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Understanding The Relationship Between Cultural Wellness And Academic Achievement On Standing Rock Reservation

Derek A. Stewart
University of New England

UNDERSTANDING THE RELATIONSHIP BETWEEN CULTURAL WELLNESS AND ACADEMIC ACHIEVEMENT ON STANDING ROCK RESERVATION

By

Derek A. Stewart

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Derek A. Stewart
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ABSTRACT

Academic achievement concerns are common among reservation schools in North and South Dakota and elicit numerous questions regarding how to address these concerns to improve educational outcomes for Native American students. This study examined the relationship between cultural wellness integration, based on the Medicine Wheel model, and the following academic achievement measures: standardized achievement tests, attendance, graduation rates, and behavioral disciplinary referrals. The specific research questions that guided this study are: 1) Using a Medicine Wheel model, how are schools on Standing Rock Reservation integrating cultural wellness? 2) How do cultural wellness integration practices relate to academic achievement in schools on Standing Rock Reservation? 3) What are common cultural wellness related concerns hindering academic achievement among students on Standing Rock Reservation, and how can school staffs address those concerns?

This study utilized a mixed methods design comparing quantitative with qualitative data to determine how cultural wellness correlates with academic achievement measures. Data consisted of 65 surveys from seven school districts on Standing Rock Reservation with 10 interviews from staff including administrators, teachers, and paraprofessionals. In alignment with Indigenous methodology, this study examined cultural wellness integration by using the four directions/domains of the Medicine Wheel: physical, emotional, mental, and spiritual. The

quantitative survey analysis revealed a significant relationship between mental familiarity and emotional wellness integration. In-School Suspension (ISS) was assessed using survey data analyzing the frequency of emotional wellness responses by including negative emotional wellness questions documenting the frequency teachers reported sending students to ISS. The data indicated mental familiarity (the level of understanding for the following terms): boarding schools, forced assimilation, historical trauma, intergenerational trauma, and Adverse Childhood Experiences corresponded with emotional wellness responses by 17%; meaning, on average, a one-unit increase of emotional wellness increased the value of mental familiarity by 0.33 units. With an increase in mental familiarity, there was a decrease in negative emotional wellness responses (ISS).

The quantitative data aligned with the qualitative data; the themes generated from the qualitative interviews reported the importance of understanding "where the students are coming from" and the importance of building relationships between school staff and students to influence academic achievement and address behavioral concerns for students on Standing Rock Reservation. Other findings from the qualitative data reported Historical Trauma and low self-esteem as common cultural wellness concerns impacting educational outcomes and increasing classroom student behavioral concerns.

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This dissertation was presented
by

Derek A. Stewart

It was presented on
28 November 2018
and approved by:

Dorothy Williams, Ph.D., Lead Advisor

University of New England

Andrea Disque, Ed.D., Secondary Advisor

University of New England

Chris Fried, Ed.D., Affiliate Committee Member

Sitting Bull College

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CHAPTER 1

INTRODUCTION

This mixed methods study examines cultural wellness integration in seven school districts on Standing Rock Reservation in North and South Dakota to analyze the relationship between cultural wellness integration and academic achievement. Below average academic achievement scores from public schools on reservations are common, and academic achievement from schools on Standing Rock Reservation is comparable with achievement seen on other reservations. The push towards improving academic achievement for Native American students has changed the focus from cultural integration that addresses student and community needs, to that of standardized test scores (Barber & Trumbull, 2015). In an effort to address academic achievement concerns for Native American students in North and South Dakota, it is imperative that school systems identify causative factors of trauma and how these affect educational outcomes (Evans-Campbell, 2008).

Many young Native American youth today experience ongoing Adverse Childhood Experiences (ACEs) as a result of intergenerational trauma seen on reservations. Native American trauma is not isolated to a single generation; it is instead reflected in hundreds of years of forced assimilation, causing losses of cultural components, many of which have been cited during the boarding school era (Adams, Chen, Hoyt, Whitbeck, 2004; Brockie, Campbell, Wallen, Wilcox, Sacco, 2015). Such practices as those implemented during the boarding school era are commonly understood as having devastating negative consequences on culture and child development, which has, in turn, impacted reservation communities for generations (Beals, Manson, Whitesell, Mitchell, NBovins, Simpsons, Spicer, 2005; Ehlers, Ellingson, Gilder, Gizer, Yehuda, 2013). Today, educational institutions understand the role culture has within an

education; however, research is underdeveloped regarding specific aspects of culture in addition to how schools and teachers implement culture to maximize student achievement. For education to be meaningful for students, educators must not only consider a learner's current knowledge or skill level, but also the cultural, political, and historical contexts that contribute to the educational setting (Freire, 1973, Hooks, 1995;Morotti, 2006; Vygotsky, 1978). This research reviewed literature on historical trauma and intergenerational trauma children endure as an essential component in understanding academic outcomes for Native Americans. The study examined and identified common barriers within Native American communities on Standing Rock Reservation to highlight cultural wellness concerns hindering academic achievement.

Culture and wellness will be assessed through the lens of the Medicine Wheel, a common symbol within Native American tribes reflecting traditional cultural values. Because the Medicine Wheel is widely recognized across tribal nations, it could be used on other reservations to assess cultural wellness integration in schools to determine what areas need to be strengthened. With little known in regard to approaches to cultural integration, further research analyzing cultural integration is needed to determine the correlation between cultural wellness and academic achievement. The research findings have the potential to illustrate what effective cultural wellness integration looks like, and inform educational policies and practices to better address student cultural backgrounds within an educational setting.

Problem Statement

To understand the impact of historical trauma, it is necessary to first consider the importance of early childhood, where the foundation for lifelong learning begins. High-achieving students typically grow up in nurturing environments, surrounded with caregivers that help support the wellness and learning process of the child (Clarke, 2002; Morotti, 2006). Such

learning takes place outside of formal education in early childcare, which aids in developmental milestones such as communication, attention, behavior, and emotional capabilities for learning (Guinosso, 2015). Moreover, social education is based on the needed skills, practices and beliefs necessary to continue an existing society; for children, these skills, practices, and beliefs are learned by observing and imitating family and community (Morotti, 2006; Reimer, 1999). Prior to forced assimilation, one can infer how Native American children were viewed and treated by reviewing the literature on traditional Lakota/Dakota childcare practices, and by considering the Lakota/Dakota language, such as the Lakota word for child, *Wakanyeja*, which means sacred or "wakan." Moreover, Lakota/Dakota children were often taken care of by the entire community, all of whom played an active role in the child's educational upbringing, and were all considered relations "mitakuye oyasin" (Deloria, 2007). With the forced removal of Native children from their homes and communities, they were prevented from benefitting from the skills, practices, and beliefs of their society.

For Native Americans, historical trauma caused by forced assimilation from boarding school policy changed family, community, and learning environments, causing trauma for many and affecting future generations (Brave Heart and DuBruyn, 1998; Garza, 2015). Moreover, the exposure to discrimination based on ethnicity and culture is hypothesized to have negative effects on identity development and has perpetuated the transmission of trauma to child and adolescents (Brockie et at. 2015; Moore, 2006). Approaches to Native American education have created generations exposed to negative physical and psychological development within a school setting reflecting cultural abuse and cultural bias that impedes one's self development. According to Morotti (2006), "educators must have knowledge of the sociohistorical relationship

between the two cultures and how the dominant society's oppression of the individual and her group may have affected perceptions of self" (p. 6).

Current approaches to Native American education fail to address areas most affected by trauma, and instead focus on academic achievement, as measured by standardized tests, in subjects such as English and math. According to Morotti, (2006) "the curriculum being taught in public schools is based primarily on a western scientific understanding of the world and is infused with mainstream American values and cultural traditions" (p. 7). Often these mainstream American cultural traditions are different from those held by minority groups in America, causing cultural discontinuity between student and subject. According to Martinez (2014), "American Indian students have the lowest educational attainment rates of any group in the United States. Many American Indian students perceive their current classroom experiences as unrelated to them culturally" (p. 199). It is clear that the history of Native American education has been largely ineffective, as well as damaging to their individual and academic development. Currently, more research is needed within educational settings, especially on reservations, to assess approaches to education that reflect Native American understandings, in order to determine if and how Native American culture is being implemented and used as a restorative practice for supporting students' personal and academic needs.

Purpose of the Study

The purpose of this mixed methods study was to understand how teachers and schools are integrating cultural wellness in schools on Standing Rock Reservation, and how cultural wellness integration practices relate to academic achievement. Results from the analysis of cultural wellness integration practices, in addition to how these practices relate to academic achievement, may help produce an overall approach to cultural wellness that supports greater academic

growth. Additionally, this study looked at academic concerns besides standardized tests, such as attendance, graduation rates, and behavioral referrals, for developing a greater understanding of how cultural wellness affects Native American student achievement.

The literature referenced in this study reviewed the lasting effects of intergenerational trauma to examine what is needed for current students to move beyond existing barriers towards improving academic outcomes. Moreover, this research aimed to close the literature gap of intergenerational trauma and its relationship to the field of education, by specifically examining cultural wellness in relation to academic achievement. Elementary through high schools, grades K-12 on Standing Rock Reservation, were used in this study, encompassing five public schools and two Bureau of Indian Education (BIE) schools. Data collected from each school included surveys from administration, school counselors, teachers, and support staff such as paraprofessionals, in addition to interviews from ten participants from a minimum of five school districts.

Positionality Statement

I am an educator on Standing Rock Reservation at Sitting Bull College and Smee School District. My path to researching cultural wellness integration on Standing Rock Reservation started eight years ago when I was first hired as an art teacher at McLaughlin School District on Standing Rock Reservation. The teachers on reservation schools are often told to integrate culture to improve student outcomes; however, little is specified regarding what actually constitutes culture, and even less is known regarding *how* to integrate it effectively to improve academic achievement. Breaking down "culture" to its relevant parts in addition to providing models of effective approaches to cultural integration is necessary on reservation schools where approximately 80-90% of educators identified themselves as white or non-Native (Morotti 2006;

National Indian Education Study, 2007). Although this statistic is nearly a decade old, non-Native teachers are still the overwhelming majority of teachers working with Native American Students. According to Martinez (2014), "while some states have passed legislation to support teaching about American Indians, no funding to support culturally relevant curriculum changes or teacher training accompany these measures" (p. 202). Moreover, most college-level teaching programs provide little related to Native American education, leaving many educators working on reservations culturally unaware when they begin.

As a non-Native instructor on Standing Rock Reservation, I have seen firsthand the negative impact cultural discontinuity can have on student academic engagement and behavior. For many beginning educators, they face a drastic learning curve, and advancing to a state of cultural competency is unlikely without resources and guided support. The teacher turnover rate on reservations is much higher than the national average, and this shouldn't come as a surprise (Martinez, 2014). Without having the knowledge, resources, and support to effectively engage their students, teachers ultimately leave the area. Developing research that examines current approaches to cultural wellness integration in reservation schools can contribute to the creation of resources that have the potential to greatly impact teacher efficacy and improve academic achievement for their students.

Research Questions

The research questions central to this study explored how schools on Standing Rock Reservation are integrating cultural wellness, and how cultural wellness integration relates to academic achievement. Using the Medicine Wheel, quantitative questions for assessing cultural wellness integration were categorized into one of the following domains: physical, emotional, mental, and spiritual. The rationale for using the Medicine Wheel is based on its historical

context within traditional Lakota/Dakota culture. The Medicine Wheel framework for assessing cultural wellness is an approach aligned with Indigenous methodology that is highly adaptable and could be used by other tribes across the nation. The Medicine Wheel is a commonly recognized symbol within Native American culture that reflects both traditional teachings and current wellness practices (Dugeon, n.d; Lame Deer, 1972).

The Medicine Wheel allowed survey responses to be categorized by the four wellness domains stated above and was used in conjunction with quantitative data from schools in the following areas related to academic achievement: standardized tests, attendance, graduation rates, and behavioral referrals. This study also included qualitative interview questions to better understand how cultural wellness related concerns affect academic achievement and to explore suggestions for future development to improve student educational outcomes.

This study addressed the following three questions:

1. Using a Medicine Wheel model, how are schools on Standing Rock Reservation integrating cultural wellness?
2. How do cultural wellness integration practices relate to academic achievement in schools on Standing Rock Reservation?
3. What are common cultural wellness related concerns hindering academic achievement among students on Standing Rock Reservation, and how can schools address those concerns?

Conceptual Framework

This research reviewed literature on intergenerational trauma stemming from historically traumatic events, such as boarding schools and forced assimilation. Historical Trauma (HT) and Historical Trauma Associated Symptoms (HTAS) increase Adverse Childhood Experiences

(ACEs) within Native American communities, affecting cognitive and educational development. Generational trauma common among Native American tribes is theorized as intergenerational trauma, supporting that Adverse Childhood Experiences common among Native American students living on reservations today are related to that of historical trauma passed down generationally (Brockie, et al., 2015; Ehlers et al., 2013; Brave Heart & DeBruyn, 2013; Brown-Rice, 2013; Sotero, 2006).

Research has suggested cultural integration in schools improves academic achievement and student outcomes; however, research examining *how* to integrate culture and wellness to improve achievement is lacking. Many non-Natives today know little of Native American history (Martinez, 2014). Discontinuity between teachers and students creates barriers to engagement that hinder student performance (Morgan, 2009; Lomawaima, 1995). With standardized achievement being the current driving force in education, policy makers have often overlooked cultural components as areas for development. Reforms used to help close the achievement gap for Native American students must address the broader social contexts, including social, physical, and mental health concerns. According to Barber & Trumbull (2015), "their approach to learning in school is shaped by their languages and cultures, and they need supportive education environments that recognize the differences in values and practices associated with their AIAN heritage. Without such environments they are at greater risk of performing below their potential or dropping out" (p. 27).

The Medicine Wheel, a symbol commonly recognized and used by many tribes across the nation, is one model that allows educators to better understand the values and practices of traditional Lakota/Dakota culture. The Medicine Wheel teachings stem from Native American philosophy and traditional ways of life, balance, and the connection to a person's environment

and surroundings; this can be understood as ecological and holistic (Margot & Lauretta, 2006). According to Warren (2013), "the medicine wheel is a symbol that represents many First Nation's worldviews" (p.2). The four directions/domains of the Medicine wheel have been integrated into social work and rehabilitation programs for individuals dealing with psychological and physical ailments such as ACEs, trauma, PTSD, and substance abuse. The directions/domains include spiritual, emotional, physical, and mental (Coates, 2003; Duran & Duran, 1995). Margot & Laurette (2006) explained the holistic approach of the Medicine Wheel as follows:

> The premise originates from the North American Aboriginal Medicine Wheel as a holistic approach that aims to promote well-being at all levels of society as well as in all realms of human functioning, i.e. the body, the heart, the mind, and the soul (p. 3).

Figure 1. The Medicine Wheel:

Due to the origin of trauma stemming from forced assimilation associated with the loss of cultural knowledge, language, religion, land, etc., during the boarding school era in particular,

the Medicine Wheel can be used as a restorative model for improving oneself based on traditional holistic views. Educators can understand the Medicine Wheel as being similar to the development of emotional intelligence; however, using the Medicine Wheel model, a model aligned with Indigenous methodology, allowed for the examination of this development through an Indigenous lens (Bayne, 1969; Trent, 2003). Furthermore, it is impossible to separate culture from wellness when using the Medicine Wheel model. Therefore, since the Medicine Wheel model provided the conceptual framework for this study, assessing cultural wellness as one, rather than culture *or* wellness, was not only possible, but also necessary.

By viewing cultural wellness through a lens reflective of traditional Native American beliefs and values, schools can start addressing intergenerational trauma in a way that promotes student healing and academic growth. Research examining the relationship between historical trauma, intergenerational trauma and child development was used as a reference for both areas of concern within Native American education (childhood trauma and low achievement). Evidence from this study will help further develop effective cultural wellness integration practices that improve academic achievement.

Assumptions

I have worked on Standing Rock Reservation for eight years in two school districts prior to working at Sitting Bull College and is still currently employed as a part time art instructor at one, the Smee School District in Wakpala, SD. To minimize any potential bias within the data from past and present employed school districts, data was screened and compared to other districts' data to identify any extreme high or low variables. I used approaches aligned with those in Indigenous methodology, such as the Medicine Wheel model and mixed methods design, to limit bias within the study. By combining qualitative research practices that include Indigenous

contributions, including interviews from Native American staff, with quantitative epistemological aspects of Indigenous knowledge made possible through the lens of the Medicine Wheel, "it was possible to build ethical approaches towards researching Indigenous topics" (Botha, 2011). It is important to note that an Indigenous methodology approach should not be understood as different from that of a mixed methods design; instead it is used as part of the mixed-methods design to strengthen the understanding of the research topic through the lens of the culture, alleviating potential biases the researcher may have as a non-Native researcher studying Native American topics.

The survey tool—the Medicine Wheel—was used to assess cultural wellness from a Lakota/Dakota cultural perspective. Interviews were utilized to enrich the study, and allowed for the addition and clarification of responses from both Native and non-Native school employees. The interviews allowed for the expansion of the research beyond the content contained within the survey questions. In Indigenous methodology, cultural values and beliefs are ethical protocols built in the research and thought about as part of the research design, and to be discussed and disseminated back appropriately to the people (Porsanger, 2004). As such, at the completion of the study, the researcher provided each participating school district a copy of the findings.

Limitations

Potential limitations of the study included lack of participation from school districts, and/or administration, counselors, and teachers. This study relied on cooperation from all school districts, administration, teachers, school counselors, and support staff, in order to develop an accurate representation of school district cultural wellness practices. To encourage participation in the study, a small incentive in the form of an Amazon gift card was used. Two cards were awarded per school, and each participant from every school district that participated qualified for

the incentive; recipients were chosen by lottery. Those who participated in follow-up interviews received an Amazon gift card to compensate for their time.

Additional limitations of this study included the scope; this study was limited to schools on Standing Rock Sioux Reservation, which affects its ability to be generalized to other schools on or off the reservation. However, with similar historical experiences, academic achievement concerns, and the adaptability of the medicine wheel model for assessing cultural wellness within other tribes, the results from this study could be applied to other reservation schools.

Significance of the Study

Historically, Native American education focused on assimilation by the forced removal of Native children from their homes and placement within boarding schools. This practice disconnected children from their families and traditions, and is understood to have a lasting devastating impact on Native American culture. Children who were taken not only lacked exposure to the cultural teachings from their families and community, but also experienced trauma at the hands of those whose goal at the time was complete assimilation. The high numbers of child neglect and domestic violence reported in families living on reservations today is directly linked to the boarding school era (Brown-Rice, 2013; Cole, 2006).

Due to low standardized test scores, increased effort is made to improve English and math test scores rather than on addressing underlying issues influencing these low scores; this often leaves schools with programs that do not align with individual, community, and tribal needs (Barber and Trumbull 2015; Miller, 2017). According to Martinez (2014), “the rate of high school graduation for American Indian students is 46% compared to a national average of 89%” (p. 199).

Cultural integration has been used to improve these numbers, but there are still many Native students struggling academically. This raises the question—what constitutes effective cultural integration? Based on the literature that has determined loss of cultural components, intergenerational trauma, and low academic achievement as main issues in reservation schools, a cultural wellness model is what is needed to address all areas of concern. The Medicine Wheel model introduces a restorative component for a more effective approach to student support and academic growth that addresses the underlying wellness issues hindering academic engagement. According to McCarty (2011),

> There is compelling empirical evidence that strong, additive, academically rigorous Native Language and culture programs have salutary effects on both Native Languages and cultural maintenance/revitalization and student achievement, as measured by multiple types of assessments. (p. 14)

Language is one component of Native culture that has been widely recognized as restorative, but it is important to note that it has not been a standalone factor contributing to student achievement. Native students have benefitted from language and culture programs that emphasize revitalization; by focusing on cultural wellness, educators can address each of these components while accounting for the effects of historical and intergenerational trauma in current educational settings.

Definition of terms

The concept of cultural wellness, as used in this research, is to be understood as characteristic features of everyday existence shared by a people, place, and time; and the quality of health as a result. This concept assesses the interplay between cultural characteristics and overall health in the areas of physical, emotional, mental, and spiritual wellness. Slightly similar

terminology such as social and emotional wellness or cultural wellbeing could be misinterpreted as cultural wellness; however, these terms are used much more broadly and cannot be substituted for the use of cultural wellness within this research.

Adverse Childhood Experiences (ACE). Traumatic events that can negatively affect the well-being of a child's development. These experiences range from neglect, abuse, emotional and physical exposures (Vanderwegen, 2013).

Forced assimilation. A process of assimilating based on culture, religion, or ethnic minority group that is instilled by force, perpetrating mass trauma on a group of people, resulting in cultural, family, societal and economic destruction (Crowfoot & Harris, 2012; Garza, 2015).

Historical trauma. According to Lajimodiere (2012), "Historical trauma, the term used most often by scholars of American Indian trauma, is conceptualized as a collective complex trauma inflicted on a group of people who have a specific group identity or affiliation-ethnicity, nationality, and religious affiliation" (p. 5).

Native American. A Native American is a member of any of the Indigenous tribes/ people of North America and especially in the U.S. (Merriam-Webster, 2018) this term is used interchangeably with American Indian, Alaskan Indian, Indigenous, Aboriginal, First Nations people, American Indians or the abbreviation AI/AN.

Indigenous Methodology. According to Porsanger (1999) "defining the Indigenous agenda for research projects; looking at research and theory from an Indigenous perspective; including or consulting Indigenous peoples, not as objects but rather as participants, to predict possible negative outcomes, to share and protect knowledge, to use appropriate language and information in order to communicate research results back to the people, etc." (p. 113).

Intergenerational trauma. Sotero (2006) explained intergenerational trauma as the response to

historical trauma showing biological, societal, and psychological symptoms, transmitted generationally through environment, psychological factors, and discrimination (Brown-Rice, n.d.; Sotero, 2006).

Lakota/Dakota Sioux. Lakota and Dakota people are part of the Sioux Nation, deriving from the Siouan languages of the Great Plains. These represent different dialects, regions, and bands; however, all Sioux recognize that they are part of a single nation, the Oceti Sakowin (Seven Council Fires), including Dakota/Santee (four council fires): Wakanton, Wahpeton, Wahpekute, and Sisseton; Dakota/Yankton and Yanktonai (two council fires): Yankton and Yanktonai; and Lakota (one council fire): Teton (Gagnon, 2012).

PTSD-Post Traumatic Stress Disorder. A condition of psychological and emotional stress as a result of an endured traumatic event; symptoms include emotional avoidance or numbness, depression, and irritation or behavioral concerns (Brockie et al. 2015; Welsh, 2013).

Summary

Traumatic events experienced by students and their exposure to these on a continuous basis are often unknown by schools, leading to behavioral and academic concerns. According to Guinosso (2015), "Overall, nested levels of a child's environment, particularly the family and neighborhood, influence developmental outcomes through mediating processes, including parenting practices, child characteristics, and biological regulatory systems" (p. 17). When schools are unaware of the relationship between a child's environment and behavior, a child is more likely to experience disciplinary measures, leaving emotional, social, and academic needs unaddressed.

Research from Brockie et al., (2015) and Whitbeck et al., (2004) indicated that historical trauma still impacts Native American people and is a contemporary issue. These studies focus on

collective impacts of historical trauma and the physical and psychological effects among various age groups within Native American communities; however, little research exists examining the relationship between trauma and academic achievement among Native American student populations. According to Martinez (2014), "American Indian students perceive a cultural bias against them in the classroom curriculum as well as pedagogical practices" (p. 122). Based on the literature, educational practices within reservation schools must account for the effects of historical and Intergeneration Trauma to address current concerns within Native American education. These practices should be culturally based and restorative in nature.

Chapter 2 reviews the research literature providing background information on the complexity of trauma Native Americans have endured, with a detailed outline on the effects of historical trauma, intergenerational trauma and Adverse Childhood Experiences (ACEs) common within reservation communities in relation to developmental concerns. Chapter 3 provides a more detailed outline reviewing the quantitative surveys and qualitative interview process, and presents the Medicine Wheel conceptual framework used to assess cultural wellness. The data analysis findings are presented in Chapter 4. Lastly, Chapter 5 discusses the conclusions from the findings, as well as recommendations for future studies.

CHAPTER 2

REVIEW OF THE LITERATURE

In order to provide a context for cultural wellness related issues prevalent on reservations, this chapter reviews literature on the complexity of trauma Native Americans have endured; this literature review examines historical trauma and forced assimilation from the boarding school era along with their intergenerational impact. Furthermore, this chapter explores the effects of trauma and how it impacts childhood development and learning outcomes. Traditional Lakota/Dakota teachings are referenced to understand the need for culturally based integration practices to address student wellness and improve various measures of academic achievement. This chapter closely examines intergenerational trauma and Adverse Childhood Experiences (ACEs) endured by Native American communities and current approaches to cultural wellness integration practices within reservation schools.

Conceptualizing Historical Trauma

Native American trauma is conceptualized as historical trauma, emphasizing the collective complex trauma endured among Native people who share specific ethnic identity (Brave heart and Dubruyn, 1998; Garza, 2015). According to Brockie, Campbell, Wallen, Wilcox, & Sacco, (2015),

> Historical trauma is defined here as the collective experience of violence perpetrated against Indigenous Peoples in the process of colonizing the Americas resulting in an unresolved humanitarian crisis for reservation communities. (p. 412)

Historical trauma is used to account for the numerous and ongoing occurrences of trauma endured by individuals and communities, reflecting generations of physical and psychological trauma. The conceptualization of historical trauma and its intergenerational effects are based on

clinical case studies used first for researching holocaust survivors (Whitbeck et al., 2004; Steinberg, 1989). These reports grew from smaller samples to studies documenting symptoms of survivors and their first generational offspring (Bettlheim, 1943; Chodoff, 1969; Neiderland, 1981; Whitbeck et al., 2004). These symptoms range from denial and depression, guilt and anxiety, psychic numbing and survivor guilt (Whitbeck et al., 2004). Other symptoms include psychological, physical, and spiritual grief causing higher rates of adversities among survivors, and are also believed to impair childcare (Garza, 2015; Nicolai and Saus, 2012). The model was then applied to the trauma and long-term trauma responses experienced among Native communities (Brave Heart and Debruyn, 1998; Ehlers et al., 2013). It is important to note that this model was first developed to measure experiences among Holocaust survivors and their offspring; however, trauma experienced by Native Americans is not confined to a single period in history or limited to one generation of documented trauma. Historical trauma among Native Americans represents psychological consequences from more than 400 years of ethnic cleansing and 200 years of forced assimilation, which may account for different generational responses to trauma (Whitbeck et al., 2004).

Through colonization, Indigenous people were historically exposed to trauma expanding across generations (Brave Heart and Debruyn, 1998; Garza, 2015). The act of colonizing Indigenous people of North America led to the exploitation of land, resources, and forced assimilation into dominant cultural ideologies (Garza, 2015). This forced assimilation reflects more than 400 years of genocide, ethnic cleansing, and forced acculturation policies, causing loss of cultural components such as loss of land, language, traditional and spiritual ways, self-respect/trust, and loss of people (Brockie et al., 2015; Whitbeck et al., 2004).

Forced Assimilation

Native Americans were exposed to one of the largest ethnic cleansings, and were subjected to forced assimilation policies that caused relocation, starvation, and the loss of language, religion, and other cultural practices (Whitbeck et al., 2004). Forced assimilation is a process of cultural assimilation that is based on a dominant culture's values, religion, and beliefs that are instilled by force on an ethnic minority group (Garza, 2015). Forced assimilation policies came after settler colonialism, representing a change in what was deemed ethical towards Native Americans in the public eye, therefore changing government policy for dealing with Native Americans. Forced assimilation, according to Sotero (2006), included four categories of successful subjugation: "1) overwhelming physical and psychological violence, 2) segregation and/or displacement, 3) economic deprivation, and (4) cultural dispossession" (p. 99).

Other conceptualizations of forced assimilation according to Brown-Rice (2013) indicated three categories: the first involves a dominant culture perpetrating mass trauma on a group of people, resulting in cultural, family, societal and economic destruction; the second phase occurs when one responds to the trauma showing biological, societal, and psychological symptoms; the final phase occurs when trauma is transmitted to future generations through environment, psychological factors, and discrimination. Other research from Stone (2011) divided assimilation into two categories—pre-assimilation, where traditional values still follow, and post assimilation, resulting in the Anglo-American values, beliefs, and ideals. These forced assimilation practices were part of the conceptualization of western education for Indigenous populations in North American. Federal government policy forced the removal of large numbers of Native American children from their family and communities, physically taking and keeping them far away as a key part of the assimilation process (Crowfoot & Harris, 2012; Garza, 2015).

Boarding schools

Through forced assimilation, federally run Native American Indian boarding schools were created, and became a defining element of a widespread effort to "civilize" American Indians (Reyhner, 2013). Native American boarding schools were an effort by the United States to assimilate Native American children into American cultural beliefs and values between the years of 1790-1920 ("Remembering," 2017). In the 19th century, the federal government's Indian office developed a system of day and boarding schools for Native Americans, and opened the first off-reservation boarding school, Carlisle Indian Industrial School, in 1879 in Carlisle, Pennsylvania (Garza, 2015; Reyhner, 2013). With the Carlisle model, the boarding school era expanded throughout the latter half of the century, relocating Native children away from family and community (Garza, 2015). The Bureau of Indian Affairs boarding schools like Carlisle were designed to teach values, language, and beliefs of Western culture (Brave Heart & DeBruyn, 1998; Garza, 2015). This was used as an attempt to "civilize" Native American children through cultural assimilation, which has become famously known through a statement by the founder of Carlisle, Capt. Richard Henry Pratt, in 1892: "Kill the Indian in him, and save the man" (Reyhner, 2013).

Boarding schools "reeducated" children to that of western ideologies, causing loss of language and cultural practices (Garza,2015; Whitbeck et at., 2004). To aid in this development, the Civilization Fund Act of 1819 provided funding for those working on educating Indians at schools, and was primarily associated with Christian organizations; however, mission schools were established as early as the late 1700s (Garza, 2015). Federal policies did not originally mandate boarding school attendance, but this approach proved to be inadequate due to the lack of support from Native American families and communities; this original policy changed on March

3, 1819 when Congress passed a mandatory education act that forced attendance for full assimilation (Lajimodiere, 2012). These children, due to forced removal from families, were not exposed to the spiritual and emotional teachings underlying the traditional Lakota/Dakota beliefs and values. According to Brave Heart & Debruyn (1998), "American Indian children were beaten for speaking their native languages, were removed from their families and communities, sometimes for many years, and were subsequently raised in essence without the benefits of culturally normative role models" (p. 2).

With policies strictly enforced, Indian boarding schools were structured similar to that of a military faction. Children were forced to speak English and wear Western clothes and uniforms, cut their hair, and march in formation; for Native American students these adaptations were carried out with strict and harsh disciplinary measures (Garza, 2015; Lajimodiere, 2012; "National Museum," n.d). Corporal punishment was issued, families were shamed as a result of being portrayed as not capable of raising children, and Native culture and race were deemed inferior (Garza, 2015). Children were stripped of their cultural identities through such acts as cutting hair, banning tribal language, and removing family and community in an attempt to change thoughts, beliefs, and values of the children. According to Brave Heart & DeBruyn (1998) and Garza (2015), "boarding schools had devastating consequences for Native American families and communities; abusive behaviors such as physical, sexual, and emotional, were experienced and learned by Native American children raised in these settings" (p. 63). Additional research by Crowfoot & Harris (2012) suggested that boarding schools were often not sanitary, causing disease and death (Crowfoot & Harris, 2012; Garza, 2015). Moreover, these losses experienced by Native Americans are not isolated to a single time, but represent an ongoing presence in Native American lives (Ehlers, et al., 2013; Whitbeck et al., 2004).

The boarding school experience is often referred to as a period of historical trauma due to policies enacted against Native Americans that are no longer in practice; however, this can not only be remembered as historical trauma, but endured trauma from remaining elders who experienced such practices first hand, and the effects this trauma has when passed down generationally. According to Brave Heart & Debruyn (1998), "when these children became adults, they were ill-prepared for raising their own children in a traditional American Indian context" (p. 3). Parenting styles have been impacted as a result of historical trauma because of the lack of exposure to and knowledge of traditional beliefs and values. Many Native American families still see the impact of these practices today. Without the traditional beliefs and values in place, trauma and abuse stemming from historical acts against Native Americans can be passed down through survivor's relationships with their children (Walker, 1999; Brown-Rice, 2013).

Intergenerational Trauma

Intergenerational trauma is used to describe the transmission of historical trauma experienced by specific groups to future generations (Brave Heart and Debruyn, 1998; Ehlers, Ellingson, Gilder, Gizer, Yehuda, 2013; Sotero, 2006). According to Ehlers et al., (2015) and Brave Heart & Debruyn (1998), intergenerational trauma theory illustrates how trauma can be perpetuated over time when unresolved historical grief exacerbates the current pathology of trauma prevalent within Native American communities and increases the exposure children have to trauma and Adverse Childhood Experiences (ACEs). Lajimodiere (2012) stated, "scholars have suggested that the effects of historically traumatic events are transmitted generationally, as descendants continue to identify emotionally with ancestral suffering" (p. 5).

To research intergenerational trauma, Whitbeck and colleagues have developed a Historical Loss (HL) and Historical Loss Associated Symptoms (HLAS) instrument to measure

the impact of ACEs among Indigenous adolescents who share common culture and languages living on seven American Indian Reservations (Armenta, Habecker, Whitbeck, n.d; Whitbeck et al., 2004). The HLAS scale was a longitudinal measurement of links to anxiety among Native American youth, which included loss of language and land, broken treaties, and boarding school experiences. Results from this study suggested that HL can be psychologically distressing for Native American youth (Armenta, Habecker, Whitbeck, n.d; Whitbeck et al., 2004). Findings confirmed the relationship between Historical Loss Associated Symptoms (HLAS) and depression, drug use, PTSD, suicide attempts, emotional responses of anger, and avoidance (Whitbeck et al., 2004).

The results from the Whitbeck study (2004) mirrored those of others that have found higher risk of depression, drug use, and PTSD symptoms within Native Americans living on reservation communities to that of the general population (Brockie et al., 2015). Research from Brockie and colleagues (2015) looked at six categories of ACEs within Native American youth population: emotional, physical and sexual abuse, physical and emotional neglect, including HLAS and behavioral health outcomes. The research reviewed PTSD symptoms and depression, poly drug use, and suicide; findings suggested exposure to ACEs among children and young adults increased risk of developing behavioral and emotional problems, interfering with personal wellness and school engagement (Brockie et al., 2015). According to Brockie et al., (2015), "to address these findings, culturally appropriate childhood and adolescent interventions for reservation-based populations must be developed, tested and evaluated longitudinally" (p. 411). As emphasized in Brockie's (2015) conclusion, wellness and school engagement are critical areas for concern.

Other research from Cook, Blaustein, Spinnazzola, and Van Der Kolk (2003) observed seven domains of impairment in children exposed to trauma (ACEs): dissociation, self-concept, affect regulation, cognition, biology, behavior control, and attachment. Understanding these issues as a result of continued trauma is a necessary first step to improving child development and educational outcomes for Native American students. For many Native Americans, historical trauma, such historical losses, language, land, beliefs, values, and traditions are thought of weekly, if not daily (Whitbeck et at., 2004).

Psychological and Social Concerns

It has been proposed that the breakdown of family structure among Native American communities is due to forced relocation of Native Americans onto reservations and removal of children during the boarding school era, resulting in current child neglect, abuse and domestic violence (Brown-Rice, 2013; Cole, 2006; Warren, 2013). Parental exposure to trauma and absent parenting may lead to difficulty with trust and affection; moreover, adults who have been subjected to violence may then perpetuate violence to their children through abuse and or neglect. As a result of boarding schools, families, communities and children experienced devastating abuse and isolation due to separation and exposure to other traumatic events (Brave Heart and Debruyn, 1998; Brown-Rice, 2013; Walker, 1999).

Domestic, sexual assaults, and physical trauma among Native American communities are three times higher than that of the national average; research has also indicated that it may be higher as many assaults are not reported (Brown-Rice 2013; Sue & Sue 2012; Warren, 2013). According to Brown-Rice (2013), “suicide rates among Native Americans are 3.2 times higher than the national average” (CDC, 2007, p. 120). Additional findings indicate loss of ethnic identity putting Native American youth at higher risk for depression, alcoholism, and suicide

(Brown-Rice, 2013; Debruyn, May, McFeeley, Williams, Serma, Van Winkle, 2002). Findings from other countries like Canada, who shared similar historical practices for educating Native Americans, found similar results of physical and psychological health related concerns within Native American populations. Studies in Canada regarding Native American health concerns found suicide and mortality rates among Native American youth are three times higher than non-Native youth (Cook & Guimond, 2008; Warren, 2013).

Health risks among Native American youth and communities include depression, low self-esteem, negative self-concept, alcohol abuse, suicide of family and friends, violence, neglectful parenting, and social isolation (Brass, Holton, Kirmayer, Paul, Simpson, Tait, 2007Warren, 2013). Positive self-esteem and self-concept, along with family support and social connectedness (all areas of wellness), are areas that need to be addressed in order to see an improvement in academic achievement. According to Morotti (2006), "positive identification with cultural roots through the use of one's native language and the expression of traditional values enhance the development of self-concept" (p. 9). Ongoing exposure to ACEs can increase trauma, making recovery longer and academic concerns greater; ultimately shaping self-image through perpetuated exposer to trauma causing post traumatic stress disorder (PTSD).

When violence, neglect, depression/suicide and social isolation are ongoing, PTSD and or other health related conditions may develop as a response (Weisberg, et al., 2003; Vanderwegen, 2013). Students who have witnessed or experienced violence and substance abuse are at risk of psychological, neurobiological, and emotional trauma that hinder child development, such as appropriate functioning in the classroom and formulating positive relationships (Vanderwegen, 2013). Research from Weisberg and colleagues (2003) reported larger numbers of medical conditions from participants with PTSD than did other participants; these medical conditions

included asthma, allergies, and diabetes (Brown Rice-2013; Bruce, S. E., Culpepper, L., Keller, M. B., Kessler, R. C., Machan, J. T., Weisberg, R. B., 2003). As a result of increased stress, PTSD, and ACEs, Native American communities have also seen high rates of other negative conditions such as substance abuse and violence.

Reservation rate of violence is on average higher than other ethnic groups, comprising of 42.2 victimizations per 1000 persons at age 12 or older, three times that of whites (Brockie et al., 2015). Other forms of stress that have impeded educational development can be attributed to poverty; at nearly double the unemployment rate, almost 26% of Native Americans live in poverty compared to 12% of the U.S. population (Brown-Rice, 2013; U.S. Census Bureau, 2006). Because of forced relocation, many reservations are rural and isolated, perpetuating generations of extreme poverty, which has resulted in stress and lack of opportunities for young Native Americans. Intergenerational poverty, like intergenerational trauma, has resulted in more compiled physical and mental health related concerns; this has magnifying effects, which are seen in low rates of educational engagement, graduation, attendance, and academic achievement on standardized tests; and in behavior.

Adverse Childhood Experiences

Adverse Childhood Experiences (ACEs) are stressful or traumatic incidences which occur in childhood, that when prolonged can cause PTSD symptoms. According to Brockie et al., (2015), ACEs include:

- Emotional abuse
- Physical abuse
- Emotional neglect
- Physical neglect

- Intimate partner violence
- Sexual abuse

Research findings indicated 94% of Native Americans ages 18-70 years old reported experiencing at least one of the six ACEs (Ehlers et al., 2013; Brockie et al., 2015). Native American children may experience difficulties in learning and performing academically due to the stress response produced by exposure to ACEs (cook et al., 2003; Welsh, 2013; Vanderwegen, 2013). According to research findings by Brockie & colleagues (2015), additional Adverse Childhood Experiences (ACEs) increased the odds of suicide attemps by 37%, drug use by 51%, PTSD symptoms by 55%, and depression symptoms by 57% within Native American adolescent and young adult populations. Due to stress endured from trauma, students develop a heightened state of operating, causing fight or flight responses that alter their ability to focus and learn (McInerney and McKlindon, n.d; Vanderwegen, T., 2013).

Research has indicated responses to the experiences associated with higher exposure to ACEs include feelings of anger, avoidance, anxiety and depression (Whitbeck et al., 2004). According to Brockie et al. (2015), “the ACEs explored in our study, including discrimination and the memory of HT, work in tandem to add immeasurably to the inherent difficulties in the development of children who live on reservations” (p. 418). The relationship between HT, ACEs, and development suggests that Native American students would benefit if schools addressed academic concerns by first addressing trauma-related health concerns.

In addition to the negative responses to trauma listed above, other research on traumatized children and cognitive development have found those affected frighten easily, experience anxiety in unfamiliar environments, are difficult to soothe, aggressive and/or impulsive (Wright, 2017). The negative responses to trauma can interfere with educational

engagement, and cause students to develop additional stress, anxiety, and/or aggressive behaviors while in the classroom. Children experience a state of such hyper-vigilance that they have far less energy for learning, thinking, and growing (Wright, 2017). Early childhood, a critical precursor to later academic success, has emphasized the importance of establishing positive relationships, which improve academic performance.

Cook, Blaustein, Spinnazzola, Van der Kolk (2013) and Vanderwegen (2013) identified seven domains of impairment as a result of children being exposed to trauma: attachment, behavior control, biology, cognition, self-concept, affect regulation, and dissociation (p. 31). The seven domains of impairment cause behavioral concerns and student related complications that complicate student academic engagement. According to Wright (2017), "learning requires attention, organization, comprehension, memory, the ability to produce work, engagement in learning, and trust. Not surprisingly, traumatic experiences have the potential to negatively impact each of these important skills" (p. 149). Children who have been traumatized by age five are three times more likely to have problems with paying attention, and two times more likely to show aggression (Flannery, 2016).

The long-lasting effects of ACEs such as child neglect and abuse extend throughout childhood into adulthood, causing higher rates of addiction and imprisonment for those impacted early in life with ACEs. Based on this information, it is not surprising that studies have shown children who have endured traumatic experiences have performed below average in areas such as reading and math (Flannery, 2016).

Effects of Trauma on Learning

Studies have documented effects of stress on neurodevelopment, indicating reduced cognitive performance and lower school performance (Beers & De Bellis, 2002; Welch, 2013;

Jacob & Kuruvilla, 2007). As stated previously, long-term endured stress from trauma and poverty increases the potential risk of developing PTSD (Welch, 2013). When individuals are exposed to ACEs during development, increase in diseases and other physiological impairments such as PTSD can develop, causing mood alterations and anxiety disorders (Brown-Rice, 2013; Bradely, Gillespie, Phifer, and Ressler, 2009). Collectively, literature has indicated high levels of PTSD symptoms among Native Americans compared with other non-natives who have indicated long term exposure to trauma and stress (CDC, 2007; Brown-Rice, 2013; Dickerson & Johnson, 2012). PTSD related symptoms include deficits in attention, executive functioning, and reasoning (Beers and De Bellis, 2002; Welch, 2013). Studies have shown the relationship between traumatic experiences in childhood and attention, functioning, processing, stress and memory development (Beers & De Bellis, 2002; Welsh 2013).

Children who come from disadvantaged environments and have struggled with PTSD symptoms and trauma have shown difficulties in executive functioning, working memory, and stress regulation; this has been linked to a decrease in processing speeds and may result in dysfunction in the pre-frontal cortex, often related to concentration (Welsh, 2013). Research on the impact of childhood trauma from McInerney and Mcklindon (n.d.) stated, “it is well documented that a child’s reaction to trauma can commonly interfere with brain development, learning, and behavior—all of which have a potential impact on a child’s academic success as well as the overall school environment” (p. 1). However, research has shown that these effects from trauma can be addressed and even reversed. According to Welsh (2013), “the neuroplasticity of the brain combined with the capacity for experiences to change the human brain, lead to possible influences of genetic, neurobiological, and endocrine bases of resilience” (p. 42). Experiences can have negative effects upon the brain, but they can also work in reverse

to improve brain functioning. With cultural beliefs and values integrated within the school system, students build a strong academic identity while strengthening cultural ties and personal identity development (Martinez, 2014).

Traditional Cultural Beliefs and Values

Historically, prior to forced assimilation, one can infer how children were viewed through oral tradition and language. For example, the Lakota word for child, *Wakanyeja*, means sacred. According to Bartecchi, (2010) "Wakanyeja has a much deeper meaning: "wakan" is sacred and "yeja" is translated to mean "a gift" from pawicayapi, to put them first." Children in Lakota/Dakota society were believed to be sacred and were often tended to by the entire community, which played an active role in the upbringing of the child. *Mitakuye Oyasin*, a common phrase in Lakota/Dakota culture meaning "all are related," further underscores this broader perception of kinship and child-rearing roles (Deloria, 2007). According to Deloria (2007),

> Independently the family unit of parents and off-spring might with average health and industry maintain itself well enough. But it was not complete and sufficient unto itself. Tiyospaye (Family) connections were a vital necessity to it, for it was the tiyospaye as a whole rather than the single family that was the significant social unit. (p. 25)

Deloria also noted that whether a girl or boy, Lakota/Dakota welcomed either and prayed for these children (Deloria, 2007). In Lakota/Dakota philosophy, family structures are far broader than that of western society; many grandmothers, uncles, aunts and adopted family form a close-knit circle of care within the community and provide childcare together.

When contemporary issues within reservation communities are juxtaposed with traditional Lakota/Dakota kinship models and terms such as *Mitakuye Oyasin*, the disturbing

impact of forced assimilation cannot be ignored. Moreover, if schools are to integrate culture effectively, approaches should mirror those of traditional Native American beliefs and values, which align with the concept of cultural wellness (Jacobs & Jacobs-Spencer, 2001; Trent, 2003).

Traditional teachings can be found in Native American literature and in Lakota/Dakota philosophy such as the "red road," indicating a spiritual teaching or a way of strength and renewal. Other resources include Joseph Marshall's *The Lakota Way: Stories and Lessons for Living*, Ella C. Deloria's *Speaking of Indians, and* Luther Standing Bear's *Land of the Spotted Eagle*. These teachings reflect traditional values and beliefs of Lakota/Dakota culture and can be used to influence approaches to as well as content of cultural integration:

1. Wóohola (Respect):
2. Wówačhaŋtognake (Generosity)
3. Wówauŋšila (Compassion)
4. Wóowotȟaŋla (Integrity)
5. Wówačhiŋtȟaŋka (Patience)
6. Wówičakȟe (Honesty)
7. Wóuŋšiič'iye (Humility)
8. Wóksape (Wisdom)
9. Wóohitike (Bravery)
10. Wówalitake (Fortitude)

The Medicine Wheel

The Medicine Wheel in Lakota/Dakota culture is a fundamental philosophy symbolizing the hoop, and stands for togetherness (Dugeon, n.d; Lame Deer, 1972). According to Nabigon (2010), "The Sacred Hoop is the circumference of the medicine wheel, a healing symbol of balance" (p. 141). The symbol of the hoop was central to Native American life, and could be seen within how community was developed. Dudgeon (n.d) stated that every tipi/thiyata—"home, at the house"—was placed in a circle, as a part within a larger circle. The Medicine Wheel brings together the teachings of the circle, such as egalitarianism, reciprocity, natural democracy, complementarity, and a participatory view of the relationship between humanity and nature, with the central importance of balance as an ideal in Lakota philosophy. The Medicine Wheel represents a connection and balance, an ecological relationship with living organisms and surrounding physical environments, and is also used to represent seasons, stages of life, and multicultural understanding (Nabigon, 2010). According to Nabigon (2010),

> Aboriginal teachings encompass a totality of the human condition—physical, emotional, mental, and spiritual—and the significance of balance is emphasized. All aspects of life are intricately interconnected. Relationships are fundamental to understanding the nature of events, and establishing standards of behavior. (p. 147)

The four domains of the Medicine Wheel reflect traditional knowledge, theories about stages of human life and development, the relationship humans have with spirituality, and interconnectedness. Furthermore, the holistic understanding of the Medicine Wheel has been adapted and used in a variety of clinical treatment programs and related fields (Nabigon, 2010).

Figure 2. The Medicine Wheel (Therapist Therapy, 2011)

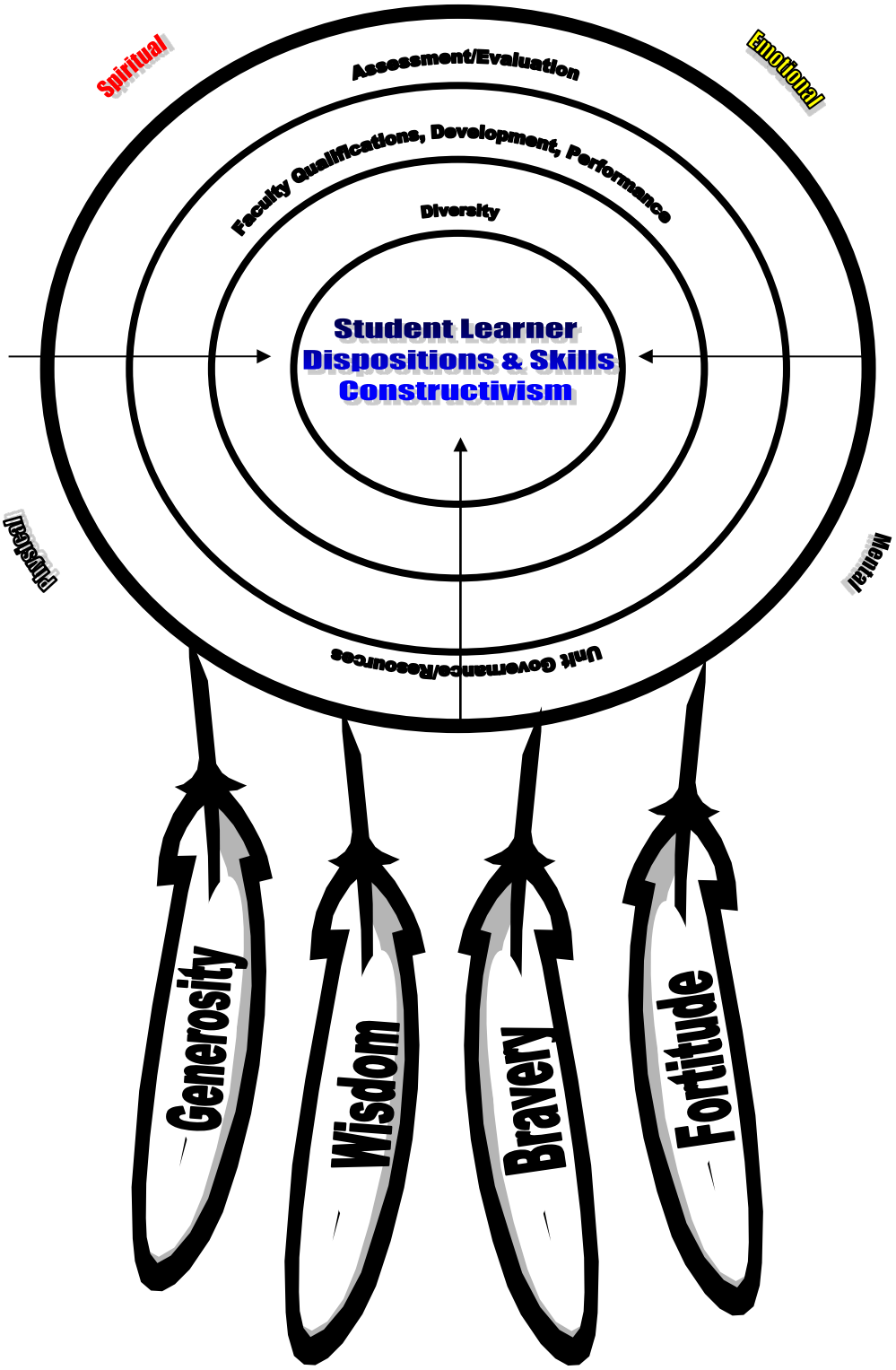

Figure 3. Division of Education Conceptual Framework (Sitting Bull College, 2006)

The 2007 Indian Education Act mandated the development of course content in South Dakota for American Indian history and culture, and with a core concept work group, standards were completed in 2010 (the South Dakota Office of Indian Education, 2010). According to Cross (1995), "this can be looked at as a holistic approach: the mental, spiritual, emotional, physical, social and psychological are considered" (South Dakota Office of Indian Education). The 2007 mandate can therefore be understood as a form of cultural wellness development formed in alignment with traditional beliefs and values.

The Medicine Wheel symbol among Native Americans varies slightly; however, it is widely understood and used, adaptable to various institutions (Rogers, 2004). According to Garza (2015), "Native Americans define wellness as a balance of spirituality, physical, emotional, and mental health" (p. 5). The Medicine Wheel adaptations can frequently be found within social services, including physical and mental health professions, counseling and guidance, and rehabilitation; Based on a review of previous studies, the Medicine Wheel has not yet been used to assess cultural wellness within schools.

Academic Achievement

Educational outcomes for Native Americans have fallen short in comparison with other groups (Oakes et al., 2009; Moran et al., 2008). The National Indian Education Study (NIES, 2015), as part of the National Assessment of Education Progress (NAEP) report card, showed scores in reading and math that indicated small improvement in some areas in low density and high density public schools, and for Native Americans in reading, and mathematics stated, "were not significantly different from the scores in previous assessment years" (p. 22). According to a study commissioned in 2007 from the Education of the National Caucus of Native American State Legislator (NCNASL, 2008), "Native students perform two to three grade levels below

their white peers in reading and mathematics. They are 237 percent more likely to drop out of school and 207 percent more likely to be expelled than white students" (p. 5). National concern among Native students' low academic achievement according to U.S Department of Education statistics from 2014 showed that 70 percent of grade twelve American Indian students nationwide had not demonstrated proficiency in reading or math and in South Dakota less than 30 percent in reading and math in grades four and eight (US Department of Education, 2015). The U.S. Department of Education (2013a, 2013b) statistic for South Dakota showed that Native American students accounted for 14 percent of the student population, but made up less than 30 percent proficiency in reading and math in grades 4 and 8 (Apthorp, 2014). The North Dakota Department of Public Instruction's (2015-16) most recent graduation report found significantly lower graduation rates for Native Americans than that of the overall 87 percent state graduation rate. Test scores for Native populations in North and South Dakota have followed this same trend. The National Assessment of Education Progress (NAEP) National Indian Education Study (2015) reviewed math and reading scores in grades four and eight from 14 states, which included North and South Dakota; scores indicated American Indian students scored lower than those of other racial/ethnic minority groups (NAEP, 2015). AI/AN fourth grade reading levels were at 205, and in eighth grade at 252, reflecting one of the lowest of any ethnic group when compared to Asians, Caucasians, and African Americans (Lee, 2017). According to Brown-Rice (2013), "fewer Native Americans have a high school education than the total U.S. population; an even smaller percentage have obtained a bachelor's degree: 11% compared with 24% of the total population" (U.S. Census Bureau, 2006, p. 119). Low graduation rates and proficiency levels for Native Americans in 14 states reflected low performance in three sets of school environments: low and high density schools, and Bureau of Indian Education (BIE) schools. The findings

revealed significant national concern regarding lower performance from various states and school systems; other areas of concern within Native American education consisted of behavioral concerns and low attendance rates (U.S. Census Bureau, 2006, p. 119).

Cultural Discontinuity

Cultural discontinuity in education reflects cultural differences and incongruence or a lack of cultural integration in curriculum. Cultural discontinuity reflects cultural misalignment or a lack of cultural synchronization (Irvine, 2003). Findings indicated many forms of cultural discontinuity found in education by means of assimilating students into "Anglo-American" society. This can be understood as a disconnect between schooling norms and minority student and/or community needs. Assimilation and discontinuity should be acknowledged as part of the reason for low retention rates of American Indian students in school (Stone, 2011).

To better understand how cultural discontinuity functions in an educational setting, it is necessary to understand the three types: universal discontinuities, primary discontinuities, and secondary discontinuities. According to Huffman (2010), "primary discontinuities can be overcome through culturally appropriate instruction; however, secondary discontinuities are created by history and enduring social inequalities built into social class/structure" (p. 71). As a result of structural inequality, cultural integration does not fully address academic achievement. Scholars have suggested three general themes of structural inequalities:

> (1) Historically created structural conditions have produced unequal opportunities for educational and economic success; (2) the educational institution is designed to serve the interest of the dominant society; and (3) minorities do not passively accept their daunting social and economic disadvantages but actively challenge the assumption that education will improve their lives. (Huffman, 2010, p. 73)

Achievement measures such as The No Child Left Behind (NCLB) Act of 2001 mandated additional accountability in regards to standards for federal funding, putting more pressure on under-performing school districts. The NCLB looked at standardized achievement measures that often do not reflect cultural and educational experiences within minority groups. Contrary to its claims, NCLB has further limited Native education and has left Native American students behind (Stone, 2011; National Indian Education, n.d). Even states that have opted out of NCLB have relied on standardized testing as one of the main indications of academic achievement, and these standardized measurements for accountability have worked against the incorporation of culture in the curriculum (National Indian Education, n.d). According to Lee (2012),

> Title VII of NCLB focused on the importance of providing Native children with culturally appropriate education and provided funding for programs that do that, but the focus on testing and accountability in conjunction with insufficient funding has had unintended consequences.

With the current focus on improving test scores, addressing intergenerational trauma and ACEs has been overlooked as a means for improving academic achievement. This oversight has left many primary needs unmet, and has made it challenging for many Native American students dealing with the effects of intergenerational trauma to move onto secondary needs. To address these unmet needs, additional development of trauma sensitive practices that reflect cultural wellness in areas of instruction, curriculum, and discipline is necessary.

Cultural Integration

There is empirical evidence that strongly supports the incorporation of Native language and culture programs for increasing student achievement measures (Barber and Trumbull, 2015;

McCarty, 2011; Oakes & Maday, 2009). Research findings have shown that American Indian students succeed academically when culture is developed as part of the curriculum and extracurricular activities (Apthorp, 2014). However, due to low performance, increased effort is made on improving standardized test scores that do not reflect culture. According to Barber & Trumbull (2015), "Standardization works against respect for and use of languages other than English; recognition of different ways of knowing, teaching, and learning; and culturally-responsive forms of assessment" (p. 1). Standardized testing has often left schools with programs and academic focuses that are not aligned with student and community concerns; this has prevented further educational engagement and growth. Miller (2017) stated, "The present thrust can be seen as abandoning any attempt to educate the whole human being. It reduces schooling to training for the workplace that can be easily assisted through standardized tests" (p. 179). However, education reform from the Nations' Indians at Risk Task Force (NIES, 1990) for improving schools, recommended the development of comprehensive education plans and partnerships in education focused on four national priorities—early childhood education, promotion of tribal culture and language, training Native teachers, and strengthening tribal and BIA colleges (Blanchard, 1994). In the NIES teacher survey, educators were asked about sources used for obtaining knowledge for implementing culturally appropriate instruction/curriculum and to what extent culturally appropriate instruction was used in the classroom; the survey found many teachers do not receive the knowledge or resources necessary to include culturally appropriate instruction within their content areas (Begay, Daeton & Ninneman, 2017).

In order to provide a context for cultural integration to improve academic achievement, one must examine the impact of forced assimilation from boarding schools within Native American populations, and the intergenerational impact this has had and continues to have on

students today. This examination leads to a holistic framework that emphasizes the role of cultural wellness as opposed to selective standardized measures.

Conceptual Framework

This study utilized a mixed methods approach consisting of surveys and interviews from Native and non-Native administration, teachers and support staff to assess cultural wellness integration from school districts on Standing Rock Reservation. The mixed methods research followed an Indigenous methodology approach to measure cultural wellness integration, including Native American perspectives/voices as part of the research findings. According to Minthorn & Shotton (2018), "there has been a continued call for increased representation of Indigenous perspectives and voices in the scholarship." By combining qualitative research that included Indigenous perspectives, with quantitative epistemological aspects of Indigenous knowledge (the Medicine Wheel), it was possible to build an ethical study towards researching Indigenous topics (Botha, 2011). Furthermore, according to Creswell (2015) "in general, you conduct a mixed methods study when you have both quantitative and qualitative data, and these types of data, together, provide a better understanding of your research problem than either type by itself" (p. 537).

Indigenous methodology is not separate from a mixed methods design; it is, instead, an approach used to ethically research Indigenous topics, and in this case to assess and strengthen the topic of cultural wellness through an Indigenous lens. This was critical to alleviate potential biases I may have as a non-Native researcher. Research has often been used as a colonizing tool for assimilation and cultural eradication (Minthorn & Shotton, 2018; Smith, 2012). Using the Medicine Wheel model as the framework for this study allowed for the assessment of cultural wellness from a Lakota/Dakota perspective. The rationale for using the Medicine Wheel

framework for the categorization of cultural wellness integration was due to its historical place within Lakota/Dakota philosophy, reflecting traditional teachings of cultural wellness (Cross, 1995; Garza, 2015). By using the Medicine Wheel, cultural integration was measured and categorized to determine how cultural wellness integration varied between staff and schools.

Quantitative survey responses were categorized, and provided data showing if and to what extent cultural wellness was being integrated; quantitative survey responses were arranged into the following four categories of the Medicine Wheel: physical, emotional, mental, and spiritual. The data from each cultural wellness category was analyzed using a multiple linear regression analysis in relation to academic achievement data. According to Crossman (2017), "in general, regression allows the researcher to ask the general question "what is the best predictor of …?" Moreover, academic achievement data in this research was based on the following high areas of concern within Native American education: standardized achievement, attendance, graduation rates, and behavioral referrals. The four directions of the Medicine Wheel were used to learn more about the relationship between predictor and dependent variables (Crossman, 2017).

The quantitative data illustrated areas of concern within various areas of academic achievement for each school, but it did not explain why there was concern in a particular area or how to address and improve it. Initially, the study analyzed schools individually, comparing each school's academic achievement data with survey and interview responses. Then, the study compared the schools to one another to develop a clearer picture of the relationship between cultural wellness integration practices and academic achievement.

Data collected from qualitative interviews provided another set of detailed information that may have been otherwise overlooked with a survey alone, and was used to identify cultural

wellness concerns and how those documented concerns have hindered education, in addition to what educators need to more effectively address cultural wellness to improve academic achievement. According to Bloomberg &Volpe (2012), "Qualitative research, in contrast, is applied to describe current conditions, investigate relationships, and study cause-effect phenomena" (p.27).

Summary

The interconnectedness of the human being with nature has been a common understanding shared throughout Native American cultures; specifically identified in this study were the Lakota/Dakota peoples. *Mitakuye Oyasin*, "all are related," aligns with the teachings of the Medicine Wheel balancing the physical, emotional, mental, and spiritual well-being of oneself, and could be used academically with that of a holistic approach to address cultural wellness needs among students. As stated by Mahmoudi et al., (2012), holistic education claims to 1) educate the whole child (all parts of the child), 2) educate the student as a whole (not an assemblage of parts), and 3) see the child as part of a whole (society, humanity, the environment, and spiritual wholeness) (p. 179). Native American students' low academic achievement has been concerning; however, a holistic culturally based approach could help address trauma, reduce cultural discontinuity, and lead to greater achievement. Understanding the origin of trauma and the role of intergenerational trauma on achievement can aid in Native American educational reforms that emphasize cultural wellness as a key component in addressing the long-lasting effects of historical trauma and academic achievement concerns.

CHAPTER 3

METHODOLOGY

This research used a mixed methods design, which includes a procedure of collecting, analyzing, and mixing quantitative and qualitative data within a singular study (Creswell, 2015). According to Creswell (2015), "these different sources of information can [provide] both general trends about a problem as well as detail" (p. 537). The research aims to: 1) determine cultural wellness integration in schools on Standing Rock Reservation, 2) identify relationships between cultural wellness and achievement, and 3) produce a detailed description of wellness related concerns and identify recommended areas for development to effectively address student wellness and improve educational outcomes. The quantitative questions were used to understand how cultural wellness is being integrated in schools on Standing Rock, and how these integration practices relate to academic achievement. This data was then compared with quantitative academic achievement data (data consisting of graduation rates, attendance, test scores and behavior referrals) to determine if cultural wellness significantly predicted any of the specified achievement areas.

Qualitative interviews were used to answer question three—What are common wellness related concerns among students on Standing Rock Reservation hindering academic engagement, and what are recommended areas for development to address those concerns? Follow up questions used to answer this question included: 1) What do you think staff needs to know in regards to student wellness for better serving the student population? 2) What do you think staff needs to more effectively address student concerns? Qualitative responses were juxtaposed with quantitative findings to help clarify relationships between the quantitative data and add depth to the survey responses. Qualitative interview data also helped provide the needed opportunity for

Native American teachers and teachers in general to share their perspective working in reservation schools with primarily Native American students. It is important that Indigenous perspectives and voices are represented in scholarly research pertaining to Native American education (Shotton et al., 2013). By using both qualitative and quantitative data, this study provided a more in depth understanding of the relationship between culture, wellness, and academic achievement, while allowing individual voices to share their perspectives.

Setting

Oftentimes, cultural integration is understood as a yes or no question, reflecting whether or not a school district and/or teachers integrate culture. This research understands cultural integration as a spectrum of higher and lower integration. The purpose of this mixed methods study was to understand how cultural wellness is being integrated in schools on Standing Rock Reservation and how cultural wellness relates to academic achievement.

The Standing Rock Sioux Tribal members are Lakota and Dakota and descendants of the Teton and Yankton Bands of the Lakota/Dakota Nation (Standing Rock Sioux Tribe, n.d.). According to the Standing Rock Sioux Tribe website (n.d.), "the total land area of Standing Rock is 2.3 million acres and of that 1,408,061 million is tribally owned." The Cannon Ball River runs along the northern boundary of the reservation in North Dakota, Perkins and Adams County line the west, the Missouri River lines the East, and the Cheyenne River Reservation lines the south (Standing Rock Sioux Tribe, n.d.). The Standing Rock Sioux Reservation is the sixth largest reservation by land area in the United States with a total population of 8,217, with 1,492 between the ages of 10-19 (U.S. Census data, 2010).

Standing Rock Reservation is comprised of eight districts, three in North Dakota—Fort Yates, Cannonball, and Porcupine, and five in South Dakota—Wakpala, Rock Creek, Little

Eagle, McLaughlin, and Kenel (Standing Rock Sioux Tribe, n.d). Data was collected from seven school districts on Standing Rock Reservation, four from South Dakota, and three from North Dakota. One district was excluded from this research: McIntosh school district (located on the western edge of the reservation) due to its majority (75%) non-Native population. It is important to clarify that Fort Yates Public School and Standing Rock Community School are two schools in one building comprised of public and tribal schools-other.

Table 1

Summary School demographics outline

Public School	BIE-Tribal schools-other
Smee/Wakpala school District	Little Eagle Day School
Fort Yates public school District	Standing Rock Community School
Solen Public School	Rock Creek Day School
Selfridge Public School District	
McLaughlin Public School District	

Research Questions

The questions used in this study were designed to contribute to the understanding of the relationship between cultural wellness and academic achievement. The questions being researched are:

1. Using a Medicine Wheel model, how is cultural wellness being practiced in schools on Standing Rock Reservation?
2. How do cultural wellness integration practices relate to academic achievement in schools on Standing Rock Reservation?

3. What are common wellness related concerns among students on Standing Rock Reservation hindering academic engagement, and what are recommendations to address those concerns?

Utilizing literature on historical trauma from Brockie et al. (2015), Ehlers et al., (2014), Whitbeck et al., (2015), and Sotero (2006), this study reviewed historical and intergenerational trauma, and the relationship these have to ACEs and PTSD symptoms among Native American populations today. Because Native American students have continued to be affected by intergenerational trauma, cultural wellness programs need to be assessed in relation to academic achievement for further development. The impact of intergenerational trauma on health impairments within Native American communities has been studied; however, more needs to be known regarding what this means in the field of education and how school staffs can effectively address trauma in an effort to improve academic outcomes. The use of quantitative and qualitative research questions broadened and enriched the research by allowing for statistical analysis supplemented with the voice of those working in schools on Standing Rock Reservation.

Participants

The targeted population in this study was from administration (superintendents and principals), teachers, and support staff, including paraprofessionals. All participants were found through purposeful sampling that reflects both professional and cultural understanding of the topic for germane contributions. Participants included those from all content/subject areas who were teaching at one of the schools indicated previously. Criteria for selecting the participants included: (1) willingness to participate in ongoing interviews and questionnaires/ surveys, (2) current full time employee from one of the schools indicated, and (3) must fit one of the following categories: teacher, paraprofessional, superintendent, principal, or counselor. It was

important to identify a wide range of administration, teachers, and support staff from all school districts to provide an accurate account of current perspectives, along with selective follow up face to face or phone interviews if necessary. Follow up interviews were determined based on survey feedback from both Native and Non-Native staff. In total, sixty-five participants were included in the study. Considering the smaller sizes of school districts on Standing Rock Reservation, it was important to have a minimum of eight participants, representing both Native and non-Native staff, from each school.

Data Collection

A mixed methods study was used for collecting data from multiple sources, providing exploration on the topic of cultural wellness integration practices. The qualitative component of this study included additional responses to survey questions and follow up interviews. Participants received an initial email providing an overview of the study, along with a disclaimer agreement, explaining participants would be given an ID code number to ensure anonymity; participants accessed surveys through a secure web-page. The surveys were created and completed on Google forms and sent via K12 staff emails on Standing Rock Reservation. In order to protect staff and/or the likelihood of others gaining access to the surveys, only K12 accounts were used. To ensure proper screening, participants needed a valid K12 school district email account and were mandated to finish research disclaimers prior to completing surveys.

Study codes were used on surveys for recording and safeguarding participant identities, and all data documents were stored in a separate location from that of participant code identification to protect the privacy of participant identity. Follow up interviews were conducted in person and/or over the phone in order to gain further insight on feedback from surveys, and all interviews were recorded and transcribed as part of the qualitative data. All identifying

information was stored and locked in a separate location, along with restrictive access to data. Participant ID codes were known only by the researcher and all data collected from the surveys was safeguarded to protect participants' identities.

Analysis

This study utilized a thematic and comparative analysis in order to identify cultural wellness integration practices used within each of the schools. Thematic analysis, according to Clarke & Braun (2006), is defined as "a method of identifying, analyzing and reporting patterns within data" (p. 79). Survey data was analyzed and compared with academic achievement markers to see how cultural wellness integration practices relate to academic achievement within each school district. According to Pickvance (2005), "The primary reason for comparative analysis is the explanatory interest of gaining a better understanding of the causal processes involved in the production of an event, features or relationship" (p. 2). Qualitative and quantitative school data was then compared with other participating schools to uncover themes in common practices, and to further investigate the relationship between cultural wellness integration and academic achievement. According to Gunnell (2016), "new knowledge is accepted by the community when research methods adhere to established guidelines and procedures." Academic achievement measures of concern on Native American reservations have included standardized test scores, attendance, graduation rates, and disciplinary referrals. This study juxtaposed this quantitative data with the qualitative interview data gathered from each school on Standing Rock Reservation. The data comparison provided insight into how cultural wellness integration correlates with academic achievement; utilizing qualitative and quantitative research provided scientific methods relying on data analysis and descriptive narrative (Berrios

& Lucca, 2006; Gunnel, M. 2016). This method of study is also used when you want the stories and the numbers about an issue (Creswell, 2015).

The quantitative survey question responses were categorized under the four domains of the Medicine Wheel—physical, emotional, mental, and spiritual. Because the survey questions were grouped according to areas of wellness that are culturally reflective, the analysis of those responses illustrated differences in types and levels of cultural wellness integration, and provided more information on an overall concept of cultural wellness integration and variations within schools on Standing Rock Reservation. Qualitative interviews then allowed for participant feedback, providing participants the opportunity to add to and clarify their responses. In addition to survey comments used to identify potential candidates to be interviewed to gather more in-depth information regarding specific survey topics and questions, other participants were identified from a variety of demographics. The ten interviews comprised of new teachers (0-3 years teaching on Standing Rock Reservation) and experienced teachers (10 or more years teaching on Standing Rock), Native and non-Native staff, with a minimum of five out of the seven school districts included. After surveys were completed and follow up interviews conducted, qualitative interviews were transcribed and coded.

A mixed methods design best served this study; it was first necessary to understand what cultural wellness integration looked like on Standing Rock Reservation prior to assessing whether cultural wellness correlated with academic achievement. As previously stated, due to the nature of trauma Native Americans have endured over time, the incorporation of *either* culture *or* wellness isn't enough to effectively address the academic concerns among Native American students. Both must be assessed to get a clearer picture of how they relate to academic outcomes. Looking at culture through the lens of the Medicine Wheel allowed for the concept of cultural

wellness to emerge. Comparing data related to cultural wellness integration practices with the quantitative data related to academic achievement allowed for the determining of a relationship between the two.

Qualitative-Quantitative data

Mixed methods research combines elements from qualitative and quantitative research methods; this approach can be used sequentially or in parallel to investigate the same topic (Mills, 2010). According to Durepos, Mills, & Wiebe (2010)

> Mixed methods research works particularly well for case study research as it allows the researcher to take the rich empirical data yielded from case studies and apply either quantitative or qualitative methods or quantitative and qualitative methods to the data. (p. 2)

The qualitative phase of this study included additional responses to survey questions and transcribed interviews from each of the indicated school districts on Standing Rock Reservation, reviewing current culture and wellness integration practices and policies. The qualitative research method is that of thick and rich description that provides the basis for claims in a broader context (Schram, 2013). This qualitative data utilized a survey design with areas for additional comments, which were collected at one point in time from each school district; questions were quantified using a Likert scale. According to Dale and Bloomberg (2012), the goal is not generalizing, but transferability; meaning, "how (if at all) and in what ways understanding and knowledge can be applied in similar contexts and settings" (p. 31). A space for comments followed each survey question allowing for further explanation/clarification related to responses to specific questions. To further enrich the qualitative data, randomized interviews, in addition to interviews chosen based on a need to clarify responses, were conducted

following survey completion. The interview component aimed to eliminate over simplification and misrepresentation of research findings by providing additional opportunities for developing the study; all interviews were transcribed and coded for additional context, providing a more in-depth and accurate account of cultural wellness integration practices that may provide additional support in regards to achievement.

The first section of this survey asked questions related to cultural wellness integration in classrooms and school district policies. These questions were grouped according to the Medicine Wheel's four areas of wellness, so that the degree of integration for each area of wellness could be assessed. The quantitative data gathered from the Likert responses along with the qualitative data gathered from the comments and interviews was compared with each school's quantitative achievement data to provide a clearer picture of how cultural wellness relates to achievement.

Participant Rights

Ethical concerns were addressed in each stage of data collection, and a consent form was developed. Consent forms included individuals' rights, information regarding the study and their participation, and a statement of how their rights would be safeguarded by the researcher. UNE Consent Form for Research Applicants was mandated in regard to this study, and any individual(s) who chose to terminate participation in the survey could at any time. Surveys and interviews were not mandatory and were based on willing participation. School district administration approved the study and signed off on the UNE Consent Form prior to teachers being contacted regarding the surveys and interviews. With permission from school districts and administrators, teachers were identified and quantitative data was collected using a survey method. Teachers were identified and then contacted initially through district help by email and/or phone conference detailing the research and what it would entail for participants. An

outline of the study was provided to each participant. All survey follow up interviews used the same ID code numbers for storing electronic data; all data was cleared after a reasonable time period. Consent forms will be saved for three years.

Analysis of Data

The study used the Medicine Wheel framework to analyze the survey data, showing how cultural wellness integration varied within classroom and school policy. By using the four domains of the Medicine Wheel, cultural wellness integration can be understood as a restorative practice for addressing gaps in academic achievement.

Surveys used a Likert scale to collect data on how cultural wellness was being integrated and follow up interviews further investigated and clarified survey responses. Quantitative data was provided by the survey questions and from school districts in the following achievement areas: standardized testing, attendance and graduation rates, and behavioral referrals. Prior to using statistical analysis from surveys, a screening of the data was conducted to determine validity. Univariate and multivariate level screening of the data was conducted, ensuring reliable and usable data was tested and valid (Ivankova, 2002; Kline, 1998). According to Ivankova (2002), "data screening will help identify potential multicollinearity in the data, because multivariate tests are sensitive to extremely high correlations among predictor variables" (p. 53). The screening was conducted for all variables, multivariate outliers, and singularities, in order to determining frequencies. A descriptive tabular form was used to report findings from survey data, along with a discussion report.

The qualitative analysis followed three steps: 1) reading over all transcribed interviews: 2) review for general content meaning; 3) identify meaning based on units that represent the collected codes into meaningful units of understanding (Warren, 2013). A thematic analysis was

used to review emerging themes and record patterns from qualitative research; this was performed based on grouping variables and assessing the whole data for outliers within the data findings. Thematic analysis, pin points, and recording themes/patterns within the data were looked at for any errors with the data set. The thematic analysis performed six phases of coding to establish patterns: initial codes, reviews themes, looks for familiarization, patterns, defining and naming, and finalization of report. The purpose of this was to identify any variations within cultural wellness integration within schools on Standing Rock Reservation. This quantitative data was the same as gathered by the named school districts for the state department of education for documenting and recording academic achievement. After collecting all quantitative and qualitative data, a comparative analysis was conducted.

Validity and Reliability

Validity and reliability occur with accuracy and precision of measurement predictors (Ivankova, 2002; Thorndike, 1997). Validity and reliability were represented in regard to interaction and communication with participants, reflecting time spent on surveys, and source data in presenting themes (Warren, 2013). Validity in qualitative and quantitative research juxtaposes questions on how congruent findings are with reality (Warren, 2013). Moreover, a factor analysis of the Likert survey was conducted after the survey study was performed. A factor analysis is a process that reflects data as a number of possibilities in order to find causation, in which findings are most relevant. This is a technique used to reduce findings into fewer categories by revealing common scores.

Multilinear regression analysis assesses reliability on normal distributions. According to Osborne & Waters (2002), “Regression assumes that variables have normal distributions. Non-normally distributed variables (highly skewed or kurtotic variables, or variables with substantial

outliers) can distort relationships and significance tests" (p.1). Moreover, the researcher evaluated normality using a Q-Q Scatterplot (Bates, Mächler, Bolker, & Walker, 2014; DeCarlo, 1997; Field, 2009). The Q-Q scatterplot compares distribution of residuals with distribution; a solid line represents the theoretical quantiles for determining normality. Furthermore, homoscedasticity was used to assess variance around the regression line evaluated by plotting the residuals against the predicted values (Bates et al., 2014; Field, 2009; Osborne & Walters, 2002). Homoscedasticity is met if points are randomly distributed with a mean of zero and with no curvature. According to Osborne and Waters (2002), "Ideally, residuals are randomly scattered around 0 (the horizontal line) providing a relatively even distribution" (p. 4). Finally, outliers were assessed to identify influential points. To identify outliers, studentized residuals were calculated and the absolute values will be plotted against the observation numbers (Field, 2009; Stevens, 2009). The studentized residuals were used to observe any absolute value greater than 3.23 that would have otherwise significantly influenced the results.

Limitations

One way this research addressed study limitations was by collecting data using both qualitative and quantitative methods. According to Creswell (2015), "you also conduct a mixed methods study when one type of research (qualitative or quantitative) is not enough to address the research problem or answer the research questions" (p. 537). Given the multidimensional aspects of wellness (in this case, the four dimensions of the medicine wheel), as well as the numerous interpretations of culture, even a specific culture such as Lakota/Dakota, the study's survey questions needed to be specific to various aspects within each dimension of wellness and Lakota/Dakota culture.

Other limitations of the study included the scope, which focused only on Standing Rock Reservation, and the research design's ability to make a broad correlation between cultural wellness integration on reservation schools and academic achievement. To help address this range, all BIE and public schools on Standing Rock Reservation, each of which has a history and demographics similar to many other reservation schools, were included in the study.

Additionally, because this study researched *how* cultural wellness is being integrated in schools on Standing Rock Reservation, this research relied on quantitative surveys and qualitative interview participation. Potential limitations included cooperation and participation from each school district and personnel. It was very important for each school district to participate in the study due to variations among school policy and approaches to cultural wellness integration.

An additional potential weakness came with conducting surveys via email. Potential weaknesses stemming from this included surveys possibly being overlooked or rushed, which could provide inaccurate results. To account for this, the researcher included an incentive upon survey completion. These included small monetary incentives in the form of Amazon gift cards. Each school that participated was included in their own monetary incentive lottery to increase likelihood of winning a prize for participating.

Researcher Bias

Qualitative research can be criticized as lacking rigor; however, with a mixed methods study, assessments can be used to gather evidence, and bias can be eliminated while developing an in-depth reflection of the topic that utilizes multiple sources of data. It was very important to collect qualitative interviews from participants from multiple schools to clarify responses and formulate a clearer comparison of qualitative data related to cultural wellness integration and

quantitative data related to student achievement. According to Warren (2013), on First Nations Issues, research on Native American history should acknowledge the history of colonization through western research, and to allow participants to tell their own stories of wellness and to keep a level of openness while working with Native American perspectives. The interview questions included open-ended elements for further development of the research; this provided an opportunity to expand and develop the study beyond the scope and lens of the researcher, providing Native American educators with a space to add their perspectives within the study's qualitative interview process.

Furthermore, the model used in order to assess culture was not an instrument developed by the researcher; it came from Lakota/Dakota historical and traditional teachings of cultural wellness. The Medicine Wheel model can be seen in cultural wellness programs addressing traditional teachings for those suffering with psychological or physical health concerns; it is both widely recognized and highly adaptable.

Summary

A majority of Native American people endured historical trauma caused by forced relocation and boarding school practices; this trauma has continued as intergenerational trauma and has contributed to the social problems common among many Native American communities today. In addition to higher exposure to ACEs, which hinder development and academic engagement, Native children also see similarities between what is being taught/measured for achievement in education today to what was taught/measured for achievement among their ancestors; cultureless achievement based upon standardized test scores is still often the main form of measuring academic success. This mainstream standardized approach has bypassed student needs, areas that consist of cultural identity, individual wellness, and community needs.

These areas must be addressed first in order to see academic growth; without these needs met, students will continue to experience difficulty in performing at school and on standardized tests, and the retention and graduation rates will continue to fall below national average. This research examined how cultural wellness is being integrated within school curriculum and policy in an effort to further clarify the relationship between cultural wellness and academic achievement. This study used a mixed methods approach, analyzing survey data from seven school districts in conjunction with qualitative interviews to broaden the understanding of the correlation between cultural wellness integration and academic achievement.

CHAPTER 4

RESULTS

The primary goal in conducting this mixed methods study was to examine cultural wellness integration in relation to academic achievement measures in school districts on Standing Rock Reservation to determine whether a relationship between the two variables exists. This study also attempted to identify cultural wellness barriers hindering academic achievement growth and recommendations for addressing those concerns for staff. The study examined responses from administrators, teachers, and paraprofessionals. The study used quantitative surveys along with qualitative interview methods to answer the research questions. The research questions central to the study's findings included: 1) Using a Medicine Wheel model, how is cultural wellness being practiced in schools on Standing Rock Reservation? 2) How do cultural wellness integration practices relate to academic achievement in schools on Standing Rock Reservation? 3) What are common wellness related concerns among students on Standing Rock Reservation hindering academic engagement, and what are recommendations to address those concerns?

This study used a mixed methods approach aligned with an Indigenous methodology to measure cultural wellness integration in schools on Standing Rock Reservation. All survey responses were categorized into one of the four domains of the Medicine Wheel: physical, emotional, mental, and spiritual. These findings were then juxtaposed with academic achievement measures gathered from each of the seven schools. The academic achievement measures collected included graduation rates, attendance, behavioral referrals (In-school Suspensions), and standardized tests. The quantitative and qualitative data were analyzed and the

resulting survey findings and interview themes were coded and presented with supporting details in this chapter.

Descriptive Statistics

A summary statistic was calculated from each interval and ratio variable, with frequencies and percentages calculated for nominal and ordinal variables. The most frequent category for "in what grade level(s) do you currently work?" was Elementary P-5 (*n* = 23, 35%). The most frequent category for "in what subject area do you teach?" was other (*n*=32, 49%). Elementary teachers often teach in more than one subject area, so this response was not unexpected. The rate of this response may have also been due to smaller school districts, which often require staff to perform teaching instruction in multiple content areas. The most frequent category for "how many years have you been working in a school on Standing Rock Reservation?" was three or less (*n*=19,29%). All frequencies and percentages are represented in table 2.

Table 2. *Frequency Table for Nominal and Ordinal Variables*

Variable	n	%
At what grade level(s) do you currently work?		
Middle school and High school 6-12	4	6.15
Elementary P-5	23	35.38
Middle school 6-8	7	10.77
Other	3	4.62
High school 9-12	6	9.23
Elementary P-5, Middle school 6-8, High school 9-12, Other	1	1.54
Middle school 6-8, Other	1	1.54
Elementary and Middle School P-8	5	7.69
Elementary through High School P-12	10	15.38

Elementary P-5, Middle school 6-8	4	6.15
Elementary P-5, Middle school 6-8, Elementary and Middle School P-8	1	1.54
Missing	0	0.00
At which school district do you currently work?		
Coded School Data	13	20.00
SD1A		
SD2B	6	9.23
SD3C	13	20.00
SD4D	3	4.62
SD5E	5	7.69
SD6F	5	7.69
SD7G	20	30.77
Missing	0	0.00
Subject area		
Other	32	49.23
Multiple subjects	22	33.85
English	6	9.23
Math	5	7.69
Missing	0	0.00
How many years have you been working in a school on Standing Rock Reservation?		
Three or less	19	29.23
4-7 years	18	27.69
8-11 years	8	12.31
12-15 years	5	7.69
16-20 years	7	10.77
More than 21 years	8	12.31
Missing	0	0.00

Summary Statistics

Sixty-five educators participated in the online survey. Of the sixty-five who responded to the survey, 56.92% identified as teaching seven or less years on standing Rock Reservation. The most frequently observed category of "at what grade levels do you currently work?" was Elementary P-5 (n = 23, 35%). The most frequently observed category of "how many years have you been working in a school on Standing Rock Reservation?" was three or less (n = 19, 29%). The statistics on years taught on Standing Rock Reservation indicate a high turn over rate;

however, this is well documented and common for reservation schools. The rationale for gathering responses to years taught on Standing Rock Reservation was to determine if mental familiarity with culturally relevant terms (historical trauma, intergenerational trauma, forced assimilation, boarding schools, and Adverse Childhood Experiences) increased for staff over time, considering that most educators are non-Native and would have had little educational background regarding Native American history.

The statistics were analyzed based on subject area to measure academic achievement and cultural wellness responses in reading and math. In order to assess these content areas specifically, data was gathered by looking at the subjects taught by each participant. This revealed that the majority of teachers taught multiple subject areas, making the linear regression analysis analyzing standardized achievement more complicated, since the majority of teachers reported teaching multiple subjects. Additional responses from paraprofessionals indicated a wide range of teacher related responsibilities that did not fit into multiple subject areas, and therefore were documented as other. Other and multiple subject areas statistics made up 83.08% of the total, indicating a majority of the surveys came from educators who are teaching in multiple content areas and performing multiple responsibilities that are not content related. Statistics gathered also indicated many teachers teach multiple grade levels. The descriptive statistics data was intended to document and assess the sample of the surveys gathered to ensure an accurate representation of teachers, grade levels, and schools.

After reviewing the data it was clear that categorizing teachers and staff into identifiable content areas was more problematic than anticipated, creating more variables within the sample. Due to the small sizes of schools and school districts on Standing Rock Reservation, schools are

often comprised of all grade levels within one building, making it more common for teachers to participate in multiple grade levels, content areas, and school related tasks outside of teaching.

Cultural Wellness Statistics Gathered from Surveys

Cultural wellness surveys were first assessed as a whole sample from every school district. With a range of 1-5, the data showed averages between 1.69 and 3.97, illustrating relatively low cultural wellness integration in each category of the Medicine Wheel: physical, emotional, mental integration, mental familiarity, and spiritual, based on this scale. The observations for physical had an average of 1.69 (*SD* = 0.60, *SEM* = 0.07, Min = 1.00, Max = 3.25). The observations for emotional had an average of 3.97 (*SD* = 0.58, *SEM* = 0.07, Min = 2.62, Max = 5.00). The observations for mental integration had an average of 2.42 (*SD* = 1.09, *SEM* = 0.13, Min = 1.00, Max = 5.00). The observations for mental familiarity had an average of 3.16 (*SD* = 0.72, *SEM* = 0.09, Min = 1.00, Max = 4.00). The observations for spiritual had an average of 2.36 (*SD* = 0.92, *SEM* = 0.11, Min = 1.00, Max = 4.75). Table 3 shows the summary statistics.

Table 3

Summary Statistics Table for Interval and Ratio Variables

Variable	*M*	*SD*	*N*	SE_M	Skewness	Kurtosis
Physical	1.69	0.60	65	0.07	0.78	-0.17
Emotional	3.97	0.58	65	0.07	0.12	-0.00
Mental integration	2.42	1.09	65	0.13	0.68	-0.07
Mental familiarity	3.16	0.72	65	0.09	-0.86	0.44
Spiritual	2.36	0.92	65	0.11	0.58	-0.35

Emotional was the highest reported section at 3.97 out of a max of 5.00. The lowest was physical, averaging 1.69 out of 5.00. After summarizing all the scores, the total represented value is 13.6; this value was then divided by each of the scores given to represent a total contribution. The pie chart below illustrates the current cultural wellness integration representation from the sample.

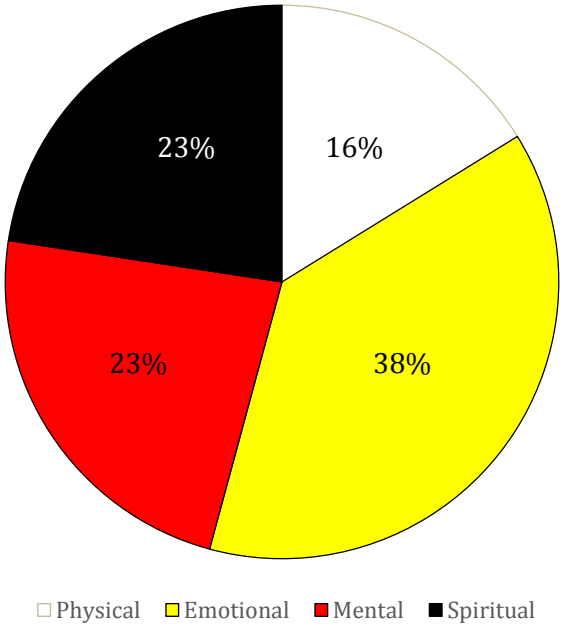

Figure 4. The Medicine Wheel from survey responses on Standing Rock Reservation as a whole.

The schools that participated included Wakpala Smee School District, Solen School District, Selfridge School District, Fort Yates School District, Little Eagle Day School, Rock Creek School District, and McLaughlin School District. The descriptive statistics show that the variables of school, grade level, and content areas were fairly evenly distributed between each school district based on sizes. The participation from each school district based on size was comparable to one another, except for the two K-8 school districts.

Table 4.

School district comparison

Three largest school districts based on enrollment K-12		
SD1A	13	20.00
SD3C	13	20.00
SD7G	20	30.77
Two medium school districts based on enrollment K-12		
SD5E	5	7.69
SD6F	5	7.69
Two Smallest school districts based on enrollment in K-8 Districts		
SD2B	6	9.23
SD4D	3	4.62

Research question 1 asked the following: Using a medicine wheel model, how is cultural wellness being practiced in schools on Standing Rock reservation? Physical reported 16%, Emotional reported 38%, Mental reported 23%, and spiritual 23%. After the cultural wellness data was obtained and analyzed, a linear regression analysis was conducted to assess whether physical, emotional, mental, or spiritual significantly predicted academic achievement related to attendance, graduation rates, In-school Suspensions (ISS), or standardized achievement data provided by each school district.

Analysis methods

A total of seven school districts from Standing Rock Reservation were included in the scope of this research. A total of 65 survey responses were collected, including those from teachers, administrators, and paraprofessionals. A summary statistic was calculated for each

interval and ratio variable; frequencies and percentages were calculated for each nominal and ordinal variable. A multiple linear regression analysis was used for this research and is common in research when analyzing more than one independent variable in your analysis. A multiple linear regression shows the relationship between two or more variables and a response variable by using a linear equation to assess data (Crossman, 2017). Several multiple linear regression analysis were conducted looking at cultural wellness scores in relation to achievement in the following categories: attendance, graduation rates, standardized achievement (reading and math), and In-school Suspension (ISS). In-school Suspension was assessed using negative emotional wellness responses. The negative emotional responses indicated frequencies of negative integration, reflecting the opposite of positive emotional wellness implementation practices.

The linear regression analysis was organized based on an assumption about the data that must be met in order to conduct an analysis. Normality is achieved when distribution of variables follow a single line and are not curved. Homoscedasticity assessed for variance around the regression line, assessing for a straight line linear sample (Crossman, 2017). The skewness and kurtosis were calculated to test for normality. The rationale for this was based on the small sample sizes. According to Kim (2013), "to resolve the problem, another method of assessing normality using skewness and kurtosis of the distribution may be used, which may be relatively correct in both small samples and large samples" (p. 52). When the skewness is greater than two in absolute value, the variable is considered to be asymmetrical about its mean. When the kurtosis is greater than or equal to three, then the variable's distribution is markedly different than a normal distribution in its tendency to produce outliers (Westfall & Henning, 2013). These analysis measures were used to inspect and assess for normality among the data sample size. A

combination of normality was evaluated using a Q-Q scatterplot, skewness and kurtosis, and a visual inspection was used for assessing assumption of normality (Kim, 2013).

Quantitative subsection

In research question 1, a descriptive analysis was conducted on participants (school, content, and years taught) for categorizing demographics from each school and as a whole to determine that the sample size was an accurate representation of teachers and school districts on Standing Rock Reservation. The descriptive data compiled surveys into school districts, years taught, and content areas; this was used to assess standardized achievement scores in reading and math. The final linear regression analysis was conducted to determine if terminology familiarity scores related to historical trauma, intergenerational trauma, forced assimilation, and Adverse Childhood Experiences increased with years taught on Standing Rock Reservation.

Cultural wellness integration was measured based on the four directions/domains of the Medicine Wheel and was categorized into one of those domains. The data was used to score cultural wellness integration and to assess academic achievement measures using a multiple linear regression analysis to determine whether the two variables were significant. According to Crossman (2017), “Linear regression is a technique that is used to learn more about the relationship between an independent (predictor) variable and a dependent (criterion) variable” (n.d.). Linear regression analysis when having more than one independent variable uses a multiple linear regression (Crossman, 2017). The researcher conducted five multiple linear regression analysis and one single linear regression analysis from this research data.

Qualitative subsection

Ten surveys were randomly selected for follow up interviews; the interview process ranged from 15 to 25 minutes, and addressed the following three questions: 1) What wellness

related concerns do you see among students on Standing Rock Reservation as they relate to educational barriers and common issues preventing academic achievement? 2) What do you think staff needs to know in regards to student wellness for better serving the student population? and 3) What do you think staff needs to more effectively address student concerns? These questions were used to address the second aim—produce a detailed description of common wellness related concerns among students on Standing Rock Reservation hindering academic engagement, and explore recommended areas of development to more effectively address those concerns.

Interviews were recorded using audio and transcribed verbatim using transcription software from gotranscribe.com. The researcher conducted all the qualitative analyses, including preliminary exploratory analyses, coding process, and themes. The qualitative sample based on the requirements set was an accurate representation of the study. According to Creswell (2015), "qualitative research consists of exploring the data to obtain a general sense of the data, memoing ideas, thinking about the organization of the data, and considering whether you need more data" (p. 242). Coding was done based on each question response, thus segmenting and labeling the data into smaller data sections. Categorization allowed for a more detailed and focused analysis of the data. Finally, the data was examined for overlapping codes and redundancy from all three questions for generating themes in the data (Creswell, 2015).

Presentation of Results: Quantitative subsection

Standardized math achievement.

A linear regression analysis was conducted to assess if Physical, Emotional, Mental or Spiritual significantly predicted academic achievement on standardized math scores (spr-2017). The variable selection method was chosen to include all of the selected predictors. The

assumptions of normality of residuals, homoscedasticity of residuals, absence of multicollinearity, and lack of outliers were assessed.

Normality was evaluated using a Q-Q Scatterplot (Bates, Bolker, Mächler, & Walker, 2014; DeCarlo, 1997; Field, 2009). The Q-Q scatterplot compares distribution of residuals with normal distribution, which follows a bell curve. The solid line represents the theoretical quantiles of a normal distribution. Normality is present if the points form a relatively straight line. The Q-Q scatterplot for normality is presented in Figure 5. The normality line indicates a relatively straight line with limited curvature.

Homoscedasticity was evaluated by plotting the residuals against the predicted values (Bates et al., 2014; Field, 2009; Osborne & Walters, 2002). Homoscedasticity is met if points appear randomly distributed with a mean of zero and no curvature. Figure 5. presents a scatterplot of predicted values and model residuals. Homoscedasticity was not met, indicating a pattern line and is represented in figure 6. The results show a heteroscedastic scatter may represent the variance among the population within the sample of teachers, districts, and standardized achievement scores. This may explain the variations within the residuals scatterplot testing homoscedasticity results. The heteroscedastic result indicates caution when evaluating the results of this linear regression findings.

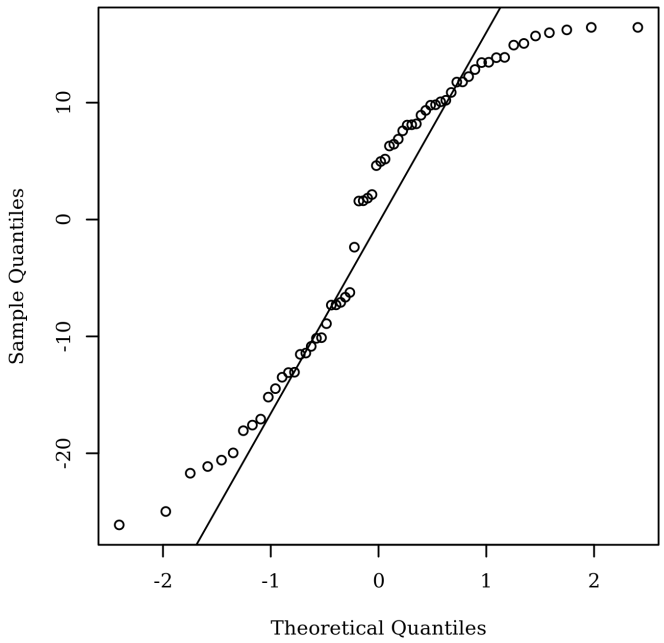

Figure 5. Q-Q scatterplot testing normality.

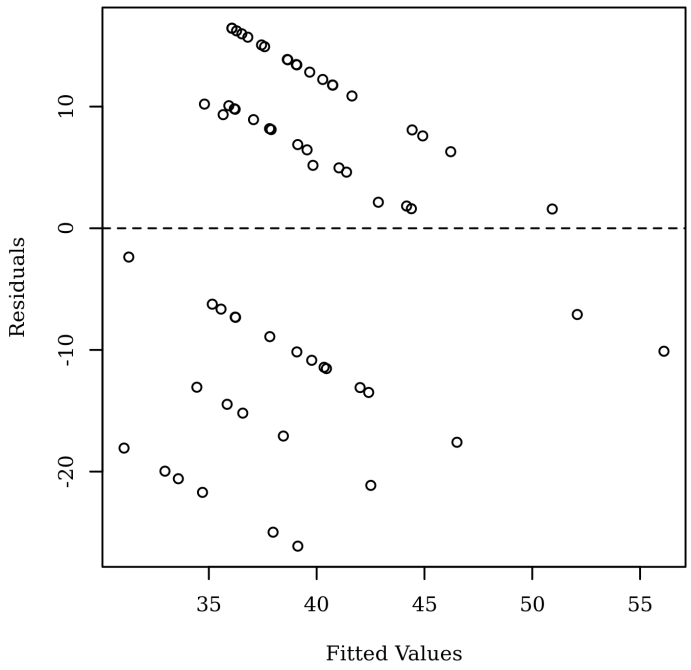

Figure 6. Residuals scatterplot testing homoscedasticity.

Variance Inflation Factors (VIFs) were calculated to detect a presence of multicollinearity between predictors. High VIFs indicate increased effects of multicollinearity. VIFs greater than 5 are cause for concern, whereas VIFs of 10 should be considered the maximum upper limit (Menard, 2009). Variance inflation factors show no VIF higher than 5, therefore no cause of concern among the data. All predictors in the regression model have VIFs less than 10. Table 5 presents the VIF for each predictor.

Table 5

Variance Inflation Factors for Physical, Emotional, Mental integration, and Spiritual

Variable	VIF
Physical	1.58
Emotional	1.15
Mental integration	1.83
Spiritual	1.95

To identify abnormal variation points, studentized residuals were calculated and the absolute values were plotted against the observation numbers (Field, 2009; Stevens, 2009). Studentized residuals are calculated by dividing the model residuals by the estimated residual standard deviation. An observation with a studentized residual greater than 3.23 in absolute value, the .999 quartile of a *t* distribution with 61 degrees of freedom, was considered to have significant influence on the results of the model. Figure 7 presents the studentized residuals plot of the observations. School district SD4D was excluded from the linear regression analysis due to variation among the districts reporting requirements and abnormally high proficiency data

compared to other districts reported in the study. School districts reported in the linear regression analysis included SD1A, SD2B, SD3C, SD5E, SD5F, and SD7AG. The results of figure 7. studentized residuals plot for outliers detected no abnormal variation among the sample.

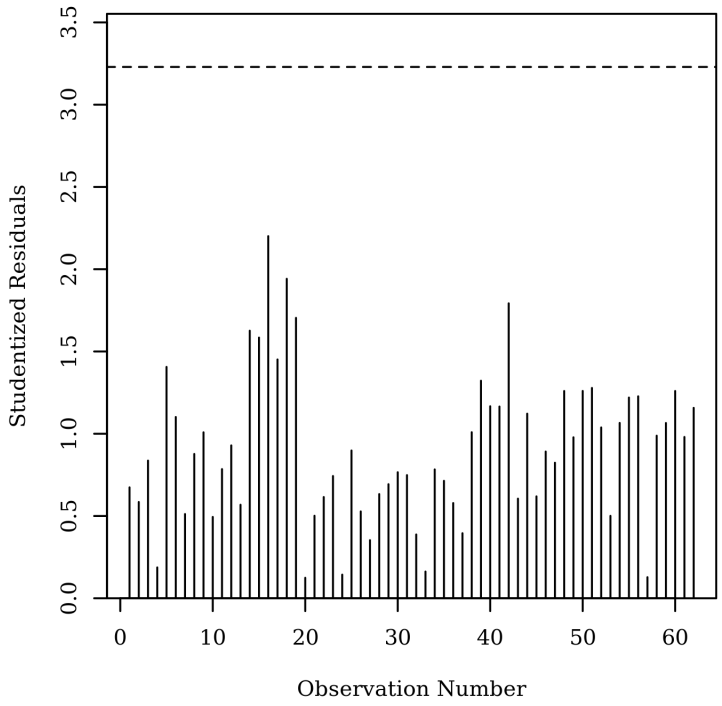

Figure 7. Studentized residuals plot for outlier detection.

The results of the linear regression model were not significant, $F(4,57) = 1.83$, $p = .135$, $R^2 = 0.11$, indicating physical, emotional, mental, and spiritual in this study did not explain a significant proportion of variation in percent proficient in math (spr-2017). The interpretation of the data result shows that cultural wellness implementation did not have a significant influence on academic achievement in standardized math test scores based on this study. Since the overall model was not significant, the individual predictors were not examined further. In regard to

question one—"Using a medicine wheel model, how is cultural wellness being practiced in schools on Standing Rock reservation?"—this study indicated no relationship between math and cultural wellness. Table 6 summarizes the results of the regression model.

Table 6

Results for Linear Regression with Physical, Emotional, Mental integration, and Spiritual predicting Percent_profifient_math_spr_2017

Variable	*B*	*SE*	95% CI	B	*t*	*p*
(Intercept)	40.15	12.14	[15.85, 64.45]	0.00	3.31	.002
Physical	-4.65	3.73	[-12.12, 2.82]	-0.20	-1.25	.218
Emotional	-0.33	3.20	[-6.73, 6.07]	-0.01	-0.10	.919
Mental integration	5.38	2.08	[1.21, 9.55]	0.44	2.58	.012
Spiritual	-2.06	2.61	[-7.28, 3.16]	-0.14	-0.79	.432

Note. Results: $F(4,57) = 1.83$, $p = .135$, $R^2 = 0.11$

Unstandardized Regression Equation: Percent_profifient_math_spr_2017 = 40.15 - 4.65*Physical - 0.33*Emotional + 5.38*Mental integration - 2.06*Spiritual

Standardized reading achievement

A linear regression analysis was conducted to assess whether physical, emotional, mental, and spiritual significantly predicted percent proficient in reading (spr-2017 semester). The 'Enter' variable selection method was chosen for the linear regression model, which includes all of the selected predictors. The assumptions of normality of residuals, homoscedasticity of residuals, absence of multicollinearity, and the lack of outliers were assessed. Normality was evaluated using a Q-Q scatterplot. The Q-Q scatterplot for normality is presented in Figure 8. The

normality line indicates a relatively straight line with limited curvature extending towards each side. Homoscedasticity was evaluated showing no apparent curvature and is represented in Figure 5. The Q-Q scatterplot assessing normality was not met. Additionally, homoscedasticity was not met, indicating a pattern line and is represented in figure 9. The results of this linear regression may represent the variance among the population within the sample of teachers, districts, and standardized achievement scores. The results of the normality assessments indicate caution when evaluating the findings.

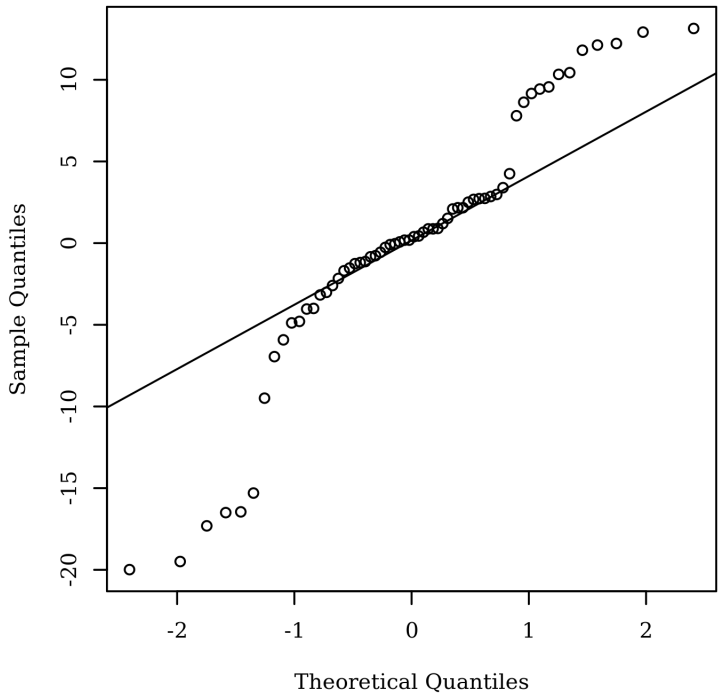

Figure 8. Q-Q scatterplot testing normality.

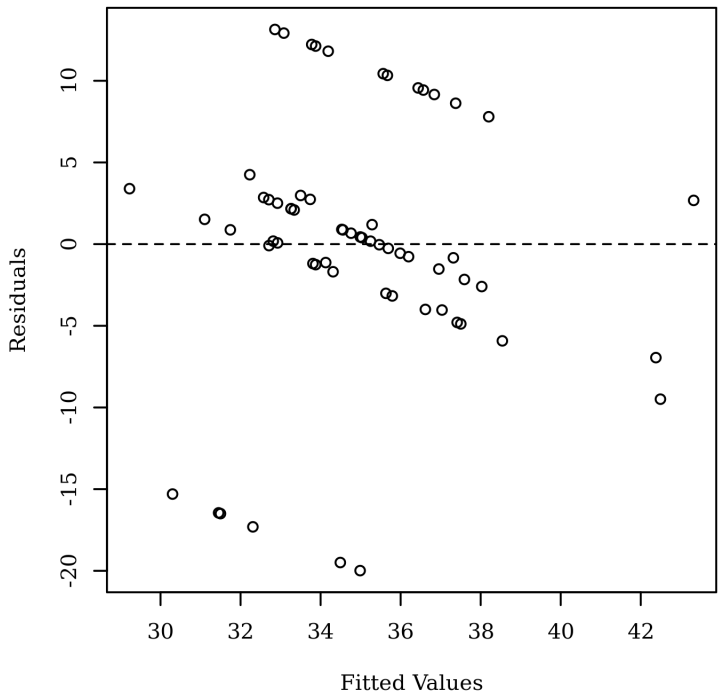

Figure 9. Residuals scatterplot testing homoscedasticity.

Variance Inflation Factors (VIFs) indicted no VIF greater than 5, therefore detected no concerns among the data findings. All predictors in the regression model have VIFs less than 5. Table 7 presents the VIF for each predictor in the model.

Table 7

Variance Inflation Factors for Physical, Emotional, Mental integration, and Spiritual

Variable	VIF
Physical	1.58
Emotional	1.15
Mental integration	1.83
Spiritual	1.95

No indications of studentized residuals exceeded 3.2, representing no outliners among the data. Figure 6 presents the studentized residuals plot of the observations. School district SD4D was excluded from the linear regression analysis due to variation among the district's reporting requirements and abnormally high proficiency data compared to other districts reported in the study. School districts reported in the linear regression analysis were SD1A, SD2B, SD3C, SD5E, SD5F, and SD7AG.

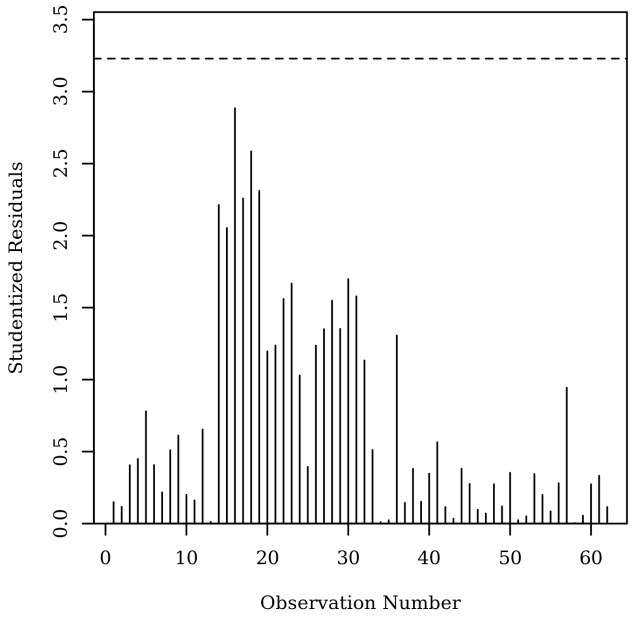

Figure 10. Studentized residuals plot for outlier detection.

The results of the linear regression model were not significant, $F(4,57) = 1.74$, $p = .153$, $R^2 = 0.11$, indicating physical, emotional, mental, and spiritual did not explain a significant proportion of variation in percent of proficient in reading (spr-2017). Since the overall model was not significant, the individual predictors were not examined further. In regard to question one—"Using a medicine wheel model, how is cultural wellness being practiced in schools on Standing Rock Reservation?"—no relationship between reading achievement and cultural

wellness integration was indicated in this study; however, further assessments would be needed to determine these findings, in part because the normality assessments not being met. Figure 9. summarizes the results of the regression model.

Table 8

Results for Linear Regression with Physical, Emotional, Mental integration, and Spiritual predicting Percent_proficient_reading_spr_2017

Variable	*B*	*SE*	95% CI	β	*t*	*p*
(Intercept)	41.14	7.28	[26.55, 55.72]	0.00	5.65	< .001
Physical	-3.91	2.24	[-8.40, 0.57]	-0.28	-1.75	.086
Emotional	-1.35	1.92	[-5.19, 2.50]	-0.09	-0.70	.486
Mental integration	2.74	1.25	[0.24, 5.24]	0.37	2.19	.033
Spiritual	-0.39	1.56	[-3.52, 2.75]	-0.04	-0.25	.806

Note. Results: $F(4,57) = 1.74$, $p = .153$, $R^2 = 0.11$

Unstandardized Regression Equation: Percent_proficient_reading_spr_2017 = 41.14 - 3.91*Physical - 1.35*Emotional + 2.74*Mental integration - 0.39*Spiritual

Graduation rate

A linear regression analysis was conducted to assess whether physical, emotional, mental and spiritual significantly predicted graduation rates. The 'Enter' variable selection method was chosen for the linear regression model, which includes all of the selected predictors. The assumptions of normality of residuals, homoscedasticity of residuals, absence of multicollinearity, and the lack of outliers were assessed. Normality of Q-Q scatterplot indicates a partial straight line, making up the majority of the representation; however, also indicates more

curvature than reported on previous regression analysis. This may be in part due to the exclusion of SD4D, SD2B. SD4D and SD2D are K-8 school districts and do not report graduation rates, causing a smaller sample size with less variables. The Q-Q scatterplot for normality is presented in Figure 11. Due to a smaller sample size the normal Q-Q plots exhibit more extreme values than would be expected in a normal distribution. Figure 11 Q-Q scatterplot represents two peaks with a normal distribution prior to tailing on both ends, representing a bimodal distribution. Homoscedasticity was evaluated showing heteroscedasticity and is represented in Figure 12.

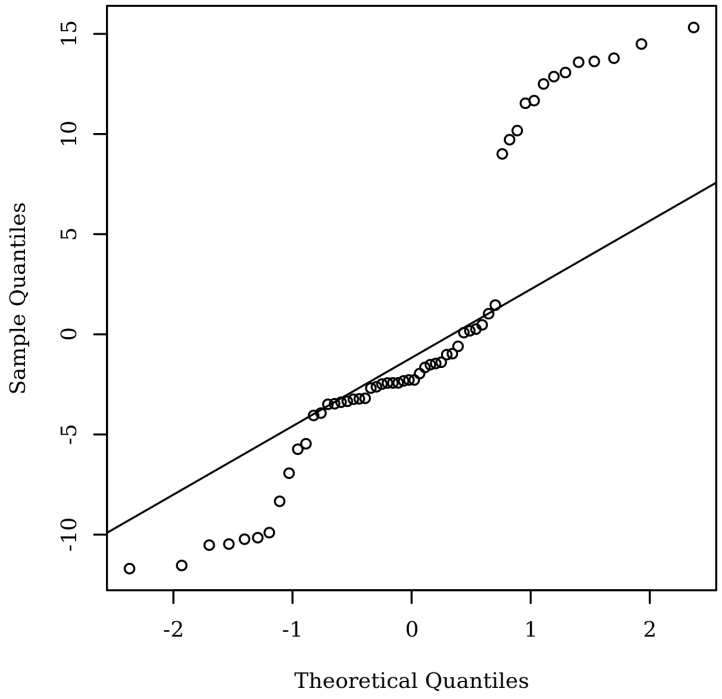

Figure 11. Q-Q scatterplot testing normality.

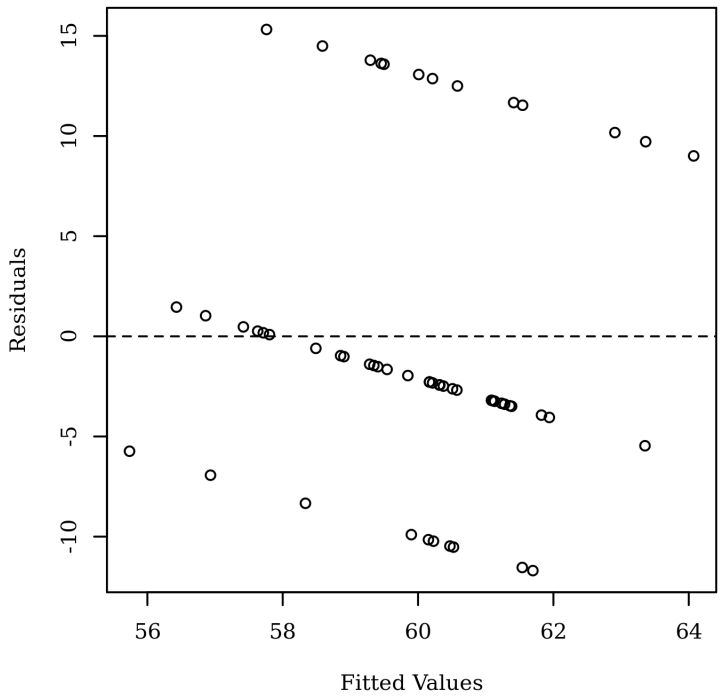

Figure 12. Residuals scatterplot testing homoscedasticity.

Variance Inflation Factors (VIFs) indicted no VIF greater than 5, therefore detected no concerns among the data findings. All predictors in the regression model have VIFs less than 5. Table 9 presents the VIF for each predictor in the model.

Table 9

Variance Inflation Factors for Physical, Emotional, Mental integration, and Spiritual

Variable	VIF
Physical	1.68
Emotional	1.14
Mental integration	1.92
Spiritual	2.00

No indications of studentized residuals exceeded 3.2., representing no outliners among the data. Figure 13 presents the studentized residuals plot of the observations. School district SD4D and SD2B were excluded from the linear regression; these two school districts are K-8 and do not have to report graduation rates. School districts reported in the linear regression analysis were SD1A, SD3C, SD5E, SD5F, and SD7AG.

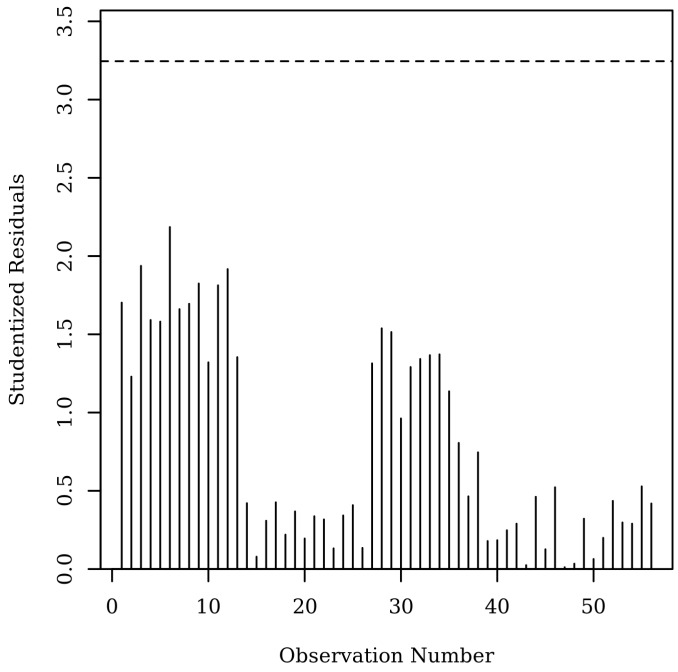

Figure 13. Studentized residuals plot for outlier detection.

The results of the linear regression model were not significant, $F(4,51) = 0.66$, $p = .620$, $R^2 = 0.05$, indicating physical, emotional, mental, and spiritual did not explain a significant proportion of variation in the graduation rates among schools on Standing Rock Reservation. Since the overall model was not significant, the individual predictors were not examined further. Table 8 summarizes the results of the regression model. The interpretation of these data results show that cultural wellness implementation did not significantly influence graduation rates;

however, the results of the Q-Q scatter plot testing normality were not met indicating caution when interpreting the findings of the regression analysis. The tendencies in a normal Q-Q scatterplot are linear, the results of the graduation rates linear regression were not linear and may reflect more extreme positive and negative residuals due to the exclusion of data samples from two schools (SD4D, SD2B).

Table 10

Results for Linear Regression with Physical, Emotional, Mental integration, and Spiritual predicting Graduation rate

Variable	*B*	*SE*	95% CI	β	*t*	*p*
(Intercept)	51.70	7.50	[36.64, 66.76]	0.00	6.89	< .001
Physical	0.00	2.34	[-4.70, 4.70]	0.00	0.00	.998
Emotional	2.84	1.96	[-1.09, 6.77]	0.21	1.45	.153
Mental integration	-1.03	1.32	[-3.69, 1.63]	-0.15	-0.78	.441
Spiritual	-0.20	1.70	[-3.61, 3.22]	-0.02	-0.11	.909

Note. Results: $F(4,51) = 0.66$, $p = .620$, $R^2 = 0.05$

Unstandardized Regression Equation: Graduation rate = 51.70 + 0.00*Physical + 2.84*Emotional - 1.03*Mental integration - 0.20*Spiritual

Attendance

A linear regression analysis was conducted to assess whether physical, emotional, mental and spiritual significantly predicted attendance in 2016-2017 school year. The 'Enter' variable selection method was chosen for the linear regression model, which includes all of the selected predictors. The assumptions of normality of residuals, homoscedasticity of residuals, absence of

multicollinearity, and the lack of outliers were assessed. Normality of Q-Q scatterplot indicates a partial straight line, making up the majority of the representation; however, it indicates more curvature reported towards the ends -4, 4. The Q-Q scatterplot for normality is presented in Figure 14. Homoscedasticity was evaluated showing no apparent curvature; however, the evaluation showed heteroscedasticity, represented by patterns amongst the sample. This is represented in Figure 15, scatterplot of predicted values and model residuals.

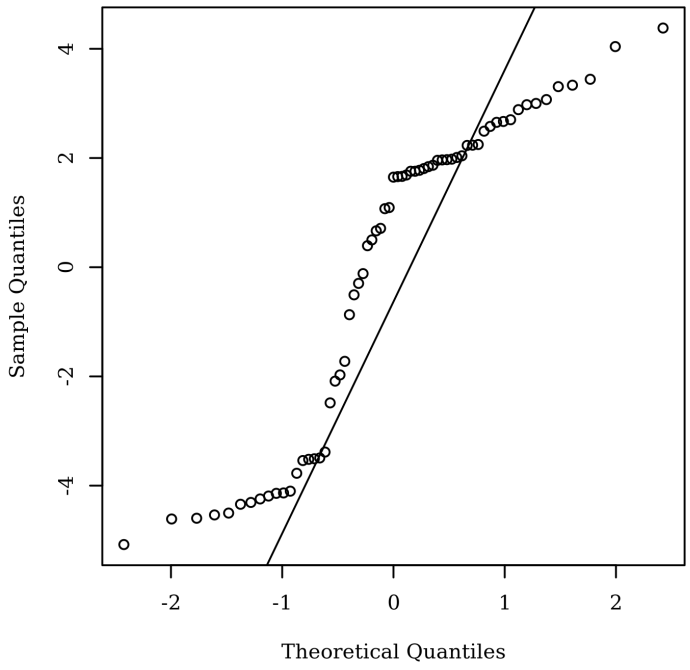

Figure 14. Q-Q scatterplot testing normality.

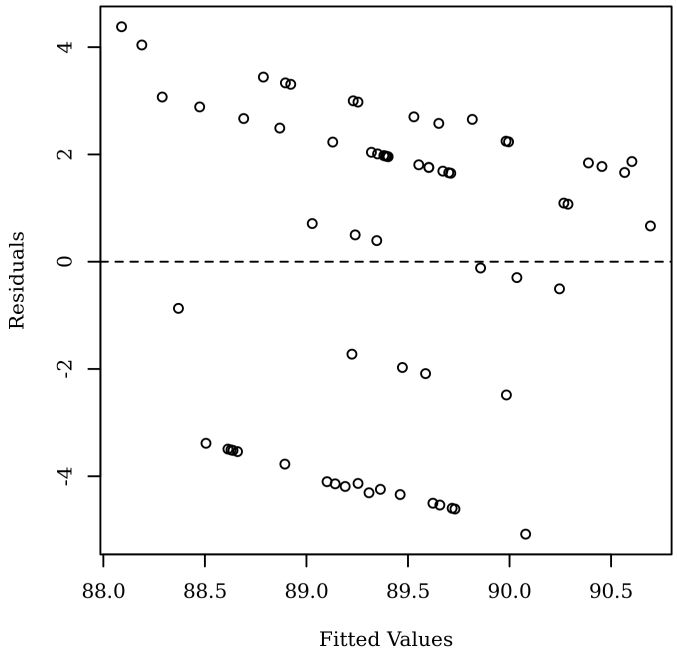

Figure 15. Residuals scatterplot testing homoscedasticity.

Variance Inflation Factors (VIFs) indicted no VIF greater than 5, therefore detected no concerns among the data findings. All predictors in the regression model have VIFs less than 5. Table 11 presents the VIF for each predictor in the model.

Table 11

Variance Inflation Factors for Physical, Emotional, Mental integration, and Spiritual

Variable	VIF
Physical	1.52
Emotional	1.14
Mental integration	1.84
Spiritual	1.90

No indications of studentized residuals exceeding 3.2., representing no outliners among the data. Figure 16. presents the studentized residuals plot of the observations. School districts reported in the linear regression analysis were SD1A, SD2B, SD3C, SD4D, SD5E, SD5F, and SD7AG.

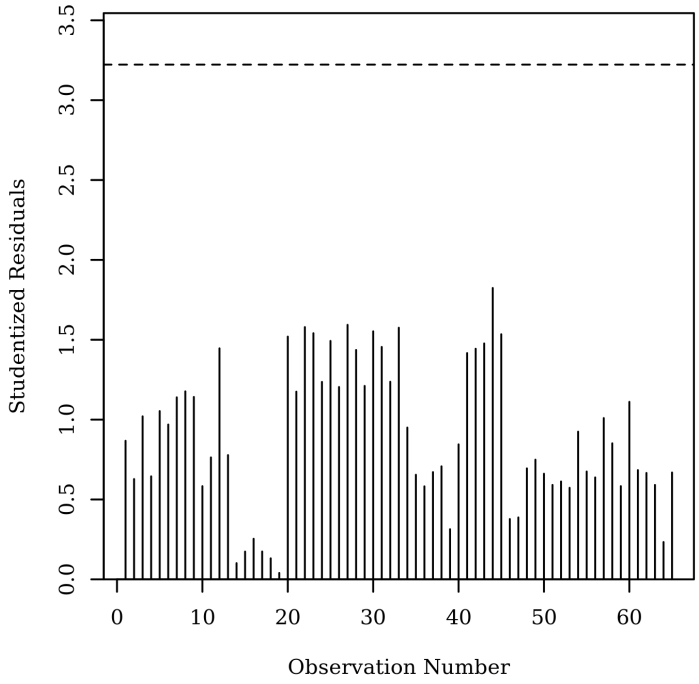

Figure 16. Studentized residuals plot for outlier detection.

The results of the linear regression model were not significant, $F(4,60) = 0.66$, $p = .619$, $R^2 = 0.04$, indicating physical, emotional, mental, and spiritual did not explain a significant proportion of variation in attendance in 2016-2017 school year within this study; however, due to the normality assessments not being met, caution with interpretation of results should be considered. Since the overall model was not significant, the individual predictors were not examined further. Table 12. summarizes the results of the regression model.

Table 12

Results for Linear Regression with Physical, Emotional, Mental integration, and Spiritual predicting Attendance_2016_2017

Variable	*B*	*SE*	95% CI	β	*t*	*p*
(Intercept)	86.99	2.64	[81.71, 92.27]	0.00	32.96	< .001
Physical	0.98	0.77	[-0.55, 2.52]	0.20	1.28	.205
Emotional	0.54	0.69	[-0.85, 1.92]	0.10	0.78	.441
Mental integration	-0.17	0.47	[-1.10, 0.77]	-0.06	-0.35	.724
Spiritual	-0.41	0.56	[-1.54, 0.71]	-0.13	-0.73	.467

Note. Results: $F(4,60) = 0.66$, $p = .619$, $R^2 = 0.04$

Unstandardized Regression Equation: Attendance_2016_2017 = 86.99 + 0.98*Physical + 0.54*Emotional - 0.17*Mental integration - 0.41*Spiritual

Emotional Wellness (ISS predictors)

A linear regression analysis was conducted to assess three emotional wellness question responses with the remaining Medicine Wheel domains, and mental familiarity (terminology) responses. The multiple linear regression was used to analyze cultural wellness integration with staff reported ISS responses. After further review, I added two additional negative emotional wellness questions, providing a broader analysis of negative staff behavioral patterns. The three emotional wellness questions surveyed in this linear regression were 13, 14 and 17: How often do you raise your voice to what would be considered a “yell” in your classroom? How often do you find yourself holding a grudge in regards to student behavior?; How often do you send

students out of your classroom (In-school Suspension, ISS) as part of your approach to discipline?

The 'Enter' variable selection method was chosen for the linear regression model, which included all of the selected predictors. The assumptions of normality of residuals, homoscedasticity of residuals, absence of multicollinearity, and the lack of outliers were assessed. The Q-Q scatterplot testing Normality indicates a straight line, making up the entire sample representation; the solid line represents the theoretical quantities of a normal distribution. The emotional wellness (ISS predictor) normality assessment represents the straightest normality of all four academic achievement analyses performed; this could be due to participants responding directly to both variables (Reported ISS and mental familiarity). This data did not exclude any school districts, which in turn kept the sample size larger with more predictable variables. The In-school Suspension (ISS) and cultural wellness scores came directly from the participant responses, and therefore, represented a total response of all surveys from which to measure variables. However, the residual scatterplot test showed a heterogeneous outcome. According to Allen and Seaman (2017),

> While reducing variability and aiming for homogeneity in testing is important, recognizing and examining the diversity should play a key role in any analyses. The reputation of heterogeneity has been increasing as evidenced in the meta-analysis field's phrase, "Yes, heterogeneity is your friend," commonly used when examining and performing meta-analyses.

I did not perform a meta-analysis; however, this study assessed several areas of academic achievement and cultural wellness within a single study and was using a smaller sample size from seven different school districts. This included different reporting methods of academic

achievement, which created a larger variable range among the study and less homoscedasticity. The only commonality within the sample was that all responses were drawn from teachers on Standing Rock Reservation. This assessment did not reveal homoscedasticity, which is a concern within statistics; however the results of this assessment reveal how differently teachers are currently integrating cultural wellness in the classrooms. According to Allen and Seaman (2017), "high heterogeneity, in contrast, is often more realistic for modeling the messy real world and may give better results or identify subpopulations."

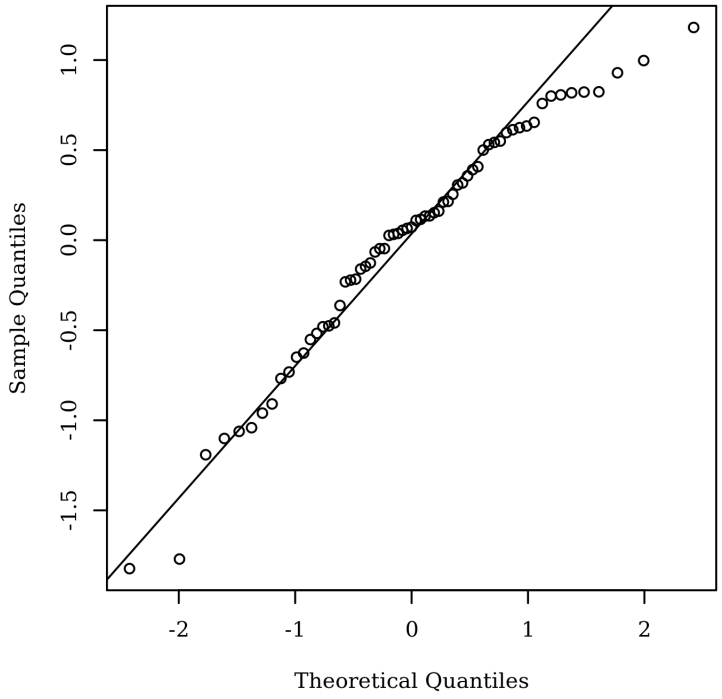

Figure 17. Q-Q scatterplot testing normality.

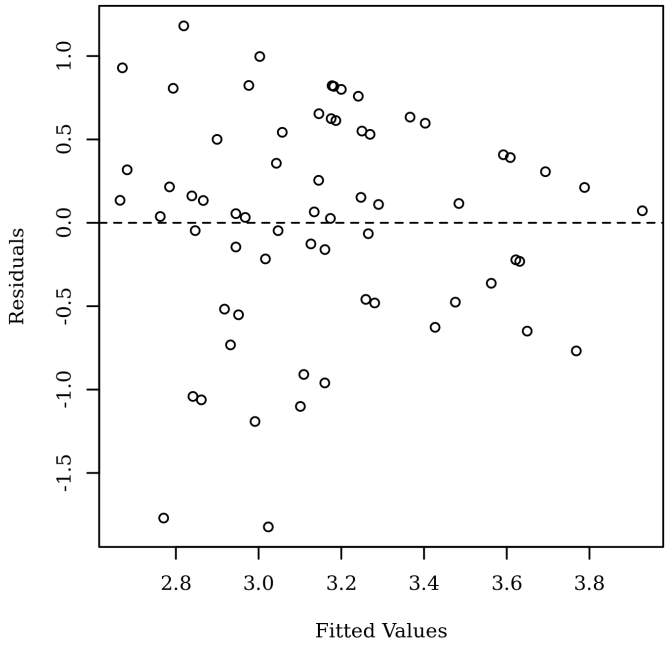

Figure 18. Residuals scatterplot testing homoscedasticity.

Variance Inflation Factors (VIFs) indicted no VIF greater than 5, therefore detected no concerns among the data findings. All predictors in the regression model have VIFs less than 5. Table 13 presents the VIF for each predictor in the model.

Table 13

Variance Inflation Factors for Physical, Emotional, Mental integration, and Spiritual

Variable	VIF
Physical	1.52
Emotional	1.14
Mental integration	1.84
Spiritual	1.90

No indications of studentized residuals exceeded 3.2., representing no outliers among the data. Figure 19. presents the studentized residuals plot of the observations. School districts reported in the linear regression analysis were SD1A, SD2B, SD3C, SD4D, SD5E, SD5F, and SD7AG.

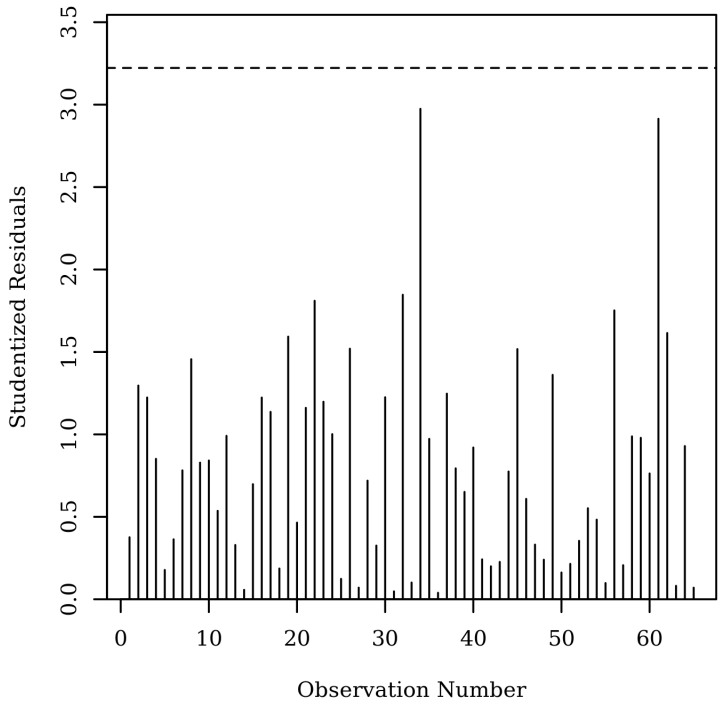

Figure 19. Studentized residuals plot for outlier detection.

The results of the linear regression model were significant, $F(4,60) = 3.11$, $p = .022$, $R^2 = 0.17$, indicating that approximately 17% of the variance in mental familiarity is explainable by emotional wellness (questions 13, 14, 17). Findings found emotional wellness significantly predicted mental familiarity, $B = 0.33$, $t(60) = 2.12$, $p = .038$. This indicates that on average, a one-unit increase of positive responses to emotional wellness (questions 13, 14, 17) will increase the value of mental familiarity by 0.33 units. The results of this indicate emotional wellness was significant and corresponded with mental familiarity with a 17% variance. Mental familiarity

assessed staff understandings from the following terminology: historical trauma, boarding schools, forced assimilation, intergenerational trauma, and Adverse Childhood Experiences (ACEs). A lower negative emotional wellness response on questions 13, 14, 17 corresponded with a higher mental familiarity score, meaning higher understanding of terminology corresponded with fewer reported ISS behavioral referrals and negative behavioral management practices.

Table 14

Results for Linear Regression with Physical, Emotional, Mental integration, and Spiritual predicting mental familiarity

Variable	*B*	*SE*	95% CI	β	*t*	*p*
(Intercept)	1.51	0.60	[0.31, 2.71]	0.00	2.52	.014
Physical	-0.15	0.17	[-0.50, 0.20]	-0.13	-0.86	.391
Emotional	0.33	0.16	[0.02, 0.65]	0.27	2.12	.038
Mental integration	0.13	0.11	[-0.08, 0.34]	0.20	1.24	.220
Spiritual	0.11	0.13	[-0.14, 0.37]	0.14	0.88	.383

Note. Results: $F(4,60) = 3.11$, $p = .022$, $R^2 = 0.17$

Unstandardized Regression Equation: Mental familiarity = 1.51 - 0.15*Physical + 0.33*Emotional + 0.13*Mental integration + 0.11*Spiritual

Mental familiarity and Years taught on Standing Rock Reservation

A linear regression analysis was conducted to assess whether years working on Standing Rock Reservation significantly predicted mental familiarity. The rationale for this additional linear regression was based on the mental familiarity correspondence with emotional wellness to determine if years taught increased mental familiarity scores. The 'Enter' variable selection method was chosen for the linear regression model, which includes all of the selected predictors as indicated in the previous analysis. The assumptions of normality of residuals, homoscedasticity of residuals, absence of multicollinearity, and the lack of outliers were assessed. Since there was only one predictor variable, multicollinearity does not apply, and Variance Inflation Factors were not calculated. Normality of Q-Q scatterplot indicates a straight line where the solid line represents the theoretical quantiles of a normal distribution. The indicators reported are represented on the line in smaller unit groups with variation curving towards 0.5. The Q-Q scatterplot for normality is presented in Figure 20. Homoscedasticity was evaluated showing no apparent curvature and is represented in Figure 21, scatterplot of predicted values and model residuals. The linear regression shows normalitity in both Q-Qscatterplot and the residuals scatterplot.

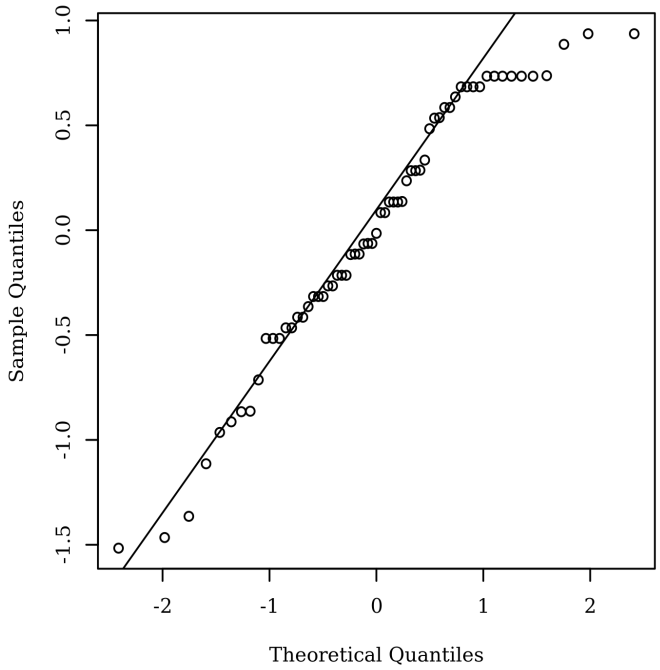

Figure 20. Q-Q scatterplot testing normality.

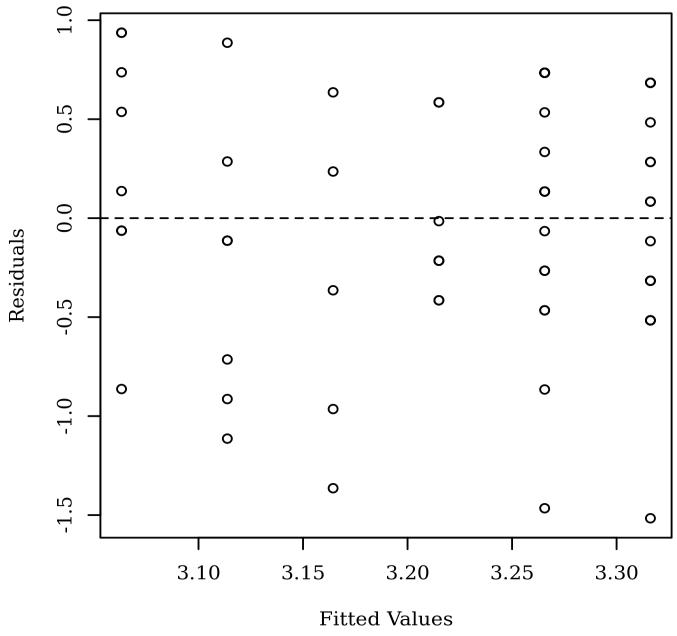

Figure 21. Residuals scatterplot testing homoscedasticity.

An observation with a studentized residual greater than 3.2., in absolute value, the .999 quartile of a *t* distribution with 64 degrees of freedom, was considered to have significant influence on the results of the model. Figure 22 presents the studentized residuals plot of the observations. Observation numbers are specified next to each point with a studentized residual greater than three. School districts reported in the linear regression analysis were SD1A, SD2B, SD3C, SD4D, SD5E, SD5F, and SD7AG.

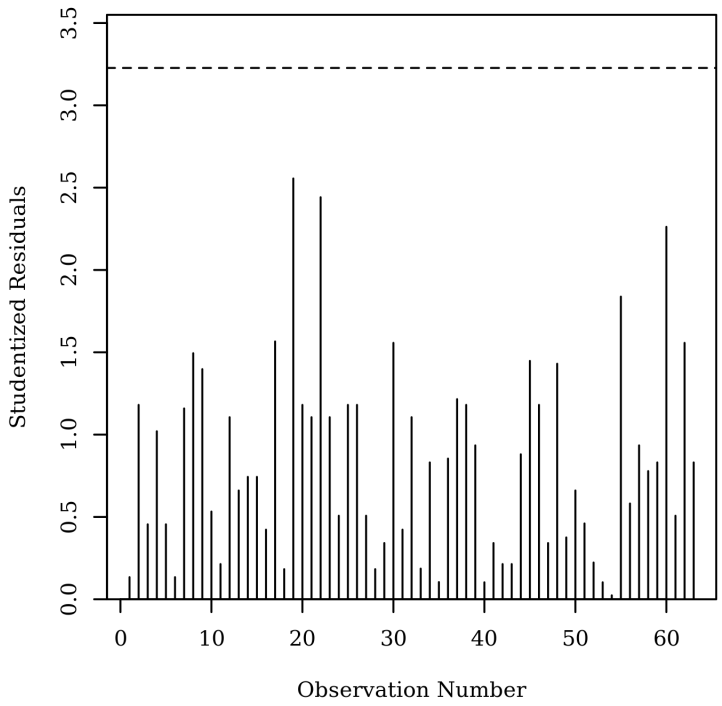

Figure 22. Studentized residuals plot for outlier detection.

The results of the linear regression model were not significant, $F(1,63) = 0.04$, $p = .848$, $R^2 = 0.00$, indicating years working did not explain a significant proportion of variation in mental familiarity. Moreover, the results contradicted the assumption that mental terminology increased with years taught on Standing Rock Reservation. The assumption was the terminology, as it relates to student and teacher, would have increased over the amount of time spent teaching on

the reservation. The overall model was not significant in corresponding years taught with mental familiarity; however, it was significant in that the two variables did not correspond. Table 15 summarizes the results of the regression model.

Table 15

Results for Linear Regression with Years_working_scale predicting Mental_familiarity

Variable	*B*	*SE*	95% CI	β	*t*	*p*
(Intercept)	3.37	0.15	[3.06, 3.67]	0.00	22.01	< .001
Years_working_scale	-0.05	0.05	[-0.14, 0.04]	-0.14	-1.11	.273

Note. Results: $F(1,61) = 1.22$, $p = .273$, $R^2 = 0.02$

Unstandardized Regression Equation: Mental_familiarity = 3.37 - 0.05*Years_working_scale

Presentation of Results: Qualitative Subsection

The purpose of the qualitative portion of this study was to produce a detailed description of common wellness related concerns among students on Standing Rock Reservation hindering academic engagement, and to recommend areas of development to more effectively address those concerns. The qualitative analysis followed three steps: 1) reading over all transcribed interviews: 2) review for general content meaning; 3) identify meaning based on units that represent the collected codes into meaningful units of understanding (Warren, 2013). A thematic analysis was used to review emerging themes and record patterns from qualitative research. A thematic analysis pin pointed and recorded themes/patterns within the data. This study followed six phases of coding to establish patterns: initial codes, reviewed themes, looked for familiarization, identified patterns, defined and named, and finalized the report.

Ten interviews were conducted out of the 65 surveys that were collected. Random

sampling was used to originally pick interview candidates; however, the original lottery sample from the surveys revealed through contact that many educators felt they did not know enough about the topic to provide a germane interview, and many of the original sample did not include Native American staff, due to smaller numbers of Native American teachers. Because of this, I then conducted purposive sampling. I reviewed the survey comments, communicated with administration from the school districts, which included the following requirements: a minimum of 10 participants, a minimum of five different school districts, a minimum of six Native American teachers, a minimum of four non-Native teachers, a minimum of two new teachers (three years or less teaching on Standing Rock Reservation) and a minimum of three long-time teachers (10 years + experience teaching on Standing Rock Reservation.) School districts represented in the qualitative analysis were SD1A, SD3C, SD5E, SD5F, and SD7AG. The interview group included Native American teachers, non-Native American teachers, administration, elementary, middle school, and high school teachers, ranging from first year teachers to 18 years teaching on Standing Rock Reservation. The interviews were conducted in person or by phone, and they ranged in duration from 12:11 minutes to 22:06 minutes. All interviews were recorded and transcribed verbatim. The transcribed documents were categorized by question and coded; responses were analyzed for common themes for each category. The mixed methods approach used a convergent design to compare findings by collecting data at the same time, and compared results side-by-side. The mixed methods design was intended to provide validity and create a solid foundation of the findings. According to Wisdom and Creswell (2013), "the basic premise of this methodology is that such integration permits a more complete and synergistic utilization of data than do separate quantitative and qualitative data collection and analysis" (p. 1).

The following qualitative interview questions provided the data needed for analysis: 1) What wellness related concerns do you see among students on Standing Rock Reservation, as they relate to educational barriers and common issues preventing academic achievement? 2) What do you think staff needs to know in regards to student wellness for better serving the student population? 3) What do you think staff needs to more effectively address student cultural wellness concerns?

Interview Question 1: What wellness related concerns do you see among students on Standing Rock Reservation, as they relate to educational barriers and common issues preventing academic achievement?

All of the participants reported trauma as a primary concern having negative effects on student wellness and academic achievement. The results of this data reported historical trauma, classroom behavioral responses as a result of trauma, post traumatic stress disorder (PTSD), trauma from alcohol abuse/fetal alcohol drug effects on child development, and low self-esteem as a result of cultural trauma. One participant described trauma in great detail:

> Well I see fetal alcohol drug effects for children, lower undiagnosed issues related to prenatal care; for example, low iron levels and then that results in irreversible cognitive defects like memory loss or memory function. Fetal exposure to nicotine results in premature birth or low birth weight, exposure to domestic violence and/or childhood trauma, which affects the brain's ability to accurately interpret situations or distinguish between true danger and less critical situations, they're often hyper-vigilant. In a classroom setting, they really struggle with focus and trying to be able to stay on topic because they hear and see everything around them and are constantly assessing for threat.

> Historical trauma affects them in a way that because there was so much trauma to the native people in this area being hunted, being tracked, pretty much the genocide that occurred still affects them because their DNA has that memory. If they don't hear it, that doesn't mean that they don't have some knowledge of it, some internal knowledge of it, or emotional knowledge too which relates to that historical trauma.
>
> (Participant A3)

A long-time teacher on Standing Rock highlighted similar areas of concern regarding trauma:

> I've been at this school for 18 years. The problems I see, and this is some of the kids, not all, some of the kids, they figured this out a long time ago how to take care of themselves and be successful. Thinking of that, we could use a lot of peer teaching to improve wellness. The things I notice is sleep deprivation, alcohol abuse, lack of exercise, high carbohydrate diet both at school and home, depression, self harm, historical trauma and post traumatic stress disorder.
>
> (Participant A1)

Other important responses to question one include behaviors as seen by the participants as a result of trauma:

> It [negative behavior] shows up in one of two really common ways. One of which is just constant sort of anger and rage and how rage and anger shows up as this disruptive force of bouncing back…not only does that one individual not get to learn, but neither does anyone else…depending on what happened outside of school last night, or over the weekend, or whatever.
>
> (Participant A4)

A similar response was given on the relationship between trauma and behavior:

> What I said with the self-esteem issue is we have, we are in a poverty-stricken school. We do go through historical trauma and that can get passed down. Our kids are facing trauma even at home. A lot are living with grandma, grandparents, we have kids that are in group-home settings. You see that with kids that are in the trauma that do live in that traumatic lifestyle are really ones that tend to act out.
>
> (Participant A9)

Participant A1 and A3 describe a larger range of wellness related concerns relating to trauma. The other participants' comments were more focused on one or two areas of trauma, which were covered within the responses from participants A1 and A2. Participants A4 and A9 provided additional information regarding common behavioral related concerns that are seen among students within the class as a result of what they perceive to be related to trauma:

> We do go through historical trauma and that can get passed down. Our kids are facing trauma even at home. A lot are living with grandma, grandparents, we have kids that are in group home settings. You see that with kids that are in the trauma, that do live in that traumatic lifestyle that are really ones that tend to act out.
>
> (Participant A9)

> At home life making fry bread and all the smells that go with it and some of the talk when you get here, it's a different place and they have to act differently…Their self-esteem is low because they have to adjust themselves to a different setting. Every single day they do that too when they come.
>
> (Participant A2)

> Fetal exposure to nicotine results in premature birth or low birth weight, exposure to domestic violence and/or childhood trauma which affects the brain's ability to accurately

> interpret situations or distinguish between true danger and less critical situations, they're often hyper-vigilant. In a classroom setting, they really struggle with focus and trying to be able to stay on topic because they hear and see everything around them and are constantly assessing for threat.
>
> (Participant A3)

> I think the number one wellness concern that I have for my students is ultimately like their trauma and their response to trauma and how that shows up in a classroom like it's less of physical wellness, but the emotional well-being of children and with a lot of my kids how school was the traumatic source. School is where a lot of the trauma originated, and how years and years later, they're still responding to these series of traumatic events and then triggered and re-triggered and triggered and re-triggered just by the act of trying to graduate to high school.
>
> (Participant A4)

This is significant, as it related to how cultural wellness concerns, or a lack of cultural wellness, impacts the students' academic achievement. Many participants also reported self-esteem related issues as a result of trauma.

> Concerns, what I see here is a lack of self-esteem and that bleeds into the rest of their curriculum here at school. When I say self-esteem, I'm talking about their attitudes toward their culture because most of them don't have a good self-identity.
>
> (Participant A2)

> With their wellness, I see that a lot have lacked the self-confidence. They have a level of self-confidence of not having that self-worth. They think low of themselves, of their capabilities. You see a lot of acting out, trying to get attention the wrong way. At least

> they're getting attention, even if it's negative attention at least they're getting that attention. They're getting something.
>
> (Participant A9)

Academic achievement increased with the development of self-esteem, which is necessary for emotional well-being and academic success (Clarke, 2002; Morotti, 2006). Furthermore, the hegemonic approach contributes to poor self-esteem creating continued struggle within Native American people (Garza, 2015; Tamburro, 2013). This concept can be understood as having to live in two different worlds, and/or a different world when going to school.

> When you don't have a good self-identity and it's not really talked about, they live in some kind of a world at wherever they live but it's not-- Say they make fry bread or something at home, it's not here at school, it's like they're in separate worlds right here. At home life making fry bread and all the smells that go with it and some of the talk when you get here, it's a different place and they have to act differently. Their self-esteem is low because they have to adjust themselves to a different setting. Every single day they do that too when they come.
>
> (Participant A2)

Interview Question 2: What do you think staff needs to know in regards to student wellness for better serving the student population?

A common theme repeated throughout the responses to question two was understanding where the students are coming from. Examples of understanding where the students are coming from relate to history, trauma, and current living conditions. More details regarding the three emerging themes commented on historical trauma, childhood trauma and current living conditions such as poverty. Furthermore, the emerging themes indicated above were understood

by participants to have a negative impact on school behavioral outcomes.

> To just try to understand where our kids are coming from. It would be way more beneficial for all of us to kind of get that training like historical trauma training or teaching kids that are going through trauma. What are the things that they're going through? What are the signs? How can you help teach to that? Instead of sending them out and it's getting nowhere and continuing to put them in ISS. Pretty soon we're getting expelled, but that's not helping our kids. We need to know why this kid is acting out and how we can help them.
>
> (Participant 9)

Another participant response emphasized understanding behavioral concerns and their relation to educational practices that negatively impact student performance:

> The number of times that I've had colleagues who are new, or not even new but it's most common in new teachers, where they're like, I actually have to stop my class to teach a kid how to breathe through their anger or whatever. If we set the precedent that our children are weeds who can be sent out every time they're having a rough moment, what is education?
>
> Paradigms of education don't translate well as a direct result of intergenerational trauma and the constant reinforcement of racism in education whether or not people are cognizant of it, just the power structures and how they replicate themselves and something like that.
>
> (Participant A4)

Another participant's response to understanding behavioral concerns and their relation to educational practices that negatively impact student performance elaborated on the failure of In-

school Suspension (ISS) and mentioned a move toward better practices:

> We are trying to get away from suspensions—In school and out of school suspension. It's been proven in my seven years here, we will suspend kids for silly reasons, ISS, OSS, and it doesn't work.
>
> They're right back in there. We get high referrals and then they're out of the classroom, and then they're not even learning. We're trying to get to the point where there is no suspensions and what me and our dean of students are looking to do is we have these circle conversations or circle chat…We document it but then we come in and we talk about the issue.

(Participant A6)

Another participant emphasized the inability of ISS to help solve recurring issues:

> The kids who end up in ISS are going to keep ending up in ISS because they're lacking the skill to pump down. They're lacking the skill or whatever and they've learned other skills.

(Participant A8)

The following response provides an example of school policies that were repeated in other interviews regarding understanding where our students are coming from, as it relates to cultural differences within school policies that negatively impact our students:

> For a long time, we never had clocks and that strict time thing has been the issue for some people. “You're tardy and you will not get to participate in the year-end popcorn party;” you are penalized for that [being late] rather than celebrating the fact that this child is here. That's something that happens. That is in force 100% and they adhere to that like you wouldn't believe.

> The fact is that these are kids who have rugged lives, some of them. If they make it to school, by George, you ought to be happy, but it isn't. It's kind of like, "Yes, we're here for you and we're glad that you're here, but don't you dare be tardy and don't you dare miss a day."
>
> (Participant A2)

Another participant described pedagogical approaches that can affect student behavior:

> Class expectations instead of rules. When you say rules, then you're going to automatically turn off some. Rules, they're going to perceive it as negativity, negative. Rules, "I'm not following rules, you're not going to tell me what to do." So you say class expectations; this is what I expect from you.
>
> (Participant A7)

All participants acknowledge poverty or report hard living conditions as a response to question two:

> I don't think our students have a lot of-- Their needs, they're their needs are not getting met. In health, in physical activity, in mental health, there is a lapse in it. Targeting all those different needs to occur before we can make any educational growth. That's more of a community social issue that needs to be met through multiple different venues and people working together. That's one thing.
>
> I just don't feel like their basic needs of living are being met…and that's causing a lot of barriers for them to learn because they have to fill those in order to progress forward.
>
> (Participant A6)

Another participant's response to question two reflected poverty related concerns and academic achievement:

> It has a lot to do with absenteeism, living conditions, the population on the reservation has hard time accumulating wealth. The living conditions are not good. They're crowded.
>
> (Participant A1)

Another participant's response to question two also reflected poverty related concerns:

> Of course these are some of the issues that are addressed right away. I know that from our staff meetings and everything they let people know that this is the community, the income is not great and a lot of them depend on what do you call it, programs like TANF or something like that for their income. That's something that they deal with all the time. That's something that they need to know, first thing is that the community where they come from and that the kids are tougher, their attitudes are tough and the home life isn't necessarily the same as what the white folks have, it's different.
>
> They also need to know about the values of our culture and what they mean. They should know kinship terms, some of the language and then they should have a good understanding of-- They should be able to have compassion I think as one of the values for people.
>
> (Participant A2)

The findings from qualitative interview question one and two indicated common wellness related concerns among students on Standing Rock and how they impact student educational outcomes. It was commonly reported that behavioral related concerns with current educational policies are more likely to have a student end up in ISS or be reprimanded. The responses related to behavioral concerns as a result of cultural wellness concerns, such as poverty and trauma, negatively impacted student academic achievement measures indicated within the study. This is significant because it aligns with the quantitative survey data that showed a one-unit increase in

the category of Emotional increased mental familiarity by 0.33 units. A higher understanding of terminology corresponds with “understanding where the students are coming from” and relates to higher emotional wellness integration and lower reported ISS referrals. These findings illustrated the relationship between cultural understanding and the implementation of better classroom practices for student wellness, which resulted in lower In-school Suspensions/behavioral referrals. Conducting further research in this area would deepen the understanding of this relationship.

Interview Question 3: What do you think staff needs to more effectively address student concerns?

Each participant’s response to question three indicated relationship building. The themes repeated throughout the different participant responses included relationships (community and students) and historical trauma training. One of the participant’s responses points to the importance of relationship building with community in addition to the students:

> I don't think that it was destructive to the student, but I noticed that the ones that they befriended were kids that struggled at home either with their parents or relatives, whoever they lived with. Yet, those parents or relatives never knew anything about that teacher.
>
> (Participant A3)

One of the participants described relationship building and community involvement through extra curricular activities.

> Relationship building for them [the students] is huge because you can't just start, just because I'm a teacher don't mean you trust me, you have to make that relationship first and make it a safe relationship, but professional…to me I'm going to support them like, "Tell me when your football game is, or when's your cross-country meet and when's

> this?" So I know I can support that.
>
> (Participant A5)

Another participant emphasized relationship building and community involvement:

> You have to get to know the student as a human being, establish the rapport, and establish the relationship, which takes time. And in our modern society, that's put on the back burner.
>
> Working with the parents and the community we need to do more of, we have these committees at school. For example, we have the Lakota culture club committee that sponsors activities, that's all fun and good. We need to work with the home and the parents and the guardians. We need to be sure that they're welcome to the school.
>
> (Participant A7)

Historical trauma was used most frequently by participants form the survey out of all the research terminology referenced in the literature. This finding supports the literature regarding most common term used to describe boarding schools and the most commonly used term out of the terminology used from this study (Lajimodiere, 2012). Historical trauma was less used in responses to question 3; however, it was a common theme mentioned throughout the interviews from the vast majority of participants. Moreover, Historical trauma was the most understood out of all the terms from the quantitative findings. This was significant even though it was not mentioned in all responses or with as much frequency in question three as relationship building; however, because participants in one form or another throughout each interview mentioned historical trauma, it became a common theme throughout the interviews.

> For new teachers to do your research on where you are going to as far as intergenerational trauma and historical trauma and the trauma today that our kids are facing…look at your kid, not with pity, but just not as a number, but as kids…
>
> (Participant A9)

Another participant acknowledged trauma informed care as a result to student concerns:

> I think a lot of us really need some trauma-informed care for working with our students and working with specific situations. Maybe the student does something that -- This student that I'm using as an example of is constantly fidgeting with things and needs that, I feel, as a way to express whatever he has inside of himself. If we communicate that with each other that this student is using this as a tool to keep him out of negative behaviors and we accept that and embrace it rather than saying, "Oh, you need to put that away. Are you supposed to have that?"
>
> (Participant A8)

Another participant mentioned the importance of being aware of Native American related concerns as a contemporary part of teaching:

> To me schools just bring in the traditional cultural stuff. Part of culture is also contemporary, there's a lot of contemporary culture stuff that we can do, that we can bring in…We can't just always live in historical books and say "oh we did a tipi-building lesson today so we're doing cultural stuff." That's great and I'm not downgrading that, but kids need to also know what it's like to be a Native American in 2018. Bringing in lessons like that to show kids that it's okay to be you in this world right now. I think that's also what we got to do to be culturally responsive, not only teach them about their language and their history but also to recognize that there's a contemporary part. I have

> one teacher right now, she has switched up her whole reading curriculum and she has brought in multicultural books and contemporary Native American books that show kids their age today that are Native American and what they're going through.
>
> (Participant A6)

The emerging themes from the qualitative interviews can be understood as common wellness related concerns that relate to academic achievement. This was evident in all responses, though it was articulated in various ways. Responses focused on common behavioral issues and how those are addressed (both effectively and ineffectively), the understanding of trauma and its impact on student behavior and learning, and emphasized the importance of relationship building as key components staff need to more effectively address student concerns and improve achievement.

Summary

This chapter has presented the findings of this mixed methods study. The mixed methods approach was used to research the relationship between cultural wellness integration and academic achievement. The data was used to produce a detailed description of common wellness related concerns among students hindering academic achievement, in addition to recommendations for addressing student needs. After a quantitative descriptive analysis was conducted to determine cultural wellness from each of the seven school districts, a multiple linear regression analysis was performed. According to Crossman, (2017), “a linear regression allows the researcher to ask the general question, “What is the best predictor of….?” A linear regression looks at more than one independent variable and a dependent variable for learning more about relationship between variable(s) (Crossman, 2017). The findings on attendance, graduation rates, and academic achievement results were not significant; however, the multiple

linear regressions performed were not met and indicate a level of error that should be understood when reviewing the findings. The emotional wellness responses (ISS predictor) was significant; positive emotional wellness responses to questions 13, 14, 17 significantly predicted mental familiarity, $B = 0.33$, $t(60) = 2.12$, $p = .038$. This indicated that on average, a one-unit increase in emotional wellness increase the value of mental familiarity by 0.33 units. This can be understood as higher understanding of terminology corresponded with higher positive emotional wellness responses/ a decrease in reported ISS. Negative wellness responses reflected teacher practices for addressing student behaviors such as yelling, holding grudges related to student behavior, and behavioral referrals (ISS). The findings from qualitative interview question two support quantitative data results on emotional wellness (ISS predictors). Interview themes reported higher levels of behavioral related concerns and ISS as a result of behaviors perceived to be linked to trauma and the need for understanding where are students are coming from for improving academic achievement.

CHAPTER 5

DISCUSSION

This study evaluated how teachers on Standing Rock Reservation are currently integrating cultural wellness, and whether cultural wellness integration improves academic achievement. The study also examined common cultural wellness concerns among students, how these concerns impact academic outcomes, and recommendations for future cultural wellness integration for improving educational development. The diverse sample in this study produced an accurate account based on current staff demographics.

Research findings have shown that Native American students succeed academically when culture is integrated into the school (Apthorp, 2014). However, a majority of teachers working on reservations are non-Native and know little of American Indian history (Martinez, 2015). Due to a gap in the literature on effective cultural integration methods for improving academic achievement, little is known and/or considered regarding approaches to cultural integration and the relationship between various approaches and educational outcomes (Deaton, Begay, Ninneman, 2017).

Many educators do not receive the resources necessary to effectively include cultural integration measures, and as a result, little is done regarding cultural integration to improve achievement. Furthermore, due to low standardized test scores, a narrowed curriculum further disconnects teachers from the lives of their Native American students (Crow and Roppolo, 2007; Martinez, 2014). Additionally, wellness related concerns reported on reservations suggest that a large amount of Native American children are exposed to Adverse Childhood Experiences (Brockie, 2015; Sotero, 2006; Whitbeck et al., 2004). Given the specific trauma Native Americans have endured historically, and the lasting impact forced assimilation has had on

Native American communities, a cultural wellness model—the Medicine Wheel—was used in this study to address cultural integration within schools.

Review of the Research Questions

The research questions analyzed the following: 1) determine cultural wellness integration in schools on Standing Rock Reservation, 2) identify relationships between cultural wellness and achievement, 3) produce a detailed description of wellness related concerns and identify recommended areas for development to effectively address student wellness and improve educational outcomes. Cultural wellness responses were categorized by school district and content areas. Cultural wellness findings were then compared with academic achievement data from each school in the following areas: attendance, In-school Suspension (ISS), graduation rates, and standardized achievement measures.

Qualitative research questions were used to determine specific cultural wellness concerns hindering academic achievement as perceived by employees working in schools on Standing Rock Reservation; these responses provided information regarding what's needed to address cultural wellness concerns and improve achievement. Qualitative responses were juxtaposed with quantitative findings to determine the relationship between results.

Interpretation of Findings

Quantitative Research Question 1: Using a medicine wheel model, how is cultural wellness being practiced in schools on Standing Rock reservation?

Cultural wellness was assessed by using the Medicine Wheel model; each survey question asked was categorized in one of the following domains: physical, emotional, mental, and spiritual. The Mental domain was divided into two categories: mental integration and mental familiarity. Mental integration looked at how mental concepts were used in the classroom, such

as facts, dates, events, etc. Mental familiarity looked at teachers' understanding of the following terms and how they relate to their students: historical trauma, forced assimilation, intergenerational trauma, and adverse childhood experiences (ACEs).

Cultural wellness data shows little physical cultural integration (1.69 out of 3.25) into the learning experience; this reflected physical wellness, health, outside learning activities, and project-based learning. The observations for Emotional wellness had an average of 3.97 out of 5.00. Emotional wellness was the highest domain reported, reflecting positive coping skills, teacher integration of trauma sensitive practices, additional student activities and student interaction outside of the classroom. The observations for mental integration had an average of 2.42 out of 5.00. Mental integration reflected Lakota/Dakota history, traditional philosophy, music, contemporary Native American issues, and Native American standards. The observations for mental familiarity had an average of 3.16 out of 4.00. Mental familiarity assessed teachers understanding of how the following terms relate to their students: historical trauma, forced assimilation, intergenerational trauma, and Adverse Childhood Experiences (ACEs). Spiritual wellness had an average of 2.36 out of 4.75. Spiritual wellness assessed Lakota/Dakota language integration because the Lakota/Dakota language is considered spiritual by Lakota people. Moreover, spiritual integration assessed prayer practices in the schools and classrooms, such as smudging and the burning of sweet grass before and after school prayers.

Cultural wellness was analyzed with all school districts, findings reported "very rarely" or "rarely" as the most frequent response to each category of questioning with the exclusion of historical trauma under the mental familiarity assessment portion. Due to low cultural wellness scores overall, predicting a relationship with academic achievement proved difficult.

The current cultural wellness integration based on the results of the statistical analysis when averaged into percentages reported the highest category at 38%, emotional wellness, and the lowest reported category at 16%, physical wellness. This was calculated by summarizing all the scores by the total value, 13.6, and divided by each of the scores, giving a representation of how much each domain of the Medicine Wheel is currently being represented. Figure 19, the Medicine Wheel model, is aligned with Indigenous methodology and is a framework that could be adapted by other tribes or organizations that have this symbol as part of their traditional teachings to assess cultural wellness integration.

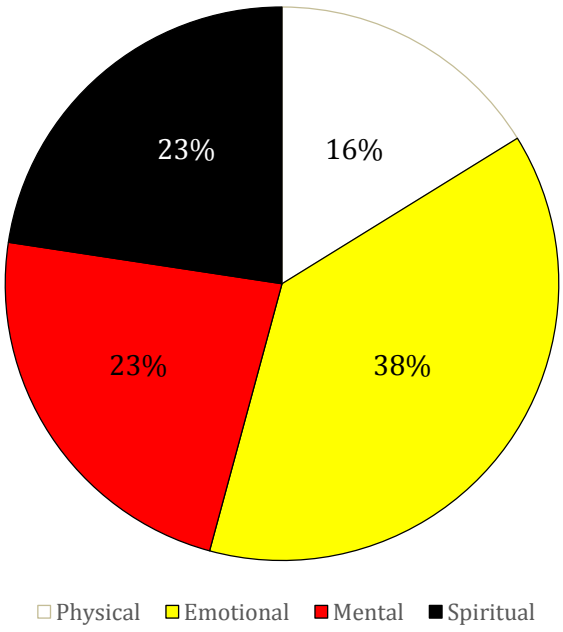

Figure 4. Medicine wheel integration on Standing Rock Reservation.

Cultural integration is understood, both in research and Native American communities, to improve academic achievement (Apthorp, 2014). However, even with cultural integration, standardized test scores, graduation rates, attendance, and behavioral referrals still remain a concern in Native American education. When looking at the history and current statistics within

Native American communities, it is clear that more is needed to support the overall development of the student in order to produce academic success. To better understand what effective cultural integration is, in addition to studying whether or not culture is being integrated, research needs to study *how* culture is being integrated. To do this, cultural integration needs to be assessed based on cultural beliefs and values, using a framework from the culture, to determine whether current practices are restorative and promote traditional Native American teachings.

Quantitative research question 2: How do cultural wellness integration practices relate to academic achievement in schools on Standing Rock Reservation?

The findings from the multiple linear regression analysis analyzing standardized achievement, graduation rates, and attendance were not significant predictors of cultural wellness integration; however, due to the sample sizes, these linear regressions did not report normality. This was evident when reviewing the Q-Q scatterplot normality assessments and the heterogeneous residual scatterplot results. I believe this was because of small sample sizes and/or due to reported cultural wellness scores. The standardized achievement, graduation rates, attendance assessments showed less than one third of the predictors in the model showing statistical significance. The results may have been skewed by too few significant variables. The linear regression analysis shows a relationship between mental familiarity and emotional wellness. The results of this indicate mental familiarity (terminology understanding) predicted emotional wellness responses by 17%, reflecting positive responses to (lower) on questions 13,14, and 17. The final linear regression was performed based on the results from the emotional wellness analysis to determine whether staff understanding of historical trauma, forced assimilation, intergenerational trauma, and Adverse Childhood Experiences (ACEs) increased with years taught. This assessment showed no relationship, which was significant due to the fact

that most teachers are non-Native and one would assume these important, specific terms would develop in tandem with year taught on Standing Rock Reservation.

Standardized achievement. For the second research question on cultural wellness related to achievement, a multiple linear regression analysis was conducted to assess physical, emotional, mental, and spiritual wellness with academic achievement measures from last spring (2017) in math and reading. The results of the linear regression model were not significant. Physical, emotional, mental, and spiritual wellness did not explain a significant proportion of the variation in percent proficient in math and reading.

The findings may be due in part to low participation and the exclusion of School district SD4D. It was decided to exclude district SD4D from the linear regression analysis due to variation among the district reporting requirements and abnormally high proficiency data compared to other reported districts. The smaller samples provided less relationships to detect among variables and may have benefitted from a larger sample size.

Graduation Rates. A linear regression analysis was conducted to assess whether physical, emotional, mental, and spiritual wellness significantly predicted graduation rates. Normality of Q-Q scatterplot indicates a partial straight line, making up the majority of the representation; however, it also indicated more curvature. This may be in part due to the exclusion of SD2D, SD4D. SD2D and SD4D are K-8 school districts and did not report graduation data, causing a smaller sample size with fewer variables. With the exclusion of SD2D and SD4D, a much smaller sample size was used for analyzing predictability and may be the cause of more curvature reported on the Q-Q scatterplot analysis.

The results of the linear regression model were not significant. Physical, emotional, mental, and spiritual wellness did not explain a significant proportion of the variation in

graduation rates. The findings may be due in part to lower graduation data reported with the exclusion of the two K-8 districts. Smaller samples provided less relationships to detect among variables. The normality assessments reported more curvature in all analysis that excluded schools. To further research academic achievement from smaller school districts, which makes up the majority of reservation schools, all academic achievement collected should be developed as part of the surveys and not reliant on high survey turnout. This would allow for smaller school data to be analyzed individually in conjunction with survey responses.

Attendance. A linear regression analysis was conducted to assess whether physical, emotional, mental, and spiritual wellness predicted Attendance in 2016-2017 school year. The results of the linear regression model were not significant. Physical, emotional, mental, and spiritual wellness did not explain a significant proportion of the variation in attendance. Further research could collect additional data from individual students related to perceptions of cultural wellness juxtaposed with attendance to determine if higher cultural wellness reported scores correlated with higher attendance. It is necessary to note that attendance data was similar among all schools that participated in the study, and because of this, determining a relationship with cultural wellness may have been difficult without variation reported among the seven school districts included in this study.

Attendance measurements could have been assessed in relation to cultural wellness within specific elective courses. Smaller schools on Standing Rock often do not have art, music, or guidance courses. I would assume because of this situation; these schools have less integration of cultural components in these areas.

Emotional Wellness Responses (ISS Predictor). A linear regression analysis was conducted to assess whether emotional wellness responses predicted mental familiarity. Mental

familiarity reviewed understanding of the following terms and how they relate to current student conditions: historical trauma, forced assimilation, boarding schools, intergenerational trauma, and Adverse Childhood experiences. The mental familiarity linear regression was used to assess whether lower negative emotional wellness responses to questions, 13, 14 and 17 showed a relationship with mental familiarity. Questions 13, 14, and 17 follow: How often do you raise your voice to what would be considered a "yell" in your classroom?; How often do you find yourself holding a grudge in regards to student behavior?; How often do you send students out of your classroom (In-school Suspension, ISS) as part of your approach to discipline. The linear regression was used to determine whether teachers who had a higher understanding of these terms showed different responses to emotional wellness on questions 13, 14, 17. The findings were significant and revealed mental familiarity significantly predicted emotional wellness responses.

The result of the linear regression model indicating a 17% variance in mental familiarity is explained by emotional wellness. The findings indicated that on average, a one-unit increase in emotional wellness (positive responses to questions 13, 14, 17) increased the value of Mental Familiarity by 0.33 units. Native American students report higher school discipline, detentions, and suspensions than non-Native students, and minority groups in general are two to five times more likely to be suspended than non-minority students (Bachman, Goodking, Wallace, 2009; Martinez, 2015). The findings indicated that participants with higher mental familiarity reported sending students to ISS less often than other participants in the study. Further research is needed to analyze the relationship to fully understand how mental familiarity and emotional wellness understandings relates to better educational practices for handling students with behavioral concerns. These findings are significant; one can infer that students being present in the

classroom have higher academic success rates, attendance, and are more likely to graduate as a result. These findings indicate that mental familiarity should be included with our classroom management training for addressing student behavioral concerns as part of the professional development for more effective educational practices. Connecting the past with the present in many Native cultures such as understanding historical trauma theory, validating emotional and psychological awareness, empowering individuals, communities, and institutions to address the root of physical and psychological health related concerns (Sotero, 2006).

Mental Familiarity and years Taught on Standing Rock Reservation. An additional linear regression analysis was conducted to assess whether years working on Standing Rock Reservation significantly predicted mental familiarity. The rationale for this additional linear regression was based on assessing whether mental familiarity corresponded with years working in a school on Standing Rock Reservation.

The results of the linear regression model were not significant, indicating years working did not explain a significant proportion of variation in mental familiarity. The findings contradicted the assumption that mental familiarity would increase with years taught on Standing Rock Reservation. The assumption was the understanding of the terminology would increase over time teaching on Standing Rock based on the premise that a majority of teachers are non-Native and do not have a developed understanding of Native American history and contemporary issues when beginning. Though the results of the regression were not significant, they were revealing; years taught did not significantly indicate higher understanding of broad issues among Native American populations. This finding could be interpreted many ways and further research should be conducted, especially in the area of professional development as it relates to Native American history and contemporary issues.

Qualitative Research Question 3: What are common wellness related concerns among students on Standing Rock Reservation hindering academic engagement, and recommended developmental areas for addressing those concerns?

Qualitative interviews from ten participants were used to answer research question three. Ten surveys were randomly selected for follow up interviews; the interview process ranged from 15 to 25 minutes. The districts that participated in the interview process included SD1A, SD3C, SD5E, SD5F, and SD7AG. Research question three was answered by analyzing the following three interview questions: 1) What wellness related concerns do you see among students on Standing Rock Reservation as they relate to educational barriers and common issues preventing academic achievement? 2) What do you think staff needs to know in regards to student wellness for better serving the student population? 3) What do you think staff needs to more effectively address student concerns?

The interviews were transcribed, coded and themes were generated from each question. The qualitative data was juxtaposed with quantitative survey data for a comparative analysis. The interview sample followed guidelines to ensure a general knowledge of the students culture, academic achievement and wellness concerns were known prior to conducting the interview. The guidelines for interviews included: a minimum of 10 participants, a minimum of five different school districts, a minimum of six Native American teachers, a minimum of four non-Native teachers, a minimum of two new teachers (three years or less teaching on Standing Rock Reservation) and a minimum of three long-time teachers (10 years + experience teaching on Standing Rock Reservation.). The mixed methods, qualitative interviews and quantitative data analysis produced a detailed description of common wellness related concerns among students

on Standing Rock Reservation, and how these concerns hinder academic engagement, along with recommended areas of development to more effectively address concerns.

Qualitative interview question 1: What wellness related concerns do you see among students on Standing Rock Reservation, as they relate to educational barriers and common issues preventing academic achievement? The qualitative findings revealed trauma as a primary theme reported from all participants. These themes included (a) historical trauma, (b) classroom behavioral responses as a result of trauma, (c) post-traumatic stress disorder (PTSD), (d) trauma from alcohol abuse/fetal alcohol/ drug related, and (e) low self-esteem as a result of trauma. Traumatic exposure to discrimination on the basis of ethnicity and culture is hypothesized to develop negative identity and self esteem as a result impacting child and adolescents (Brockie et at., 2015; Moore, 2006). The findings are already well-documented areas of concern among Native American populations. Being exposed to ongoing adversity at a young age can have major life-long effects. Research has shown that trauma can change a child's neurophysiological development, impairing brain functioning and learning patterns used to collect and store information (Courtious, n.d; Vanderwegen, T. 2013; Ziegler, 2002). However, these findings show educators' awareness of cultural wellness concerns as having negative impacts on student education as an overarching issue preventing academic growth.

Interview responses reported self-esteem, loss of culture, and historical trauma as components influencing behavioral related concerns teachers see in class. Teachers acknowledged the behaviors students exhibit as being related to a bigger social concern outside of the classroom as a result of history and trauma. This is significant as it relates to the quantitative findings regarding mental familiarity and emotional wellness. Participant A1 and A3 described in more detail a larger range of cultural wellness related concerns than what was

reported in most interviews; due to their current positions and years taught, their information was acknowledged as reliable and valid. Furthermore, Participant A1 has been teaching on Standing Rock Reservation for 18 years and has accrued a broad understanding of the common barriers to education over this time. Participant A3 is currently employed as a social worker and had a large body of knowledge related to the topic of study.

Qualitative Interview Question 2: What do you think staff needs to know in regards to student wellness for better serving the student population? The qualitative findings from interview question two revealed understanding where the students are coming from as a common need for teachers to know to better serve the student population. The themes included (a) history, (b) trauma, and (c) current living conditions. Additionally, participants followed this answer with detailed descriptions on behavioral related concerns impacting educational outcomes.

Research has shown Adverse Childhood Experiences impact emotional and physical health causing increased responses of anger, avoidance, anxiety and depression (Brockie, 2015; Whitbeck, 2004). Behavioral issues were understood as conditions resulting from cultural wellness concerns among the student population. It was commonly reported that behavior was a result of conditions manifesting outside of the school and that teachers were more likely, as a result, to send students out for such behavioral related concerns without having proper knowledge and support of trauma informed practices. Additional responses included school related policies negatively impacting student achievement and self-esteem. The findings from question two were significant as they related to quantitative findings, which suggested that higher understanding of cultural wellness terminology significantly predicted teacher emotional wellness responses to classroom behavior. Teachers who reported higher mental familiarity also reported higher emotional wellness responses, and as a result, reported lower negative emotional

wellness responses.

Even though quantitative results did not reveal a significant relationship between cultural wellness and other academic achievement measures, one can infer as a result of not being sent out of class, academic achievement measures would increase. The researcher acknowledges the lower participant survey responses and the further division of survey data into smaller units based on school districts may have limited the measurable variables, therefore impacting results. Future suggestions propose looking at teacher's cultural wellness and academic achievement responses individually, without categorization based on school.

Qualitative Interview Question 3: What do you think staff needs to more effectively address student concerns? The findings from question three reveal similar results in regards to themes from question one and two. The themes from question three included 1) understanding/relationship building (community and student). Considering the higher turnover rate on reservation schools, relationship building, with both student and community, was a common area reported as a need for more effective practices.

It appears that reported areas of concern in the study match reported areas of concern from literature in regards to Native American community and health. Reservations report nearly double the unemployment rate, and almost 26% of Native Americans live in poverty (Brown-Rice, 2013; U.S. Census Bureau, 2006). Poverty and historical trauma impact many Native American communities' cultural wellness. Research findings indicated high amounts of ACEs and PTSD among Native American populations (Brockie et al., 2015; Ehlers et al., 2013). Traumatic experiences increase stress responses, impeding educational development, and heightening behavioral concerns within schools; these can be attributed to generational trauma and poverty exacerbating current conditions (Brown-Rice, 2013). Exposure to ACEs increases

risks of developing behavioral and emotional concerns, interfering with cognitive development, relationship building, and school engagement (Brockie et al., 2015).

In addition, understanding "where your students are coming from," building relationships, and historical trauma training are all related to one another. Understanding where students are coming from is the start of building relationships and recognizing historical trauma and it relates to our students' success. Understanding where the students are coming from was also a finding supported in the quantitative data. Staff survey participants who reported higher mental familiarity (staff who had a higher understanding of the following terminology: boarding schools, forced assimilation, intergenerational trauma, historical trauma, and Adverse Childhood Experiences) reported lower In-school Suspensions (ISS). This is a significant finding, as it is not current practice to include Native American history as part of the teacher professional development training for classroom management.

Teacher recognition of student history is the start to developing relationships and healing. Moreover, findings revealed a majority of teachers reported 0-3 years teaching on Standing Rock Reservation, which is an indication of higher turnover rate, similar to reported turnover rates from other reservations. With high turnover rates, one can imply relationship building is more challenging for both teacher and student. However, the study results imply that understanding does not significantly increase with years taught on Standing Rock Reservation; therefore, more research is needed related to effective approaches to relationship building for teachers.

Implications

This study did not demonstrate significant relationship between cultural wellness and most areas of academic achievement being assessed; however, due to low survey participation and smaller school sizes for drawing data from, one can conclude that further research would be

needed to increase participation before definitively drawing the conclusion that cultural wellness did not significantly predict a relationship between standardized achievement, attendance, and graduation rates. After further reviewing of the Q-Q scatterplot and the homoscedasticity evaluation from for the standardized achievement, attendance, and graduation rates, normality assessment were not met. A major finding from this study indicates that higher mental familiarity significantly predicated emotional wellness scores. Mental familiarity "terminology understanding" and how it relates to students was significant in relation to integration of trauma informed practices that decreased participants reported ISS referrals. Moreover, these findings were supported in the qualitative data, indicated cultural wellness concerns negatively impacted student behaviors, causing school disciplinary actions that result in absenteeism.

I feel most stakeholders would acknowledge the importance of lowering behavioral referrals and keeping students in the classroom. Studies have shown Native Americans succeed academically when culture is developed in the curriculum (Apthorp, 2014). This idea could be expanded and applied to school policy as well; Native Americans succeed academically when culture is considered in the development of school policy. The childhood environment, family and community, influence developmental outcomes and biological regulatory systems (Guinosso, 2015). Without relationship development and understanding, student behavioral concerns are more likely to be met with harsh disciplinary measures.

Recommendations for Action

Native American history, such as the terminology included in the research survey, (boarding schools, forced assimilation, intergenerational trauma, and adverse childhood experiences) could be used as a starting point for the development of classroom management strategies to reduce ISS referrals. The mixed methods data implies further discussion on Native

American history as being part of the dialogue for addressing student behavioral concerns for lowering In-school Suspensions. I would like to see staff professional development focusing on Native American history and how it relates to conditions seen today on the reservation as impede academic achievement. This would include additional courses for addressing and understanding of wellness related concerns within Native American communities for improving educational practices for Native American students. Furthermore, staff and students need to be aware of the impact childhood trauma has on cognitive development, and how better practices of teaching and learning for both student and staff should be included as part of the educational curriculum. Education needs to consider a broader social context including community, social concerns, and student physical and mental wellness (Barber & Trumbull 2015).

This research provides insight into how one could assess cultural wellness within schools. The Medicine Wheel framework can be used to assess cultural wellness integration on other reservations as well. I would like to see a framework for integrating cultural wellness based on traditional Lakota/ Dakota teachings be utilized as a guide for teachers. With a cultural wellness model that could be adapted in each content area for assessing teacher cultural wellness integration, educators would have the needed support provided to implement more effective cultural wellness integration. Furthermore, wellness should be included as part of the discussion and school day curriculum towards improving academic achievement, as it addresses history and culture for improving current educational problems.

Recommendations for Further Study

Based on the findings there are several areas to consider for recommendations. I recommend conducting additional research prior to fully determining that the other three areas of academic achievement (attendance, standardized achievement, and graduation rates) are not

significantly predicted by cultural wellness. Future research should consider conducting studies based on teacher responses of academic achievement measures rather than relying on participation from each school district. I feel in order to rule out any of the other assessed areas of academic achievement, one must develop a survey for assessing individual results in each of the academic areas researched. I would like to see this study expanded to include all public schools from a particular state, such as South Dakota. The rationale for this would be to increase the sample size, decrease variability between academic achievement documentation and school funding, producing a more homoscedastic sample size, which may marginalize variables that impacted the assessments from this study. Since reservations on average have very similar socio-demographics, a more accurate study would have been all public reservation schools in South Dakota. This would have created a homogeneous sample of culture (Lakota/Dakota), state reported achievement data, and socioeconomic factors. This would have also produced a larger sample size, which would have improved the variables for predictability.

I would like to see this study expanded and refined to include a more in-depth survey for assessing cultural wellness and academic achievement from all Lakota/ Dakota reservation public schools in South Dakota. I feel this study's shortfalls are in part due to small sample sizes and variations among academic achievement reported by North Dakota, South Dakota, and BIE school systems. Additionally, increased reported variations from the school districts would help in data analysis for determining variations between school districts. This could be achieved by expanding the research to include more reservations, which I do not feel would jeopardize the validity due to similar sociodemographics of reservations in the state of South Dakota. Moreover, this study shows school districts reporting low cultural wellness integration and

similarly low-test scores, and therefore, low variation among statistical trends in the data. With a larger sample size, more data variation would be collected, and may reveal additional results.

Summary

This mixed methods case study analyzed how cultural wellness is related to academic achievement in schools on Standing Rock Reservation. The majority of quantitative research findings showed cultural wellness as not being a significant predicator of academic achievement; however, further research needs to be conducted in order to fully determine the findings from this study.

This study did reveal a significant relationship between mental familiarity and emotional wellness as part of developing better teacher practices for addressing behavioral concerns among students for lowering In-school Suspensions. With high behavioral referrals reported by teachers on reservations, and with current practices not addressing the underlying issues causing these behavioral concerns, this study should, at the very least, shed light on the non productive and negative way reservation schools are addressing behavior, and how we could more effectively address behavior for better academic growth. The goal should be to keep our students in school, in class, and we can do this by providing higher staff awareness of history and current conditions as they relate to our students' behaviors. Furthermore, this study revealed that years taught on Standing Rock Reservation did not increase teachers understanding of the terminology. This can be understood as an area of professional development missing in teacher training or lack of teacher integration towards understanding the cultural history significant to their students.

Overall, this research attempted to better understand the relationship between cultural wellness integration in schools on Standing Rock Reservation and academic achievement in an

effort to increase knowledge that would allow for the creation of more effective educational policies and practices in reservation schools.

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APPENDIX

APPENDIX A. SBC IRB CERTIFICATION

SBC Institutional Review Board
9299 Highway 24
Fort Yates, ND 58538

July 16, 2018

Dorothy T. Williams Ph.D
University of New England
7551 Liberty Bell Drive,
Colorado Springs, CO 80920

RE: IRB Certification of: "Intergenerational Trauma: Understanding the Relationship between Culture, Wellness, and Achievement"

The Institutional Review Board at Sitting Bull College (SBC) has determined that this project qualifies for an ***Approval Status*** in accordance with federal regulations governing human subjects' research (Code of Federal Regulations, Title 45, Part 46, *Protection of Human Subjects*). This determination is based on the protocol version received on ***June 26, 2018 and amended July 10, 2018***.

An update on the status of this project is required one year ***(7/12/2018 – 7/11/2019)*** *from the date of this approval. If you wish to continue the research beyond this time period, submit a continuation of research request. In addition, a copy of any professional articles, research papers, and presentations stemming from this project must be provided to SBC IRB.*

This project must be conducted as described in the approved protocol **# SBC205.** If you wish to make changes, pre-approval must be obtained from SBC IRB, unless changes are necessary to eliminate an apparent immediate hazard to subjects.

Additional Directions:

- Prompt, written notification must be made to the IRB of any adverse events, complaints, or unanticipated problems involving risks to subjects or others related to this project.
- Any significant new findings that may affect the risks and benefits to participation will be reported in writing to the participants and the IRB.
- Project records may be subject to a random or directed audit at any time to verify compliance with IRB policies.

Thank you for complying with the SBC IRB policies. Best wishes for a safe and productive research project.

Sincerely,

Mafany Mongoh, Ph.D.
IRB Chair
Sitting Bull College/Standing Rock Sioux Tribe

9299 Hwy 24
Fort Yates, ND 58538
(701) 854-8000

Science & Technology
Fax:
(701) 854-8197

McLaughlin Center:
504 Main St.
P.O. Box 613
McLaughlin, SD 57642
(605) 823-4318
Fax:
(605) 823-4982

Mobridge Center:
414 6th St. W.
Mobridge, SD 57601
(605) 845-5762

www.sittingbull.edu

APPENDIX B. UNE IRB CERTIFICATION

UNIVERSITY OF NEW ENGLAND

Institutional Review Board
Olgun Guvench, Chair

Biddeford Campus
11 Hills Beach Road
Biddeford, ME 04005
(207)602-2244 T
(207)602-5905 F

Portland Campus
716 Stevens Avenue
Portland, ME 04103

To: Derek Stewart

Cc: Dorothy Williams, Ph.D.

From: Lliam Harrison

Date: August 8, 2018

Project # & Title: 18.06.22-016 Intergenerational Trauma: Understanding the Relationship between Culture, Wellness, and Achievement. **UNCONDITIONAL APPROVAL**

The Institutional Review Board (IRB) for the Protection of Human Subjects has reviewed the above captioned project and has determined that the proposed work is not human subject research as defined by 45 CFR 46.102(d).

On June 25, 2018, the UNE IRB issued a conditional Not Human Subject Research determination letter, setting forth two (2) requirements prior to you commencing your study. Those requirements were to:

- Provide the UNE IRB with documentation that you have successfully completed all review requirements of the Sitting Bull College. **THIS CONDITION HAS BEEN SATISFIED**
- Provide the UNE IRB with documentation that you have obtained authorization from each district to conduct your study. **THIS CONDITION HAS BEEN SATISFIED**

Please note: This Not Human Subject Research determination is now unconditional, and you are free to begin your study.

Other than the condition(s) outlined above, additional IRB review and approval is not required for this protocol as submitted. If you wish to change your protocol at any time, you must first submit the changes for review.

Please contact Lliam Harrison at (207) 602-2244 or wharrison@une.edu with any questions.

Sincerely,

William R. Harrison, M.A., J.D.
Director of Research Integrity

IRB#: 18.06.22-016
Updated Material Submission Date: August y, 2018
Status: Conditional Not Human Subject Research, 46 CFR 46.102(d)
Status Date: August 8, 2018

APPENDIX C. CONSENT FORM

CONSENT FOR PARTICIPATION IN RESEARCH

Project Title: Intergenerational Trauma: Understanding the Relationship between Culture, Wellness, and Achievement
Principal Investigator(s): Derek Anthony Stewart, Education Instructor at Sitting Bull College, (651) 249-6999, Derek.stewart@sittingbull.edu
Faculty Advisor: Dorothy Williams

Please read this form; you may also request that the form is read to you. The purpose of this form is to provide you with information about this research study, and if you choose to participate, document your decision. You are encouraged to ask any questions that you may have about this study now, during, or after the project is complete. Your participation is voluntary.

Why is this study being done?
The purpose of this study is to understand how culture and wellness are being integrated in schools on Standing Rock Reservation, and how culture and wellness integration practices relate to academic achievement. Results from the analysis of culture and wellness integration practices, in addition to how these practices relate to academic achievement, might help produce an overall approach to cultural wellness that supports greater academic achievement.

Who will be in this study?
The targeted population in this study will be administration (superintendents and principals), teachers, and support staff, including paraprofessionals working in a school on Standing Rock Reservation. Criteria for selecting participants includes (1) willingness to participate in a survey and possibly a follow-up interview (2) current employment with one of the schools indicated, (3) have a valid K12 email address, and (4) be at least 18 years old.

What will I be asked to do?
All participants will be asked to complete an online survey involving a series of questions. Surveys will take approximately 15-30 minutes to complete. If agreed upon, some participants might be contacted for a follow-up interview, which will be scheduled to take place either at the participant's school or via phone.

What are the possible risks of taking part in this study?
Although there are no physical risks involved in participating in this study, some of the subject matter could be considered sensitive in nature, possibly causing some participants to experience some discomfort.

What are the possible benefits of taking part in this study?
The benefits of participation come from the reflection on the role of culture and wellness integration practices in relation to academic achievement. The data gained from personnel working in school districts on Standing Rock Reservation can further develop more effective cultural wellness practices that address intergenerational trauma and, in turn, increase academic achievement.

What will it cost me?
There are no costs for participants taking part in this study.

How will my privacy be protected?
Surveys will be completed online and can be done wherever the participant chooses. Interviews will be conducted at either the participant's classroom or via phone. The researcher will be the only person to conduct and view survey and interview data. No identifying information will be used in the reporting of data.

How will my data be kept confidential?
All participants and schools participating in the study will be assigned an ID code and will remain anonymous in the reporting of data. This means that no one besides the researcher can link the data back to you, or identify you as a participant. All electronic data will be stored on a secure server and any hard copies of data will be stored in a locked cabinet in the researcher's office. All data, including the signed consent forms, will be shredded and discarded after three years; electronic data will be deleted. Data will be grouped together to assess approaches to culture and wellness integration as a whole on Standing Rock Reservation.

What are my rights as a research participant?
Your participation is voluntary. Your decision to participate will have no impact on your current or future relations or employment with the school.

You may skip or refuse to answer any question for any reason.

If you choose not to participate there is no penalty to you and you will not lose any benefits that you are otherwise entitled to receive. You are free to withdraw from this research study at any time, for any reason. If you choose to withdraw from the research there will be no penalty to you and you will not lose any benefits that you are otherwise entitled to receive.

Whom may I contact with questions?
The researcher conducting this study is Derek Stewart. For questions or more information concerning this research you may contact Derek Stewart at (651) 249-6999 or at Derek.stewart@sittingbull.edu.

If you choose to participate in this research study and believe you may have suffered a research related injury, please contact Derek Stewart at (651) 249-6999 or Derek.stewart@sittingbull.edu.
If you have any questions or concerns about your rights as a research subject, you may call Olgun Guvench, M.D. Ph.D., Chair of the UNE Institutional Review Board at (207) 221-4171 or irb@une.edu.

Will I receive a copy of this consent form?
You will be given a copy of this consent form.

Participant's Statement
I understand the above description of this research and the risks and benefits associated with my participation as a research subject. I agree to take part in the research and do so voluntarily.

_____ _____
Participant's signature or Date
Legally authorized representative

_____
Printed name

Researcher's Statement
The participant named above had sufficient time to consider the information, had an opportunity to ask questions, and voluntarily agreed to be in this study.

_____ _____
Researcher's signature Date

_____
Printed Name

APPENDIX D. SURVEY QUESTIONS

Understanding the Relationship Between Culture, Wellness, and Achievement

The data gathered from this survey will be combined to form a clearer picture of how culture and wellness are being integrated in schools on Standing Rock Reservation, and how approaches to cultural wellness integration relate to common areas of academic achievement within schools on Standing Rock Reservation.

Thank you for taking the time to participate. Your insight is appreciated!

* Required

UNIVERSTIY OF NEW ENGLAND CONSENT FOR PARTCIPATION IN RESEARCH

Project Title: Intergenerational Trauma: Understanding the Relationship between Culture, Wellness, and Achievement
Principal Investigator(s): Derek Anthony Stewart, Education Instructor at Sitting Bull College, (651) 249-6999, Derek.stewart@sittingbull.edu
Faculty Advisor: Dorothy Williams

Whom may I contact with questions?
The researcher conducting this study is Derek Stewart. For questions or more information concerning this research you may contact Derek Stewart at (651) 249-6999 or at Derek.stewart@sittingbull.edu.

If you choose to participate in this research study and believe you may have suffered a research related injury, please contact Derek Stewart at (651) 249-6999 or Derek.stewart@sittingbull.edu.
If you have any questions or concerns about your rights as a research subject, you may call Olgun Guvench, M.D. Ph.D., Chair of the UNE Institutional Review Board at (207) 221-4171 or irb@une.edu.

1. **I understand the above description of this research and the risks and benefits associated with my participation as a research subject. I agree to take part in the research and do so voluntarily.** *
   Mark only one oval.
   - ◯ Agree
   - ◯ Disagree

2. **To be eligible for the prize drawing, please provide your first and last name. (No names will be used in the reporting of data.)**

   _____

6. **Subject area** *
Check all that apply.

- [ ] Math
- [ ] English
- [ ] Science
- [ ] PE
- [ ] Music
- [ ] Art
- [ ] Paraprofessional
- [ ] Special Education
- [ ] Counselor
- [ ] Specialist (reading, math, etc.)
- [ ] Trades (shop, motor repair, welding, woodwork, etc.)
- [ ] Home economics
- [ ] Elementary teacher (multiple subjects)
- [ ] Other

7. **If you chose other, please provide a short detailed account of your current position.**

_____

8. **How many years have you been working in a school on Standing Rock Reservation?** *
Mark only one oval.

- ◯ Under 3 years
- ◯ 4-7years
- ◯ 8-11years
- ◯ 12-15years
- ◯ 16-20 years
- ◯ More than 21 years teaching on Standing Rock Reservation
- ◯ Other: _____

The following questions ask about how frequently something happens on a weekly basis. Please choose the best answer based on your observations.

3. **At what grade level(s) do you currently work?** *
   Check all that apply.

   - [ ] Elementary P-5
   - [ ] Middle school 6-8
   - [ ] High school 9-12
   - [ ] Middle school and High school 6-12
   - [ ] Elementary and Middle School P-8
   - [ ] Elementary through High School P-12
   - [ ] Other

4. **If you chose other, please provide a short answer describing your current position.**

   _____

5. **At which school district do you currently work?** *
   Mark only one oval.

   - ◯ Wakpala Smee School District
   - ◯ Rock Creek Grant School
   - ◯ McLaughlin Public School
   - ◯ Fort Yates School District
   - ◯ Little Eagle Day School
   - ◯ Selfridge School District
   - ◯ Solen School District

Please mark all subject areas in which you work.

9. **How often is physical wellness incorporated into your classroom?** *
Mark only one oval.

- ◯ Rarely: 0-1 times a week
- ◯ Occasionally: 2-3 times a week
- ◯ Frequently: 4-5 times a week
- ◯ Very Frequently: 6 or more times a week

10. **How often do you incorporate collaborative activities into your lesson plans/classroom planning?** *
Mark only one oval.

- ◯ Rarely: 0-1 times a week
- ◯ Occasionally: 2-3 times a week
- ◯ Frequently: 4-5 times a week
- ◯ Very Frequently: 6 or more times a week

11. **How often do you incorporate Lakota/Dakota language into your classroom?** *
Mark only one oval.

- ◯ Rarely: 0-1 times a week
- ◯ Occasionally: 2-3 times a week
- ◯ Frequently: 4-5 times a week
- ◯ Very Frequently: 6 or more times a week

The following questions ask about how frequently something happens on a monthly basis. Please choose the best answer based on your observations.

12. **How often do you consciously model positive coping skills? (For example, if an activity didn't go well, a teacher could say to the class "I'm a little flustered because that last activity didn't go quite as I planned. Sometimes when I'm flustered it helps if I get up and move. Let's all stand up and shake it out together.")** *
Mark only one oval.

- ◯ Very rarely: 0-1 times a month
- ◯ Rarely: 2-3 times a month
- ◯ Occasionally: 4-5 times a month
- ◯ Frequently: 5-6 times a month (once a week)
- ◯ Very frequently: 7 or more times a month (more than once a week)

13. **How often do you raise your voice to what would be considered a "yell" in your classroom?** *

Mark only one oval.

- ◯ Very rarely: 0-1 times a month
- ◯ Rarely: 2-3 times a month
- ◯ Occasionally: 4-5 times a month
- ◯ Frequently: 5-6 times a month (once a week)
- ◯ Very frequently: 7 or more times a month (more than once a week)

14. **How often do you find yourself holding a grudge in regards to student behavior? In other words, how often do you have ongoing negative feelings toward a student or a group of students?** *

Mark only one oval.

- ◯ Very rarely: 0-1 times a month
- ◯ Rarely: 2-3 times a month
- ◯ Occasionally: 4-5 times a month
- ◯ Frequently: 5-6 times a month (once a week)
- ◯ Very frequently: 7 or more times a month (more than once a week)

15. **How often do you refer students to meet with the school guidance counselor?** *

Mark only one oval.

- ◯ Very rarely: 0-1 times a month
- ◯ Rarely: 2-3 times a month
- ◯ Occasionally: 4-5 times a month
- ◯ Frequently: 5-6 times a month (once a week)
- ◯ Very frequently: 7 or more times a month (more than once a week)

16. **How often do you incorporate Lakota/Dakota history into your content?** *

Mark only one oval.

- ◯ Very rarely: 0-1 times a month
- ◯ Rarely: 2-3 times a month
- ◯ Occasionally: 4-5 times a month
- ◯ Frequently: 5-6 times a month (once a week)
- ◯ Very frequently: 7 or more times a month (more than once a week)

17. **How often do you send students out of your classroom as part of your approach to discipline? (Examples include sending students to ISS, the principal's office, etc.)** *
Mark only one oval.

- ◯ Very rarely: 0-1 times a month
- ◯ Rarely: 2-3 times a month
- ◯ Occasionally: 4-5 times a month
- ◯ Frequently: 5-6 times a month (once a week)
- ◯ Very frequently: 7 or more times a month (more than once a week)

18. **How often are cultural teachings the main or primary objective of a lesson in your classroom?** *
Mark only one oval.

- ◯ Very rarely: 0-1 times a month
- ◯ Rarely: 2-3 times a month
- ◯ Occasionally: 4-5 times a month
- ◯ Frequently: 5-6 times a month (once a week)
- ◯ Very frequently: 7 or more times a month (more than once a week)

19. **How often are traditional Lakota/Dakota art, music, and/or philosophy integrated into your classroom?** *
Mark only one oval.

- ◯ Very rarely: 0-1 times a month
- ◯ Rarely: 2-3 times a month
- ◯ Occasionally: 4-5 times a month
- ◯ Frequently: 5-6 times a month (once a week)
- ◯ Very frequently: 7 or more times a month (more than once a week)

20. **How often are students exposed to contemporary Native American issues in your classroom?** *
Mark only one oval.

- ◯ Very rarely: 0-1 times a month
- ◯ Rarely: 2-3 times a month
- ◯ Occasionally: 4-5 times a month
- ◯ Frequently: 5-6 times a month (once a week)
- ◯ Very frequently: 7 or more times a month (more than once a week)

21. **How often are Native American standards addressed in your classroom? (Examples include Ocheti Sakowin standards, Native American State Standards, etc.)** *
Mark only one oval.

- ◯ Very rarely: 0-1 times a month
- ◯ Rarely: 2-3 times a month
- ◯ Occasionally: 4-5 times a month
- ◯ Frequently: 5-6 times a month (once a week)
- ◯ Very frequently: 7 or more times a month (more than once a week)

22. **How often do you employ trauma sensitive practices in your classroom?** *
Mark only one oval.

- ◯ Very rarely: 0-1 times a month
- ◯ Rarely: 2-3 times a month
- ◯ Occasionally: 4-5 times a month
- ◯ Frequently: 5-6 times a month (once a week)
- ◯ Very frequently: 7 or more times a month (more than once a week)

The following questions ask about how frequently something happens on a yearly basis. Please choose the best answer based on your observations.

23. **How often do students go on culturally relevant fieldtrips as part of your classroom lessons?** *
Mark only one oval.

- ◯ Very rarely: 0-1 times a year
- ◯ Rarely: 2-3 times a year
- ◯ Occasionally: 4-5 times a year
- ◯ Frequently: Frequently 6-8 times a year (almost once a month)
- ◯ Very frequently: 9 or more times a year (at least or more than once a month)

24. **How often do you incorporate traditional Lakota/Dakota games into your classroom?** *
Mark only one oval.

- ◯ Very rarely: 0-1 times a year
- ◯ Rarely: 2-3 times a year
- ◯ Occasionally: 4-5 times a year
- ◯ Frequently: Frequently 6-8 times a year (almost once a month)
- ◯ Very frequently: 9 or more times a year (at least or more than once a month)

25. **How often are students exposed to traditional Lakota/Dakota food practices within your classroom? (Examples include practicing units of measurement in a math class by measuring ingredients for wojapi or papa soap, or testing the density of fresh versus dried meat in a science class.)** *

Mark only one oval.

- ◯ Very rarely: 0-1 times a year
- ◯ Rarely: 2-3 times a year
- ◯ Occasionally: 4-5 times a year
- ◯ Frequently: Frequently 6-8 times a year (almost once a month)
- ◯ Very frequently: 9 or more times a year (at least or more than once a month)

26. **How often are Lakota/Dakota spiritual practices incorporated into your classroom? (Examples include smudging, praying, etc.)** *

Mark only one oval.

- ◯ Very rarely: 0-1 times a year
- ◯ Rarely: 2-3 times a year
- ◯ Occasionally: 4-5 times a year
- ◯ Frequently: Frequently 6-8 times a year (almost once a month)
- ◯ Very frequently: 9 or more times a year (at least or more than once a month)

27. **How often do you participate in student related activities outside of the school day?** *

Mark only one oval.

- ◯ Very rarely: 0-1 times a year
- ◯ Rarely: 2-3 times a year
- ◯ Occasionally: 4-5 times a year
- ◯ Frequently: Frequently 6-8 times a year (almost once a month)
- ◯ Very frequently: 9 or more times a year (at least or more than once a month)

Please mark how familiar you are with the following terms.

28. **Historical Trauma** *

Mark only one oval.

- ◯ Not familiar (I have not heard of this term)
- ◯ Vaguely familiar (I have heard of this term)
- ◯ Familiar (I have an understanding of this term)
- ◯ Very familiar (I have a strong understanding of this term and how it relates to my students)

29. **Boarding School** *
Mark only one oval.

- ◯ Not familiar (I have not heard of this term)
- ◯ Vaguely familiar (I have heard of this term)
- ◯ Familiar (I have an understanding of this term)
- ◯ Very familiar (I have a strong understanding of this term and how it relates to my students)

30. **Forced Assimilation** *
Mark only one oval.

- ◯ Not familiar (I have not heard of this term)
- ◯ Vaguely familiar (I have heard of this term)
- ◯ Familiar (I have an understanding of this term)
- ◯ Very familiar (I have a strong understanding of this term and how it relates to my students)

31. **Intergenerational Trauma** *
Mark only one oval.

- ◯ Not familiar (I have not heard of this term)
- ◯ Vaguely familiar (I have heard of this term)
- ◯ Familiar (I have an understanding of this term)
- ◯ Very familiar (I have a strong understanding of this term and how it relates to my students)

32. **Adverse Childhood Experiences** *
Mark only one oval.

- ◯ Not familiar (I have not heard of this term)
- ◯ Vaguely familiar (I have heard of this term)
- ◯ Familiar (I have an understanding of this term)
- ◯ Very familiar (I have a strong understanding of this term and how it relates to my students)

This last section includes a few questions that aren't frequency based. Please choose the answer that fits best for you.

33. **On a scale of 1 to 10, how much support do you feel the school provides for you to effectively do your job?** *
Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
No support	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	The school provides all the support I need

34. **Please mark all the ways in which Lakota/Dakota values are represented in your classroom.** *
Check all that apply.

- ☐ Visuals (posters or signs with images)
- ☐ Lists (posters or signs with lists)
- ☐ They are not represented
- ☐ Other: _____

35. **If you marked other, please provide a short answer describing how Lakota/Dakota values are represented.**

_____

36. **Does your classroom have a space designed to allow students to "self-regulate" if they need to calm down?** *
Mark only one oval.

- ◯ Yes
- ◯ No

37. **On a scale of 1 to 10, how true is the following statement for you? "I design my classroom in an effort to meet the needs of my students." (Examples include the incorporation of flexible seating, a space for students to calm down, etc.)** *
Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
I haven't designed my classroom based on student needs	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	Every piece of my classroom is designed around student needs

APPENDIX E. INTERVIEW QUESTIONS

INTERVIEW QUESTIONS

PROJECT TITLE: Intergenerational Trauma: Understanding the Relationship between Culture, Wellness, and Achievement

PRINCIPAL INVESTIGATOR: Derek Anthony Stewart, Education Instructor at Sitting Bull College, (651) 249-6999, Derek.stewart@sittingbull.edu

FACULTY ADVISOR: Dorothy Williams

PROJECT:
The purpose of the qualitative portion of this study was to produce a detailed description of common wellness related concerns among students on Standing Rock Reservation hindering academic engagement, and to recommend areas of development to more effectively address those concerns. The qualitative analysis followed three steps: 1) reading over all transcribed interviews: 2) review for general content meaning; 3) identify meaning based on units that represent the collected codes into meaningful units of understanding

LENGTH OF INTERVIEW: (PURPOSIVE SAMPLING)
I reviewed the survey comments, communicated with administration from the school districts, which included the following requirements: a minimum of 10 participants, a minimum of five different school districts, a minimum of six Native American teachers, a minimum of four non-Native teachers, a minimum of two new teachers (three years or less teaching on Standing Rock Reservation) and a minimum of three long-time teachers (10 years + experience teaching on Standing Rock Reservation.) School districts represented in the qualitative analysis were SD1A, SD3C, SD5E, SD5F, and SD7AG. The interview group included Native American teachers, non-Native American teachers, administration, elementary, middle school, and high school teachers, ranging from first year teachers to 18 years teaching on Standing Rock Reservation. The interviews were conducted in person or by phone, and they ranged in duration from 12:11 minutes to 22:06 minutes.

QUESTIONS:

1) What wellness related concerns do you see among students on Standing Rock Reservation, as they relate to educational barriers and common issues preventing academic achievement?

2) What do you think staff needs to know in regards to student wellness for better serving the student population?

3) What do you think staff needs to more effectively address student cultural wellness concerns?

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with the laws of the State of Maine and the exclusive jurisdiction and venue for any disputes arising hereunder shall be resolved in the state or federal courts located in Cumberland County, Maine.

Reviewed and agreed to via email as indicated above.

Derek A. Stewart

Derek.stewart@sittingbull.edu