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American Indian and Alaska Native Self-Concept in Math and Reading: Academic Support,  
Ethnic Identity, and Gender Differences

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**Abstract**

American Indian and Alaska Native Self-Concept in Math and Reading: Academic Support,  
Ethnic Identity, and Gender Differences

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This dissertation study explored both the influence of academic support and aspects of identity that contribute to American Indian and Alaska Native (AI/AN) eighth grade student's Self-concept in math and reading. The secondary data analysis utilized the National Indian Education Study (NIES) 2011 secured data set, a part of the National Assessment of Educational Progress (NAEP) report card. Participants included 10,300 AI/ANs from public schools (96%), Bureau of Indian Education schools (6%), and private schools (2%) located in 12 different states. The NIES (2011) survey provides student-reported responses on educational perceptions and experiences. On average, males rated themselves higher in math self-concept, whereas females rated themselves higher in reading self-concept. Students rated the amount of two types of academic support received from parent/family, teachers and peers, homework help and academic planning. Parent/family academic planning support was a strong predictor of self-concept in math and reading. Parent homework support significantly predicted math self-concept, but not

reading self-concept. Students who reported never receiving academic planning support from their teachers in the past year had low self-concept in math and reading, yet receiving guidance four or more times per year only predicted higher math self-concept. Peer academic planning support predicted female student's self-concept in math and reading. No relationship was found for male students. Cultural identity also showed gender differences. Female students who reported knowing a lot about important AI/AN issues had a higher reading self-concept, and knowing a lot about AI/AN history predicted a higher math self-concept. Male students who attended several of their own AI/AN cultural gatherings/ceremonies had a lower math self-concept. Ethnic identity is highly complex. In this study, students are identified as AI/AN based on parent report. Research could benefit from examining differences between students who self-identify as AI/AN, identify with more than one ethnicity, and do not identify as AI/AN. Also needed are comparisons between students who live on AI/AN reservations or villages versus those who do not. Other important findings and implications for practice are discussed.

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## **Dedication**

I dedicate this to all the Native American children that I have served over the past 12 years and will serve in the future. You inspire me!

To God be the glory!

## Chapter 1: Introduction

### Overview of Study

A robust body of literature has recognized the unique educational needs of American Indian / Alaska Native (AI/AN) youth and families. Throughout the United States, students attend schools with varying degrees of cultural understanding and academic support.

Approximately one-third of the AI/AN population live on what is considered reservations, Alaska villages or federal trust lands. Only 7% attend Bureau of Indian Education (BIE) schools (U.S. Department of Education, National Center for Educational Statistics, 2005). The vast majority of AI/AN students (92%) attend public schools where they only represent 0.07% of the student population (Aud et al., 2012; Faircloth & Tippeconnic, 2010). A small portion of public schools reside directly on tribal reservations or Alaska villages with higher AI/AN student population, yet most schools are still regulated by federal and state government policies and standards.

Mainstream educational policies and practices do not appear to adequately address the overall educational needs of AI/AN students. The AI/AN graduation rate is 46.6%, which is the lowest graduation rate among all other ethnic groups (Faircloth & Tippeconnic, 2010). Those who graduate from high school or receive General Education Development (GED) credentials experience a number of barriers to gain access to postsecondary education. In the United States, the average undergraduate enrollment increased from 10.5 million in 1980 and to 17.6 million in 2009, while AI/ANs only increased their enrollment from .1 million to .2 million (Aud, Kewal, Ramani, & Frohlich, 2011).

Over the past twenty years, researchers interested in narrowing the achievement gap have emphasized culturally responsive educational approaches (Castagno & Brayboy, 2008;

Pewewardy & Hammer, 2003; Cleary & Peacock, 1998) that go beyond mainstream evidence-based instruction. AI/ANs are minimally represented in educational research (Sprague, Vincent, Tobin & ChiXapkaid, 2013, p. 456), therefore, “evidence-based, per se, does not indicate the student population with whom the evidence was generated.” Although several advances have been made, the challenge of adapting curriculum and pedagogy to reflect the cultural practices of individual AI/AN communities remains. Culturally responsive approaches require a high level of collaboration between schools and AI/AN communities. Unfortunately, public schools struggle implementing effective AI/AN community and family outreach. According to the National Indian Education Study (NIES) 2011, 94% of BIE school administrators of AI/AN eighth grade students reported having AI/AN community share their culture and traditions, while there were only 37% of public schools administrators that reported this type of collaboration. Thus, the majority of public schools have little to no collaboration with AI/AN communities.

Academic support is a viable culturally responsive approach in addressing the achievement gap. Research supports “positive relationships with significant others are cornerstones of young people's capacity to function effectively in social, affective, and academic domains,” specifically by enhancing academic motivation, engagement and achievement (Martin & Dowson, 2009, p. 351). The middle school years are recognized as a sensitive period for identity development in academic domains (Blakemore & Mills, 2014; Archambault, Eccles & Vida, 2010; Oyserman & Bybee, 2006; Jacobs, Lanza, Osgood, Eccles & Wigfield, 2002). Self-evaluation and exploration are heightened (Quintana, 2007; Phinney, 1996). Brain development during adolescence is highly susceptible to social cues, whether negative or positive (Blakemore & Mills, 2014). Social influences have a profound impact on brain development during adolescence.

A relationship-based approach supports AI/ANs' core cultural values and learning styles. Unfortunately, AI/ANs report significantly lower levels of perceived social support from school and teachers than other ethnic groups (Demaray & Malecki, 2002). In the NIES (2011) report, 63% of AI/AN eighth graders reported never talking to a counselor in the past year regarding classes or future plans and 34% never spoke to a teacher (National Center for, E. S., 2012). There is minimal research examining the influences of salient relationships on AI/AN achievement taking into account aspects of identity.

### **Research Purpose**

The purpose of this secondary analysis study is to explore the influence of academic support and aspects of identity that contribute to AI/AN middle school student's self-concept in math and reading. The NIES (2011) secondary secured data set was analyzed in this study. The NIES is a part of the National Assessment of Educational Progress (NAEP) report card conducted by the National Center for Education Statistics – Institute of Education Sciences of the U.S. Department of Education. It's purpose is to provide a snap shot of the academic condition and schooling experiences of AI/AN students in grades four and eight attending public school, Bureau of Indian Education and Department of Defense schools (National Center for, E. S., 2012a). Eighth grade students are the focus of this research. The two overarching research questions addressed in this dissertation are:

1. How do AI/AN eighth grade student's perceived academic support from parent/family, teachers/other adults in school, and peers predict their self-concept in math and reading?
2. How do aspects of identity (AI/AN cultural knowledge, AI/AN cultural participation, and gender) predict self-concept in math and reading for AI/AN eighth grade students?

## **Relevant Terms and Definitions**

**American Indian / Alaska Native (AI/AN).** In the NIES (2011) secondary data set that will be analyzed in this study, AI/AN is defined by parent/guardian identified “AI/AN” on school forms. Research studies included in the literature review identify AI/AN people by various definitions. AI/AN may refer to Native American, American Indian, Alaska Native, First Nations from recognized or unrecognized tribes or clans. Some researchers prefer the term indigenous.

**Self-concept.** Self-concept is a construct of personal identity. Broadly, self-concept is an individual’s perception of himself or herself in a general or specific domain (Shavelson, Hubner & Stanton, 1976) that is “differentiated from others and motivated towards self interest and individual goals” (Whitesell, Mitchell, Kaufman, Spicer, and Voices of Indian Teens Project Team, 2006, p. 1488). In academic domains, self-concept often refers to a student’s perception about himself or herself in academic work, i.e. self-perceived competence (Yeung, Craven & Ali, 2013). From this point on, this study will refer to student’s view of self-perceived competence or self-concept as self-concept in math and reading.

**American Indian / Alaska Native identity.** AI/AN identity is a construct of ethnic identity conceptualized through the framework of social identity (Phinney, 1990). AI/AN is deeply rooted in collective values, connection to others and common welfare of the group (Whitesell, Mitchell, Kaufman & Spicer, 2006). The term AI/AN Identity will be used to represent an aspect of identity that is rooted in AI/AN culture and values with a strong sense of belonging, connecting to world and to others. More specifically, this dissertation will only focus on a two facets of AI/AN identity, AI/AN knowledge and cultural participation.

**Gender identity.** Gender identity refers to the extent to which individuals identify with one particular gender, and consequently embracing “one’s sense of being male or female largely determines how people view themselves and provides an important basis for their interactions with others” (Steensma, Kreukels, Vries, Cohen-Kettenis, 2013, p. 289).

**Academic Support.** In research, the term academic support is seldom clearly defined or delineated from social support. The following definition will draw upon the description of academic support provided by Chen (2005) and Wentzel (1998) and social support by Malecki and Demaray (2002; 2006). Academic support is direct or indirect social influence from salient individual(s) (i.e. parent, family, teacher, caring adult, or peer) that provides at least one of the multiple types of support (instrumental, emotional, appraisal, or informational) towards enhancing a student’s (cognitive, affective, or behavioral) functioning in academic domain(s). This dissertation study is examining homework help (instrumental) and academic planning support (informational support).

**Bureau of Indian Education (BIE).** BIE schools were established as a part of the Indian Self-Determination and Education Assistance Act of 1975 to give back authority to federally recognized tribes to educate their children (U.S. Department of Indian Affairs, 2015). There are currently 183 elementary and secondary schools with 124 of those schools tribally operated and 59 BIE operated in geographic regions across the U.S. All schools still remain under BIE governing leadership (Bureau of Indian Education, 2015).

**High density (HD) public school.** A public school that consist of 25% or greater of AI/AN student population.

**Low density (LD) public school.** A public school that consists of less than 25% of AI/AN student population.

## Chapter 2: Literature Review

### Overview of AI/AN Historical and Contemporary Schooling Experiences

In many AI/AN communities, the wounds of traumatic historical and contemporary schooling experiences in educational settings are frequently brought forth when addressing the academic needs of youth and families. In a recent Washington state-wide study conducted by CHiXapkaid, Higheagle Strong, Dolota and Baker (2013), several tribes and Urban Indian communities gathered in their geographic regions for focus groups, listening sessions, and individual interviews to discuss the educational needs of their children. A common theme expressed was “we want teachers who care about our children.” Educators who disregarded AI/AN cultural learning styles, practices, and community relationship protocols were often considered to be uncaring. AI/AN elders, family members and educators further stressed their concern that current educational policies and practices are further colonizing their children (CHiXapkaid et al., 2013). Although a number of educators may not be familiar with Indian boarding school or the use of educational institutions to impose colonization strategies, the wounds are still fresh in AI/AN communities.

**Historical schooling experiences.** One of the early federal government policies that shaped AI/AN education was the Civilization Act in 1819 passed by Congress in which the primary goal “was synonymous with forced assimilation or ‘civilization’” (McCarty & Watahomigie, 1998, p. 71). Policies like this led to the forceful removal of many AI/AN children from their families to attend boarding schools run by the federal government. The Indian boarding school era marks a painful time period for AI/AN children and families, from which they are still recovering. Lomawaima and McCarty (2006) refer to Indian boarding schools as revealing “the cancer at the heart of the American educational system, the powerful

forces that conspire to standardize, homogenize, and “dumb down” some groups of citizens” (p. 170). Children were taken away from their homes. Some parents willingly enrolled their child due to poverty or hope for better opportunities while many other families were coerced (Lomawaima, 1994).

The federal government’s intention for Indian boarding schools was explicitly stated – to assimilate and civilize. They felt AI/AN families were unable to raise their own children as the government deemed fit (Yellow Horse Brave Heart & DeBruyn, 1998). Consequently, a number of AI/AN children were raised in schools with harsh teaching methods, rather than the nurturing and support needed from parents. Techniques like beatings were used when children spoke their language or practiced their culture (Yellow Horse Brave Heart & DeBruyn, 1998). The boarding school era is not considered a distant historical event. Some Elders who were victims of these cruel teaching methods are currently living in AI/AN communities.

The impact of colonization and boarding schools has stripped away culture and weakened the family systems. Both are important protective factors for AI/AN’s overall wellbeing. The high rates of poverty, loss of land from broken U.S. trust responsibilities, and lack of access to adequate health care have also negatively impacted the wellbeing of AI/AN children and families (Grandbois, 2005). According to the National Center for Injury Prevention and Control (2012), AI/ANs between the ages of 15 to 34, have a suicide rate that is 2.5 higher than the national average and is the second leading cause of death for this age group. AI/AN children are also overrepresented in disciplinary exclusions, high dropout rates, and incarcerations (Sprague et al., 2013). Over an extended period of time, external factors, like boarding schools and colonization have placed AI/AN children and families in a frequent state of stressful life conditions. Research shows that children’s exposure to stressful life events and violence are associated with decline in

academic performance (Nettles, Mucherah & Jones, 2000) and risky behaviors and depressed mood (Baldwin, Brown, Wayment, Nez, & Brelsford, 2011).

One of the efforts to preserve and restore AI/AN culture was the establishment of BIE schools. In 1824 the Office of Indian Affairs, later named the Bureau of Indian Affairs (BIA), was established under the War Department and put in charge of AI/AN education and policies (Yellow Horse Brave Heart & DeBruyn, 1998). According to the U.S. Department of Indian Affairs (2011), the Indian Reorganization Act of 1934 allowed the BIE schools to incorporate Indian history and culture into their teaching. Later the Indian Self-Determination and Education Assistance Act of 1975 (P.L. 93-638) allowed federally recognized tribes to establish agreements with the BIE to operate Bureau funded schools. This allowed for greater collaboration between government-to-government interaction surrounding educational issues for Bureau funded schools. Meanwhile, the BIE appears to struggle with meshing culturally responsive curriculum and pedagogy with existing federal educational standards that minimally reflect AI/AN ways of learning and knowing. Often this disconnect is reflected in AI/AN students performing lower on federal and state standards in BIE schools than public schools.

**Contemporary schooling experiences.** Although steps have been taken towards recognizing and rectifying past historical educational experiences, stumbling blocks remain for many AI/AN adolescents to gain a strong sense of positive identity in educational settings. AI/AN children and families tend to be misunderstood in schools due to myths, misconceptions, and stereotypes. Walter C. Fleming (2007), a professor and director for American Indian Studies at University of Montana stated, “Most non-Indians don’t know a great deal about first peoples of Americas, but what is worse is that most of what people do know is wrong” (p. 215). They are often represented as uncivilized, drunkards, lazy, and uneducated. This is especially

concerning when educators who are unfamiliar with AI/ANs are informing policies, curricula and instruction. Culturally responsive education requires educators to extend beyond general knowledge of and respect for other ethnic groups, to detailed knowledge of cultural particularities and historical experiences (Gay, 2002). Most pre-service teachers in multi-cultural education courses do not plan to teach near or on a tribal community or Alaska village (Haynes Writer, 2002). So there are little to no incentive for educators to learn a critical knowledge base in order to counteract misconceptions and stereotypes.

AI/AN students face a number of obstacles in academic environments. Educators can misinterpret student's learning style in the classroom and perceive interactions as negative academic behavior (Huffman, 2010; Powers, Potthoff, Bearinger, & Resnick, 2003), rather than valuing diverse learners. Federal policies emphasizing standardized tests and accountability over indigenous ways of knowing and learning hinder AI/AN academic performance and achievement (Castagno & Brayboy, 2008; Cleary, 2008; Reyhner & Hurtado, 2008). AI/AN students are often stigmatized as low academic achievers, which has lasting effects on identity and academic performance in school. Claude Steele (2010) conducted extensive research showing that when particular groups who have been given a negative stereotype, such as academic failure tied to AI/ANs, members of that particular group become aware of it. Once a member is placed in a situation where a bad stereotype can be applied to them, like an academic task, their performance can decrease when reminded of their group membership. Negative performance does not imply academic deficiency, in fact, if a person cares about his or her performance; he or she is even more susceptible to perform poorly due to stereotype threat (Steele, 2010).

Adolescents from stigmatized groups, such as AI/AN, can experience "belonging uncertainty" in academic settings, which can undermine their motivation and achievement

(Walton & Cohen, 2007). The interaction between identity, belonging, and achievement is a recursive feedback loop that impacts youth over time, either correlating with positive or negative educational outcomes (Cohen & Garcia, 2008). If misconceptions and stereotypes are continually reinforced at school through social interactions, instruction and curricula, then AI/AN adolescents will continually perform at lower levels.

**Summary.** Throughout historical and current schooling experiences, a number of social influences and interactions have contributed to the condition of AI/AN education. These experiences are crucial to understanding the complexity of educational reform required for AI/ANs at large *and* individual communities (i.e. reservations, villages, urban, rural) that have diverse needs. The next sections will address the complex nature of AI/AN adolescent identity in academic domains and academic support for narrowing the achievement gap.

### **Theoretical Framework: Identity-Based Theories**

During the sensitive period of adolescence, students are highly vulnerable to social cues, critical self-evaluation (Blakemore & Mills, 2014) and heightened exploration of one's identity (Quintana, 2007; Phinney, 1996). Supportive relationships are key to healthy development. When considering the mistreatment and misconceptions that AI/AN youth have endured in educational settings, it is no wonder AI/AN students can struggle with a negative identity in academic domains. Individuals have numerous representations of self that fall under broader categories of personal or social identity, both influenced by social context (Stets, 2006; Hogg, 2006) and differentially related to academic domains (Marsh & Craven, 2006). For the purpose of this study, personal identity (self-concept in math and reading) and social identity (ethnicity, culture, and gender) will be the primary focus.

**Personal identity.** Personal identity theory focuses on individual sociocognitive processes such as, self-appraisal and role taking, within a social context. The theory proposes, in part, that individual identity arises by the way of seeing oneself through others' perceptions and taking on roles within different group contexts (Stets, 2006). During adolescence, students become increasingly sensitive to social cues and self-aware of their own performance (Blakemore & Mills, 2014). Self-concept, a facet of personal identity, is well researched in academic domains for mainstream students, but information on AI/AN self-concept is minimal.

**Self-concept.** Self-concept, a multi-dimensional construct, speaks to a student's perception of himself or herself in a general way or in a specific domain. For instance, this dissertation is interested in academic self-concept. Self-concept can predict subsequent behaviors and attitudes. Previous studies have emphasized accounting for a multi-dimensional perspective of self-concept rather than global or general self-concept in research, policy and practice. Global or general self-concept is often unrelated to academic achievement, but domain specificity has a stronger influence (Marsh & Craven, 2006; Marsh, Trautwein, Lüdtke, Köller & Baumert, 2005; Shavelson et al., 1976). For instance, Shavelson et al. (1976) reviewed several studies on self-concept and determined the basis for a multi-faceted, hierarchical representation of self-concept. General self-concept (e.g. I am worthy or I am smart) is at the top of the hierarchy. The lower part of the hierarchy is divided into academic self-concept and non-academic self-concept (social, emotional, and physical). These subareas are delineated even further (e.g. math, reading) for the academic domain or (peers, significant others) for the emotional domain. Within subareas, self-concept can also be extended to situational factors, which tend to be less stable but more precise than general self-concept (Shavelson, 1976). When examining factors influencing youth academic achievement, it is beneficial to use academic

specific self-concept measures, rather than broad constructs. This dissertation study will include math and reading self-concept.

A positive self-concept has been shown to have a close relationship with academic achievement across cultures. In a longitudinal study including 2 large German Nationally represented 7th-grade samples, Marsh and colleagues (2005) found math self-concept positively correlated with both math grades and standardized test scores, with a larger association with grades. Furthermore, the relationship between math self-concept and achievement is considered to have reciprocal effects, each predicting gains in the other. Self-concept, however, has a stronger influence in predicting math achievement than vice versa (Marsh et al., 2005; Marsh & Craven, 2006). Retelsdorf, Köller and Mölle (2014) corroborated similar reciprocal effects between reading self-concept and achievement with 5th and 6th grade students. Conversely, the Whitesell and colleagues (2009) study that included a large AI/AN sample, ages 14 – 17, did not find a reciprocal relationship. They found that self-esteem predicted academic achievement, whereas academic achievement had minimal effect on subsequent self-esteem. Personal resources and problem behaviors mediated this relationship (Whitesell et al., 2009). Perhaps if more specific measures had been collected (e.g. reading or math self-concept), results may have differed or this could be due to cultural differences.

In order to adequately address educational concerns for AI/ANs, multiple approaches are needed. Students need help with practical academic skills to promote subsequent success on assignments and tests, which in turn leads to increased achievement. They also need affective support targeted towards enhancing student's self-concept. Much of the research on self-concept and achievement includes limited numbers of AI/AN participants, which is problematic when there are evident differences in self-concept development between AI/AN and mainstream

students. Many researchers argue that AI/AN self-concept should include personal identity (e.g. academic self-concept, self-esteem, etc.) in conjunction with ethnic or cultural identity to gain a more complete viewpoint (Fryberg et al., 2013b, Markus & Kitayama, 2010; Whitesell et al., 2006; Stumblingbear-Riddle & Romans, 2012). In the next section, social identity will be discussed in regards to ethnic/cultural components and gender identity that contribute to overall self-concept.

**Social identity.** Social identity theory emphasizes the group self-conception. Hogg (2006) states a “group exists psychologically if three or more people construe and evaluate themselves in terms of shared attributes that distinguish them collectively from other people” (p. 111). The social identity theory also explains additional motivating processes, such as self-enhancement and optimal distinctiveness, and intergroup dynamics that contribute to the influence and conformity to group norms (Hogg, 2006). Within the social identity theory, ethnicity and gender are powerful bonds reinforcing group membership identification, which can shape similar attitudes, beliefs, and behaviors in specific social contexts.

**Ethnic identity.** Ethnic identity is widely researched, but a highly complex concept when considering the diverse and multi-ethnic nature of student and families in mainstream schools within the United States. A detailed overview of ethnic identity is beyond the reach of this dissertation research. Phinney (1990) reviewed several ethnic identity studies to determine commonalities in definition, conceptualizations, and measurements. Overall, the components most commonly identified were “self-identification as a group member, a sense of belonging to the group, attitudes about one’s group membership, and ethnic involvement (social participation, cultural practices and attitudes)” (Phinney, 1990, p. 503). Kenyon and Carter (2011)

distinguished achieved ethnic identity with a high commitment and involvement in cultural activities.

The exploration of one's own ethnic identity and group membership in the middle school years is normative behavior, often decelerating in high school (Quintana, 2007). Positive ethnic identity development relies upon deep exploration about one's ethnic group and questioning one's preexisting beliefs and historical/present experiences (Phinney, 1996). It focuses on positive aspects associated with one's ethnicity and ultimately affirms one's group membership (Quintana, 2007). As adolescents begin to learn about the history of their race, they may become more aware of racism and discrimination, which can incite identity exploration and anger towards the dominant group (Phinney, 1996). The social support adolescents receive through this exploration process can lead to positive or negative perceptions about one's group or the dominant group.

The implications of ethnic identity on academic achievement tend to vary across cultures (Rodriguez, Umaña-Taylor, Smith & Johnson, 2009). AI/AN identity is strongly tied to collective values. Collective identity is "embedded within social context, concerned with common welfare and connection to other, and rooted in the values of the group" (Whitesell et al., 2006, p.1488). Mainstream schools often exemplify individualist norms, practices and expectations, which are not conducive for students who identify with a collectivist culture (Yamauchi, 1998). As a result, many AI/AN students struggle with academic performance in school. AI/AN students, too frequently, are described as one of the lowest academically achieving ethnic group (Faircloth & Tippeconnic, 2010), which can equate to highly inaccurate perceptions of AI/AN students as not being capable. When students identify with AI/AN

identity to some degree and become aware of the negative perceptions of AI/AN's performance and achievement in school, a negative self-concept can develop towards academic domains.

A positive ethnic identity for AI/ANs is strongly associated with psychological wellbeing (Kenyon & Carter, 2011) and psychosocial functioning (Jones & Galliher, 2007), but appears to have a complex relationship with academic performance for AI/ANs (Whitesell et al., 2006; Whitesell, Mitchell, & Spicer, 2009; Beiser, Sack, Manson, Redshirt & Dion, 1998). In a study of 115 Aboriginal youth, ages 11 – 19, high cultural identification was associated with higher grades (Fryberg et al., 2013b). Conversely, López, Heilig, and Schram (2013) found in a large national representative sample of AI/AN in grade 4 and 8, cultural knowledge and participation did not associate with reading achievement on the NAEP standardized test. However, reading achievement scores in this study reflect AI/AN group scores based on plausible values, not individual student achievement scores. In Beiser and colleagues (1998) study, when other factors such as gender, depression, and verbal IQ were included in the path model, ethnicity was no longer a predictor of academic achievement in grade school children. Whitesell and colleagues (2009) found self-esteem had a direct and indirect relationship with academic success, while cultural identification had no significant association. They posited one possible explanation for their findings is that self-esteem consists of more individualistic goals that align more with individual measures of academic success whereas cultural identity maintains interdependent characteristics that could lead to rejecting or devaluing such measures of success (Whitesell et al., 2009). To expand upon this, mainstream schools or teachers who include AI/AN cultural congruent strategies that support interdependent values may enhance student achievement (Fryberg et al., 2013a). Promoting cultural knowledge and engagement contributes

to the overall wellbeing of AI/AN students, although it may not directly translate to academic achievement.

***Gender identity.*** Gender also plays a role in the development of self in academic domains to the extent that a student may identify with being male or female and are aware of gender-specific stigmas. On average, boys tend to report higher self-concept in math than girls (Skaalvik & Skaalvik, 2004; Jacobs et al., 2002; Watt, 2000), while girls report higher self-concept in language arts (Jacobs et al., 2002; Watt, 2000; Wigfield et al., 1997). The development of self-concept for both boys and girls in math and language arts appears to significantly decline after early childhood, with boys declining at a faster rate than girls (Jacobs et al., 2002). According to Jacobs and colleagues (2002), in the first grade boys begin with a higher math self-concept belief than girls, but a similar language arts self-concept as girls, with boys declining at a faster rate. By the sixth grade, significant gender differences are found with boys having higher self-concept belief in math and girls in language arts (Jacobs et al., 2002). In a cross-national meta-analysis study of gender patterns in mathematics, Else-Quest, Hyde and Linn (2010) found boys and girls ages 14-16 performed similarly in math; yet boys on average reported higher self-concept in math than girls and self-concept was significantly correlated with math achievement. Hyde, Fennema, Ryan, Frost and Hopp (1990) found gender differences in self-concept in math increased with age, showing the largest gap among high school and college students. These students do not include AI/AN student populations. AI/AN females have shown to score higher on general self-esteem measures (Whitesell et al., 2006) and interdependent representation of self (Fryberg et al., 2013a) than males.

These gender differences do not speak to the limitations of boys or girls in certain academic domains; often the differences lie in social cultural factors and stereotypical patterns

that influence student's attitudes, beliefs and behaviors regarding their potential in school. For instance, grade school age boys can be perceived or stereotyped as academic underachievers, which could contribute to the rapid decline in self-concept in math and reading. In a three-part study, Hartley and Sutton (2013) informed grade school age boys and girls before a test that (a) boys tend to do worse than girls in school or (b) boys and girls perform similarly in school. Both conditions were compared to a control group. After taking a test in reading, writing and math, the girls' performance remained fairly stable in all conditions, but the boys' performance diminished when told of their inferiority and improved when reassured that there are no gender differences. When gender is brought forth to females before taking a challenging math test, their performance declines due to stereo-type threat and apprehension, but when females are reassured that the test does not reflect gender differences, they perform at higher levels (Spencer, Steele and Quinn, 1999).

Across cultures, there are shared similarities and differences in perceptions of gender roles and/or stereotypes influencing academic domains. For example, Else-Quest and colleagues (2010) found the empowerment of women in domain-specific jobs and roles predicted smaller gender gaps in math performance, self-concept and self-efficacy. The National Education Longitudinal study of 1988 found gender achievement gaps mainly within the high-end math score distribution of white, Asian and Hispanic students, but not with African Americans (Fan, Chen, Matsumoto, & Fan, 1998). Gender gaps were largest in grades 8 to 12 (Fan et al., 1998). According to the NAEP 2011 study results, AI/AN eighth grade girls scored on average 9 points higher on reading achievement over boys and there were no significant gender differences on AI/AN eighth grade math achievement (National Indian Education Study, 2011). The full NAEP 2011 report that included all ethnicities similarly showed eighth girls scoring 9 points higher than

boys on reading achievement. Math scores differed only slightly, with boys scoring an average of 1 point higher than girls. Research on AI/AN gender differences in academic domains is nearly non-existent, although a number of large-scale federal studies, such as NAEP/NIES, provide basic statistical information and allow secondary data set researchers to analyze for deeper inferences.

**Summary.** During middle school years, students are in a time of exploration, searching for social cues to inform them of who they are and what they are/are not good at. Self-concept development varies across cultures, with limited research to inform developmental patterns for AI/ANs. Adolescents begin to become more aware of their ethnicity and gender, while contemplating the degree in which they identify with particular group membership(s). Their identity development, in part, is tied to this exploration process and conclusions drawn from this developmental period. Their beliefs regarding how others' perceive them and their group can impact their identity development and academic trajectories. Due to the number of adverse AI/AN schooling and social experiences, academic support is necessary to enhance AI/AN student's self-concept in academic domains.

### **Social Influences: Academic Support**

Social influences are vital to the development of all children. Numerous studies have acknowledged the influence of social support in relation to various academic domains. Parent/family, teacher and peer support positively relate to factors contributing to academic achievement, such as, increased academic performance (Fryberg et al., 2013a), motivation (Martin & Dowson, 2009; Wentzel, 1998), a positive self-concept (Whitesell et al., 2006), and future selves (Oyserman, Bybee, & Terry, 2006; Fryberg & Markus, 2003). Meanwhile, deficient social support can diminish achievement (Legault, Green-Demers, & Pelletier, 2006;

Demaray, & Malecki, 2002a; Demaray, & Malecki, 2002b). Social support has been noted to influence psychosocial or socio-emotional factors that contribute to achievement, but does not necessarily infer a direct relationship (Mackinnon, 2011; Baumeister, Campbell, Krueger & Vohs, 2003; Wentzel, 1998). Specific social relationships (i.e. parents, teachers, peers, others) tend to have an independent relationship with different academic domains (Mercer & DeRoiser, 2008; Wentzel, 1998) varying in degree of influence (Hill & Tyson, 2009). Therefore, examining social relationships independently is beneficial.

Research has also acknowledged the social cultural differences amongst AI/ANs in comparison to mainstream students (Fryberg et al., 2013a; Ledesma, 2007; Garrett et al, 2003). For instance, Bock (2006) showed European Americans were more significantly influenced by peer support in reading comprehension with moral stories, while AI/AN students cared deeply about teacher support and approval over peer support. In some cases, AI/AN girls reported peer relationships as a distraction and hindrance to academic achievement, while boys experienced increased achievement through peer relationships (Strong & Jegatheesan, 2014; Strong, 2013). However, in these instances the girls attended public school with minimal AI/AN student population and the boys attended BIE school with high AI/AN student population. Parental type support can extend to family (grandparents, elders, aunties, etc.) and all may play a vital role in the development of AI/AN children (Pewewardy, 2002; Ledesma, 2007; Garrett et al., 2003).

School, community, and families all influence children's identity and promote resilience. Gibson (1988) stated that involuntary minority "youth do better in school when they feel strongly anchored in the identities of their families, communities, and peers and when they feel supported in pursuing a strategy of selective or additive acculturation" (p. 431). The support of kin, extended family, and community plays a protective function in the development of AI/AN

children (LaFromboise, Hoyt, Oliver, & Whitbeck, 2006; Ledesma, 2007). For instance, when AI/AN children perceive community support, they tend to develop a positive ethnic identity (Kenyon & Carter, 2011), higher levels of self-esteem and community-mindedness (Whitesell et al., 2006), resilience (LaFromboise et al., 2006; McMahon, Kenyon & Carter, 2013), and increased academic achievement (Whitesell et al., 2009). Social support relationships can support AI/AN students overcoming the historical and contemporary schooling challenges that threaten a positive academic identity in schools.

Social support approaches are recognized for the capability to improve and safeguard various psychological, socio-emotional, and academic domains (DuBois & Karcher, 2013; DuBois et al., 2011) and have been widely researched (Chambers et al., 2006). Often social support is operationalized by a number of general or specific terms to gauge different types of support (Malecki & Demaray, 2002). Academic support, a facet of social support, has not been as clearly defined or investigated in research, especially within AI/AN student populations.

### **Summary of Literature and Hypotheses**

When examining culturally responsive approaches to AI/AN academic achievement, identity and academic support is key. There is a large body of research on the influence of social support for mainstream students in educational settings, but few studies include AI/AN samples. Research is especially limited in showing which or if all salient relationships (i.e. parent/family, teachers, peers) are important predictors of AI/AN student's self-concept in math and reading. AI/AN cultural identity has been more frequently researched in academic domains, but minimal studies include gender identity and the benefits of perceived academic support. This secondary analysis study draws upon available literature and the theoretical framework previously discussed. The hypotheses are as follows:

**Hypothesis 1:** *The source of academic support from teachers/other adults in school, parent/family, and peers and type of support (i.e. homework help and academic planning support) will differentially predict self-concept in math and reading.*

- Parental influence shows decreases in truancy and increases academic achievement in both mainstream and AI/AN students (Epstein, 1996; Hossain & Anziano, 2008), a meta-analysis of 50 studies showed no contribution of homework assistance (Hill & Tyson, 2009). Thus, parent/family academic planning support will predict self-concept in math and reading, but homework support will not.
- Teacher support will predict self-concept in math and reading. In high-risk groups, teacher support was statistically significant in predicting achievement in reading and mathematics (Chambers, Hylen, & Schreiber, 2006). A caveat to this prediction, AI/AN students are only minimally represented in Chambers et al. (2006) study. Also, the NIES secondary data set does not specify if support from teachers is domain specific or whether it measures the quality of relationship.
- In two separate studies, (Capella and Weinsten, 2001; Nettles et al., 2002) found peer relationships were not a significant factor in reading or math achievement within high-risk groups. Bock (2006) study showed AI/AN students tended to care more about teacher support than peer support. Thus, Peer support will not predict self-concept in math and reading.

**Hypothesis 2:** *AI/AN identity (cultural knowledge and participation) will not predict self-concept in math and reading.*

- Overall, AI/AN identification will have no direct relationship with self-concept in math and reading. According to López et al. (2013), cultural knowledge and participation did not relate to academic achievement in reading, but they did not include math achievement. Often academic self-concept is correlated with achievement. Therefore, there should be similar results.

**Hypothesis 3:** *There will be gender differences in math and reading self-concept.*

- By the sixth grade, significant gender differences are found with boys having higher self-concept in math and girls in language arts (Jacobs et al., 2002). Thus, AI/AN eighth grade boys will have a higher self-concept in math achievement than girls, and girl a higher self-concept in reading than boys.

### Chapter 3: Methods

This correlational study utilized the National Indian Education Study (NIES) 2011 secured secondary data set to examine aspects of identity and academic support influences on AI/AN student's self-concept in math and reading. The NIES 2011 data set is divided into two major sections addressing (a) traditional NAEP data, and (2) data on broader educational experiences that are specific to AI/AN culture. For the purpose of this dissertation, only the NIES student survey variables are analyzed for students in grade eight. The NIES student survey is 25 items that ask students questions about their educational experiences (see Appendix A for entire survey), specifically regarding questions about their perceptions of themselves, their families, communities, schools, and classrooms (National Center for, E. S., 2012b). For future studies that include the NIES secondary data set, the technical manual and support needs to be adequately addressed. The technical manual includes an inaccurate syntax, which limited the statistical analysis in this dissertation study. Numerous attempts were made to address this issue with the National Center for Education Statistics with no response received. Further follow up will be made in hopes to improve the technical manual and support to better serve American Indian and Alaska Native research. This study can expand upon the limited quantitative research that includes large AI/AN student samples.

#### Participants

**Description.** The NIES 2011 secondary data set includes 10,300 grade eight students from a nationally representative sample from approximately 2,000 schools – public, private, Department of Defense, and Bureau of Indian Education funded schools (National Center for, E. S., 2012a). The schools sampled are located in 12 different states: Alaska, Arizona, Minnesota,

Montana, New Mexico, North Carolina, North Dakota, Oklahoma, Oregon, South Dakota, Utah and Washington.

**NAEP/NIES sampling processing.** NIES/NAEP's complex sampling process is designed to gather student data on a national and regional level by various school types (public, private, BIE, Department of Defense), school density (e.g. percentage of a minority population), geographic regions (metropolitan, rural), gender, ethnicity, grade cohorts, and etc. The sampling strategy is complex because of the number of subgroups that NAEP seeks to represent on a regional and national level; thus this requires multi-stage sampling. According to Rust and Johnson (1992), NAEP multistage probability sampling design has three different stages. The first stage, the primary sampling unit (PSU), geographic regions and counties are selected through the stratification sampling process. Stratification is used on the regional level to ensure some of the key subgroups are included in those regions. The second stage is the primary and secondary schools, which are randomly selected within the PSUs. The third stage is students systematically selected from within the schools, with specific subpopulations oversampled (Rust & Johnson, 1992). To ensure the populations are adequately represented with probability, the chosen subgroups were stratified. The following states were oversampled to ensure adequate AI/AN population: Arizona, Minnesota, North Carolina, Oregon, Utah, and Washington.

### **Secured Data Management**

All other requirements from the Restricted-Use Data Procedure Manual, IES Data Security Office were followed. For instance, the NAEP/NIES secured secondary data set was stored in locked file cabinet, in authorized locked office space when not in use. Secured office has no unauthorized access. The data set was analyzed on a stand alone desktop computer with no connection to internet or other computers in authorized office space. No other users, except

approved license users, had access to data set at any time. The license data set will be returned to IES Data Security program by security mail once license terminates.

## Measures

Please refer to Appendix A for the sample of the NIES (2011) eighth grade student survey with complete list of all questions. Survey instructions are also provided on survey. The variables included in this dissertation are as follows:

**Academic self-concept.** Academic self-concept is measured by two sub-areas, math and reading, due to previous research identifying the multi-dimensionality of self-concept and gender differences (Marsh & Craven, 2006; Marsh et al. 2005; Shavelson et al. 1976; Jacobs, 2002).

**Math Self-concept.** Perceived math self-concept is measured by a Likert-scale question: How do you rate yourself in math?

**Reading Self-concept.** Perceived reading self-concept is measured by a Likert-scale question: How do you rate yourself in reading?

**Academic support.** Previously defined, the term academic support drawn from refers to direct or indirect social influence from salient individual(s) (i.e. teacher/other adult in school, parent, or peer) that provides at least one of the multiple types of support (instrumental, emotional, appraisal, or informational) towards enhancing a student's (cognitive, affective, and behavioral) functioning in an academic domain(s) (Chen, 2005; Wentzel, 1993, 1998; Malecki & Demaray, 2002, 2006). In this dissertation study, academic support is delineated by (a) homework support (i.e. instrumental) and (b) academic course/future planning support (i.e. informational).

**Homework support.** Academic support has three levels for IV (teachers/other adult(s) from school, parent/family, and peers). The question is: how often do any of the following

people help you with your schoolwork? (a) Teachers or other adult(s) at school, (b) parent/family, (c) peers.

***Academic planning support.*** Academic planning support has three levels of the IV (parent/family, teachers, or peers). During the 8th grade, how many times have you talked to each of the following people about the classes you should take in high school or about what you want to do after high school? Fill in one oval on each line. (a) A family member, (b) teacher, and (c) another student.

**AI/AN identity.** A facet of AI/AN identity is measured by two questions representing student's AI/AN knowledge and cultural participation.

***AI/AN knowledge.*** AI/AN knowledge is measured by the following three-part items. How much do you know about each of the following? (a) Your own AI/AN history. (b) Your own AI/AN traditions and culture (way of life, customs). (c) Issues today that are important to AI/AN people.

***Cultural participation.*** Cultural participation is measured by the following three-part items. How often have you participated in each of the following? (a) Ceremonies and gatherings for people from your AI tribe or AN group. (b) Ceremonies and gatherings that bring people together from many different AI tribes or AN group. (c) Other AI/AN activities.

**Gender.** When examining aspects of self-concept and achievement, there have been clear gender differences (Whitesell et al., 2006, 2009; Marsh et al. 2005; Jacobs et al., 2002). In this NIES secondary data set, gender is considered male or female.

### **Data analysis.**

Multiple linear regression analysis was used to examine the relationships among academic support and AI/AN identity variables that predict self-concept in math and reading.

Gender differences were also examined. Data was analyzed using the AM software, which was specifically designed for compatibility with the NAEP/NIES secondary data set. The NIES secondary data set file was imported to SPSS from NAEPEX to create a syntax file; then, study variables, original weights and student replicated weights were selected. Data was imported into AM software for regression analysis. All predictor variables were set to dummy codes so that variables were treated as categorical per NAEP/NIES technical support. Only lowest category and highest category was included in all regression analyses. See Tables 1 – 2 for descriptive statistics and weights. See Tables 3 – 6 for regression analysis results.

***Sampling weights.*** According to Mislevy (1998) complex sample designs consist of (a) unequal probabilities to be included in the sample, (b) stratification, and (c) clustering. The complex sampling design requires weights to adjust for nonresponse of students and schools because of the differential probabilities of selection from stratification and oversampling specific subgroups (Rust & Johnson, 1992). Sampling weights are described as the inverse proportion of the probability of being selected (Mislevy, 1998). To address this issue, a set of replicate weights are assigned by using a method called jackknife to reduce the large sampling variance (National Center for, E. S., 2012b). The replication method jackknife is embedded in the AM Software; thus, the replication method was set to JK2 in the analysis (National Center for, E. S., 2012c). The replication weights provide sampling variance estimations of each portion of the sample, which the process includes, and repeated selection of the sample to determine a set of replicate weights (National Center for, E. S., 2012b). Please see Efron and Stein (1981) for detailed statistical analysis and theory of jackknife and its handling of its own bias estimates of variance.

## Chapter 4: Results

The first set of analyses provides descriptive statistics for the two dependent variables (DVs) math and reading self-concept (see Table 1) and all predictor variables (see Table 2) delineated by “all students,” male, and female. Overall estimation weights and 62 replicate weights were included. Gender differences were found as predicted. Based on a four point rating scale, males have a higher self-concept in math and females in reading. On average, males rated themselves 0.129 points higher in math than females,  $t(4.556) = 2.499, p < .001$ . Whereas, females rated themselves 0.187 points higher in reading,  $t(6.663) = 8.221, p < .001$ . The gender differences found in the initial analysis supported including gender as a factor in regressions.

Table 1.  
*Descriptive Statistics for Dependent Variables*

	All				Male				Female			
	<i>n</i>	<i>WTD n</i>	<i>M</i>	<i>SE</i>	<i>n</i>	<i>WTD n</i>	<i>M</i>	<i>SE</i>	<i>n</i>	<i>WTD n</i>	<i>M</i>	<i>SE</i>
Math	10204	39218	2.617	0.021	5017	19182	2.683	0.028	5187	20036	2.554	0.023
Reading	10236	39350	2.781	0.023	5039	19295	2.685	0.027	5197	20055	2.872	0.028

*Note.* *n* = total number of students who responded to relevant survey question. Weighted *n* (*WTD n*) represents projected estimates of total population with similar characteristics. Standard errors (*SE*) account for NIES complex sampling design. Jackknife replication method was used to estimate sampling variability that included overall estimation weights and 62 replicate weights (see text for details).

Table 2.  
*Descriptive Statistics for Predictor Variables*

	All				Male				Female			
	<i>n</i>	<i>WTD n</i>	<i>M</i>	<i>SE</i>	<i>n</i>	<i>WTD n</i>	<i>M</i>	<i>SE</i>	<i>n</i>	<i>WTD n</i>	<i>M</i>	<i>SE</i>
AI/AN Knowledge	10084	38825			4950	18954			5134	19870		
History			2.779	0.021			2.788	0.025			2.771	0.029
Traditions			2.572	0.023			2.525	0.027			2.618	0.029
Important issues			2.322	0.022			2.32	0.027			2.324	0.029
Cultural Participation	10128	38905			4965	18956			5163	19949		
Ceremonies/gatherings			2.402	0.034			2.367	0.035			2.436	0.045
Many group gatherings			2.164	0.029			2.103	0.029			2.222	0.038
Other AI/AN activities			2.191	0.025			2.153	0.027			2.227	0.034
Homework support	10124	38928			4971	19053			5153	19875		
Parent/family			2.483	0.018			2.424	0.024			2.541	0.021
Teacher			2.567	0.024			2.486	0.03			2.645	0.029
Peer			2.382	0.023			2.231	0.03			2.526	0.03
Academic planning	10389	39793			5147	19582			5242	20212		
Parent/family			3.087	0.018			3.03	0.029			3.143	0.027
Teacher			2.176	0.024			2.165	0.031			2.187	0.028
Peer			2.893	0.021			2.713	0.029			3.068	0.029

*Note.* *n* = total number of students who responded to relevant survey question. Weighted *n* (*WTD n*) represents projected estimates of total population with similar characteristics. Standard errors (*SE*) account for NIES complex sampling design. Jackknife replication method was used to estimate sampling variability that included overall estimation weights and 62 replicate weights (see text for details).

The second set of analyses utilized multi-linear regression to examine the relationship between both facets of academic support and AI/AN identity in predicting self-concept in math and reading. Four models were selected to test the relationship between all predicting variables with self-concept in math and reading: (a) model 1 – homework support by parent/family, teacher/adult in school, and peers (IVs) and self-concept in math (DV) and reading (DV), (b) model 2 – academic planning support by parent/family, teacher/other adult in school, and peers (IVs) and self-concept in math (DV) and reading (DV), (c) model 3 - AI/AN knowledge of history, traditions and culture, and important AI/AN issues (IVs) and self-concept in math (DV) and reading (DV), (d) model 4 – AI/AN cultural participation in own AI/AN ceremonies/gatherings, many AI/AN ceremonies/gatherings, and other AI/AN activities (IVs) and self-concept in math (DV) and reading (DV). All estimates are centered on overall weight and 62 replicate weights were incorporated in analyses. All predictor variables are categorical and DVs are on a 4 point rating scale, poor to very good. The estimates reported in results represent average student self-rating score in math or reading in comparison to the constant. The constant numbers for each model are provided in results tables.

### **Academic Support.**

Two models (homework help and academic planning support) were utilized to examine three sources of academic support (i.e., parent/family, teachers/other adults in school, and peers) in predicting self-concept in math and reading. Overall, parent/and family academic support, particularly academic planning had the strongest influence on predicting math and reading self-concept. Moreover, the academic planning support model had more positive associations with self-concept in math and reading than homework help.

**Homework help.** In model 1 (see table 3 for all results), homework help was measured

by two frequency categories: 1) never or hardly ever receiving homework help, and 2) receiving homework help every day or almost every day. Students who reported never or hardly ever receiving homework help from their parents/family reported a significant decrease of 0.102 in math self-concept,  $p < .05$ , and decrease of 0.066 points in reading self-concept,  $p < .10$ . A significant decrease of 0.18 points in math self-concept only occurred in female students,  $p < .01$ . There was no significant relationship found with male math self-concept scores, a decrease of 0.033 points,  $p > .05$ . In reading self-concept, there was no significant relationship with male students, a decrease of 0.102 points,  $p < .10$ , or with female students, a decrease of 0.31 points,  $p > .05$ . Conversely, students who reported receiving homework help every day or almost every day from their parents/family had a significant increase of 0.090 points in math self-concept,  $p < .05$ , and near significant increase of 0.073 points in reading self-concept,  $p < .10$ . When delineated by gender, these relationships were no longer significant, but there were some marginal associations. Males increased by 0.108 points in math self-concept,  $p < .10$  and females increased by 0.070 points,  $p < .10$ . In reading self-concept, male scores had an increase of 0.054 points,  $p > .05$ . Females scores had an increase of 0.083 points,  $p < .10$ .

Teacher/other adult and peer homework support appeared to have minimal influence on academic self-concept in this analysis. The lack of teacher/other adult homework support did not have a significant influence on self-concept in math and reading, contrary to prediction. The only significant relationship that was found between teacher/other adult homework support and self-concept in math and reading was an inverse relationship. For students who reported receiving help every day or almost every day had a decrease of 0.092 points of reading self-concept,  $p < .05$ . Frequent help from a teacher may indicate that a student is struggling in reading or needs remedial help. Thus, receiving frequent homework help is not a positive

experience that boosts confidence. As predicted, peer homework help had no significant relationship to self-concept in math or reading (see Table 3 for results).

Table 3.  
*Multiple Linear Regression: Homework Support in Predicting Math and Reading Self-Concept*

	All Students		Male		Female	
	Math	Reading	Math	Reading	Math	Reading
<i>Constant</i>	2.731 (0.041)	2.746 (0.039)	2.712 (0.044)	2.747 (0.040)	2.606 (0.039)	2.931 (0.051)
<i>Gender</i>	-0.144*** (0.030)	0.182*** (0.030)				
<i>Homework support</i>						
Parent/family - never/hardly ever	-0.102* (0.042)	-0.066 <sup>†</sup> (0.039)	-0.033 (0.060)	-0.102 <sup>†</sup> (0.053)	-0.18** (0.062)	-0.031 (0.063)
Parent/family - every day or almost	0.090* (0.038)	0.073 <sup>†</sup> (0.037)	0.108 <sup>†</sup> (0.063)	0.054 (0.046)	0.070 <sup>†</sup> (0.042)	0.083 <sup>†</sup> (0.049)
Teacher - never/hardly ever	-0.050 (0.050)	-0.098 <sup>†</sup> (0.051)	-0.030 (0.065)	-0.061 (0.055)	-0.073 (0.063)	-0.141 <sup>†</sup> (0.081)
Teacher - every day or almost	-0.049 <sup>†</sup> (0.026)	-0.092* (0.044)	-0.063 (0.060)	-0.120 <sup>†</sup> (0.063)	-0.036 (0.047)	-0.068 (0.047)
Peer - never/hardly ever	-0.029 (0.040)	0.000 (0.033)	-0.029 (0.045)	0.040 (0.046)	-0.035 (0.063)	-0.053 (0.060)
Peer - every day or almost	0.003 (0.040)	-0.079 (0.046)	-0.019 (0.055)	-0.110 (0.070)	0.016 (0.062)	-0.067 (0.063)

*Note.* Estimates represent student self-rating scores in math and reading in comparison to constant. In parentheses, standard errors account for NIES complex sampling design. Jackknife replication method was used to estimate sampling variability that included overall estimation weights and 62 replicate weights (see text for details).

<sup>†</sup>  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

**Academic planning support.** In model 2 (see table 4 for all results), academic planning support in this analysis consists of receiving guidance in course planning in high school or discussing future plans after high school during the eighth grade year. Two frequency categories were used: 1) never, and 2) four or more times. As predicted, parent/family academic planning support showed a strong relationship with self-concept in math and reading. Students who reported never talking to their parents about academic plans during their eighth grade year had a decrease of 0.089 points in math self-concept,  $p < .10$ , and decrease of 0.231 points in reading self-concept,  $p < .001$ . When delineated by gender, females had a significant decrease of 0.148

points in math self-concept,  $p < .05$ , while male math self-concept did not significantly relate, a decrease of 0.046 points,  $p > .05$ . In reading self-concept, the opposite was found. Males had a significant decrease of 0.255 points in reading self-concept,  $p < .01$ ; yet females had a decrease of 0.194 points,  $p < .10$ . In contrast, students who reported receiving academic planning support from their family four or more times during their eighth grade year strongly predicted an increase of 0.234 points in math self-concept,  $p < .001$ , and increase of 0.232 points in reading self-concept,  $p < .001$ . The gender patterns were equally strong. For males, math self-concept significantly increased by 0.246 points,  $p < .001$ , and reading self-concept significantly increased by 0.228 points,  $p < .001$ . For females, math self-concept significantly increased by 0.226 points,  $p < .001$ , and reading self-concept significantly increased by 0.240 points,  $p < .001$ . It appears that parent/family academic planning support influences academic self-concept, positively and negatively, depending on the level of involvement.

Contrary to prediction, teacher academic planning support only showed a significant relationship with math self-concept for all students, but not so with reading self-concept or by gender. However, the lack of teacher support appeared to have the strongest impact on self-concept in math and reading, specifically relating to decreased academic self-concept. As predicted, students who reported never talking to teachers about academic plans during their eighth grade year had a significant decrease of 0.185 points in math self-concept,  $p < .001$ , and decrease of 0.100 points in reading self-concept,  $p < .001$ . The gender patterns were similar. For males, there was a decrease of 0.206 points in math self-concept,  $p < .001$ , and decrease of 0.093 points in reading self-concept,  $p < .05$ . Females had a decrease of 0.159 points in math self-concept,  $p < .001$ , and decrease of 0.110 points in reading self-concept,  $p < .05$ . The lack of teacher academic planning support seems to have a stronger influence on math self-concept than

reading self-concept, although all relationships are statistically significant. Contrary to prediction, students who reported talking to teachers four or more times about academic plans during their eighth grade year had significantly higher math self-concept, an increase of 0.138 points,  $p < .05$ . There was no relationship with reading self-concept, a decrease of 0.019,  $p > .05$ . When delineated by gender, there were no significant relationships except for a marginal relationship with math. Males had an increase of 0.135 points in math self-concept,  $p < .10$ , and females had an increase of 0.149 points,  $p < .10$ .

Peer academic planning support seems to be more influential with female students over male students. As predicted, students who reported never talking to their peers about courses in high school or future academic plans in their eighth grade year had no significant relationship with math self-concept, a decrease of 0.054 points,  $p > .05$ , or reading self-concept, a decrease of 0.043 points,  $p > .05$ . There were also no significant associations by gender. Students who reported talking to their peers about courses in high school or future academic plans in their eighth grade year had a significantly higher reading self-concept contrary to prediction, an increase of 0.096,  $p < .01$ , but no significant relationship with math self-concept as predicted, an increase of 0.058 points  $p < .10$ . For females, peer relationship positively predicted math self-concept contrary to prediction, an increase of 0.116 points,  $p < .05$ , and reading self-concept, an increase of 0.118 points,  $p < .05$ . As predicted, there was no significant relationship found with male math self-concept scores, a decrease of 0.019 points,  $p > .05$ , or reading self-concept, an increase of 0.053 points,  $p > .05$ .

Table 4.  
*Multiple Linear Regression: Academic Planning Support in Predicting Math and Reading Self-Concept*

	All Students		Male		Female	
	Math	Reading	Math	Reading	Math	Reading
<i>Constant</i>	2.667 (0.033)	2.653 (0.035)	2.687 (0.041)	2.656 (0.040)	2.471 (0.040)	2.795 (0.043)
<i>Gender</i>	-0.171*** (0.028)	0.145*** (0.026)				
<i>Academic planning</i>						
Parent/family - never	-0.089 <sup>†</sup> (0.050)	-0.231*** (0.062)	-0.046 (0.086)	-0.255** (0.085)	-0.148* (0.068)	-0.194 <sup>†</sup> (0.097)
Parent/family - four or more times	0.234*** (0.045)	0.232*** (0.034)	0.246*** (0.060)	0.228*** (0.059)	0.226*** (0.048)	0.240*** (0.046)
Teacher - never	-0.185*** (0.033)	-0.100*** (0.027)	-0.206*** (0.051)	-0.093* (0.040)	-0.159*** (0.042)	-0.110* (0.045)
Teacher - four or more times	0.138* (0.061)	-0.019 (0.047)	0.135 <sup>†</sup> (0.072)	-0.069 (0.068)	0.149 <sup>†</sup> (0.081)	0.036 (0.055)
Peer - never	-0.054 (0.047)	-0.043 (0.039)	-0.065 (0.062)	0.012 (0.050)	-0.040 (0.071)	-0.134 <sup>†</sup> (0.069)
Peer - four or more times	0.058 <sup>†</sup> (0.031)	0.096** (0.035)	-0.019 (0.056)	0.053 (0.052)	0.116* (0.046)	0.118* (0.049)

*Note.* Estimates represent student self-rating scores in math and reading in comparison to constant. In parentheses, standard errors account for NIES complex sampling design. Jackknife replication method was used to estimate sampling variability that included overall estimation weights and 62 replicate weights (see text for details).

<sup>†</sup>  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

### AI/AN Identity

The last two models analyzed aspects of AI/AN identity (student's AI/AN knowledge and cultural participation) in predicting self-concept in math and reading. Most relationships were not significant as predicted. See Tables 5 for complete results of model three – cultural knowledge and see Table 6 for results of model four – cultural participation. Contrary to prediction, there are some significant relationships that will be discussed in the following two sections. For instance, it appears that AI/AN knowledge had more positive associations with female self-concept in math and reading than with male self-concept in math and reading. Conversely, cultural participation had one positive association with male math self-concept, and

only one inverse relationship with female reading self-concept. Other significant relationships found will be discussed.

**AI/AN knowledge.** Students who reported knowing a lot about today's important AI/AN issues had a significantly higher reading self-concept, an increase of 0.154 points,  $p < .01$ . Specifically, females who reported knowing a lot about AI/AN issues had a significantly higher reading self-concept, an increase of 0.219 points,  $p < .001$ . No significant relationship was found with male student reading self-concept, an increase of 0.043 points,  $p > .05$ . Students who reported knowing nothing about today's important AI/AN issues, had a significant decrease of 0.095 points in math self-concept,  $p < .05$ . When delineated by gender, females had a significant decrease of 0.117 points in math self-concept,  $p < .05$ . There was no significant relationship found with male math self-concept scores, a decrease of 0.066 points,  $p > .05$ . There was also no significant relationships found between students who reported knowing a lot about their own AI/AN history or traditions/culture and self-concept in math and reading (see Table 5). Female students, however, who reported knowing a lot about their own AI/AN history had a significantly higher math self-concept, an increase of 0.117 points,  $p < .05$ . Male students who reported knowing a lot about their own traditions and culture had a decrease of 0.105 points in reading self-concept,  $p < .05$ . It appears that gender is an important factor when examining these types of cultural identity variables in relationship to self-concept in math and reading.

Table 5.  
*Multiple Linear Regression: AI/AN Knowledge in Predicting Math and Reading Self-Concept*

	All Students		Male		Female	
	Math	Reading	Math	Reading	Math	Reading
<i>Constant</i>	2.689 (0.033)	2.662 (0.032)	2.719 (0.039)	2.661 (0.039)	2.526 (0.029)	2.843 (0.039)
<i>Gender</i>	-0.133*** (0.028)	0.181*** (0.028)				
AI/AN Knowledge						
History - nothing	0.126 (0.094)	0.034 (0.063)	0.171 (0.106)	0.049 (0.106)	0.080 (0.118)	0.016 (0.074)
History - a lot	0.041 (0.035)	-0.017 (0.041)	-0.041 (0.039)	0.020 (0.043)	0.117* (0.050)	-0.049 (0.059)
Traditions and culture - nothing	0.006 (0.054)	-0.051 (0.044)	-0.111 (0.070)	-0.105* (0.047)	0.117 (0.076)	-0.001 (0.081)
Traditions and culture - a lot	-0.095 (0.038)	0.015 (0.043)	-0.031 (0.042)	0.035 (0.042)	-0.020 (0.057)	0.000 (0.058)
Important issues - nothing	-0.095* (0.032)	0.055 (0.035)	-0.066 (0.051)	0.082 <sup>†</sup> (0.049)	-0.117* (0.053)	0.034 (0.053)
Important issues - a lot	0.049 (0.041)	0.154** (0.048)	0.061 (0.053)	0.078 (0.056)	0.043 (0.058)	0.219*** (0.057)

*Note.* Estimates represent student self-rating scores in math and reading in comparison to constant. In parentheses, standard errors account for NIES complex sampling design. Jackknife replication method was used to estimate sampling variability that included overall estimation weights and 62 replicate weights (see text for details).

<sup>†</sup>  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

**Cultural participation.** Students who reported attending their own AI/AN gatherings and ceremonies several times per year had a significant decrease of 0.125 points in reading self-concept,  $p < .001$ , but no relationship was found with math self-concept, a decrease of 0.057 points,  $p > .05$ . The significant relationship occurred in female reading self-concept scores, a decrease of 0.180 points,  $p < .01$ , but not in male reading self-concept scores, a decrease of 0.054 points,  $p > .05$ . This inverse trend could be due to student's preference for oral storytelling over mainstream literacy practices. AI/AN students who are highly involved in their own cultural gatherings and ceremonies are most likely exposed to traditional oral storytelling and may develop a preference for or familiarity with oral storytelling. Other significant relationships were

found, contrary to prediction. Students who reported attending several gatherings and ceremonies that brought together many AI/AN tribes or groups had a significantly higher math self-concept, an increase of 0.091 points,  $p < .05$ . When delineated by gender, there was only a marginal relationship found with male math self-concept, an increase of 0.079 points,  $p < .10$ , and with female reading self-concept, an increase of 0.098 points,  $p < .10$ . Students who reported attending several other AI/AN activities had a significant increase of 0.096 in math self-concept,  $p < .05$ , and an increase of 0.082 points in reading self-concept,  $p < .05$ . When examining gender differences, only males had a significant increase of 0.096 points in math self-concept,  $p < .05$ , but the increase of 0.098 in reading self-concept was not significant,  $p < .10$ . There were no significant relationships found with female self-concept in math and reading.

Table 6.  
Multiple Linear Regression: AI/AN Cultural Participaton in Predicting Math and Reading Self-Concept

	All Students		Male		Female	
	Math	Reading	Math	Reading	Math	Reading
<i>Constant</i>	2.654 (0.030)	2.65 (0.033)	2.656 (0.033)	2.636 (0.040)	2.517 (0.039)	2.855 (0.043)
<i>Gender</i>	-0.134*** (0.028)	0.193*** (0.029)				
<i>Cultural Participation</i>						
Own AI/AN ceremonies/gatherings - never	-0.134 (0.028)	0.064 (0.074)	0.079 (0.079)	0.043 (0.066)	0.090 (0.069)	0.080 (0.097)
Own AI/AN ceremonies/gatherings - several	-0.057 (0.041)	-0.125*** (0.036)	-0.061 (0.054)	-0.066 (0.049)	-0.054 (0.061)	-0.180** (0.064)
Many AI/AN groups' ceremonies/gatherings - never	0.023 (0.039)	0.089* (0.037)	0.013 (0.069)	0.092 <sup>†</sup> (0.049)	0.032 (0.060)	0.088 (0.061)
Many AI/AN groups' ceremonies/gatherings - several	0.091* (0.036)	0.061 <sup>†</sup> (0.032)	0.079 <sup>†</sup> (0.047)	0.022 (0.051)	0.099 (0.060)	0.098 <sup>†</sup> (0.058)
Other AI/AN activities - never	-0.059 (0.047)	-0.049 (0.044)	-0.044 (0.058)	-0.029 (0.059)	-0.073 (0.076)	-0.067 (0.064)
Other AI/AN activities - several	0.096* (0.038)	0.082* (0.036)	0.096* (0.044)	0.098 <sup>†</sup> (0.053)	0.098 (0.062)	0.069 (0.047)

*Note.* Estimates represent student self-rating scores in math and reading in comparison to constant. In parentheses, standard errors account for NIES complex sampling design. Jackknife replication method was used to estimate sampling variability that included overall estimation weights and 62 replicate weights (see text for details).

<sup>†</sup>  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

## Chapter 5: Discussion

### Results Overview

Self-concept is a multi-dimensional construct that is widely defined in research (Marsh et al., 2005, 2006; Shavelson et al., 1976) and varies in its relationship to academic achievement. A number of researchers have argued that positive self-concept relates to academic achievement (Whitesell et al., 2006, 2009; Marsh et al., 2005, 2006); nonetheless, the specificity of the construct as it relates to academic domains warrants a multi-dimensional approach. The results of this dissertation research highlight the benefits of considering a multi-dimensional approach in examining the influence of both academic support and identity on academic self-concept, because of the unique relationships found. The results will be discussed as they pertain to hypotheses.

**Hypothesis 1.** *The source of academic support from teachers/other adults in school, parent/family, and peers and type of support (i.e. homework help and academic planning support) will differentially predict self-concept in math and reading.* One of the evident findings in this dissertation is that parent/family support appeared to have the strongest relationship in predicting self-concept in math and reading. Parent/family academic support was hypothesized to predict self-concept in math and reading, but homework help was not. In support of this hypothesis, academic planning support from parent/family was a highly significant predictor for math and reading self-concept across all students and by gender. These findings are consistent with research that shows that parent/family support enhances academic achievement (Epstein, 1996; Hossain & Anziano, 2008), while expanding the research to include academic planning support for eighth grade AI/AN students. Contrary to hypothesis, homework help by parents/family did predict math self-concept for all students. When gender differences were

examined, there was no longer a significant relationship with math self-concept. Although these relationships were not significant, the results show a trend of lower academic self-concept when students lacked homework help from their parents/family versus higher academic self-concept for those who received frequent help. Prior studies on homework support from parents have shown mixed results (Hoover-Dempsey et al., 2001). Two studies found a minimal to even negative relationship with academic achievement (Hill & Tyson, 2009; Hoover-Dempsey et al., 2001). Patall and colleagues' (2008) meta-analysis found parental homework help provided academic benefits for grade school and high school students, but not middle school students. In AI/AN communities, parent and extended families are highly important (Pewewardy, 2002; Ledesma, 2007; Garrett et al, 2003), so this degree of influence makes sense for AI/AN middle school students.

Teacher support did not appear to have as strong of an influence on academic self-concept as previously hypothesized. For instance, the only significant relationship that was found between teacher/other adult homework support and self-concept in math and reading was an inverse relationship. Students who reported receiving frequent homework help from teachers had a significantly lower reading self-concept. As previously discussed, this could be due to the stigma of receiving frequent homework help from teachers indicate academic deficiencies. Interestingly, the lack of teacher academic planning support was highly associated with lower self-concept in math and reading, whereas actual support was minimally related. Academic planning support from teachers did however positively predict math self-concept for all students. It was no longer significant based on gender nor did it predict reading self-concept. In past research, teacher support was found to be an important predictor to math and reading achievement for high-risk groups (Chambers et al., 2006) and reading comprehension scores for

Native Americans students (Bock, 2006). Academic support variables in this dissertation research do not speak to the quality of teacher-student relationship, which is shown to be important to AI/AN students (Higheagle Strong & Jegatheesan, 2014; Cleary & Peacock, 1998; Pewewardy & Hammer, 2003; Pewewardy, 2002). These dissertation results imply that teacher support is important to AI/AN students, although the type of support matters. In addition, the absence of teacher support can negatively impact academic self-concept. Teachers could conclude that their involvement is making little to no impact on student achievement, not realizing that staying involved may buffer students from developing low academic self-concept.

Lastly, peer relationships had minimal associations in predicting self-concept in math and reading as hypothesized. There were no significant relationships found between homework help and academic self-concept. Contrary to hypothesis, students who reported talking to their peers about high school courses or post high school academic plans had a significantly higher reading self-concept for all students. When gender differences were examined, only females were found to have a significant increase in self-concept in math and reading. There were no relationships found for males. In two separate studies, Capella and Weinsten (2001) and Nettles et al. (2002) found peer relationships did not significantly relate to reading or math achievement within high-risk groups, although results were not reported by gender. Most commonly, school outcomes are more often related to adult influence than peer influence (Demaray & Malecki, 2002b). It appears that peer academic planning support can be especially important for AI/AN females.

**Hypothesis 2.** *AI/AN identity (cultural knowledge and participation) will not predict self-concept in math and reading.* Cultural knowledge and cultural participation are important factors to the overall wellbeing of AI/AN children and families. They may not directly correlate to academic achievement per se. Therefore, no significant relationships with self-concept in

math and reading were hypothesized. Enculturation has been found to be positively associated with school success (Whitbeck et al., 2001) and a strong predictor for resilience (LaFromboise et al., 2006). This dissertation research found mixed results. Contrary to hypothesis, students who reported having a lot of cultural knowledge about important AI/AN issues had a higher reading self-concept. There was no relationship found with math self-concept. This pattern was found with female students, but not with male students. Furthermore, female students who had a lot of knowledge about AI/AN history had a significantly higher math self-concept. Students who frequently attended other AI/AN cultural activities in the past year had a higher self-concept in math and reading. And, those who attended several gatherings by many AI/AN tribes or groups also had a significantly higher reading self-concept. All students who reported attending several of their own AI/AN gatherings and ceremonies in past year had significantly lower reading self-concept. When gender differences were examined, this relationship remained significant for female students but not for male students. Gender differences appeared to play an important role in the relationship between AI/AN identity and self-concept in math and reading.

**Hypothesis 3.** *There will be gender differences in self-concept in reading and math.*

More specifically, boys were hypothesized to have a higher math self-concept than girls, and girls would have a higher reading self-concept than boys. This was indeed found. Results are in line with Jacobs et al.'s (2002) study findings that did not include AI/AN students. This is an important finding because to my knowledge there is not a study that examines gender differences between math and reading self-concept with a large AI/AN sample. Other important gender differences were identified in the results of this dissertation. Males who did not receive homework support from their parents/family had significantly lower reading self-concept, but no association with lower math self-concept. The opposite relationship was found for females.

Female students who reported not receiving homework support from parents/family had a significantly lower math self-concept. No relationship found with reading self-concept. It appears that parents/family homework support could buffer the negative trend of males having lower reading self-concept, and females having lower math self-concept. Peer academic planning support was another interesting gender difference. Female students who reported talking with friends four or more times in the last year about academic plans had a higher self-concept in math and reading. Peer relationships did not significantly predict male self-concept in math and reading. There were other gender differences previously discussed.

### **Implications for Research and Practice**

The following sections are recommendations for research and practice as it relates to the dissertation findings and a synthesis of literature.

- 1. Gender should be discussed when examining aspects of identity in academic domains.** When studying constructs of identity in academic domains, there are some clear gender differences. Without gender being included as a factor in the regression models, some important associations would be missed. Specifically, the significant relationships found between AI/AN identity constructs and self-concept in math and reading differed for male and female students. On average, boys tend to report higher self-concept in math than girls (Skaalvik & Skaalvik, 2004; Jacobs et al., 2002; Watt, 2000), while girls report higher self-concept in language arts (Jacobs et al., 2002; Watt, 2000; Wigfield et al., 1997). There are other gender patterns important to student achievement that could be researched to inform educational policies and practice.
- 2. Increase AI/AN parent and family engagement in school and classroom.** Parental

and family involvement in schools and classrooms can improve AI/AN student achievement. In AI/AN families, parental type support can extend to family (grandparents, elders, aunts and uncles, etc.) and all may play a vital role in the development of children (Pewewardy, 2002; Ledesma, 2007; Garrett et al., 2003). Common protocol in traditional AI/AN communities is to wait until you are personally asked before taking on a responsibility. This can be a cultural conflict in mainstream schools because educators often extend general volunteer requests to a number of parents. A parent or family member, who may already be struggling with a sense of belonging in educational settings, may lack confidence to initiate or feel that it is not their place to insert themselves. Children and families can benefit from educators sending personal invitations to parents and extended family to serve in the school and classroom. Students can also benefit from educators encouraging parents and families to talk with their students about academic plans in high school and beyond.

- 3. Strategically increase opportunities for postsecondary preparation, planning, and support.** This dissertation study revealed the benefit of parent/family academic planning support relating to higher self-concept in math and reading, and the cost of lack of teacher academic planning support relating to lower self-concept in math and reading. Postsecondary preparation, planning, and support needs to be strategically designed for AI/AN students. AI/AN families and communities should be included in the program design and implementation process. The interconnectivity between school and AI/AN community can help ensure cultural responsive strategies for postsecondary preparation. Affirming AI/AN culture in school can enhance positive

identity development (Jones and Galliher, 2007) and positive identity promotes academic achievement (Whitesell et al., 2009). Furthermore, AI/AN communities have a number of resources that can provide wrap around support and/or vocational opportunities for AI/AN students. The collaboration with AI/AN communities and schools allows non-AI/AN students to develop positive experiences with AI/ANs and possibly dispel some of the stereotypes and misconceptions.

### **Benefits and Limitations**

The NAEP/NIES secured secondary data set provides information regarding issues important to AI/AN people that surround academic achievement. Furthermore, it is rare to have a data set that includes a large portion of AI/AN students. A limitation of this data is the use of regional and school oversampling needed to obtain a large enough AI/AN sample. This injects bias into the sampling method. To reduce this bias, overall weights and student replication weights were correctly applied through the Jackknife replication procedures. As previously discussed, the technical manual and support was inadequate for this underused data set. This limited the statistical analysis in this dissertation study. Another caveat is that the students represent a wide-range of AI/AN cultures, tribes/villages and urban/rural geographic regions. There can be great variability between regions, tribes, and culture – especially within cultural practices and meanings. Students also attend different school types with a wide-range of practices and available resources. In this sample, 92% were enrolled in public schools, 6% were enrolled in BIE schools, and 2% were enrolled in private or other types of schools. These percentages are similar to the current national school enrollment percentages in the U.S. for AI/AN students (Aud et al., 2012; Faircloth & Tippeconnic, 2010). However, because there is a

small percentage of students who attend BIE and private/other schools in this dissertation sample, results may not be generalized to students in those schools.

### **Conclusion and Future Research**

This dissertation study was intended to provide findings that reflect AI/AN students broadly to help inform further studies that could address more specific AI/AN tribes/clans and communities. Research addressing AI/AN academic achievement remains limited. This dissertation study also seeks to expand research on strategies to improve AI/AN academic self-concept. Academic support is one avenue to improve academic self-concept. AI/AN students report less social support than other minority populations (Demaray & Malecki, 2002a). According to these dissertation findings, the source and type of support matters in the degree of influence on self-concept in math and reading. Further research should examine teacher qualities and types of support that most relates to achievement and positive self-concept in various academic domains. Studies could also further examine the complex relationship between cultural identity and achievement, from a qualitative and quantitative approach. Lastly, further research that includes the NAEP/NIES variables could compare findings from this study of 8<sup>th</sup> grade students to 4<sup>th</sup> grade students and/or to conduct multi-level analysis to examine differences between school types, AI/AN population density and geographic regions.

## Appendix A

NAEP/NIES (2011) Survey Questions



### Student Questionnaire <

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**2011 <**  
**Grade 8 <**



### DIRECTIONS

In this booklet you will be asked about yourself, your education, and your family. Please answer these questions the best that you can. There are no wrong answers to any of the questions.

For some questions the choices will be written **down** the page as in Example 1. Read the example and fill in the oval that best describes you.

***Example 1***

1. Which of these do you enjoy doing more?

- Ⓐ Reading a book
- Ⓑ Playing a game with friends

You should have filled in the oval beside the activity you enjoy doing more.

The choices for some other questions will be written **across** the page as in Example 2. Read the example and fill in one oval on each line.

***Example 2***

2. How often do you do each of the following things? Fill in **one** oval on each line.

	Never or hardly ever	Once or twice a month	Once or twice a week	Almost every day
a. Read a book	Ⓐ	Ⓑ	Ⓒ	Ⓓ
b. Play a game with friends	Ⓐ	Ⓑ	Ⓒ	Ⓓ

Make your answer marks clear and dark in the ovals. If you make a mistake or want to change your answer, be sure to completely erase any unwanted marks.

For a few questions you will be asked to print your answers. Please PRINT LEGIBLY on the lines provided.

You will be told when to begin and to stop.



## SECTION 1

## Section 1

## National Indian Education Study

### Grade 8 Student Questionnaire

Some of the questions are about your American Indian or Alaska Native background. When you answer these questions, think about the American Indian tribe or Alaska Native group to which you and your family belong. You may call your tribe or group a nation, a village, a band, or a community.

If you are connected to more than one American Indian tribe or Alaska Native group, answer for the one you know best.

1. How much do you know about each of the following? Fill in **one** oval on each line.

VC996578

	Nothing	A little	Some	A lot	
a. Your American Indian or Alaska Native history	<input type="radio"/> A	<input type="radio"/> B	<input type="radio"/> C	<input type="radio"/> D	VC996581
b. Your American Indian or Alaska Native traditions and culture (way of life, customs)	<input type="radio"/> A	<input type="radio"/> B	<input type="radio"/> C	<input type="radio"/> D	VC996582
c. Issues today that are important to American Indian or Alaska Native people	<input type="radio"/> A	<input type="radio"/> B	<input type="radio"/> C	<input type="radio"/> D	VC996583

2. How often have you participated in each of the following? Fill in **one** oval on each line.

VC996584

	Never	Every few years	At least once a year	Several times a year	
a. Ceremonies and gatherings for people from your American Indian tribe or Alaska Native group	<input type="radio"/> A	<input type="radio"/> B	<input type="radio"/> C	<input type="radio"/> D	VC996586
b. Ceremonies and gatherings that bring people together from many different American Indian tribes or Alaska Native groups	<input type="radio"/> A	<input type="radio"/> B	<input type="radio"/> C	<input type="radio"/> D	VC996587
c. Other American Indian or Alaska Native activities	<input type="radio"/> A	<input type="radio"/> B	<input type="radio"/> C	<input type="radio"/> D	VC996589

## Section 1

3. How often do members of your family talk to each other in your American Indian or Alaska Native language? VC759193
- Ⓐ Never or hardly ever
  - Ⓑ Once or twice a month
  - Ⓒ Once or twice a week
  - Ⓓ Every day or almost every day
4. How often do people in your school talk to each other in your American Indian or Alaska Native language? VC759195
- Ⓐ Never or hardly ever
  - Ⓑ Once or twice a month
  - Ⓒ Once or twice a week
  - Ⓓ Every day or almost every day
5. During 8th grade, how often have any of your teachers talked to your class about the history, traditions, and cultures (ways of life, customs) of American Indian or Alaska Native people? VC996590
- Ⓐ Never or hardly ever
  - Ⓑ Once or twice a month
  - Ⓒ Once or twice a week
  - Ⓓ Every day or almost every day

Section 1
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6. During 8th grade, have you attended any of the following through your school? Fill in **one** oval on each line.

VC996592

	Yes	No, but other 8th-grade students did.	Not offered to 8th-grade students	
a. Presentations by American Indian or Alaska Native people about their traditions and cultures (ways of life, customs)	<input type="radio"/> A	<input type="radio"/> B	<input type="radio"/> C	VC996594
b. American Indian or Alaska Native art and craft demonstrations	<input type="radio"/> A	<input type="radio"/> B	<input type="radio"/> C	VC996613
c. Traditional American Indian or Alaska Native music and/or dance performances	<input type="radio"/> A	<input type="radio"/> B	<input type="radio"/> C	VC996615
d. Field trips to museums, traditional villages, or other places to learn about American Indian or Alaska Native people	<input type="radio"/> A	<input type="radio"/> B	<input type="radio"/> C	VC996616

7. During 8th grade, have you used any of the following materials? Fill in **one** oval on each line.

VC996617

	Yes	No	
a. Books, videos, websites, or computer software about American Indian or Alaska Native history, traditions, and cultures (ways of life, customs)	<input type="radio"/> A	<input type="radio"/> B	VC996619
b. Books, videos, websites, or computer software about current issues that are important to American Indian or Alaska Native people	<input type="radio"/> A	<input type="radio"/> B	VC996620

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8. During 8th grade, have you used any of the following materials from your school library?  
Fill in **one** oval on each line.

VC996621

- |   | Yes                     | No                      |          |
|---|-------------------------|-------------------------|----------|
| a. Books, videos, websites, or computer software about American Indian or Alaska Native history, traditions, and cultures (ways of life, customs) | <input type="radio"/> A | <input type="radio"/> B | VC996622 |
| b. Books, videos, websites, or computer software about current issues that are important to American Indian or Alaska Native people               | <input type="radio"/> A | <input type="radio"/> B | VC996623 |

9. How often do you read for fun on your own time?

VC759235

- A Never or hardly ever
- B Once or twice a month
- C Once or twice a week
- D Every day or almost every day

10. Here are some sentences about reading. Fill in **one** oval on each line to show whether the sentence describes a person like you.

VC996624

- |   | This is not like me.    | This is a little like me. | This is a lot like me.  |          |
|---|-------------------------|---------------------------|-------------------------|----------|
| a. When my teacher talks about something interesting, I try to read more about it.                              | <input type="radio"/> A | <input type="radio"/> B   | <input type="radio"/> C | VC996625 |
| b. I enjoy reading long stories (for example, chapter books).   | <input type="radio"/> A | <input type="radio"/> B   | <input type="radio"/> C | VC996626 |
| c. I enjoy reading about American Indian or Alaska Native people.   | <input type="radio"/> A | <input type="radio"/> B   | <input type="radio"/> C | VC996627 |
| d. I enjoy reading about people who have different traditions and cultures (ways of life, customs) than I have. | <input type="radio"/> A | <input type="radio"/> B   | <input type="radio"/> C | VC996628 |

## Section 1

11. How do you rate yourself in reading?

VC759284

- Ⓐ Poor
- Ⓑ Average
- Ⓒ Good
- Ⓓ Very good

12. How often do you do mathematics for fun on your own time? For example, play mathematics games or solve mathematics puzzles.

VC759285

- Ⓐ Never or hardly ever
- Ⓑ Once or twice a month
- Ⓒ Once or twice a week
- Ⓓ Every day or almost every day

13. When my teacher talks about mathematics, I try to learn more about it.

VC759286

- Ⓐ This is not like me.
- Ⓑ This is a little like me.
- Ⓒ This is a lot like me.

14. How much do you know about each of the following? Fill in **one** oval on each line.

VC996631

- |   | Nothing                 | A little                | Some                    | A lot                   |          |
|---|-------------------------|-------------------------|-------------------------|-------------------------|----------|
| a. American Indian or Alaska Native systems of counting                     | <input type="radio"/> Ⓐ | <input type="radio"/> Ⓑ | <input type="radio"/> Ⓒ | <input type="radio"/> Ⓓ | VC996632 |
| b. American Indian or Alaska Native symbols and designs used in mathematics | <input type="radio"/> Ⓐ | <input type="radio"/> Ⓑ | <input type="radio"/> Ⓒ | <input type="radio"/> Ⓓ | VC996633 |

## Section 1

15. How do you rate yourself in mathematics?

VC759287

- Ⓐ Poor
- Ⓑ Average
- Ⓒ Good
- Ⓓ Very good

16. How often do any of the following people help you with your schoolwork? For example, they might help you to study for a test, help you with a school project, or go over your homework with you. Fill in **one** oval on each line.

VC996635

	Never or hardly ever	Once or twice a month	Once or twice a week	Every day or almost every day	
a. A parent or someone else from my family	<input type="radio"/> Ⓐ	<input type="radio"/> Ⓑ	<input type="radio"/> Ⓒ	<input type="radio"/> Ⓓ	VC996636
b. A teacher or another adult from my school	<input type="radio"/> Ⓐ	<input type="radio"/> Ⓑ	<input type="radio"/> Ⓒ	<input type="radio"/> Ⓓ	VC996637
c. Another student	<input type="radio"/> Ⓐ	<input type="radio"/> Ⓑ	<input type="radio"/> Ⓒ	<input type="radio"/> Ⓓ	VC996639
d. Someone else who lives in my community or is a friend of my family	<input type="radio"/> Ⓐ	<input type="radio"/> Ⓑ	<input type="radio"/> Ⓒ	<input type="radio"/> Ⓓ	VC996640

## Section 1

17. During 8th grade, how often have you talked with any of your teachers outside of regular class periods? For example, to get extra help with your assignments, to talk about issues that matter to you, or just to visit.

VC996641

- Ⓐ Never or hardly ever
- Ⓑ Once or twice a month
- Ⓒ Once or twice a week
- Ⓓ Every day or almost every day

18. During 8th grade, have you played a sport or belonged to a drama, music, or other club at school?

VC996643

- Ⓐ Yes
- Ⓑ No

19. During 8th grade, how many times have you talked to each of the following people about the classes you should take in high school or about what you want to do after high school? Fill in **one** oval on each line.

VC996644

	Never	One time	Two or three times	Four or more times	
a. A family member	<input type="radio"/> Ⓐ	<input type="radio"/> Ⓑ	<input type="radio"/> Ⓒ	<input type="radio"/> Ⓓ	VC996645
b. A teacher	<input type="radio"/> Ⓐ	<input type="radio"/> Ⓑ	<input type="radio"/> Ⓒ	<input type="radio"/> Ⓓ	VC996646
c. A school counselor	<input type="radio"/> Ⓐ	<input type="radio"/> Ⓑ	<input type="radio"/> Ⓒ	<input type="radio"/> Ⓓ	VC996647
d. Another student	<input type="radio"/> Ⓐ	<input type="radio"/> Ⓑ	<input type="radio"/> Ⓒ	<input type="radio"/> Ⓓ	VC996648
e. Someone outside of your family or school	<input type="radio"/> Ⓐ	<input type="radio"/> Ⓑ	<input type="radio"/> Ⓒ	<input type="radio"/> Ⓓ	VC996649

Section 1
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20. Which of the following would you plan to do in your first year after high school? Fill in as many ovals as apply. VC996650

- |  |   |          |
|--|---|----------|
| a. Go to college full time   | Ⓐ | VC996651 |
| b. Go to college part time   | Ⓑ | VC996652 |
| c. Go to another school (for example, career training, technical, or trade/vocational) full time | Ⓒ | VC996653 |
| d. Go to another school (for example, career training, technical, or trade/vocational) part time | Ⓓ | VC996654 |
| e. Join the military   | Ⓔ | VC996655 |
| f. Work full time  | Ⓕ | VC996656 |
| g. Work part time  | Ⓖ | VC996657 |
| h. Travel  | Ⓗ | VC996658 |
| i. Care for family   | Ⓘ | VC996659 |
| j. I don't know.   | Ⓙ | VC996660 |

21. How much are the things you are learning in school preparing you for the life you want to lead? VC996661

- Ⓐ Not at all
- Ⓑ A little
- Ⓒ A fair amount
- Ⓓ Very much

## Section 1

VC759293

22. How much do you like school?

- Ⓐ Not at all
- Ⓑ A little
- Ⓒ Somewhat
- Ⓓ Very much

VC759294

23. Do you know the name of the American Indian tribe or Alaska Native group you belong to or are enrolled in?

- Ⓐ Yes
- Ⓑ No
- Ⓒ I'm not sure.

VC759295

24. If you know the name of the American Indian tribe or Alaska Native group that you belong to or are enrolled in, or if you think you know it, please print it on the line below. Do not worry about spelling. If you belong to more than one American Indian tribe or Alaska Native group, write the names of as many as you know.

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VC759297

25. What else would you like to say about yourself, your school, or about American Indian or Alaska Native people? Use these lines to write your ideas.

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**THANK YOU FOR YOUR HELP. YOUR IDEAS ARE IMPORTANT.**



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