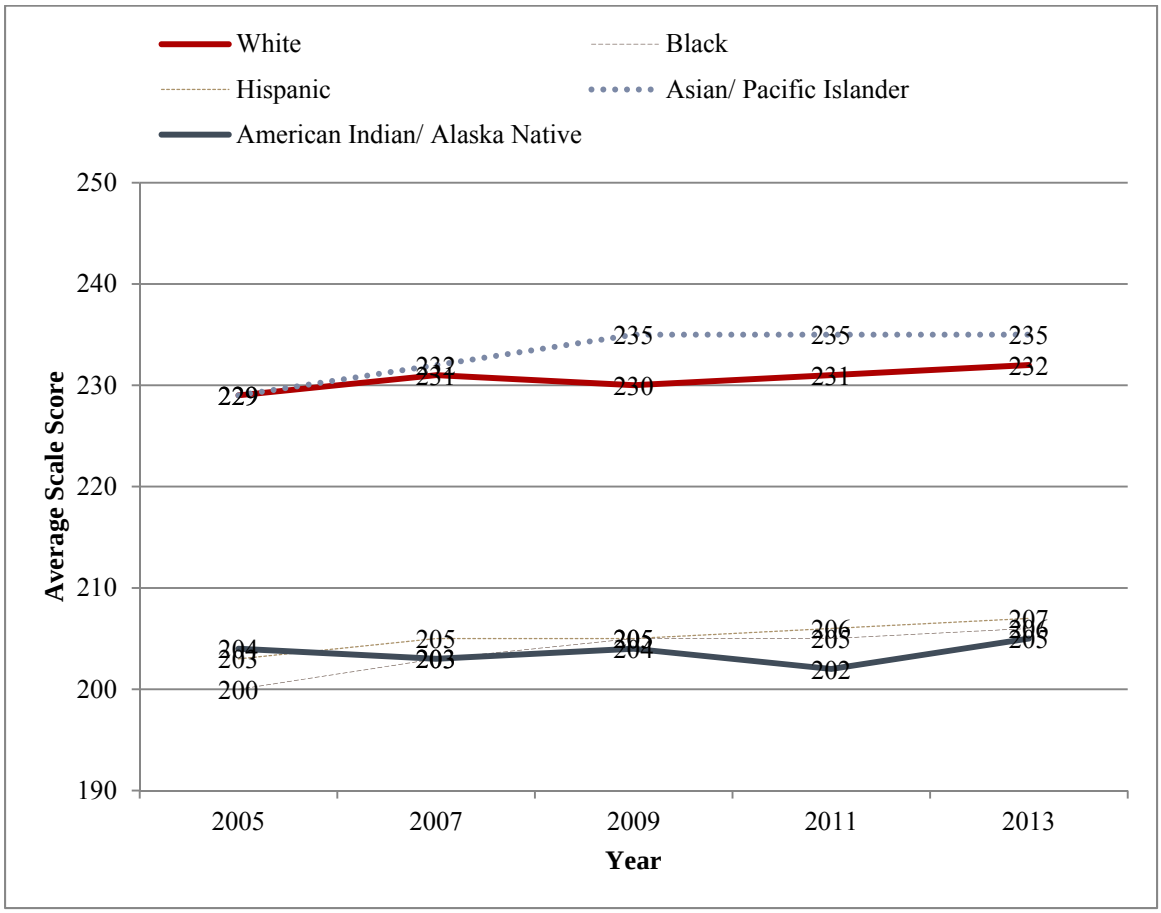

Figure 2.

Average Scale Score on NAEP 4th Grade Reading Assessment by Race and Year of Testing

Source: NAEP Data Explorer http://nces.ed.gov/nationsreportcard/naepdata/

Worthwhile to note is the significant gap between the average scale scores of AI/AN, Hispanic, and Black students in comparison to the average scale scores of Asian/ Pacific Islander and White students. This gap remains substantial throughout the time periods for both mathematics and reading.

In the next section of this chapter, the reader will be introduced to a body of literature articulating factors that impede or aid AI/AN students in their academic success (Brayboy & Castagno, 2008, 2009; Brown & Robinson Kurpius, 1997; Browne, 1984; Cattey, 1980; Cazden & John, 1971; Coladarci, 1983; Dehyle, 1992; Demmert & Towner, 2003; Dodd, Garcia, Meccage, & Nelson, 1995; Erickson & Mohatt, 1982; Fox, 1992; Gipp & Fox, 1991; Huffman, Sill, & Brokenleg, 1986; Jordan, 1984; Kleinfeld, 1973, 1975, 1979; Leveque, 1994; Lipka, 1994a; Lipka & Adams, 2004; Lipka & McCarty, 1994; Little Soldier, 1989; Pepper & Henry, 1986; Powers, 2006; Reyhner, 1992b; Reyhner, Lee, & Gabbard, 1993; Rindone, 1988; Tharp, 1989; Vogt, Jordan, & Tharp, 1987; Ward, 2005; Watahomigie & McCarty, 1994; Wauters, et al., 1989; Wax & Wax, 1964; Willeto, 1999; Wooocock & Alawiy, 2001; Yazzie, 1999). In light of this current discussion of research that quantifies the struggle for academic success, it is important to note that there is a theme in the literature indicating the need for the use of Indigenous culture to successfully teach American Indian/Alaskan Native students.

Although this large body of work suggests the use of culture is important to AI/AN student academic achievement, the 2009 NIES suggests that with the exception of a small percentage of teachers, the use of AI/AN culture in the classroom is very low. Only three percent of fourth grade teachers reported integrating reading/language art lessons and materials with AI/AN culture and history "every day or almost every day" (Mead, Grigg, Moran, & Kuang, 2010). The integration of AI/AN culture and history with mathematics lessons was even less, with only one percent of grade four teachers reporting they did so "every day or almost every day" (Mead, et al., 2010). Figures three and four illustrate the percentage of use of various methods of incorporation of culture

into reading/language arts and mathematics. Considering figure three, the most frequent response to frequency of use of methods is "at least once a year," with the exception of having students write about their own experiences as an AI/AN person which the majority of teachers (48%) indicated they never have the students do so (see figure 3).

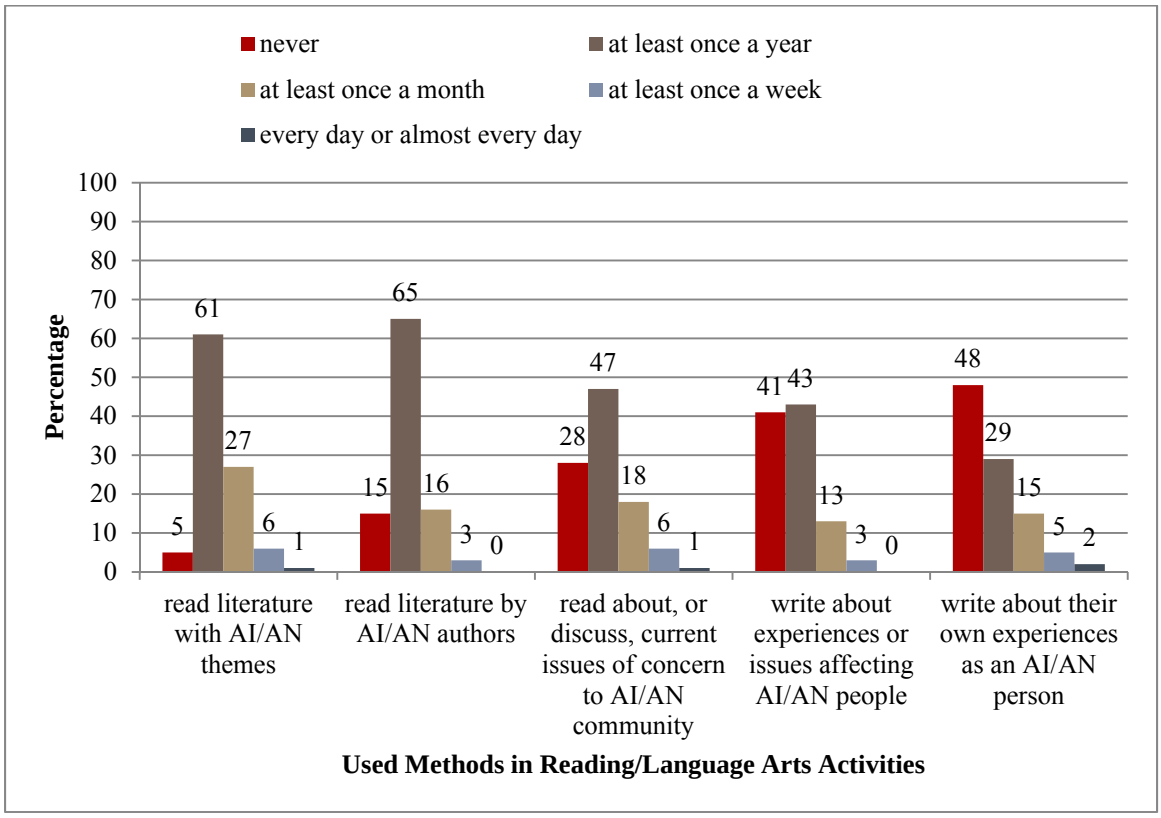

Figure 3.

4th Grade Teacher Frequency of Use of AI/AN Culture in Reading/Language Arts Activities

Figure 4 on the following page illustrates the frequency of integrating AI/AN culture into the teaching of mathematics is insignificant. Teachers overwhelming respond that they "never" use the methods identified.

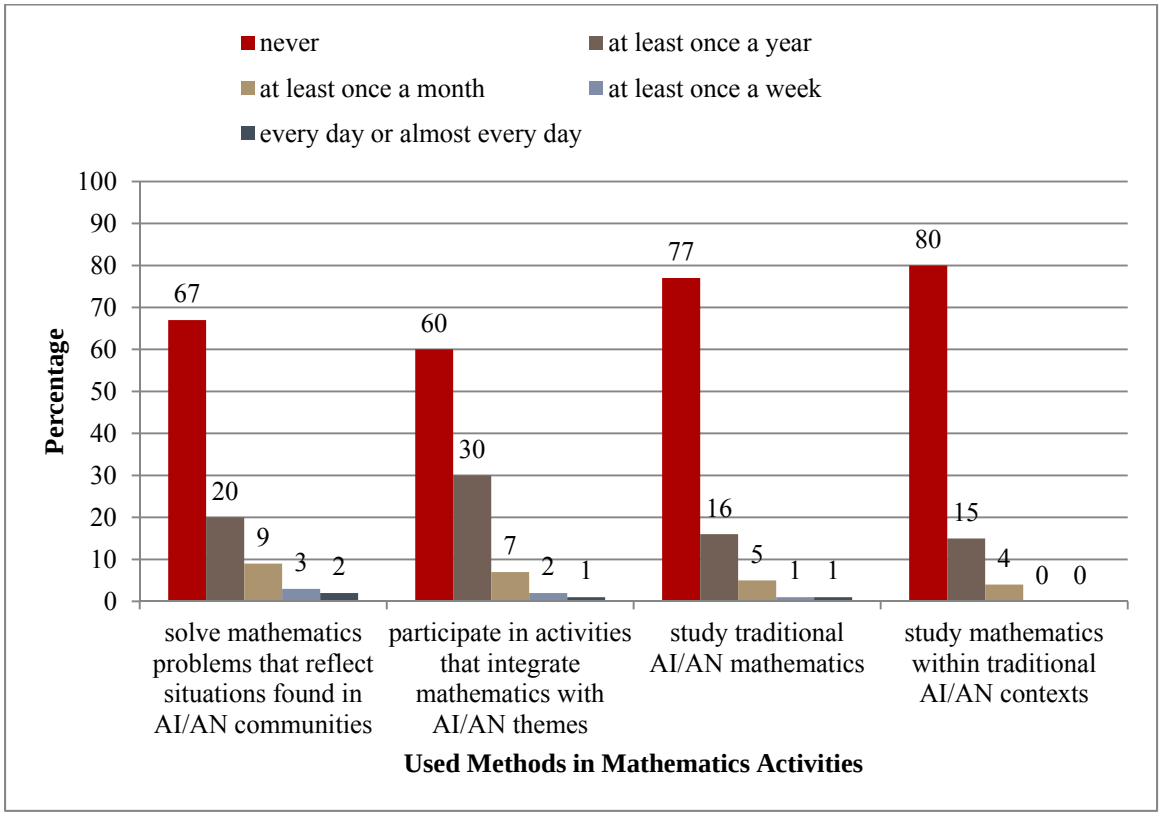

Figure 4.

4th Grade Teacher Frequency of Use of AI/AN Culture in Mathematics Activities

The responses of teachers as to the use of AI/AN culture coupled with the low level of student performance on the NAEP assessments might be suggestive of a relationship between the two; however this has not yet been examined. Rather, a significant amount of research has focused on the differences of AI/AN students in comparison to students of the dominant culture as to potentially why achievement gaps occur. Much of the research has focused on differences in learning styles or cultural dissonance with the dominant culture. The following highlights some of the work done in this area.

Cultural Incongruence With Privileged Styles of Learning

Discussion regarding the incongruence of the traditional schooling experience and American Indian/Alaskan Native students' preferred learning styles has dominated American Indian education research (Martin, 1978). Prior to European contact, Indian children learned through observation, imitation, and experience (Haig-Brown, 1988), learning practices still common to many American Indian communities. This contrasts with a more direct form of instruction evident in many dominant culture homes, in which parents often give very direct instruction/guidance consistent with cultural practices. Thus students of European descent have been raised and instructed at home in the manner that they will most likely encounter in school when instructed by teachers of shared cultural teachings. Jordan and Tharp (1979) refer to this as the combined informal education and non-institutional formal education which prepares the student for institutional formal education. However, not all children experience the same value systems and teachings that are valued in traditional Euro- educational institutions.

The values, customs, activities, and child-rearing practices of the home all directly affect how a child learns (Bearcrane, Dodd, Nelson, & Ostwald, 1990; Jordan, 1984; Pepper & Henry, 1986; Swisher & Dehyle, 1989). Often early learning experiences of American Indian children are encoded with cultural values that come in conflict with the practices and values of the dominant culture classroom (Erickson & Mohatt, 1982; Greenbaum & Greenbaum, 1983; Vogt, et al., 1987). As an example, in many tribal cultures respect is demonstrated by avoiding eye contact and a soft handshake, this is in direct opposition to the dominant culture where the avoidance of eye contact is considered disrespectful or a demonstration of dishonesty and a soft handshake

designates one as being weak (Klug & Whitfield, 2003). Learning strategies American Indian children acquire in early life which conflict with dominant culture classrooms can be categorized as visual vs. verbal, cooperative vs. competitive learning, brain dominance, reflective observation vs. active trial-and-error, holistic vs. parts, and time-generous rather than time-driven, which are all discussed further below.

Visual vs. Verbal

Learning through observation (visual learning) and imagery are the common means of transmitting knowledge and culture in American Indian cultures (Bennett de Marrais, Nelson, & Baker, 1992; Cazden & John, 1971; Greenbaum & Greenbaum, 1983; More, 1987; Suina & Smolkin, 1994; Swisher & Dehyle, 1989; Tafoya, 1982; Wolcott, 1967). Little verbalization occurs during this transmittal; children are around the adults throughout the daily activities and quietly absorb the activity and interactions occurring. This way of knowledge acquisition has resulted in strong visual perception skills (Berry, 1966, 1971; Diessner & Walker, 1989; Greenbaum & Greenbaum, 1983; Kleinfeld, 1973). In contrast, the dominant White society relies heavily on verbal interaction to transmit information as demonstrated through the typical lecture format of instruction.

Many American Indian cultures value the tolerance of silence and respect for reserve. The dominant culture often perceives silence as a negative. In many American Indian cultures silence communicates mutual respect and a sense of unity; silence and nonverbal forms of communication are greatly valued (Boseker & Gordon, 1983; Hoeveler, 1988; Sanders, 1987). Unfortunately for American Indian students in the traditional Euro-educational classroom silence is often interpreted as shyness at best or a lack of motivation or a lack of involvement at worst (Reyhner, 1992b; Reyhner, et al.,

1993; Yates, 1987). The teacher that is interpreting silence as an uninvolved student often enact punitive actions through disengagement with the students, misinterpreting skill and knowledge ability, and giving poor grades (Reyhner, 1992a).

Reflective observation vs. active trial-and-error

American Indian learning styles have sometimes been described as reflective, rather than impulsive (More, 1987). Many American Indian children have been taught in their homes that to learn, one is expected to observe and reflect for some time and achieve a sense of mastery before participating in the activity (Bennett de Marrais, et al., 1992; Cazden & John, 1971; Dumont, 1972; Erickson & Mohatt, 1982; Sanders, 1987; Swisher & Dehyle, 1989; Wolcott, 1967). This serves two purposes: (1) the child is allowed to "save face" by not having to publicly demonstrate a skill before they have acquired mastery and (2) the time that the child is spending in observation is also time that stories are shared that instruct the child in culture and values. The typical classroom exhibits a "trial-and-error" method of learning in which skills are practiced until they are mastered which is in direct contrast to the reflective learning style valued by many tribal nations. The hesitancy a Native student may express to "jump in" may often be misinterpreted as lack of engagement by teachers, when in actuality it is a cultural discontinuity; the Native student may not wish to demonstrate a skill that they have not had time to practice in private. This is also reflected through the typical question and answer sessions in the classroom. Reluctance of Indian students to respond verbally to classroom questions is thought to be due to an often too short wait-time, not allowing time for reflection by the students (Boseker & Gordon, 1983). The typical wait-time, the period of silence a teacher allows after asking a question and the students' completed

response, rarely last more than 1.5 seconds (Stahl, 1994). However, when teachers increased wait time to three seconds students demonstrated an increase in number and length of responses (Gooding, Swift, & Swift, 1983).

Cooperative vs. Competitive

Many Indian cultures place a high value on cooperation, sharing, and contributing to the group versus individual achievements. Furthermore, demonstrating superiority is looked down upon because in doing so one is accentuating the inferiority of another (Reyhner, 1992b). Thus, cooperative rather than competitive learning is a learning style preference of many American Indians (Gilliland, 1988; Reyhner, 1992a; Sanders, 1987; Swisher & Dehyle, 1989); Cooperative learning experiences are generally the antithesis of the competitive classroom atmosphere which is the convention in many schools. Classroom learning is generally competitive and "me" directed as opposed to cooperative and "we" directed (St. Clair, 2000). School practices conflict directly with the values encouraged and appreciated within AI/AN homes and communities.

According to Kleinfeld (1979), classroom teachers are most effective with Indian students when they share social control and use warmer and more personal teaching styles. Tierney (1992) indicated teachers were most effective when they situated themselves as co-learners with Indian students. By arranging the learning process in a culturally compatible manner and using small student-led groups, the level of participation of Indian students in classrooms was highest, but when the learning was teacher directed and presented in lecture format, the participation dropped.

Time-generous rather than time-driven instruction

The phrase "on Indian time" has been misconstrued and is used derogatorily to mean that Native peoples aren't able to keep to a schedule (Swisher & Dehyle, 1989), but this reasoning is based on a time-driven perspective. Rather, Native people tend to view time in a different perspective. Things are done when it is *right* to do them; *right* is contextual and dependent on interactions and relationships that are interconnected. Because of this, American Indian students are sometimes unprepared for the compartmentalized time structure which schools operate on (Bowker, 1993; Swisher & Hoisch, 1992).

Holistic vs. parts

Gilliland (1988) and Rhodes (1988) indicate American Indian learning styles tend to be global, intuitive and (w)holistic; commonly reflected through looking at the whole and then the parts—or what is referred to as "whole concept learning" (Davidson, 1992). Whole concept learning is often in contrast to the typical classroom in which all the little parts are first learned and then built into the whole. Kasten (1992) and More (1987) suggest that the reading difficulties of some American Indian students is due in part to the "parts vs. whole" style of learning reflected in phonics based reading programs. Phonics uses the approach that individual letters are corresponded to their sound, built up into letter blends, and then whole words. Using this method the focus is on the individual pieces and the meaning is lost, whereas if the story is known first and the meaning is made clear, the process of breaking down the parts that become the whole has more meaning. Fox (1992) refers to whole language as the "Indian Way" of teaching.

In examining the learning styles of Chippewa students, comparing those that graduated to those who had not, and non-Indian students, Backes (1993) found there was no difference in learning styles between the two groups of Chippewa students. However, in comparing the Chippewa students to non-American Indian students a significant difference in learning styles was found. The Chippewa students tended to score highest on the Gregorc Style Delineator as "abstract random" learners which included a holistic view, aesthetic appreciation, part of a social group, and reflection upon feelings. The non-American Indian group scored highest as "concrete sequential" (described as: orderly, structured, factual, and direction-orientated).

The tendency of many American Indians to see unity and wholeness without building from detail is also reflected in paper assignments. "Most difficult for Indian students," Sawyer (1988) suggests, "is comparison and argumentation because of a more harmonious sense of order that views certain Western cognitive processes (e.g., cause and effect, comparison/contrast, Aristotelian logic) as unnecessarily complicated and even untruthful" (p. 19). This would be reflected in difficulty in composing the typical paper in the linear thesis-support-summary manner expected in institutional schooling.

Brain Dominance

Research has examined the idea that American Indian students are right hemisphere dominant (Cattey, 1980; Ross, 1982). Right brain vs. left brain dominance originated with the work of Roger Sperry. Right brain dominance is associated with creativity, intuition, holistic thinking, etc. while left brain dominance is associated with logic, analysis, sequencing, computation, detail orientation, etc. (Scott, 2005). In a study administering *The Hemispheric Mode Indicator* and the *Learning Style Inventory* to

Navajo and Hopi high school students, Navajo and Hopi adults, and Navajo, Hopi, and Anglo adults teaching in reservation schools, Rhodes (1990) confirmed that Navajo and Hopi students tended to be right brained; however, while Navajo parents also tended to be right brained, Hopi parents tended to be left brained. Chrisjohn and Peters (1989) argue the evidence about right-brain dominance is inconclusive and curriculum favoring it should not be developed.

Learning style research for AI/AN students has raised some valid incongruencies between traditional Euro-educational institutions and preferred learning styles of Indigenous students. Lomawaima & McCarty (2006) caution learning style research could reduce Indigenous learners to one-dimension; with the varied cultures of over 500 Tribal Nations and the varied backgrounds of students, sweeping generalizations should not be made. The prevailing theme of learning styles/ cultural dissonance in American Indian Education literature is dependent on determining the "differences" in Native students and how these differences may be accommodated (Ackley, 2002). This line of thinking is what would be behind Sleeter and Grant's (1988) first approach to multicultural education, "teaching the exceptional and the culturally different."

Ladson-Billings (1992) states there is little evidence suggesting differentiating students by their learning styles produces any significant difference in academic achievement. Perhaps this informs the shift in the focus of literature from learning styles to multicultural education to address the achievement gap of AI/AN students.

Approaches to Multicultural Education

Although there are other frameworks to examine multicultural education, Sleeter and Grant's (1988) framework has been recognized and referenced by other scholars

writing about multicultural education (Banks, 1995; Banks & McGee Banks, 2007; Gay, 1995; Spring, 2008), is in its sixth edition, and has been cited nearly 1,700 times according to google scholar. Although "multicultural education has always contained within it the seeds of critical pedagogy" having grown out of the civil rights movement, it has often been toned-down to be more palatable to the general public (Nieto, 1995). Thus Sleeter and Grant's (1988) presentation of multicultural education articulates the spectrum or continuum of the various forms of multicultural education increasing in the depth of addressing issues of oppression and power relations. In their review of 200 articles and 60 books on multicultural education, Christine Sleeter and Carl Grant (1988) formulated five approaches to multicultural education; these include: teaching the exceptional and culturally different, human relations, single-group studies, multicultural education, and education that is multicultural and social reconstructionist. The following will articulate each of these perspectives.

Teaching the Exceptional and the Culturally Different

Education from the *teaching the exceptional and the culturally different* approach is based on the perspective that there "is a standard body of knowledge and a set of values and skills that all American citizens need to acquire" (Sleeter & Grant, 1988, p. 43). The Anglo-perspective determines the standard body of knowledge and others need to rise up to this level of knowledge. The goal of this approach is to help students fit into the mainstream by acquiring values, skills, and knowledge of the dominant White society. This perspective maintains that American society is basically fine as it is and the main goal of schooling is to assimilate students into it—promoting and protecting White middle-class dominance (Sleeter & Grant, 1988).

Practice of this perspective manifests through two orientations: deficiency and difference (Sleeter & Grant, 1988). Both of these orientations operate on the deficit theory, sustaining that the students are "missing" something and in order to participate on equal footing with the rest of society the teacher needs to get them up to speed.

Sleeter and Grant (1988) maintain that many teachers "believe that those students who do not readily fit because of cultural background, language, learning style, or learning ability require teaching strategies that remediate deficiencies or build bridges between the student and the school" (p. 35). This practice of teaching from the deficit theory perspective Freire (1970) termed as the "banking concept of education," in which the student is an empty vessel and the teacher deposits knowledge. Wax and Wax (1971) refer to this theory of education as "vacuum ideology." The teacher effectively denies the knowledge that the student brings to the classroom since it is not of the dominant culture and instead operates out of belief that the children have been raised in some sort of cultural vacuum devoid of any knowledge.

These ideologies rest on the belief that students outside of the dominant culture of power are somewhat "less-than." Where the two orientations (deficiency and difference) differ is how the deficit is remediated. In the deficiency orientation the focus is on the student and/or the student's living environment as lacking. These students are typically labeled *culturally deprived* and *disadvantaged*. This type of perspective frequently places students in compensatory education as the basic premise is that deficiencies need to be overcome to allow the students to assimilate into the classroom, and later in life, in society (Sleeter & Grant, 1988). While the difference orientation attempts to use the

students' strengths and build upon them, cultural compatibility and learning style theories undergird this approach.

Human Relations

The human relations perspective of education relied heavily on the theoretical work of Gordon Allport's development of prejudice in individuals. Allport's work drew primarily on cognitive development theory and psychoanalytic theory (Sleeter & Grant, 1988). This approach to education grew rapidly out of World War II. During the war many jobs needed to be filled to maintain production for the war; with much of the "normal" workforce of white males oversees serving in the military, people relocated to fill these positions and women and males of color filled these positions.

The prosperity that the war brought to America gave previously poor and people of color a taste of "the good life" and access to the American dream. When the war ended the workers and their families wanted to maintain their new relative prosperity and privileges. Furthermore, war veterans of color came back from their experience with a new perspective and believed they and their people deserved fair treatment. Veterans had been fighting for democracy and freedom oversees but returned home to a lack of it. At the same time, the traditional work force returned from the war wanting to return to their positions. Racial tensions began to rise and intergroup and human relations education was seen as a way to bring about harmony; believing that through the teaching about others, understanding and tolerance will follow (Sleeter & Grant, 1988).

Single-Group Studies

What Sleeter and Grant (1988) term *single-group* studies gained momentum in the 1960s and 1970s on college campuses as students and minority activist groups

challenged the status quo wanting their perspectives and histories to be recognized. Courses and programs of study in single-group studies (e.g.. African-American studies, Native American studies, Women's studies) in which students could obtain majors and minors were developed as a way of counterbalancing the study of white, middle-class males.

Single-group studies highlight achievements of a group, seek to raise the status of the group, and promote social equality of the group. By holding the particular group as worthy of study in itself—as opposed to in relation to the dominant society—students may acquire an appreciation for the group unto itself. Sleeter and Grant (1988) maintain that the single-group studies approach is aimed toward social change, attacking the canon normally taught in schools which served to reinforce wealthy, white, male control. The approach not only serves to empower the group of study, but also to raise understanding within the dominant group of how society functions for their benefit in oppressing others.

The philosophical orientation underpinning single-group studies is the idea that "education is not a neutral process, but is used by government and significant others (e.g., labor and business) for social and political purposes" (Sleeter & Grant, 1988, p. 109). Advocates of this approach argue that education is not neutral (Apple, 1982; Delgado, 1995), rather it is socially and politically mitigated; and, therefore, it is essential that study of the group occurs.

In this perspective, the content that is not taught in schools needs to be examined and considered as much as the content that is taught. Pe'rez (2001) reflects on this:

> … marginalized groups within U.S. culture have been excluded from the production of knowledge and, thus, how what "we" know is subject to revision as

> new information and new groups begin to enter the conversation. Indeed, the main epistemological contribution of ethnic studies is to assert that no one group has theorized reality; we must begin to look at social relations and culture from the vantage point of the marginalized. Once we include marginalized interpreters of the American scene, we must be willing to include sources of knowledge, such as oral history and popular culture, that have been previously ignored (p.65).

Pe'rez's statement is relevant in terms of Indigenous knowledge; there is a lack of acknowledgement and validation by institutions of education of the oral histories and sources of knowledge in Indigenous communities. This dismissal of sources of knowledge outside of the dominant culture continues to marginalize groups outside of the dominant culture. Spring (2004) voices that ethnic studies can be empowering to marginalized groups by having an understanding of the methods of culture domination and by building self-esteem.

Multicultural education that goes beyond a simple appreciation of other cultures is necessary in defining an Indigenous pedagogy. To facilitate student development of pride in personal and cultural identity vital to academic success, schools must truly respect and honor the varied cultures that AI/AN students bring with them (Van Hamme, 1995). The tendency of including Native cultures as an add-on, as something of the past, rather than as vital, contemporary cultures is simply not acceptable. Van Hamme (1995) writes, "Effective multicultural education will respect both the historical and contemporary aspects of a child's culture, validate the realities of the world in which the child lives by recognizing its existence, and using educational methods that build on

cultural strengths and demonstrate how those strengths can be used to benefit both American Indians and the larger society."

Multicultural Education

Multicultural education also began in the late 1960s and grew during the 1970s. Sleeter and Grant (1988) cite Geneva Gay's (1983) description of the intersection of three events that gave birth to the multicultural education approach: the maturation of the civil rights movement, the analysis of textbook content, and reassessment of deficiency orientation. Multicultural education is driven by a vision of "what ought to be", its ideology is "one of social change—not simply integrating those who have been left out of society, but changing the very fabric of that society" (Sleeter and Grant, 1988, p. 139). Sleeter and Grant (1988) go on to explain:

> Advocates of the Multicultural Education approach do not see it as sufficient simply to remove legal barriers to access and participation in schooling. So long as groups do not gain equal outcomes from social institutions, those institutions are not providing equal opportunity. So long as White, middle-class children succeed and leave school with higher achievement scores than other children, so long as disproportionate numbers of boys enter mathematics and science fields and girls enter human service or domestic service after schooling, so long as children leave school seeing White male contributions as most important, schools have not provided equal opportunity (p. 142).

Multicultural advocates argue that society needs to maintain and respect diversity and include the active participation of all cultural groups without having to surrender individual identities (Sleeter & Grant, 1988).

From the time of European contact, much of the educational experience of AI/AN students has been based on policies of surrendering Indigenous identities. It is only in recent history, the last half century, that federal policy on AI/AN education has acknowledged the importance of culture to education for the AI/AN student. Dupris (1979), in reflecting on the importance of the Self-determination and Education and Assistance Act of 1975 in the context of multicultural education for American Indians, indicates that cultural identity and language can be transmitted through the effort of the tribes within Indian controlled and operated school systems; "through the efforts of what is termed multicultural education and bilingual education, American Indians can open the doors to re-discovery and strengthening of their tribal and individual identities" (Dupris, 1979, p. 47) validating the different tribal cultures and world views.

Education that is Multicultural and Social Reconstructionist

The fifth approach articulated by Sleeter and Grant is identified as their preferred approach as it provides for the critical analysis of power relations that was the original intention of multicultural education but had been softened over time (Sleeter & Grant, 2009). This approach deals more directly with issues of "oppression and social structural inequality based on race, social class, gender, and disability" (Sleeter & Grant, 1988, p. 176) than the others. This approach seeks to "prepare future citizens to deconstruct society so that it better serves the interests of all groups of people and especially those who are of color, poor, female, and/or disabled" (Sleeter & Grant, 1988, p. 176). Sleeter and Grant indicate that those who write about this form of education may focus on different aspects (i.e., race, gender, social class) however they consciously named it in such a way that would allow for the study of the intersection of these.

The *education that is multicultural and social reconstructionist* approach (renamed multicultural social justice education in the fifth edition) is based on the perspective that "resources should be distributed much more equally than they are now and that people should not have to adhere to one model of what is considered 'normal' or 'right' to enjoy their fair share of wealth, power or happiness" (Sleeter & Grant, 1988, p. 176). But equally important, the colonized/oppressed need to understand the nature of oppression and develop the skills necessary to work towards decolonization rather than taking on the systems that already exist constructed out of the colonizer/oppressor's reality.

Sonia Nieto's (1992) definition of multicultural education echoes Sleeter and Grant's multicultural and social reconstructionist perspective, but Nieto's definition more fully articulates this as a worldview or a way of being as an educator. Nieto (1992) defines multicultural education as:

> …a process of comprehensive school reform and basic education for all students. It challenges and rejects racism and other forms of discrimination in schools and society and accepts and affirms the pluralism (ethnic, racial, linguistic, religious, economic, and gender, among others) that students, their communities, and teachers present. Multicultural education permeates the curriculum and instructional strategies used in schools, as well as the interactions among teachers, students, and parents, and the very way that schools conceptualize the nature of teaching and learning. Because it uses critical pedagogy as its underlying philosophy and focuses on knowledge, reflection, and action (praxis) as the basis

> for social change, multicultural education promotes the democratic principles of social justice (p. 208).

This definition communicates that multicultural education isn't a unit or a curriculum, but rather a worldview towards schooling and education. Multicultural education in this perspective is not satisfied with only looking at content from multiple perspectives, but rather is action orientated in creating social change. Advocates of multicultural education that is social reconstructionist draw heavily from the work of Dewey and Freire stressing the importance of reflection and participation in democracy to restructure society.

Although education that is multicultural and social reconstructionist has elements that are important to the teaching of AI/AN students, it does not provide a complete framework for informing AI/AN education because it is largely framed around class analysis. Tinker (2004) points out that "class analysis gets in the way of recognizing cultural discreteness and even peopleness." (p. 104) [and] "fails to recognize our distinct personhood" (p. 102). The multicultural education approaches articulated by Sleeter and Grant still do not fully appreciate the nature of Indigenous epistemology and ontology, that is these approaches are still framed in the Western truth and how that truth is known.

Indigenous Knowledge

Even through the assaults on Indigenous culture, AI/AN peoples have sustained their worldviews and knowledge systems which differ from the dominant culture (Barnhardt & Kawagley, 2005). Indigenous peoples have their own ways of considering, interacting with, and relating to the each other, the world, and the universe (Ascher, 2002; Eglash, 2002). Foundational to Indigenous ways of thinking and constructing knowledge

is the interdependency of all things and the importance of place, both physical and metaphysical (Kawagley, Norris-Tull, & Norris-Tull, 1998).

The medicine wheel (a circle in design) is a symbol commonly used to depict the nature of the interconnectedness. The circle is also representative of the concept of no beginning and no end and a visual representation of no hierarchy-- all things are equal (Tinker, 2004). Indigenous people have long been aware of the unseen forces that are at play in the universe; notions of energy conservation, anomalies in systems, and irregularities in patterns (Barnhardt & Kawagley, 1999). An Indigenous understanding of the interconnectedness and holism of our place in the universe has come from centuries of close observation and experience with one's surroundings (Barnhardt & Kawagley, 1999, 2005; Cajete, 2000; Eglash, 2002; Singh & Reyhner, 2013).

The knowledge gained is passed down from generations to generations in story, ceremony, and practice (Ah Nee-Benham & Cooper, 2008). Important to this knowledge sharing is the use of language. When the language is not known it forces elders and spiritual leaders to try and translate the culture and the meaning of the ceremonies and stories to non-native language speakers often losing the meaning and connections of the ceremonies and stories (Tinker, 2004).

Although these principles articulate concepts of Indigenous knowledge, it is difficult to define the different aspects of knowing within an Indigenous context, and a universal definition is not attainable as knowledge making that comes from the sacred is also deeply personal and specific (Battiste & Henderson, 2000). A key aspect of knowledge from the sacred includes the connection to location. Pewewardy (2005) writes, "Indigenous People's culture anchors them to reality and it must be the starting

point for all learning. Therefore, beginning with a tribal-specific, tribal-centered education within the context of familiar cultural and social references, from their own historical settings, is key to fostering educational excellence" (p. 151).

Although many Indigenous elders and scholars know how crucial Indigenous knowledge is to teaching the children and preserving the ways of knowing, the methods of mainstream schools have not appreciated or recognized the importance of interconnections and interrelationships (Barnhardt & Kawagley, 2005; Singh & Reyhner, 2013). Instead mainstream education tends to emphasize decontextualized and compartmentalized knowledge in classroom settings rather than knowledge gained through experience in the natural world in which the relation to the whole is apparent (Kawagley, et al., 1998).

Examples of Education Grounded in Indigenous Culture

Numerous material has been written about the need for culturally relevant instruction and material (Au, 1993; Bonner & Adams, 2012; Davis, 2012; Delpit & Dowdy, 2002; Gay, 2000; Griner & Stewart, 2013; Hollins & Oliver, 1999; Kutsunai & Au, 2013; Ladson-Billings, 1994, 1995; McKinley, 2010; Osbourne, 1996; Shevalier & Mckenzie, 2012; Sleeter & Cornbleth, 2011; Wlodkowski & Ginsberg, 1995), including specific to the American Indian student (Davison & Miller, 1998; Erickson & Mohatt, 1982; Franklin & Waukechon, 1995; Gipp & Fox, 1991; Lipka, Mohatt, & the Ciulistet group, 1998; McEachern, 1990; Vogt, et al., 1987), and is the preferred direction of the Indian community (Skinner, 1999; Yazzie, 1999) with some research suggesting cultural programming is correlated with academic achievement (Powers, 2006). Because there exists over 500 federally recognized tribes, with over 200 different languages (Franklin &

Waukechon, 1995) and just as numerous belief systems (Rains, 2001), it must be recognized that a singular "Native American" curriculum cannot, or more specifically should not, be developed (Brayboy & Castagno, 2009). Each locality should have a curriculum designed to coordinate with its belief systems and needs (Bielenberg, 2000; Lipka, 1989, 1991; Lipka & Adams, 2004; Lipka & Ilutsik, 1995; Tharp, 1989; Vogt, et al., 1987). It is important for the student to be able to take courses that are developed for them from their perspectives, history, and culture (Franklin & Waukechon, 1995).

The Kamehameha Early Education Program (KEEP) is often cited as a successful example that supports locally based culturally relevant curriculum. KEEP was developed for Native Hawaiian K-3 students. The program used research on socialization practices in Hawaiian homes to develop a language arts program which produced significant gains in reading achievement as measured through the Metropolitan Achievement Test and the Reading Vocabulary and Comprehension subtests of the Gates-MacGinitie test (Tharp, 1982, 1989; Vogt, et al., 1987). Although the cultural compatibility of the program seemed to be attributable to the increased achievement, the question of the success could be attributed to the practices developed through KEEP as being good, solid educational practices (Vogt, et al., 1987).

The program was then transported to the Rough Rock Community School on the Navajo reservation to examine whether the practices were simply effective educational practices or if the achievement was due to the cultural compatibility of the program as developed in the Hawaiian context. Many of the strategies that had been developed for the Native Hawaiian students were ineffective and even counterproductive with the Navajo students. For example, while it was culturally appropriate and effective

classroom management to quickly and firmly denounce inappropriate classroom behavior directly addressing the offending student in the Hawaiian context, with the Navajo students this only served to escalate the situation. Also, with the Hawaiian students groups of four or five students collaborating on work was found to be very productive, however while the Navajo students attended to their work; they failed to interact with one another. The researchers learned that in the Navajo culture, children are raised to separate interaction between gender beginning at age eight, thus cooperative group work with mixed genders was inappropriate. It was also found that groups of two or three were most effective in the Navajo culture (Vogt, et al., 1987).

Making these cultural adjustments, as well as others was found to create a much more productive learning experience. Thus Vogt, Jordan, and Tharp (Tharp, 1989; 1987) concluded that cultural compatibility from home to school enhances student success and cultural discontinuity enhances school failure. Continued efforts of locally indigenizing the curriculum by the Rough Rock English-Navajo Language Arts Program (RRENLP), a teacher led initiative, resulted in increased mean scores on English comprehension criterion-references tests from 58% to 91% over four years of the RRENLP initiative (McCarty, 2002).

Another often cited successful example of locally based, culturally relevant curriculum is a project with Yup'ik teachers in cooperation with elders analyzing the everyday life, such as, fish camp, star navigation, story-knifing, etc., to identify the embedded mathematics (Lipka, 1989, 1990, 1991, 1994a, 1994b, 1994c; Lipka & Adams, 2004; Lipka & Ilutsik, 1995; Lipka & McCarty, 1994; Lipka, et al., 1998). Using observations gathered from the cooperative project and input from elders a culturally

based math curriculum was developed and implemented. The results of using the curriculum with sixth graders in one urban district and four rural districts with 97% Yup'ik population showed a significant positive difference in math test results between treatment and control groups (Lipka & Adams, 2004) demonstrating the positive effect of culturally relevant curriculum and instruction.

The commonality between these examples is the local control and determination of the educational process and content and the use of local tribal culture to educate. This is antithetical to the way the federal government and public schooling has dealt with the education of AI/AN students for much of the history of the United States. What might the potential for AI/AN education be if replication of programs such as KEEP and the Yup'ik project were to occur in tribal communities across Indian Country?

Summary of Literature Review

The reader has been provided a historical synopsis of some major points in federal involvement in AI/AN education emphasizing the federal government's long history of trying to assimilate AI/AN students through education. These policies inform the ongoing achievement gap presented through the literature review which includes the disproportionate dropout rates for AI/AN students. The literature review provided the reader with the results of the past five administrations of the NAEP mathematics and reading assessments which demonstrated AI/AN students are some of the lowest performing students, but more alarming, while other ethnic groups have seen academic growth, AI/AN students have not.

A body of literature has been developed that sought to examine AI/AN learning styles and the incongruence of those learning styles with traditional schooling. This line

of research dominated much of the AI/AN education field hypothesizing that the lower achievement of AI/AN students is due to differences in their culture juxtaposed to the dominant culture. Although this work has contributed to illuminating cultural issues, it has not effected any improvement to the academic achievement gap.

Perhaps because the work on learning styles has failed to effect an increase in academic achievement, a shift to multicultural education has occurred. As Sleeter and Grant (1988) have articulated there is a spectrum of approaches to multicultural education, ranging from seeing the student that is outside of the dominant culture as needing remediation to examining the power relations that construct our realities. Although the latter approach is beneficial, it is unlikely it will be able to fully address the achievement gap as it does not capture Indigenous knowledge which is critical to the development of AI/AN students.

Education through culture is the preferred direction for education expressed by many Indigenous communities. The literature review highlighted two examples of education using Indigenous knowledge; the KEEP and Yu'pik examples have been shown to be effective in increasing academic achievement. These examples are encouraging and are reproducible by using the local knowledge to build the curriculum and teaching strategies. The question is, can this method of "education through culture" be achieved in traditional public schools? This current study sought to examine the relationship between the use of culture in the classroom and academic achievement.

CHAPTER THREE: METHODOLOGY

Introduction

This chapter describes the research design and methodology of the present study as it relates to the research questions. This chapter includes a brief re-statement of the goals of the study, followed by the research questions. Finally, this chapter reports how the research was conducted by describing the research plan, data selection and sampling techniques, and the study procedure.

Goals of the Study

The goal of this study was to determine if emphasizing the use of Indigenous culture to address academic disparities is defensible. To do so, the National Indian Education Study (NIES) database was used to examine if Indigenous teachers used culture to a greater extent in the classroom than non-Indigenous teachers and if there is a relationship between student reported academic achievement and the extent of the use of culture in the classroom.

Research Questions

The inquiry of this study focused on three separate but complementary questions:

1. Is there a difference in the extent of AI/AN culture used in the classroom between Indigenous teachers and non-Indigenous teachers?
2. Is there a relationship between the student reported academic achievement of AI/AN students in mathematics and the extent of the use of AI/AN culture in the classroom?

3. Is there a relationship between the student reported academic achievement of AI/AN students in reading and the extent of the use of AI/AN culture in the classroom?

Research Design

The research methodology of this study is causal-comparative. Causal-comparative is appropriate when the research investigator is not in the position to test a hypothesis by assigning subjects to different conditions directly manipulating the independent variables (Wallen & Fraenkel, 2001). Rather, changes in the independent variable have already taken place and must be examined in retrospect to determine the possible effects the independent variables may have had on the dependent variable. The research reported in this dissertation was conducted in the following three phases:

(1) The NIES Part II Grade 4 Student and Teacher database was cleaned and re-coded as necessary.

(2) The survey instruments were studied to determine fit with an "extent of culture use" construct and reliability testing was performed to determine how well the construct held up.

(3) Statistical analyses were performed to examine the relationship of teacher ethnicity and extent of culture use in the classroom to student academic achievement in reading and mathematics.

This chapter describes the steps above and details the basis for the testing that is reported in chapter four.

Data Selection

The data source for this study was the NIES part II grade four student and teacher database. Specifics of the instrumentation and sampling methods for the NIES follow, and although only the NIES part II fourth grade student and teacher database was utilized for this study, the description of the instrumentation and sampling methods includes the NIES part I (which is a sub-set of the NAEP) as it is pertinent to future possible studies with the NAEP/NIES databases.

The NAEP and NIES

In 2005, at the request of the Office of Indian Education, the National Center for Education Statistics (NCES) conducted the National Indian Education Study. Since 2005 the study has been conducted in 2007, 2009, and 2011. The NIES is a two part study; Part I is a subset of the NAEP testing --specifically the fourth and eighth grade math and reading testing-- and Part II is a set of survey questionnaires completed by students, teachers, and school administrators designed to provide contextual background on the educational experience of AI/AN students. The study was conducted with students attending all school types (Rahman, 2006).

NAEP/ NIES Part I Instrumentation

The survey instrument is composed of four different booklets: the student booklet which contains cognitive items as well as background questions, the students with disabilities (SD)/ limited English proficiency (LEP) booklet which contains background questions, the teacher booklet which contains background questions, and the school booklet which also contains background questions (Rahman & Gorman, 2006).

The background questions provide context for reporting NAEP results and information on group membership used in estimation (Rahman & Gorman, 2006). The questions address specific behaviors—not personal conclusions, attitudes, or beliefs—and are intended to be non-intrusive, secular neutral, non-ideological, and free from bias. The questions follow multiple-choice format, and are of two categories: core (questions that ask generic questions regarding educational situations (i.e. "About how many days were you absent from school last month?") and subject specific (meaning that the test for math would have math related questions).

The cognitive items are comprised of approximately 50% multiple-choice questions and 50% open-ended questions of short constructed responses and extended constructed responses (Rahman & Gorman, 2006).

NAEP uses matrix sampling design to ensure that a participating student takes only a portion of the complete set of cognitive items developed for assessment and every item is exposed to approximately one-fourth of the sample (Sediacek, 2006). There are 100-170 items per grade developed for the reading portion, while any particular participant is exposed to only 20-25 items. The math portion has 180-200 items developed per grade with any particular participant being exposed to 30-40 items. The test performance is then assembled as a whole from the partial performance of many different students.

Cognitive items are grouped into blocks to minimize order and context effects and balance fatigue effect (Rahman & Gorman, 2006). Blocks are then systematically combined into different booklets with each block of items presented to an equal portion

of the students. This design, Balanced Incomplete Block, pairs each block with every other block once and each block appears in every position of the booklets (see figure 5).

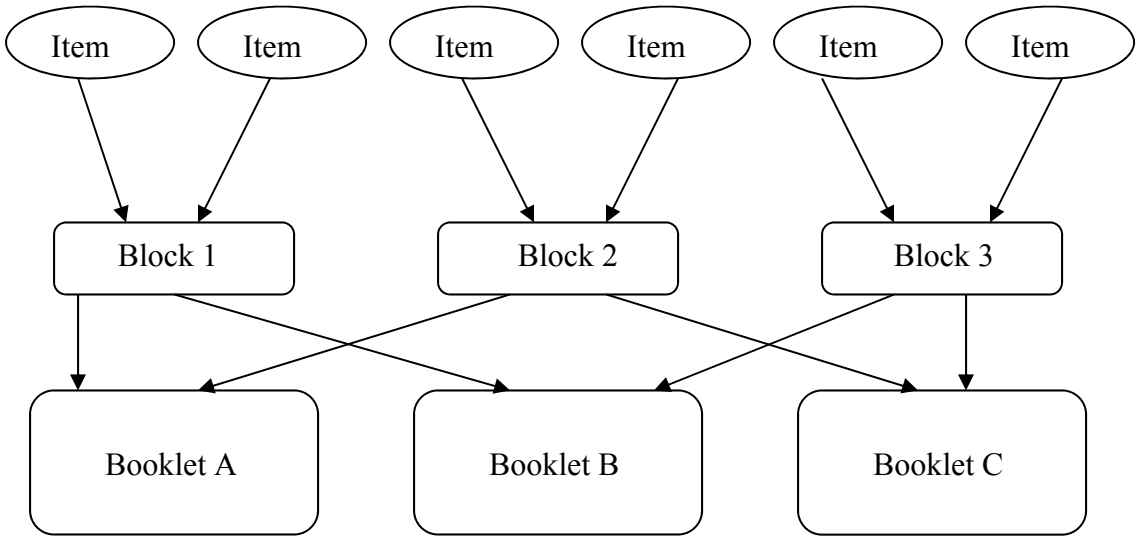

Figure 5.

NAEP Item to Block to Booklet Procedure

NAEP/ NIES Part I Sampling

The NAEP database utilizes a complex clustered stratified design with the target population being all fourth and eighth grade students in public schools in each state (Sediacek, 2006). The cluster is the classes within a school; the stratification is the schools selected. In order to select schools that are representative of demographics corresponding to census data, NAEP stratifies samples on critical subpopulations to ensure their representation in the sample.

The stratified sampling is done explicitly by assigning schools to mutually exclusive and exhaustive strata and implicitly through ordering schools hierarchically within each explicit stratum (Sediacek, 2006). Schools are ordered using a "serpentine

sort," meaning lists of schools alternate from ascending to descending order from stratum to stratum. The schools are sampled systematically within the hierarchy of implicit strata (the implicit strata for the national assessment are: census division, urbanization, and minority status). The reason this is done is that it increases the efficiency of the school sample by reducing the variability in sample size for important school subgroups in each jurisdiction.

The national samples range from 6,000-20,000 per grade and since 2003 the odd year sampling is comprised of the aggregate of the state samples (Rahman & Gorman, 2006). The state samples are approximately equally sized for each state, about 100 schools for each grade and subject; in urban districts the number of schools may be smaller and in sparsely populated states with small schools the number of schools sampled may be larger. This sampling results in about 2,500-3,000 assessed students for each grade and subject in each state.

Within each school, approximately thirty students per subject are sampled for each grade; if a class has less than thirty students then that is the sample size; likewise, if a classroom has a few more students than the thirty, the entire class with be tested. The schools are selected with probability proportional to grade-specific enrollment.

NAEP/ NIES Part I Data Collection Procedure

When administering the tests, the booklets are bundled according to sequences designed to ensure equal distribution of the booklets across all sessions. The booklets are alternated within each sequence when multiple subjects are assessed in a year. Booklets are added to the sequence at a lower rate when pilot and field-tests are conducted.

Reading testing and mathematics testing is conducted simultaneously in the same room (figure 6).

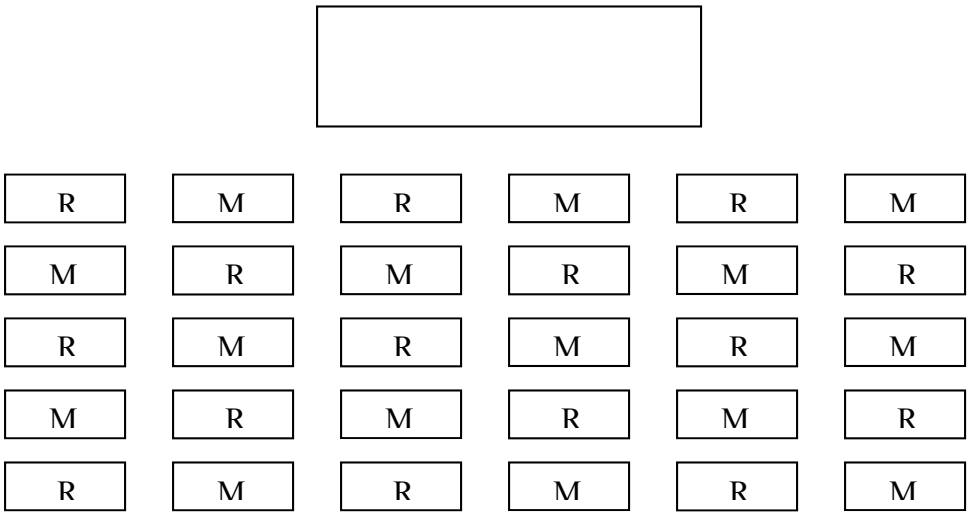

Figure 6.

Distribution of Tests Within Class Room

In order to produce a 'final score' NAEP uses estimation by applying Item Response Theory (IRT) and Marginal Maximum Likelihood (MML) to generate plausible values (PV) which indicates an estimate of proficiency of each examinee (Sediacek, 2006). NAEP uses five plausible values. Essentially what the PV's provide is an estimate of performance that would have been obtained by the individual examinee had the examinee responded to a sufficient number of cognitive responses to precisely estimate performance.

NIES Part II Instrumentation

To assist the NCES in designing the study to incorporate question items that encompassed cultural material, meetings with a Technical Review Panel were held in

2004 (Rahman, 2006). The Technical Review Panel was composed of twelve American Indian and Alaskan Native educators and researchers from across the country (Stancavage et al., 2006). Five NIES Part II questionnaires were developed: student questionnaires for grade four, student questionnaires for grade eight, teacher questionnaires for grade four, teacher questionnaires for grade eight, and school administrator questionnaire. The questionnaires ranged from 19 items to 24 items in length. The survey items were intended to measure the extent to which AI/AN students were exposed to native culture and language in their home lives and at school (Stancavage, et al., 2006).

NIES Part II Sampling

Part I of the NIES is a sub-set of the NAEP assessment (Sediacek, 2006). Thus the NAEP assessment sample informed the NIES Part II sampling by identifying schools with American Indian/Alaskan Native populations. From the NAEP sampling approximately 3,200 schools were thought to have at least one American Indian/ Alaskan Native student in grade four. Stratified sampling was then used to try and obtain a subsample of approximately 350 schools. Schools and students were free to participate in the NAEP and/or the NIES survey independent of one another. Thus the NIES Part I (subset of NAEP) and NIES part II responders may overlap, but are not identical.

NIES Part II Data Collection Procedure

Data collection for the NIES Part II was conducted in April and May 2005 (Rahman, 2006). Most of the schools had study representatives visit the schools to proctor the questionnaires. The representatives read the questionnaire to the students to

reduce student reading comprehension issues. In remote schools with few American Indian/ Alaskan Native students, questionnaires were mailed with detailed instructions.

Study Procedure

Research Question One

To analyze the first question: *Is there a difference in the extent of AI/AN culture used in the classroom between Indigenous teachers and non-Indigenous teachers?*, the database needed to be cleaned, some re-coding needed to be done, a scale for a new variable was created and tested for reliability, and a t-test was performed. The following discusses the procedures in more detail.

First, the database was cleaned which removed any cases which had non-responses for the variables of interest to the study; this left the database with 2,359 cases. Following this, a new variable for the identification of teacher ethnicity (Indigenous or non-Indigenous) was created. The database, as provided by NAEP, consists of five variables identifying a positive or negative response to particular ethnic identities (White, Black/African American, Asian, American Indian or Alaska Native, and Native Hawaiian/other Pacific Islander); any responders who indicated they were American Indian/ Alaska Native or Hawaiian/other Pacific Islander were coded as being Indigenous, and the remaining were coded as non-Indigenous. This resulted in 1,384 cases with non-Indigenous classroom teachers and 975 cases with Indigenous classroom teachers.

Second, a matrix of survey questions pertaining to the use of culture in the classroom was created to be used as the basis for conducting the reliability testing. Ten questionnaire items from the NIES part II were determined to be relevant indicators of

the extent of use of Indigenous culture in the classroom; these ten questionnaire items are identified in the appendix. After determining which questionnaire items were to be used, it was then necessary to reverse-code the questions/variables of interest that were stated negatively; this is because the mathematic sum of the question items result in a single value for the construct making it necessary to have the items in the same direction. For example, the question, "In your class, to what extent is curricular content taught using American Indian or Alaska Native perspective" as it is coded within the database as provided by NAEP, the response option "integrated into the daily curriculum" is scored as a "1" and the response option "not integrated into the curriculum" is scored as a "5". However, because in theory the use of culture is valued and considered an attribute to academic success, the response "integrated into the daily curriculum" should be coded with the highest possible value. Therefore, reverse coding of the items that are not favorable is necessary to convert the response in the same direction.

Third, after completion of the database manipulation, Cronbach's alpha reliability testing was performed to determine whether the selected questionnaire items for the "extent of culture use" construct produced a reliable scale measurement. Cronbach's alpha is commonly used to measure internal consistency (Field, 2009). Internal consistency measures whether items used to measure the construct produce similar scores; it is measured based upon the correlations between the items used on the survey questionnaire. The formula for Cronbach's alpha is:

$$\frac{N^2 \text{ X } M(COV)}{\text{SUM (VAR/COV)}}$$

where N^2 is the square of the number of items in the scale, M(COV) is the mean inter-item covariance, and SUM (VAR/COV) equals the sum of all the elements in the variance/covariance matrix (Cortina, 1993).

The Cronbach's alpha values range from 0 to 1. The alpha value increases as the number of items and the average of inter-item correlation increase; high inter-item correlation indicates that the items are measuring the same underlying construct. Most social science research recognizes an alpha value equal or greater than .70 as acceptable (Field, 2009; Gliem & Gliem, 2003; Grau, 2007). Using SPSS software, Cronbach's alpha item analysis was performed to determine the reliability coefficient for the "extent of culture used" construct for this study. The scale was found to be reliable; detailed results are reported in chapter four.

Fourth, following the reliability analysis, the cumulative scale score was calculated for each case to be used in further analysis; cumulative scale scores ranged from the possible lowest score of "10" to the possible highest score of "48". The cumulative scale scores were then tested for normality, both visually and utilizing the Kolmogorov-Smirnov test of normality. Although the data was determined to be non-normal, with large sample sizes the t-test is considered a robust test (Field, 2009); thus violating the normality assumption was deemed to be acceptable.

The t-test statistic compares the mean of two groups to determine if there is a significant difference between the two means. The two groups being compared were independent of one another; to clarify, the two conditions (Indigenous classroom teacher or non-Indigenous classroom teacher) had separate participants. Thus an independent samples t-test was performed comparing the extent of the use of culture (the dependent

variable) between Indigenous teachers and non-Indigenous teachers (the independent variable). The formula for the independent t-test statistic is:

$$t = \frac{X_1 - X_2}{\sqrt{\left(\frac{s_1^2}{N_1} + \frac{s_2^2}{N_2}\right)}}$$

where the numerator is the difference between the mean of the two groups (Indigenous classroom teacher and non-Indigenous classroom teacher) and the denominator is the standard error of the sampling distribution of the two groups. Results of the t-test are reported in chapter four.

Research Question Two

To analyze the second question: *Is there a relationship between the student reported academic achievement of AI/AN students in mathematics and the extent of the use of AI/AN culture in the classroom?,* the continuous cumulative scale score for the "extent of culture used" variable used in the previous research question needed to be collapsed into a categorical variable to be used in a series of chi-square analyses. A description of how this "extent of culture use" variable was re-coded follows along with an explanation of the Pearson Chi-Square analysis used for the research question.

The continuous cumulative scale score of the "extent of culture use" created for the first question was collapsed into three categories; "low", "medium", and "high". These three categories were based upon the value assigned to the ten questionnaire items that make up the "extent of culture use" construct. Eight of the questionnaire items had five possible response options, and two questionnaire items had four possible response options (see Appendix for survey questionnaire items and response options). Thus the

following matrix was created to aid in the determination of cut-off points for group classification. Table 7 illustrates possible scoring combinations for the ten questionnaire items used to compose the "extent of culture use" construct if the responder were to answer consistently across all the questions. To further explain, in the first row of table 7, the possible total score if the questionnaire responder would have selected the response that had the least value (1) for each of the ten questionnaire items would be ten; in the second row, the possible total score if the questionnaire responder selected the response that corresponded with a value of two for each of the ten questionnaire items would be twenty, and so on. Although it is highly unlikely that a responder would answer the same value to each question posed to them, calculating the possible scores in this manner is a starting point in determining cut-points for the "extent of culture use" categories.

Table 2.

Possible Scoring of Response Options for Extent of Culture Construct

Scoring of 5 Response Option Items	Scoring of 4 Response Option Items	Possible Total Score	Response Option Description
(8 X 1) +	(2 X 1) =	10	Never
(8 X 2) +	(2 X 2) =	20	Seldom
(8 X 3) +	(2 X 3) =	30	Once a Month
(8 X 4) +	(2 X 4) =	40	Once a Week
(8 X 5) +	(2 X 4) =	48	Daily

Strictly using the possible outcome scores, it would seem appropriate to use five classifications for the range of possible values. However, after analyzing the frequencies of responses it becomes apparent that the density of responses is in the range of scores between 10 and 29 (see Figure 7).

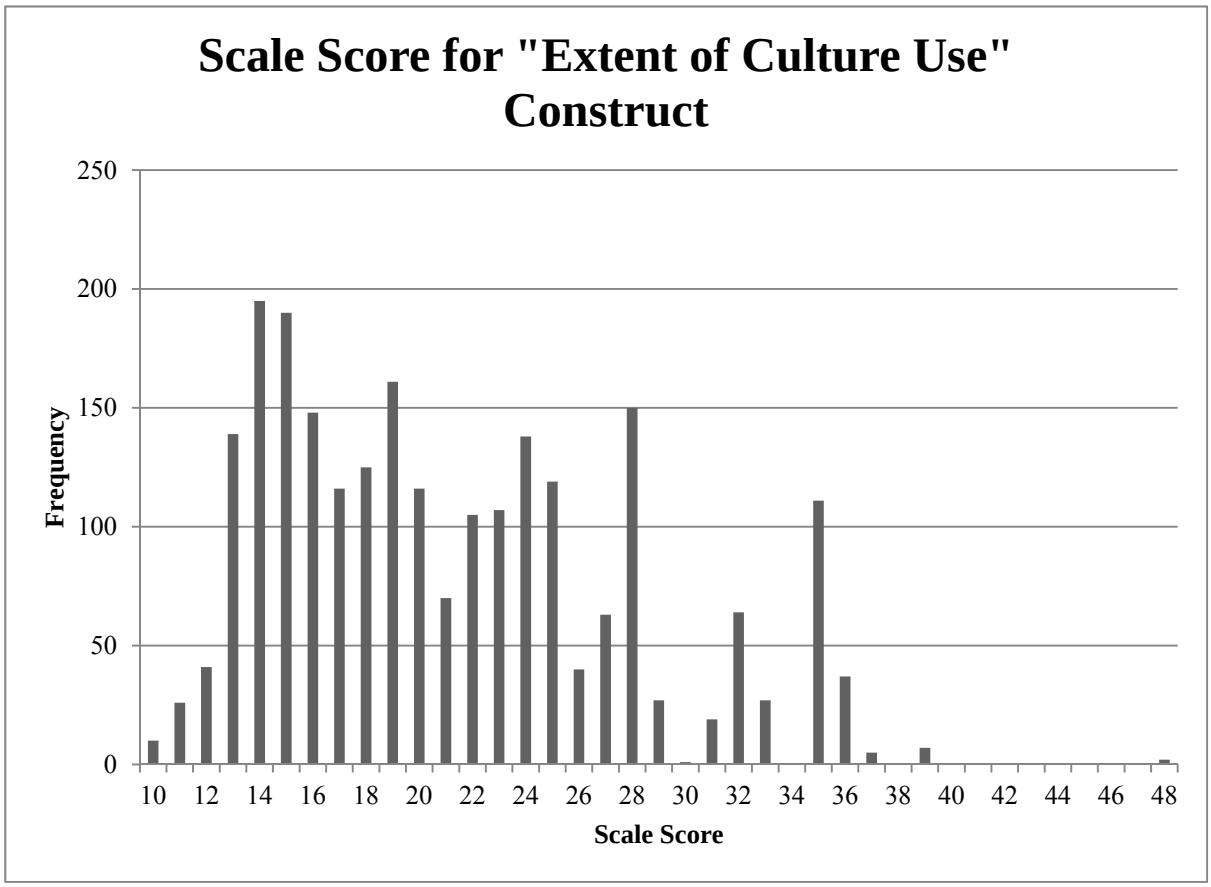

Figure 7.

Frequencies of Scale Score for "Extent of Culture Use" Construct

Thus it was determined appropriate to group scores of thirty or greater within one group. It is worthwhile to note here that only two cases were actually representing use of culture on a weekly basis in the classroom; thus, there is a lack of high level of use of culture in the classroom overall. The re-coded categories for “extent of culture use” resulted in nearly half of the cases (48.8%) demonstrating a low level of culture used in the classroom, 39.6% of cases with a medium level of culture being used in the classroom, and 11.6% of cases demonstrating a high level of culture being used in the classroom (see table 3 on the following page).

Table 3.

Descriptive Statistics for Extent of Culture Use in Classroom by Category

	Extent of Culture Use		
	Low	Medium	High
# of Cases	1151	935	273
% of Cases	48.8	39.6	11.6
M	15.56	24.14	34.17
S.D.	2.233	2.721	2.214
range	(10, 19)	(20, 29)	(30, 48)

Following the collapsing of categories, a 3 X 4 two-way interaction Pearson chi-square analysis of the categorical "extent of culture use" variable and the student reported achievement in mathematics was conducted. The Pearson Chi-Square test statistic examines the relationship between categorical variables by utilizing the difference in the observed frequencies and the expected frequencies (residuals) (Azen & Walker, 2011). The basic equation depicting the Pearson Chi-Square test statistic is:

$$\chi^2 = \sum_{i=1}^{I} \sum_{j=1}^{J} \frac{(Oij - Eij)2}{Eij}$$

The following contingency table (table 4) illustrates the relationship between the variables used in the analyses.

Table 4.

Two-Way Contingency Table of Extent of Culture by Achievement

		Student Reported Achievement				
Culture Use		Poor	Fair	Good	Very Good	Total
	Low	62	213	459	417	1151
	Medium	51	153	428	303	935
	High	19	49	106	99	273
Total		132	415	993	819	2359

Research Question Three

To analyze the third question: *Is there a relationship between the student reported academic achievement of AI/AN students in reading and the extent of the use of AI/AN culture in the classroom?*

As was done when examining question two, a 3 X 4 two-way interaction Pearson chi-square analysis of the categorical "extent of culture use" variable and the student reported achievement in reading was conducted. The results of the initial chi-square analysis were followed up on to further investigate the interactions using Odds Ratios. An odds ratio is exactly that, the ratio of two odds (Agresti, 1996; Osbourne, 2006). The formula for the odds ratio of a 2 X 2 contingency table is as follows:

$$\hat{\theta} = \frac{n_{11}\, n_{22}}{n_{12}\, n_{21}}$$

The results of the Pearson Chi-Square analysis for research question three as well as the results for the odds ratio computations are reported in chapter four.

Summary

Chapter three described the steps involved in completing the research and the methods used to investigate the research questions. The results of the data analysis are presented in chapter four. A summary of the findings, discussion of conclusions, and recommendations are presented in chapter five.

CHAPTER FOUR: FINDINGS

Introduction

This chapter presents the results of the analyses used to investigate the research questions, which where:

1. Is there a difference in the extent of AI/AN culture used in the classroom between Indigenous teachers and non-Indigenous teachers?
2. Is there a relationship between the student reported academic achievement of AI/AN students in mathematics and the extent of the use of AI/AN culture in the classroom?
3. Is there a relationship between the student reported academic achievement of AI/AN students in reading and the extent of the use of AI/AN culture in the classroom?

The data source was the NIES Part II Grade Four Student and Teacher Survey database and all analyses were done with SPSS software.

Participants

As was indicated previously, the data source for this study was the NIES Part II Grade Four Student and Teacher Survey database. After removing the cases without responses for the variables of interest, 2,359 cases (or students) remained. Male students composed 51.1% of the cases and female students 48.9%. 76.0% of the students were eligible for the school lunch program, 28.7% were English Language Learner students, 14.4% of students had an IEP, and 82.7% were in schools participating in Title I funding. 82.1% of the students were attending schools with a high density of AI/AN student

population (defined as 25% or greater of the school population). A large percentage of the students attended schools in the Mountain region (40.3%), followed by the South Central region (23.7%), the North Central region (20.3%), the Pacific region (8.1%), and the Atlantic region (7.7%).

Findings

First Research Question

Is there a difference in the extent of AI/AN culture used in the classroom between Indigenous teachers and non-Indigenous teachers?

Reliability Testing

A matrix of ten survey questionnaire items was constructed to be used to create an "extent of culture use" construct. These ten questionnaire items are identified in the appendix. This new scale was tested for reliability and found to be reliable with a Cronbach's Alpha= .877; the removal of any items would not have improved the alpha score (see details of reliability testing in table 5).

Table 5.

Results of Cronbach's Alpha Reliability Testing for Extent of Culture Use Construct

Variable	Cronbach's Alpha if Item Deleted
RIT0901	.875
IT01001	.855
IT01002	.860
IT01003	.860
IT01004	.862
IT01005	.875
IT01006	.866
IT01007	.855
IT01101	.869
IT01201	.871

T-Test Statistic

With the scale found to be reliable, the cumulative scale score was created for the new variable "extent of culture use"; this variable was the dependent variable for the t-test analysis that followed while the independent variable was the teacher ethnicity (Indigenous vs. non-Indigenous). The results of the t-test were found to be significant $t(2357) = -22.241$, $p < .05$ indicating there is a difference in the extent of the use of culture in the classroom used by Indigenous ($M = 24.42$, $SE = .23$) and non-Indigenous teachers ($M = 18.79$, $SE = 14$).

Second Research Question

Is there a relationship between the student reported academic achievement of AI/AN students in mathematics and the extent of the use of culture in the classroom?

Pearson Chi-Square Statistic

Performing a 3 X 4 two-way interaction Pearson chi-square analysis of the categorical "extent of culture use" variable and the student reported achievement in mathematics the Pearson chi-square statistic is $\chi^2 (6) = 9.83$, $p=.132$, thus there does not appear to be an association between student reported achievement in mathematics and the extent of culture used in the classroom. The standardized residuals support this conclusion with none having exceeded the value of ±1.96, which would indicate a significance at the 95% level (Field, 2009). Table 6 depicts the cell counts, residuals, standardized residuals, and contribution of each cell count to the overall chi-square statistic.

Table 6.

Counts, Residuals (in Italics), Standardized Residuals (in Bold), and Contributions to the Overall Chi-Squared Statistic (in Parentheses) for Mathematic Achievement by Extent of Culture Use in Classroom

	Very Good	Good	Fair	Poor	Total
High	99	106	49	19	273
	4.2	*-8.9*	*1.0*	*3.7*	
	.4	**-.8**	**.1**	**1.0**	
	(4.2)	(4.5)	(2.1)	(0.8)	(11.6)
Medium	303	428	153	51	935
	-21.6	*34.4*	*-11.5*	*-1.3*	
	-1.2	**1.7**	**-.9**	**-.2**	
	(12.8)	(18.1)	(6.5)	(2.2)	(39.6)
Low	417	459	213	62	1151
	17.4	*-25.5*	*10.5*	*-2.4*	
	.9	**-1.2**	**.7**	**-.3**	
	(17.7)	(19.5)	(9.0)	(2.6)	(48.8)
Total	819	993	415	132	2359
	(34.7)	(42.1)	(17.6)	(5.6)	(100)

Third Research Question

Is there a relationship between the student reported academic achievement of AI/AN students in reading and the extent of the use of AI/AN culture in the classroom?

Pearson Chi-Square Statistic

Performing a 3 X 4 two-way interaction Pearson chi-square analysis of the categorical "extent of culture use" variable and the student reported achievement in reading, the Pearson chi-square statistic is χ^2 (6) = 18.325, p=.005, thus there does appear to be an association between student reported achievement in reading and the extent of culture used in the classroom. Table 7 depicts the cell counts, residuals,

standardized residuals, and contribution of each cell count to the overall chi-square statistic.

Table 7.

Counts, Residuals (in Italics), Standardized Residuals (in Bold), and Contributions to the Overall Chi-Squared Statistic (in Parentheses) for Reading Achievement by Extent of Culture Use in Classroom

	Very Good	Good	Fair	Poor	Total
High	88	124	43	18	273
	.7	*-9.2*	*3.4*	*5.0*	
	.1	**-.8**	**.5**	**1.4**	
	(3.7)	(5.3)	(1.8)	(0.8)	(11.6)
Medium	264	478	155	38	935
	-34.9	*21.8*	*19.4*	*-6.4*	
	-2.0	**1.0**	**1.7**	**-1.0**	
	(11.2)	(20.3)	(6.6)	(1.6)	(39.6)
Low	402	549	144	56	1151
	34.1	*-12.6*	*-22.9*	*1.4*	
	1.8	**-.5**	**-1.8**	**.2**	
	(17.0)	(23.3)	(6.1)	(2.4)	(48.8)
Total	754	1151	342	112	2359
	(32.0)	(48.8)	(14.5)	(4.7)	(100)

Examining the standardized residuals indicated there were significantly fewer cases of students reporting very good performance in reading who receive a medium level of extent of culture in the classroom than expected. While not exceeding ±1.96, cell counts for very good achievement with low culture and fair achievement with medium culture were higher than expected, while fair achievement with low culture were less than expected.

If the residuals were to reflect the theory of greater achievement with greater cultural congruency, then we would anticipate seeing larger cell counts in the very good achievement with high culture and poor achievement with low culture, and conversely, lower cell counts in the poor achievement with high culture and very good achievement with low culture. Figure 8 depicts what might be anticipated for cell residuals if they were reflective of theory indicating higher extent of culture being used in the classroom facilitating higher achievement compared to what was observed; a "+" sign indicate cells where positive integer residuals might be expected and/or were observed and a "-" sign indicate cells where negative integer residuals might be expected and/or observed.

	Reported Achievement			
Extent of Culture Use	Very Good	Good	Fair	Poor
High	+/+	+/-	-/+	-/+
Medium	+/-	+/+	+/+	-/-
Low	-/+	-/-	+/-	+/+

Figure 8.

Anticipated Direction of Residuals if Reflective of Theory/ Observed Direction of Residuals

Odds Ratios

To determine where associations exist given the significant finding of the Pearson chi-square statistic, the table was partitioned into all possible combinations of 2 X 2 tables and odds ratios were calculated. The results highlight four interactions with statistical significance.

One of the interactions (very good achievement with medium culture compared to poor achievement with low culture) indicated students are two times more likely to report

very good achievement when exposed to a medium level of culture in the classroom compared to students reporting poor achievement when exposed to a low level of culture in the classroom.

However three of the interactions indicated students' reported performance declines in reading as the use of culture increases; these include (1) students reporting very good achievement when exposed to a medium level of culture use are 0.75 times as likely to occur than students reporting good achievement when exposed to a low level of culture use, (2) students reporting very good achievement when exposed to a medium level of culture use are 0.61 times as likely to occur than students reporting fair achievement when exposed to a low level of culture use, and (3) students reporting good achievement when exposed to a high level of culture use are 0.55 times as likely to occur than students reporting poor achievement when exposed to a medium level of culture use.

Although the four previously discussed comparisons are the only comparisons with a significant Pearson Chi-Square Statistic, the odds ratios for the others can still be examined. In doing so, of the six possible 2 X 2 table combinations utilizing the low level of culture used in the classroom and the medium level of culture used in the classroom, three interactions demonstrate students more likely to report higher levels of achievement with medium level of culture use compared to lower levels of achievement with low level of culture use. In doing the same with the medium level of culture use and high level of culture use, two of the six interactions demonstrated students were more likely to report higher levels of achievement with high level of culture use compared to lower levels of achievement with low level of culture use. Finally, examining the six possible interactions involved with the low level of culture use and high level of culture

use indicates none of the six interactions demonstrate students to be more likely to report higher levels of achievement with the high level of culture use than lower levels of achievement with low level of culture use. Table 9 contains the odds ratio for all of the interactions and figure 6 illustrates the relationship between the level of the use of culture in the classroom and the student reported achievement.

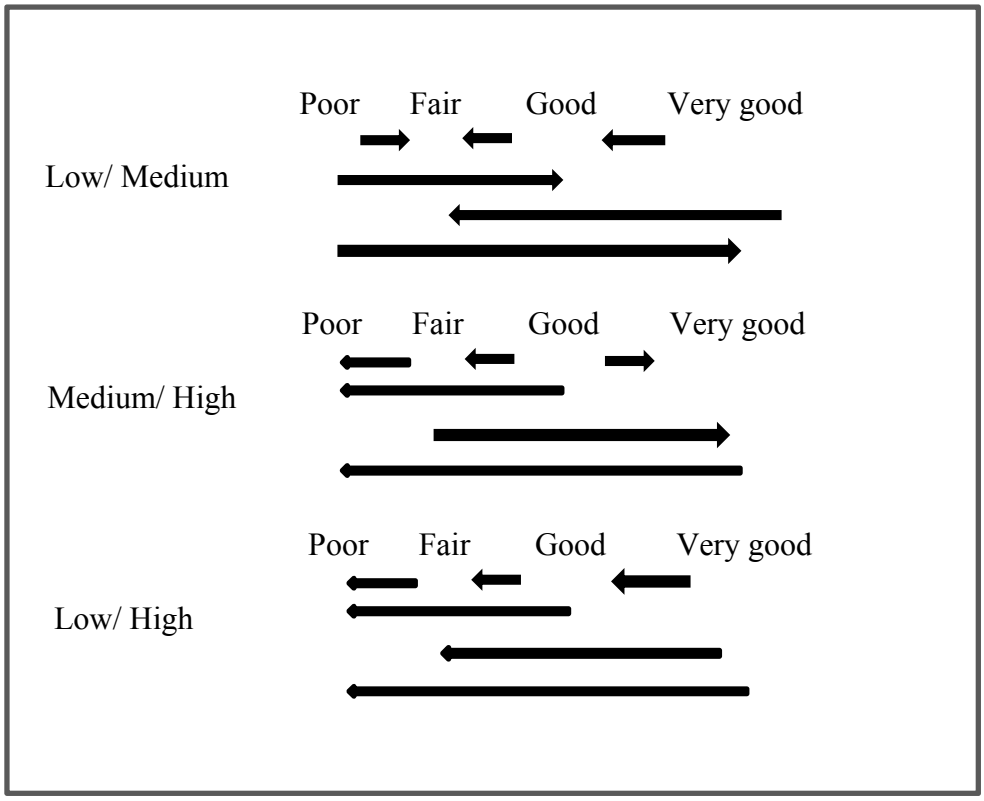

Figure 9.

Depiction of Direction of Relationship Between Level of Culture and Achievement

Table 8 reports the results of each of the 2 X 2 tables, the first two columns describe the interactions of comparison, the third column is the calculated odds ratio for the interaction, the fourth column the Pearson chi-square statistic for the interaction, and the fifth column is the significance value.

Table 8.

Results of Odds Ratios for Reading Achievement by Extent of Use of Culture

Cell Interaction Achievement X Culture	Comparison Cell Achievement X Culture	Odds Ratio	X^2 =	*p* =
Fair X Medium	Poor X Low	1.59	3.728	.054
Good X Medium	Poor X Low	1.28	1.297	.255
Very Good X Medium	Poor X Low	2.04	6.623	.010*
Good X Medium	Fair X Low	.81	2.604	.107
Very Good X Medium	Fair X Low	.61	12.502	.000*
Very Good X Medium	Good X Low	.75	7.821	.005*
Fair X High	Poor X Medium	.59	2.600	.107
Good X High	Poor X Medium	.55	4.03	.045*
Very Good X High	Poor X Medium	.70	1.282	.258
Good X High	Fair X Medium	.94	.113	.737
Very Good X High	Fair X Medium	1.20	.735	.386
Very Good X High	Good X Medium	1.29	2.490	.115
Fair X High	Poor X Low	.93	.052	.819
Good X High	Poor X Low	.70	1.507	.220
Very Good X High	Poor X Low	.68	1.707	.191
Good X High	Fair X Low	.76	1.953	.162
Very Good X High	Fair X Low	.73	2.199	.138
Very Good X High	Good X Low	.97	.041	.839

**significant at p<.05*

Summary

This exploratory study sought to determine if Indigenous teachers used culture to a greater extent in the classroom than non-Indigenous teachers. The results of the independent t-test indicated Indigenous teachers do report using culture more in the classroom *(M* = 24.42) than do non-Indigenous teachers (*M* = 18.79). The study also sought to examine the relationship of the use of culture in the classroom to academic performance. Using the Pearson chi-square statistic, it was determined there does not appear to be a relationship between the level of culture use in the classroom and the

academic achievement of students in mathematics. However, results examining the relationship between the level of culture use in the classroom and the academic achievement of students in reading are convoluted; in some cases it appears a greater level of culture use in the classroom is related to a higher level of achievement in reading and in other cases it appears a greater level of culture use in the classroom is related to a lower level of achievement in reading. It may be because the level of achievement is a self-reported perception of the student, rather than test score or report card grade or some other quantitative measure, this attributed to the confounded results.

The final chapter will discuss the implications of these findings for AI/AN education and discuss recommendations for future NIES, as well as articulate the limitations of the study and difficulties in conducting research with the AI/AN population.

CHAPTER FIVE: DISCUSSION

Summary of the Study Problem and Methodology

American Indian/Alaskan Native education activists continue to maintain the use of Indigenous culture as the vehicle for education is the means of combating the historical academic achievement gap. However, research at a national level examining the relationship between the use of AI/AN culture and academic achievement is lacking. There is a need to be able to analyze if the performance of AI/AN students is indeed impacted by the use of AI/AN culture in the classroom. The purpose of the study was to examine if Indigenous teachers used culture in the classroom to a greater extent than non-Indigenous teachers and if there is a relationship between student reported academic achievement and the extent of the use of culture in the classroom. The study employed categorical data analysis methods to investigate the following three research questions:

1. Is there a difference in the extent of AI/AN culture used in the classroom between Indigenous teachers and non-Indigenous teachers?
2. Is there a relationship between the student reported academic achievement of AI/AN students in mathematics and the extent of the use of AI/AN culture in the classroom?
3. Is there a relationship between the student reported academic achievement of AI/AN students in reading and the extent of the use of AI/AN culture in the classroom?

The first question was analyzed using the teacher questionnaire responses to ten questionnaire items regarding the use of culture in the classroom. The ten questionnaire items were combined to create an "extent of culture use" construct and found to be

reliable with a Cronbach's Alpha = .877. The cumulative scale scores of Indigenous and non-Indigenous teachers were compared to one another using the t-test statistic; in doing so, a significant difference $t(2357) = -22.241$, $p < .05$, was found between the two groups.

The second and third questions used a Pearson chi-square analysis to examine if there was a relationship between the student reported achievement and the extent of culture used in the classroom. In the case of mathematics, the Pearson chi-square statistic was $\chi^2 (6) = 9.83$, $p = .132$, indicating there does not appear to be an association between the student reported achievement in mathematics and the extent of culture used in the classroom. However, for reading the Pearson chi-square statistic was $\chi^2 (6) = 18.325$, $p = .005$, indicating there does appear to be a relationship between student reported achievement in reading and the extent of culture used in the classroom. Partitioning into the various possible 2 X 2 tables resulted in four significant interactions.

Conclusions

There are three main conclusions to be drawn directly from the results of the study; these being (1) teachers of an Indigenous culture use Indigenous culture in the classroom to a greater extent than non-Indigenous teachers, (2) the data does not support a relationship between the use of culture in the classroom and student reported achievement in mathematics, (3) the data does support a relationship between the use of culture in the classroom and student reported achievement in reading. However, it is not a straightforward relationship and it would be beneficial to further investigate the relationship with other data sources.

Discussion

Teacher Ethnicity

Although educational institutions are not going to have an immediate impact on factors such as economic background and parental educational level, schools can address factors such as cultural relevancy and employing teachers of shared ethnic background if allowed flexibility to address these factors. Figure 10 on the following page illustrates the low percentage of American Indian/Alaskan Native teachers employed in schools. Considering the schools represented in the Indian Education Study are purposefully selected due to AI/AI student population, it is disheartening that 36% of schools have a teaching staff without any AI/AN teachers at the fourth grade, and 30% of schools have a teaching staff without any AI/AN teachers at the eighth grade level.

Conversely, only nine percent of schools participating in the NIES had a teaching staff composed of fifty percent or greater of teachers of AI/AN ethnicity at the fourth grade level and only ten percent of schools at the eighth grade level. If we agree that ethnicity matters, this appears to reflect the need for more teachers of AI/AN ethnicity.

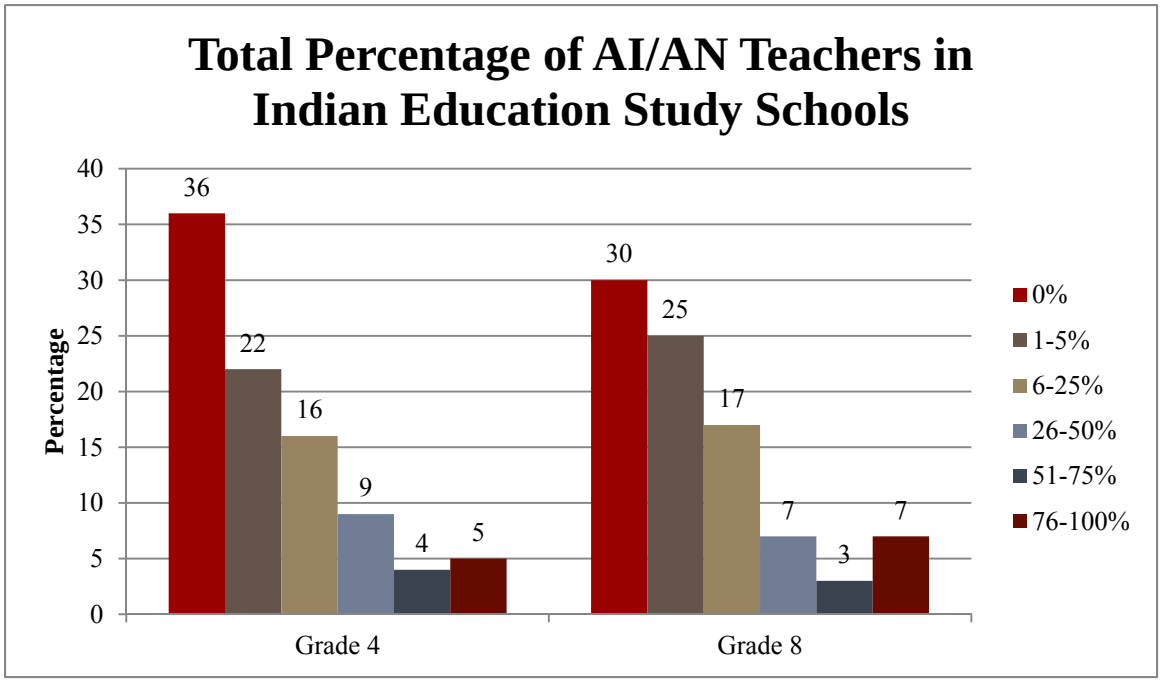

Figure 10.

Total Percentage of AI/AN Teachers in IES Schools

Source: Mead, N., Grigg, W., Moran, R., and Kuang, M. (2010). National Indian Education Study 2009-Part II: The Educational Experiences of American Indian and Alaska Native Students in Grades 4 and 8 (NCES 2010-463). National Center for Education Statistics, U.S. Department of Education, Washington, D.C.

In fact, P.L. 93-380 amended the Indian Education Act to add a teacher training program in 1974 and in 1994, P.L. 103-382 required a comprehensive plan to address the academic and culturally related needs of AI/AN students in connection with receiving formula grant funds (Office of Elementary and Secondary Education [OESE], 2014).

Cultural relevancy is not just about the content that is taught or the "what is taught" but also pertains to *how* it is taught (Bielenberg, 2000). Further, two important aspects of how something is taught include caring environments and positive teacher relationships. Erikson (1987) and more recently Noddings (1998, 2013) propose learning involves a trust relationship between the learner and teacher; this is because students are

being asked to open themselves up and move into terrain that is unknown when learning new things. If a teacher has shown a history of humiliating, rejecting, or making a student feel incompetent, the student is not going to trust the teacher and be open to the learning experience with the teacher.

Kleinfeld (1975) found teachers with a warm but demanding teaching style appear to challenge students to develop higher order thinking skills and work at higher intellectual levels. In Deyhle's (1992) work with the Navajo, students described a "good teacher" as one who cares; conversely, a "bad teacher" was one who showed antipathy to students. Students often react to bad teachers with passive resistance; that is, shutting down in the classroom and refusing to participate in the learning process. By not learning from an antagonistic teacher, students are engaged in political resistance and preservation of self (Giroux, 1983; McLaren, 2003). Because caring teachers are an essential component to student success (Dehyle, 1992; Kleinfeld, 1975; McCarty, 1989; Swisher, Hoisch, & Pavel, 1991; Wilson, 1991) it is an important construct to be able to measure. Section 7122, Professional Development for Teachers and Education Professionals, of the Elementary and Secondary Education Act (2001) provides for the authorization of federal funding to increase the number of AI/AN individuals qualified as education professionals. This is largely due to the challenge in hiring Indigenous teachers, because the lack thereof (Demmert & Towner, 2003), as well as the difficulty in recruiting non-Native teachers with a culturally responsive orientation (DeVoe & Darling-Churchill, 2008). The findings of this study, which demonstrate Indigenous teachers utilize AI/AN culture to a greater extent in the classroom, support the continued funding of the Professional Development Grant.

Indigenous Culture and Mathematics

Lipka has written a considerable amount on his work with the Yup'ik in implementing mathematics in a cultural context (Lipka, 1989, 1990, 1991, 1994a, 1994b; Lipka & Adams, 2004; Lipka & Ilutsik, 1995; Lipka & McCarty, 1994; Lipka, et al., 1998; Lutz, 2007; Manatowa-Bailey, 2007). The crux of Lipka's work with the community is in taking "everyday mathematics" of the community and using it to frame and create the curriculum. The context in which the mathematical concepts are presented is different than a typical mathematics curriculum.

Mathematics is traditionally taught in the classroom by teaching facts, mastering skills, and then learning to apply the skills (Trumbull, Nelson-Barber, & Mitchell, 2002). This style of instruction is an example of teaching the parts prior to explaining the whole which is contradictory to the preferred learning style for many Indigenous learners (Davidson, 1992; Gilliland, 1988; Kasten, 1992; More, 1987, 1989; Rhodes, 1988; Trumbull, et al., 2002).

Not only can learners be hindered by being taught the parts first without addressing the larger picture of how the parts fit into the whole, but language barriers may be present in word problems typically found in textbooks. For example, in the Navajo language there is no word that translates the English word "if" which can cause problems in the comprehension of hypothetical if-then statements (Hilberg, Doherty, Dalton, Youpa, & Tharp, 2002).

Thus, by placing mathematics instruction in context and utilizing the students' everyday experiences and AI/AN cultural knowledge the students have a greater opportunity to find the learning meaningful (Trumbull, et al., 2002). A cursory

examination of Indigenous artwork such as beading, quillwork, weaving, basket-making, pottery-making, etc. provides many opportunities to explore geometry concepts such as patterns, symmetry, transformations, and tessellations, to name a few (Bradley, 2002; Davison, 2002; Mingo, 2002). Likewise, ratios could be explored through the building of a longhouse or the making of frybread (Davison, 2002).

Being able to teach in this way requires a strong knowledge not only of mathematics but also of the students' Indigenous culture and lived experiences (Trumbull, et al., 2002). Thus, the author of this current study does not find it surprising that only two of the participating teachers indicated that their use of AI/AN culture is to the extent that it is integrated into the mathematics curriculum on a (near) daily basis and that students' did not report higher academic achievement in mathematics in relationship to the use of AI/AN culture by their teachers.

Indigenous Culture and Reading

In contrast, the author anticipated students would report greater academic achievement in reading in relation to a greater level of AI/AN culture used in the classroom because reading is linguistically based. Additionally, elders advise language is the heart of cultural identity and without our Indigenous language, tribal communities lose their very identity because the loss of language also means the loss of prayer, song, ceremony, etc. (Lipka, 1994c). Furthermore, previous studies have demonstrated students who have experienced Indigenous language immersion have demonstrated high levels of academic achievement in relation to their peers (Office of Elementary and Secondary Education [OESE], 2014). Although the findings of this current study are somewhat ambiguous, there is evidence of a relationship between students' reported

reading achievement and the extent of AI/AN culture use in the classroom. As previously stated, only two teachers indicated the use of culture as integrated into the curriculum on a (near) daily basis, thus the "high" level of extent of use of culture for this current study is not truly reflective of a high level use of culture, but more accurately the mean score would be more indicative of an occasional use of culture; considering this, it is difficult to make any recommendations for policy or funding other than to advocate for the continued investigation of the connection between culture use in education and academic achievement.

Indigenous Culture and the AI/AN Education Experience

American education in the federal control period (1880s- 1920s) held that American Indian students who hold onto their culture are less likely to succeed academically and the goal was assimilate the students into the dominate culture (Hoxie, 2001). There is now evidence that this view is mistaken (Demmert & Towner, 2003). Indigenous education pre-contact focused on the child acquiring "the spiritual and cultural knowledge necessary to meaningfully contribute to the overall socioeconomic welfare of the group (also known as tribalism), while also sharing their values, appropriate behaviors, and language." (Pewewardy, 2005, p. 141). Many Tribal communities and Indigenous activists indicate that the educational process needs to incorporate more of the traditional ways and purpose of teaching.

Maintaining Indian Culture/ Identity

While many American Indian families may lack social capital, American Indian communities offer cultural capital. Studies have shown that when local knowledge plays a dominant role in instruction improvements are seen in performance and attainment

measures (Barnhardt, 1999; deMarrais, 1992; Slaughter & Lai, 1994; Watahomigie & McCarty, 1994). Strong native culture and identity is what many Tribal Leaders, Elders, and Indigenous researchers believe to be imperative to strengthening indigenous communities. Research suggests students who have strong traditional identities have a firm foundation which aids them as they continue on in schooling (Bowker, 1993; Dehyle, 1992; Kleinfeld, 1979; Platero, Brandt, Witherspoon, & Wong, 1986). A survey of 185 Navajo students in grades 7 and 11 examined the relationship between their identification with attributes of traditional Navajo culture and their achievement level on standardized tests. Results suggest that student identification with Navajo language, culture, and tradition helps develop student self-esteem and cultural identity in ways that promote academic success (Vadas, 1995).

It is acknowledged that defining traditionalism is challenging; nonetheless, there are studies which suggest its importance. Using hierarchical multiple regression modeling, in a study of 451 Navajo youth, Willeto (1999) found that the more "traditional" a student is had little bearing on student academic success or failure; the degree of "traditional" was based on three domains: ritual behavior, cultural conventions, and language use. Canabal (1995), Huffman (2001) and Powers (2006) however, indicate that American Indian student success *is* related to the student having a strong cultural identity; defining who is "traditional," however, can be problematic (Pewewardy, 1998a).

For Native people, cultural identity is further confounded by location. McNamara (1982) suggests that whether the student has an urban or rural background plays a part in American Indian student success. Urban Indians face different challenges than do

reservation Indians. By not living on the reservation the urban Indian may experience a feeling of dislocation often resulting in an identity crisis. The urban Indian student may not be able to fully integrate into either society, neither the Indian nor the non-Indian. Oetting and Beauvois (1991) found that American Indian students who identify with either their native culture or the majority culture are more likely to have a positive outcome in academic endeavors than those that identify with neither. Bowker (1993) hypothesizes that the students in this experience will try to resolve this discord by following three paths: gravitation toward the White model, gravitation towards the Indian tradition, or creating a fusion of both.

Cultural relevancy and the ability to measure the impact of culture on academic achievement is of vital interest to American Indian communities. The 1992 Native American Languages Act recognized the right of Tribal Governments and Organizations to use Native American languages for instruction in all schools funded by the Secretary of the Interior (Reyhner, 1992b). After this recognition language programs have promulgated and have benefitted American Indian communities with increased student participation, student achievement, parent participation, and graduation rates (Dehyle, 1991; Holm & Holm, 1995; McCarty, 1991, 1994; McLaughlin, 1995; Watahomigie, 1988). However No Child Left Behind threatens these advances due to the required language proficiency component (Balter & Grossman, 2009; Winstead, Lawrence, Brantmeier, & Frey, 2008).

Classroom Environment

Learning styles, instructional style, and small classroom sizes are all relevant to the classroom learning experience. Brancov (1994) reports that informal classroom

organization, culturally relevant activity, and group work enhances language learning and that group work improved students' mathematics, specifically in problem solving and attitudes towards mathematics. McCarty et al. (1991) found that changing the classroom learning environment to support open-minded questions, inductive/analytic reasoning, and student participation in the context of a Native language and cultural environment resulted in students becoming very articulate and responsive to teacher questioning. Additionally, in a study of reservation and non-reservation Native students in New Mexico, Little Soldier (1989) found learning was enhanced by informal classroom organization with flexible arrangement of furniture and emphasis on group work, teachers sharing locus of control with pupils, cooperative learning, use of dialogue, and culturally relevant materials.

Caring Teachers

A caring environment and positive teacher relationships may play a vital role in academic achievement, as negative interactions with instructors has been cited as a key contributor to American Indian student dropout (Bowker, 1993; Brown & Robinson Kurpius, 1997; Chickering & Gamson, 1987; Coladarci, 1983).

Research (Noddings, 1998; Valenzuela, 1999) has indicated that a caring relationship with a teacher gives youth the motivation to succeed. Noddings (1998) expresses that with the corrosion of "traditional structures" of caring, the people in the schools need to step up and fulfill the caring roles in students' lives. Werner and Smith's (1982) longitudinal study indicates that beyond the family, the most important positive role model was a teacher. These teachers were not just academic instructors, but confidants who fostered a positive personal identification; students feel that they can talk

to "good" teachers and counselors about almost anything (Werner, 1984). Furthermore, research has found that students from low socio-economic families tend to do better in schools where teachers encourage students to do their best (Peng, Lee, Wang, & Walberg, 1992).

Coladarci (1983) conducted a study with 46 American Indian students who had dropped out. Thirty-seven percent indicated the teachers do not care about them, and thirty-nine percent stated the teachers do not provide enough assistance and these factors played a large part in their decision to leave school. Chickering and Gamson (1987) suggest that a tie to a staff member in college is a critical factor to student retention and that faculty and administrators need to act as advocates for the student to succeed. In a five year longitudinal study of American Indian persisters, Brown and Robinson-Kurpius (1997) found interaction with faculty as a critical factor in persistence. The importance of the student-faculty relationship is also recognized by Sydow and Sandel (1998). Likewise, in Bowker's (1993) study of 991 Indian women, feelings of rejection from teachers was a prevalent reason for leaving school. With a lack of Native role models in higher education—only 0.5 percent of staff in Institutions of Higher Education were Native and only 14 percent of these were full time faculty in 1993 (Pavel, 1992)—an understanding from faculty of American Indian cultures needs to be developed (Reyhner & Dodd, 1995).

Apprenticeship/ Purpose

A significant institutional factor influencing American Indian/ Alaskan Native education is the contradictory culture of learning and purpose of education for Indian students vs. the non-Indian culture (Jenkins, 1999; Minner et al., 1995; Thurston, 1998).

Many Indian students see little reason for increased formal education in relation to future careers due to the lack of opportunity available to them. For many, the jobs that are in their future are low level service jobs not requiring a high school diploma, much less higher education (Dehyle, 1992).

However, for many Native people, academic success is viewed as a means to self-governance, improved economic vitality for the tribe, and foster tribal pride; academic success simply for the sake of doing well in school is not commonly a priority (Apthorp, D'Amato, & Richardson, 2003; McInerney, 1997; McInerney & McInerney, 2000). Cajete (1994) articulates the need for Indigenous education to frame the interrelation of the student with the natural world and the goal of contributing to the well-being of the students' community, as the students are the next stewards of Tribal Nations.

Many American Indian students often attend institutions of higher learning so that they can use their abilities and skills for the improvement of their communities (Johnson, Benham, & Mann, 2003). McInerney, McInerney, Ardington, and De Rachewiltz (1997) conducted interviews with Navajo students from Window Rock High School and found that student motivation was strongly linked to social concern and tribal affiliation. This is in a manner connecting back to the traditional ways of education for American Indians in which education "occurred in a holistic social context that developed the importance of each individual as a contributing member of the social group" (Cajete, 1994, p. 26).

Recommendations

The author has three recommendations related to future study of the relationship between the use of Indigenous culture in the classroom and student achievement emanating from the study: (1) future survey administrations be able to cross-link data

from content surveys and cultural context surveys, (2) over-sampling of sub-populations within educational institutions be continued, and (3) the development of the NIES questionnaires receive the benefit of Indigenous elders' and educators' input. These three points will be discussed further below.

Additionally, the author recommends the exploration of charter schooling as a means of expressing Tribal Sovereignty in the education of tribal communities as well as a way for the federal government to meet its obligations to providing appropriate education. This will be discussed further in this section as well.

Future Study Recommendations

Cross-link Data

It is recommended subsequent NIES questionnaires be administered in such a way that it would be possible to link the culture contextual questions of the student, teacher, and school questionnaires to the NAEP subject based surveys. With the lack of matching cases found across the NIES database, mathematics NAEP results database, and reading NAEP results database it is not viable to examine correlations between different factors/ characteristics to academic achievement. As Boruch & Terhanian (1996) have articulated, it is necessary to create a system that would allow for the ability to link various NCES surveys to one another to be able to create larger databases with which to conduct research inquiries. In terms of the current study, by not having the ability to link a reasonable number of cases across the databases, the student reported academic achievement for reading and mathematics needed to be used as a proxy to more objective measures, such as NAEP subject testing scores. If future NIES/NAEP administrations do not allow for this cross-linking, at the very least a reporting of student grades with the

NIES databases should be considered to allow for the relationship between cultural contexts and academic achievement to be explored using more appropriate measures.

Over-sampling

Also needed is the continued over-sampling of schools serving American Indian/ Alaskan Native students as well as charter schools. With both of these "sub-categories" of education representing a small percentage--although continually growing--of the school population, it is necessary to obtain adequate samples for statistical analyses to be able to further research on the achievement of these sub-categories. This current study identified the lack of cases across the databases to be able to perform analyses examining the correlation of academic performance to educational experiences of AI/AN students. With larger samples that participate in both the content surveys and the context surveys it may be possible to perform these analyses of interest.

Indigenous Input

It is commendable that a nationwide study of American Indian/ Alaskan Native education was undertaken. The first iteration of the NIES questionnaires was a laudable document. However, there are some significant gaps that need to be addressed. A much needed first step would be for the National Center for Educational Statistics to bring into the survey development a cadre of Indigenous researchers and educators, as well as elders, to help strengthen the questionnaires to better capture the cultural aspects of American Indian/ Alaskan Native education. The 2005 questionnaires had the assistance of a Technical Review Panel (Stancavage, et al., 2006); however, the identity of the panel participants is not known. Thus, it is difficult to determine the level of expertise the panel has with American Indian education.

Exploration of Charter Schooling

Although the purpose of this study was to compare the extent of use of culture in the classroom by Indigenous and non-Indigenous and to examine the relationship between the extent of use of culture in the classroom and academic achievement, this inquiry was generated due to the historical legacy of poor academic achievement of Indigenous youth within Euro-educational institutions since the time of colonialism. Based on the historical low levels of academic success for American Indian/ Alaskan Natives, it may be reasonable to draw the conclusion that traditional public school systems could be failing American Indian/ Alaskan Native students (Backes, 1993).

The inability of traditional public schooling to be able to educate American Indian/ Alaskan Native students in a manner that is desirable to American Indian/ Alaskan Native parents and communities may lie with the very nature of traditional public schools and the power structure that operates them. The purpose of traditional public schools is to educate en masse with a curriculum that is en masse (Gloor, 2006); this form of schooling must take all the strengths and weaknesses of the population it is serving into account to educate everyone. The curriculum is decided top-down through administration. This "melting-pot" approach to education does not serve the students well (Gloor, 2006; Skerrett, 2008). In terms of the American Indian student, there is an abundance of evidence, statistical and anecdotal, about the failure of traditional schooling for American Indian students (Ackley, 2002). Native communities have expressed time and time again that the current public schooling system is not working for their children (National Indian Education Association [NIEA], 2005). Although the use of learning style theories and culturally relevant curriculum may be beneficial, they do not

sufficiently analyze the underlying problems of the culture of the educational institution; they do not transform the learning environment—the student still needs to operate within the structure of the systems which are failing them.

Tribal communities recognize the value of a localized curriculum that is created from the heart of the community reflecting its culture, language, values, and customs (Johnson, 2000). To take this from conceptualization to practice requires a power structure that is deconstructed and placed back within the community. Gregory (2013) voices how the current educational systems are not able to function in a manner that is complementary to Indigenous ways and suggests a possible alternative when he writes, "Despite the governing agencies, most of these schools operate generally in the same manner and having meet federal guidelines leaves little time in a school day for Indigenous knowledge or approaches. The one exception to this patterning might be charter schools." (p.21).

Although legislation, such as PL 103-382, has been passed to require schools to meet the academic and cultural needs of AI/AN students, parents and activists argue those needs are still not being met for many AI/AN students. Thus, AI/AN communities are turning towards alternatives to the public school system. Charter schooling is one of those alternatives AI/AN communities are seeking as demonstrated by the disproportionate percentage of American Indian/ Alaskan Native students attending charter schools (3.5%) in comparison to the total American Indian/ Alaskan Native student population of one percent (U.S. Department of Education & RPP International, 1997). Furthermore, the number of charter schools in operation for American Indian/ Alaskan Native students is estimated to have grown to 63 by 2012 (National Charter

School Resource Center, 2012). Not included in this growth of charter schooling is the expansion of charter schools off BIA lands, such as the Native American Community Academy in Albuquerque, NM opened in 2006, or the Four Winds School in Chico, CA, both striving to honor traditional American Indian teachings and learning in the school (John, 2001). In 2012, the Cherokee Nation took the step of meaningfully bridging issues of Tribal sovereignty and public education by becoming the first Native American tribe to authorize a charter school (Nicotera, 2013).

This growing interest of AI/AN communities in charter schooling is an attempt to mediate the need for improved academic performance for AI/AN students and the authentic use of culture in the schooling experience. The preservation and reinvigoration of cultural identity has been an objective of many Tribal Nations in recent decades (Hetherington Brown, 2012), many focusing on language revitalization (Cantoni, 2007). Many of the language revitalization projects are occurring within charter and tribally controlled schools (Haynes, 2004; Hermes, 2007; Slaughter & Lai, 1994).

Charter Schooling as an Expression of Sovereignty

Language revitalization in schools is part of a broader call by Indian Nations for the exercise of sovereign rights in determining educational goals for their people to counteract the historical practice of schools which "have served to promote mainstream cultural values and expectations and have disregarded the experiences, languages, and cultural understandings of American Indians and other underrepresented groups" (Noll, 1998). However, there are few instances of sovereignty expression in education going beyond educating in the manner typical to the American society. Deloria (1974; Deloria & Wildcat, 2001) stresses the idea that success in Native education requires much more

than simply having Indian people running the schools their children attend, rather it requires an examination of what education really means for Indian people. Native people need to examine what it is about the current public educational system that does or does not work for their students, what information Native communities want their students to know, how the information is going to be transmitted, and then determine how that learning process is then going to manifest itself.

Charter schooling may not only be a possibility for American Indian schooling but also a logical extension of sovereignty rights. Using the legislation of charter schooling in tandem with the inherent right of Tribal Nations to self-govern it may be possible for Tribal Nations to create school systems that address the problems in education that are centuries old for Native children. Thus the possibilities that charter schooling holds for tribal communities is inspiring. It is very possible that local tribal communities could define and create educational experiences that utilize traditional knowledge systems and practices in a very organic way. This is the antithesis of what commonly occurs in traditional public schools where language and culture for American Indian/ Alaskan Native students is an "add-on" or "extra" rather than imbedded within the school culture (Smart, 2000). Charter schooling exhibits characteristics that are conducive to providing American Indian education in a way that reverses the historical legacy of poor academic achievement and demonstrates the real potential of Tribal Nations being able to take back the education of their students for the betterment of their communities.

On August 6, 1998, President William J. Clinton signed Executive Order 13096 recognizing tribal sovereignty and the federal government's commitment to "improving

the academic performance and reducing the dropout rate of American Indian and Alaska Native students" (Clinton, 1998). Executive Order 13096 also called for the development of an Interagency Task Force on American Indian and Alaska Native Education that was to consult with Tribes and tribal organizations to "gather advice." The Interagency Task Force produced the "Indian Nations at Risk" final report. In the report the Task Force identified the following as one of its guiding principles:

> A genuine commitment to real change will be required not only on the part of school systems, but also by federal, state, local, and Native governments; Native corporations; educational organizations; and business, labor, and community organizations (Indian Nations at Risk Task Force, 1991, p. xiv).

The Task Force found that to improve academic performance for American Indian/ Alaskan Native students it would require "successful educational reform" which includes "local empowerment, accountability, and adequate financial and political support"; furthermore, it would require a system that would "be flexible to allow for innovation and experimentation" (Indian Nations at Risk Task Force, 1991). The author of this study interprets this statement as a call for Indigenous charter schools. Nevertheless, although the Task Force speaks to the importance of local control and accountability, as well as the need for cultural and language in education, it misses the mark by failing to acknowledge that charter schools can play a role in accomplishing these goals. Rather, the Task Force reiterates the call for culturally based and culturally relevant instruction with little articulation on how this might be achieved as a practical matter.

However, Native educator and researcher Hermes expresses the failing of this repeated call when she writes:

> … in many cases, tribal schools are funded by the federal government and held accountable to both federal and tribal agencies, as well as to state and national standards. Given these challenges, there is little evidence thus far that the culture-based movement has produced fundamental and widespread shifts in approaches to schooling (Hermes, 2005, p. 43).

Hermes goes on to explain:

> Although the overarching political goal of culture-based education supports self-determination and community empowerment, added on as material culture only, Indigenous cultural knowledge and practices have not deeply influenced the structure of schooling. Much of the structure of the institution remains similar to that of most public schools, in which the regulating forces of the state (certification, benchmarks and standards, teacher training, state accreditation and evaluation) remain firmly in place (Hermes, 2005, p. 48).

The lack of fundamental and widespread shifts in the education of American Indian students is justification for why Indigenous charter schooling needs to be explored. In order to try and avoid falling into the same 'trap' of using culture as an "add-on" and instead allowing it to frame the very nature of Indigenous education, tribal entities need to become authorizers. Through this avenue, it is possible that what Rofes identifies as "counterpublics" can be established and in so doing,

> …we might reconceptualize the emancipatory potential of charter schools. Students might emerge from these charters on a different trajectory than often cited in charter debates: one that has inculcated in them multiple forms of cultural

> capital, a new understanding of the social capital of their home community, and a critical pedagogy of resistance (Rofes, 2004, p. 260).

The end result of this reconceptualization would likely be students who are culturally adapt, firmly entrenched in their identity, and socially and academically engaged. Engaged students are much more likely to be successful students. As Pewewardy (2005) articulates:

> …the best change for significant improvement in the performance of low-achieving Indigenous students lies in innovations based on replacing constructs rooted in past white hegemony and its current vestiges, and building educational programs and communities consistent with children's ethnic, cultural, social, and developmental needs (p.151).

Charter schooling may offer the opportunity for Tribal Nations to develop schools that teach their children through their culture by being able to frame the schooling environment as the community sees fit. Charter schooling may be a way for Tribal Nations that do not have the financial resources to fund their own schools to have access to funding while still being able to construct a schooling experience that is congruent to their way of knowing thus working to dismantle "a five-hundred year long miseducation of authentic Indigenous Peoples' teaching and learning practices" (Pewewardy, 2005, p. 156).

Limitations of the Study

There are several limitations to the study, mainly pertaining to the administration of the NIES, the nature of research in Indian country, and the biases of the researcher.

Limitations of the NIES

The primary limitation to the study was the inability to use an objective measure of academic achievement. The 2005 administration of the NIES questionnaires were independent of the NAEP content surveys, thus there is very little overlap of cases across the databases. Relying on student evaluated and reported ability measures were the best available measure of academic achievement with this administration of the NIES/NAEP. Unfortunately, this is rife with reliability issues; students' perception of their academic performance is immensely variable from one student to the next, and even a single student's perception is variable. Although including student grades in the database along with the responses to cultural context questionnaire responses would be a more reliable measure of academic performance, grades are still variable between teachers and schools. Thus, the ability to link the performance on the NAEP content surveys to the NIES cultural questionnaires would be preferable for future study.

Difficulties in American Indian Research

Social science research faces certain limitations and this is amplified with research conducted with American Indian peoples. Some of these limitations include the history of research as it pertains to American Indian people, the qualifications of who conducts the research, and the use of the findings. However, the most difficult problem with regard to research with American Indians is the relatively small population size compared to the large number of Tribal Nations; American Indians comprise only 1% of the population in the United States. Researchers often treat all American Indians as belonging to one group when in fact there are over 500 federally recognized Tribal Nations with very distinct cultural differences. The problem is further complicated when

data collected does not extrapolate Native peoples, but rather includes them within an "other" category with a number of varying ethnicities. Although the NIES used over-sampling to acquire a large sample size for statistical analyses, the variance between groups (tribal affiliations and/or type of schooling) becomes homogenized when looked at as a group. It is possible that rather than examining the experiences of AI/AN students, tribal specific, or at the very least, regional studies may need to be performed rather than as one entity.

Each of the American Indian tribes has unique histories, cultures, and languages. Tribal interaction with colonization, their internal conflicts, external conflicts, and alliances are each a different story. Each tribal group has its own form of government, religion, and society. Tribal groups have different factions; there is the Oneida Nation of Wisconsin, the Oneida of New York, and the Oneida of Thames. Each of these factions has different histories, religious beliefs, and cultural practices. The Anishanabee speak a language as different from the Oneida as French is from Ukrainian. Yet within these complex experiences there are also commonalities. With inter-tribal pow-wows and the Pan-Indian movement of the 1970's the sharing and crossover of culture has promoted some commonality.

Because of this duality of separate identities and common identities, researchers have had contrasting views of how American Indians research should be conducted. Some researchers conduct their studies with Indian people being one common group, brain dominance (Chrisjohn & Peters, 1986; Rhodes, 1990; Walker, Dodd, & Bigelow, 1989) was one area where this approach was common. Others specify their work as

being specific to one group which should not be generalized beyond that context (Rindone, 1988).

Another major concern with conducting research with American Indian people is the reason for the research. Research for research sake is not uncommon in the social sciences and natural sciences. However, research involving American Indians has been criticized—rightfully so—by American Indians for producing no benefits for the subject, the people themselves. The Meriam Report (Brookings Institution, 1928), the Kennedy Report, and the White House Conference on Indian Education (White House conference on Indian education. Final Report. Executive Summary, 1992) are three examples of large scale national works that have produced little benefit for American Indian Education. Research is used to promulgate further research. As Deloria (1997) states:

> And finally, the outcome of research is often misunderstood and misused. This tradition, as we experience it today, is the tendency to authorize or fund an amazing number of studies whose conclusions are ultimately rejected so that we can devise a political solution that will enable us to avoid understanding or confronting the issue altogether and which usually is satisfactory to no one (p.5).

Indian communities have been one of the most researched groups and continue to be a source of fascination for researchers. Because of this, many Indigenous communities have participant fatigue and a general sense of apathy towards surveys and questionnaires. It is quite possible that the NIES data may suffer from the effects of participant fatigue and general disinterest by the participants. Research that is initiated by Tribal Nations themselves or research that has an articulated immediate benefit to Indigenous communities is generally better received but may still suffer from the same

issue. It would be impossible to know whether this current research is impacted by data that could suffer from participant fatigue.

Research Biases

With quantitative research the researcher is viewed as "outside" the study, however, in qualitative research, the researcher is understood as being part of the study (Creswell, 2009) if only by their worldview (Wilson, 2008). Although this study utilized quantitative methods, this researcher does not believe it is possible to entirely separate self from the study; at the very least our beliefs and experiences shape research interests.

As a tribal member, I believe very strongly in the exercise of the sovereign rights of Indian Nations and People and the topic of education for our children is very close to my heart. The historical trauma that exists due to the federal policies and practices that tried to eradicate our people have had, and continue to have, devastating effects on our collective psyche that manifest itself as many social ills today. I believe that education is a very strong tool by which to transfer culture; as such it is of vital importance for Indigenous peoples to be able to frame the educational experience for their children. Therefore, I biased this study by having given privilege to research and writings done by those who are of Indigenous background and/or work done by those who may be non-Indigenous but are recognized by Indigenous scholars. Although there is valuable work done by other scholars which could inform this study, it was important to me to position my work within Indigenous thought to the extent that I could as a small act of Tribal Sovereignty and Tribal Privilege.

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APPENDIX: Questionnaire Items Composing Extent of Culture Use Construct

	Question	Response Options
(RIT00901)	In your class, to what extent is curricular content taught using an American Indian or Alaska Native perspective?	1- not integrated into the curriculum 2- seldom integrated into the curriculum 3- integrated into the curriculum occasionally 4- integrated into the curriculum extensively, but not on a daily basis 5- integrated into the daily curriculum
(IT01001)	How often do you have students do each of the following? read literature with American Indian or Alaska Native themes	1- never 2- less than once a month 3- at least once a month 4- at least once a week 5- almost every day
(IT01002)	read literature written by American Indian or Alaska Native authors	
(IT01003)	Listen to American Indian or Alaska Native stories told in the oral tradition	
(IT01004)	Retell American Indian or Alaska Native stories in the oral tradition	
(IT01005)	study how to speak and read their American Indian or Alaska Native language	
(IT01006)	solve mathematics problems that reflect situations typical of your American Indian or Alaska Native students' home or communities	
(IT01007)	complete activities that integrate mathematics with American Indian or Alaska Native themes (for example, use traditional symbols and designs to teach geometric concepts)	
(IT01101)	To what extent do you use your students' American Indian/Alaska Native (AI/AN) language to teach reading/language arts?	1- Instruction is entirely in English 2- Instruction is primarily in English, but words or phrases from the students AI/AN language are included occasionally 3- Instruction is primarily in English, but words or phrases from the students' AI/AN language are included frequently 4- Instruction is primarily in the students' AI/AN language
(IT01201)	To what extent to you use your students' American Indian/Alaska Native (AI/AN) language to teach mathematics?	

CURRICULUM VITAE

Nicole M. Butt

Place of Birth: West Bend, WI

Education

B.S., University of Wisconsin- Milwaukee, May 1999
Major: Elementary Education

M.S., University of Wisconsin- Milwaukee, December 2002
Major: Curriculum and Instruction

Dissertation Title: Differences in the Extent of Use of Culture in the Classroom Between Indigenous and Non-Indigenous Teachers and the Relationship to Student Reported Academic Achievement in Reading and Math

Awards

American Indian Graduate Center Fellowship, 2006-2008

The Chancellor's List, 2005, 2006, 2007

Dikander Scholarship, University of Wisconsin- Milwaukee, 2004

AOP Fellowship, University of Wisconsin- Milwaukee, 2002 – 2004

Related Experience

Associate Lecturer, Dept. of Curriculum & Instruction, UW-Milwaukee- 01/2005- 5/2010. Served as the Native Linking Seminar Instructor and Induction Coordinator to instruct students in the Urban American Indian Teacher Training Program, developed course content and materials, as well as developed induction services to graduating students in their first year of teaching.

Evaluation Manager, Pacific Institute of Research and Evaluation- 4/1/2007- 9/31/2007. Hired to work with Great Lakes Inter-tribal Council to perform external process & outcome evaluation as well as assist with building capacity of local tribes to conduct self- assessment of programs intended to reduce AODA in tribal youth & adults.

Program Assistant, Dept. of Curriculum & Instruction, to the Urban American Indian Teacher Training Program, UW-Milwaukee- 08/2004- 01/2005. Responsible for the creation of evaluation materials to determine applicant acceptance, creation and teaching of linking seminars and induction services to program students, as well as program website maintenance.

Graduate Assistant, UW-Milwaukee – supervisor Dr. David Beaulieu, 01/ 2002-08/2004. Determined course materials, created resource CD-Rom of course materials, graded exams, instructed various courses in supervisor's absence, created the 'Electa Quinney Center for Indian Education' website, and contributed to the Urban American Indian Teacher Training Program grant proposal through research, authoring, editing, and program development.

Evaluation Consulting Experience

Consultant to SAMHSA's Center for the Application of Prevention Technologies Central Resource Team- 1/2014- present. Contracted to consult on evaluation for American Indian prevention programs for the State of Minnesota and to deliver Native American Substance Abuse Prevention Training Curriculum to various Tribal organizations.

External Evaluator, Great Lakes InterTribal Consortium- 9/2011- 9/2012. Contracted to advise on potential data systems and to perform external process and outcome evaluation of the Substance Abuse & Mental Health Services Administration (SAMHSA) Strategic Prevention Enhancement (SPE) Grant and provide expertise on building an evaluation system.

Consultant to the Business and Economics Academy of Milwaukee- 06/2008-present. Hired to conduct statistical analyses for the evaluation of a teacher performance incentive based compensation program for the charter school.

External Evaluator, Great Lakes InterTribal Consortium- 4/2007- 8/2012. Contracted to perform external process and outcome evaluation as well as assist with building capacity of staff to conduct self-assessment of programs designed and implemented through a SAMSHA SPF-SIG to reduce Alcohol and Other Drug Abuse (AODA) in tribal youth and adults.

External Evaluator, Grand Traverse Band of Ottawa and Chippewa Indians- 10/2007- 10/2012. Contracted to research and produce an epidemiological report as well as assist with building capacity of staff to conduct self-assessment of programs designed and implemented through a SAMSHA SPF-SIG to reduce AODA in tribal youth and adults.

Consultant to Economics Wisconsin- 08/2011- 01/2012. Hired to create and implement an online testing program for two economics programs implemented in charter, private, parochial, and public schools. Conducted statistical analyses for the evaluation of the effectiveness of instruction.

External Evaluator, College of Menominee Nation- 10/2011- 01/2012. Contracted for paper based and online based survey design for a study titled "Guide for Effective Tribal Crash Reporting" under the National Cooperative Highway Research Program to identify and facilitate the implementation of complete, accurate, and timely tribal crash reporting systems across the nation.

External Evaluator, College of Menominee Nation- 09/2010- 10/2010. Contracted to perform evaluation of the WI Department of Transportation (WisDot)

Tribal Task Force as mandated by EO#39 to measure the effectiveness and satisfaction of Tribal and State Stakeholders.

Consultant to the Lakeland College- 09/2009- 01/2011. Coordinate and collect data and perform statistical analysis for the evaluation of an incentive based personal financial education curriculum implementation, FLAME, for grade school students.

Consultant to Economics Wisconsin- 07/2007- 09/2010. Hired to conduct statistical analyses for the evaluation of the Youth Enterprise Academy (YEA) and Youth Enterprise Junior Academy (YEJA) Summer Programs for Urban Youth to determine effectiveness.

Consultant to Mount Mary College Midtown Scholarship Program- 07/2008- 09/2010. Hired to conduct statistical analyses for the evaluation of the financial literacy component to the Critical reading and Thinking Course for the Summer Bridge Program, a requirement of the Scholarship Awardees.

Consultant to the UW-Milwaukee Center for Economic Education- 01/2007- 5/2009. Coordinate and collect data and perform statistical analysis for the evaluation of an incentive based personal financial education curriculum, FLAME, implementation for grade school students (three year project).

Consultant to the UW-Milwaukee Center for Economic Education- 09/2005- 01/2009. Coordinate and collect data and perform statistical analysis for the evaluation of an incentive based personal financial education curriculum implementation, Financial Fitness for Life, for middle school students (four year project).

External Evaluator to Cardinal Stritch Philanthropy Incubator Project- 08/2007- 11/2008. Evaluation for an urban philanthropy project in Milwaukee develop minorities and professionals ages 20 to 35 as philanthropists funded by the WK Kellog Foundation.

Project Statistician, Fox and Sac Tribal – 02/2008. Contracted to advise on meaningful data and complete for school effectiveness project and provide statistical analysis.

Project Manager, Bowman Performance Consulting, LLC- 01/2008- 4/2008. Contracted to plan and implement the Milwaukee County Health and Human Services Rate Survey and Customer Satisfaction Survey for Milwaukee County Child Care Providers. Responsible for data collection, data analysis and reporting, and the coordination of staff to carry out services.

Project Manager, Bowman Performance Consulting, LLC- 01/2007- 12/2007. Contracted to assist Milwaukee County Childcare Facilities in the NAEYC accreditation process. Responsible for data collection, program analysis, program implementation, assessment of childcare facilities and the coordination of staff to carry out services.

Consultant to the UW-Milwaukee Center for Economic Education- 09/2006- 01/2007. Coordinated and collected data and performed statistical analysis for the evaluation of an incentive based personal financial education curriculum

implementation, Financial Fitness for Life, for middle school students (year two of the project).

External Evaluator to Public Allies, Inc.- 03/2006- 3/2007. Evaluation for an urban philanthropy project in Illinois and North Carolina to develop minorities and professionals ages 20 to 35 as philanthropists funded by the WK Kellog Foundation.

State of Wisconsin Office of Juvenile Assistance- 07/2006- 10/2006. Subcontracted through Bowman Performance Consulting, LLC. to gather data and perform Relative Rate Index analysis on the status of disproportionate minority contact for American Indian youth.

Grant Review Panelist- 05/2005. Reviewed grant proposals for the U.S. Department of Education's Native Hawaiian Program.

Invited Presentations

Butt, N.M. & Melson, J., (2014). Epidemiology 101 in Indian Country. Presentation to the Prevention Fellowship Program Participants sponsored by SAMHSA's Center for Substance Abuse Prevention Fellowship Program. Webinar.

Butt, N.M. (2013). The Challenge, Value, and Interpretation of Data in Indian Country. Presentation to the NACE NPN Learning Community, SAMHSA's Native American Center for Excellence. Webinar.

Butt, N.M. & Melson, J. (2012). Epidemiology in Indian Country. Presentation to the Prevention Fellowship Program Participants sponsored by SAMHSA's Native American Center for Excellence. Webinar.

Butt, N.M. (2012). The History of Indian Boarding Schools and the Lasting Social Impact. Presentation at UW-Oshkosh Social Justice Week. Oshkosh, WI.

Butt, N.M. & Melson, J. (2012). Working with Tribal Alcohol and Other Drug Abuse (AODA) Prevention Organizations to Collect and Analyze Data. Presentation at SAMHSA's Prevention Day for CADCA's 22nd National Leadership Forum. Gaylord National Hotel & Convention Center. National Harbor, MD.

Butt, N.M. & Melson, J. (2011). Lessons Learned and Outcomes Derived Panel Presentation. Presentation at the Strategic Prevention Framework State Incentive Grant National Grantees Meeting (Cohorts III, IV, and V). Renaissance Washington, D.C.

Butt, N.M. (2011). Working with Sub-recipients/ Partners to Complete the CLI. Presentation at the Strategic Prevention Framework State Incentive Grant Tribal Evaluators Cohort III, IV, and V: Cross-Site Evaluation Conference: Coming Together to Reach Consensus. Sky City Casino Hotel. Acoma, NM.

Butt, N.M. (2011). Accessing and Collecting Outcome Data. Presentation at the Strategic Prevention Framework State Incentive Grant Tribal Evaluators Cohort III, IV, and V: Cross-Site Evaluation Conference: Coming Together to Reach Consensus. Sky City Casino Hotel. Acoma, NM.

Butt, N.M. (2011). Panel Discussion of the GLI Surveys. Presentation at the Strategic Prevention Framework State Incentive Grant Tribal Evaluators Cohort III, IV, and V: Cross-Site Evaluation Conference: Coming Together to Reach Consensus. Sky City Casino Hotel. Acoma, NM.

Butt, N.M. (2011). National Drug Trends Within Native Communities. Presentation at the Quarterly Meeting of the Michigan Native American Behavioral Health Community. Soaring Eagle Casino Resort, Mt. Pleasant, MI.

Butt, N.M. (2010). The Development of Boarding School Policy and It's Impact on American Indian Society. Presentation for UW-Oshkosh Multicultural Studies Department. Oshkosh, WI.

Butt, N.M. (2010). Evaluating Environmental Strategies 101. Presentation at the Annual Wisconsin State Prevention Conference. Wisconsin Dells, WI.

Butt, N.M. & Brokenleg, I. (2009). Data Collection and Evaluation. Presentation at the Annual Healing Our Communities Conference sponsored by the Wisconsin Department of Health Services, Wisconsin Department of Children & Families, and American Indians Against Abuse. Green Bay, WI.

Feyerherm, W., Bowman, N., Butt, N. M., & Keating, M. (2006). Presentation at the Disproportionate Minority Contact in Indian Country: Understanding the Involvement of Native American Youth in the Justice System: A First Step. Lake of the Torches, Lac Du Flambeau, WI.

Butt, N. M. (2003). How federal Indian education policy of yesterday affects the health crisis of today. Presentation to Cardinal Stritch Nursing Program, Milwaukee, WI.

Presentations

Butt, N.M. & Melson, J. (2011). Lessons Learned from Working With an AODA Tribal Consortium to Build Epidemiological Capacity to Collect and Evaluate Data in Indian Country. Poster Presentation at the 139th American Public Health Association Annual Meeting and Exposition. Oct 29- Nov 2, 2011. Washington, D.C.

Butt, N.M. (2008). Do Teachers in Large Urban Districts Respond to Incentives?: Implementing Financial Fitness for Life. Presentation at the Association of Private Enterprise Education 33rd annual conference. Las Vegas, NV.

Butt, N. M. (2007). Charter Schooling: A Possibility for Indian Education?. Presentation at the WIEA annual conference, Lac Du Flambeau, WI.

Schug, M., Butt, N. M., & Lawton, V. (2006). Incentive Based Approach to Implementing Financial Fitness for Life. Presentation at the annual National Council on Economic Education (NCEE), National Association of Economic Educators (NAEE), and the Global Association of Teachers of Economics (GATE) Conference. New York, NY.

Schug, M., Butt, N. M., & Lawton, V. (2006). Improving Financial Education: An Incentive Based Approach to Curriculum Implementation. Presentation at the 49th annual Lakeshore Leadership Conference. Milwaukee, WI.

Butt, N. M. (2005). Finding Tomorrow's Teachers. Presentation at the WIEA annual conference, Keshena, WI.

Butt, N. M. (2003). Post-secondary education success factors: Perceptions of Native American students. Paper presented at the 15th annual School of Education Research Conference, Milwaukee, WI.

Butt, N. M. (2003). Post-secondary students perceived factors of academic success. Paper presented at the WIEA annual conference, Green Bay, WI.

Courses Instructed

Fall 2004. UW-Milwaukee. Developed and Instructed Urban American Indian Teacher Training Program Student & Mentor Round Table Linking Seminar.

Summer 2004. UW-Milwaukee. Co-instructed semester course "Urban Education: Foundations."

Summer 2003. UW-Milwaukee. Instructed several sessions of semester course "Cultural Foundations of Education", topics: *School Governance and Finance, Curricular and Instructional Issues*.

Spring 2003. UW-Milwaukee. Facilitated several class sessions of semester course "History of Native Education and Policy Development", topics: *The Character and Nature of Boarding Schools, Reaction and Impact of Boarding Schools, The Indian Nations at Risk Task Force, and National Educational Reform.*

Feb 2003. UW-Milwaukee. Facilitated class session of semester course "Doctoral Seminar: Urban Education Issues", topic: *The Societal Causes of the Urban Educational Crisis.*

Nov 2002. UW-Milwaukee. Facilitated class session of semester course "Topics of American Indian Education", topic: *Curriculum and Instructional Issues.*

Publication

Butt, N.M. (2013). *2013 Tribal Transportation Planning Report*. College of Menominee Nation and Wisconsin Department of Transportation. WisDOT Tribal Task Force.

Burden, S.S., Butt, N.M., Melson, J.M., Wright, C. (2012). *Great Lakes Inter-Tribal Council's Inter-Tribal Prevention Strategic Plan* funded by the Substance Abuse Mental Health Services Administration's Center for Substance Abuse Prevention Strategic Prevention Enhancement Grant #18649. Lac du Flambeau, WI.

Butt, N.M., Haessler, S.J., & Schug, M.C. (2008). An incentive-based approach to implementing *Financial Fitness for Life* in the Milwaukee Public Schools. *Journal of Private Enterprise*, 24(1), 165-174.

Memberships

Golden Key National Honor Society
Pi Lambda Theta
WIEA
APHA