

EXAMINING THE CULTURAL CONGRUITY AND INTENTIONS  
OF PERSISTENCE AMONG AMERICAN INDIAN  
COLLEGE STUDENTS IN MONTANA

by

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DEDICATION

To Maya, for motivating me.

To Nick, for believing in me.

To Susy, for inspiring me.

To Lulú, for challenging me.

To my parents, for making my higher education possible.

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## ABSTRACT

American Indian college students tend to have lower persistence and graduation rates compared to students of other ethnicities. This quantitative research study involved multiple regression to analyze survey data that measured cultural congruity and intentions of persistence of American Indian students attending a two-year and four-year college in Montana. Cultural identity was measured through a survey item measuring level of attachment to their ethnic group. Results showed a significant relationship existed between the following variables: attachment to ethnic group and cultural congruity; institutional type, attachment to ethnic group, age, gender, and first generation college student status to cultural congruity; cultural congruity and persistence; attachment to ethnic group and persistence; institutional type, cultural congruity, and attachment to ethnic group to persistence; and institutional type, cultural congruity, attachment to ethnic group, age, gender, and first generation college student status to persistence. Results from this study indicate that institutional type was not a significant predictor of cultural congruity or persistence. Also, students who were more strongly attached to their ethnic group were less likely to feel that they “fit in” at their college (cultural incongruity). Older students were more likely to have higher cultural congruity than younger students, and higher levels of cultural congruity was associated with higher persistence scores.

## CHAPTER ONE

## INTRODUCTION TO THE STUDY

Introduction

College student persistence is important, as a main goal for colleges is to have students complete a degree. However, there are many different reasons that can prevent a student from continuing their enrollment in college, to eventually earn that degree. Some of these reasons include being academically unprepared for the rigor of college work, being a first-generation college student, and coming from a low socioeconomic status. Another factor that may contribute to student attrition is the difference a student feels exists between their own culture and the culture of their college. One's perceived lack of cultural fit between their personal values and the values of their college is called cultural incongruity (Cano et al., 2014; Gloria & Robinson Kurpius, 1996). Cultural congruity compares one's cultural and personal values to those of their college (Gloria & Robinson Kurpius, 1996). Thus, if a student perceives their culture is in agreement with the culture of their institution it would be called cultural congruity. This study focused on how the cultural congruity of American Indian or Alaska Native students at a 2-year and 4-year college in Montana influenced their decision to stay or leave their institution.

Enrollment of American Indian or Alaska Native college students has been lower than their representation in the U.S. population. In 2013, American Indian and Alaska Natives made up approximately 2% of the U.S. population (U.S. Census Bureau, 2014), which was an increase

from the year 2000 where they made up 1.5% of the U.S. population (U.S. Census Bureau & Ogunwole, 2002). To compare this figure with the proportion of American Indian and Alaska Native students in colleges and universities the National Center for Education Statistics provides such data. In the fall of 2000 there were a total of 15,312,289 college students enrolled in a degree-granting postsecondary institution in the United States (National Center for Education Statistics, 2019). By the fall of 2010 this number was 21,019,438, in fall of 2015 the number was 19,988,204, and in the fall of 2018 there were 19,645,918 students enrolled in any degree-granting postsecondary institution (National Center for Education Statistics, 2019). When reviewing American Indian or Alaska Native college student enrollment, in fall of 2000 there were 151,150 college students enrolled in a degree-granting postsecondary institution in the United States, in the fall of 2010 the number was 196,231, in 2015 the total was 146,128, and in 2018 there were 133,751 American Indian or Alaska Native students enrolled (National Center for Education Statistics, 2019). While the total number of all college students increased approximately 28% from 2000 to 2018, the number of American Indian or Alaska Native college students decreased by approximately 12% over that same time period. In the fall of 2000 and 2010, American Indian or Alaska Native students accounted for approximately 1% of all college students enrolled in a degree-granting postsecondary institution; in 2015 and 2018, American Indian or Alaska Native students accounted for approximately 0.7% of all college students enrolled (National Center for Education Statistics, 2019).

Among 2-year institutions, there were 5,948,431 total college students, of all ethnicities, enrolled in the fall of 2000; 7,683,597 were enrolled in fall 2010; in fall 2015 there were 6,499,461 enrolled; in fall 2018 there were 5,745,208 enrolled (National Center for Education

Statistics, 2019). Of these totals, in the fall of 2000 74,677 of the students were American Indian or Alaska Native which represented approximately 1.3% of all 2-year college students; in 2010 there were 87,197 American Indian or Alaska Native students which reflected approximately 1.1% of 2-year students; in 2015 62,776 were American Indian or Alaska Native which represented approximately 1.0% of all 2-year college students, and in fall 2018 53,028 of the students were American Indian or Alaska Native which represented approximately 1.0% of the 2-year college students enrolled (National Center for Education Statistics, 2019). In comparison, enrollments at 4-year degree-granting institutions during fall 2000 were 9,363,858; in fall 2010 total enrollments were 13,335,841; in fall 2015 the total was 13,488,743; and in fall 2018 enrollments were 13,900,710. The total number of American Indian or Alaska Native students enrolled at a 4-year degree-granting institutions were 76,473 in fall 2000 which was approximately 0.8% of all 4-year enrollments; in fall 2010 the total was 109,034 which represented approximately 0.8% of enrollments; in fall 2015 the total was 83,352 which was approximately 0.6% of enrollments; in fall 2018 the total was 80,723 which represented approximately 0.6% of all enrollments (National Center for Education Statistics, 2019).

The National Center for Education Statistics also reports the number of degrees conferred to U.S. residents by degree-granting institutions, and in the 2000-2001 school year 1.2% of all certificates below the associate's degree level (National Center for Education Statistics, 2017a), 1.2% of all associate's degrees (National Center for Education Statistics, 2017b), 0.8% of all bachelor's degrees (National Center for Education Statistics, 2017c), 0.6% of all master's degrees (National Center for Education Statistics, 2017d), and 0.7% of all doctor's degrees conferred were to American Indian or Alaska Native students (National Center for Education

Statistics, 2017e). In the 2015-2016 school year, 1.1% of all certificates below the associate's degree level (National Center for Education Statistics, 2017a), 1.0% of all associate's degrees (National Center for Education Statistics, 2017b), 0.5% of all bachelor's degrees (National Center for Education Statistics, 2017c), 0.5% of all master's degrees (National Center for Education Statistics, 2017d), and 0.5% of all doctor's degrees conferred were to American Indian or Alaska Native students (National Center for Education Statistics, 2017e). The proportion of degrees conferred to American Indian or Alaska Native students in 2000-2001 and 2015-2016 were relatively close.

Earning a college degree grants many benefits to the person, as well as the community. Someone with a college degree is more likely to earn more in their lifetime, live longer, and volunteer in their community compared to someone with only a high school diploma (Goldy-Brown, 2017). Therefore, colleges hope to retain their students so that they can earn a postsecondary certificate or degree.

### Montana

In 2017, the estimated population in Montana was 1,029,862, and of this total 6.7% were American Indian or Alaska Native only. This proportion only includes those who identified as only one race. Another 1.5% of the total population were American Indian or Alaska Native as well as another race. In Montana, American Indians or Alaska Natives are the largest ethnic minority. In 2017, an estimated 0.4% were Black, 0.7% were Asian, less than 0.1% were Native Hawaiian or Pacific Islander (0.06%), and 0.8% were multiracial (U.S. Census Bureau, 2013-2017).

There are seven Indian reservations in Montana (Montana Governor's Office of Indian Affairs, n.d.) and one federally-recognized tribe (*Little Shell Chippewa Tribe*, n.d.). The seven Indian reservations are: Blackfeet Tribe of the Blackfeet Reservation, Chippewa Cree Tribe of the Rocky Boy's Reservation, Confederated Salish & Kootenai Tribes of the Flathead Reservation, Crow Tribe of the Crow Reservation, Fort Belknap Tribes of the Fort Belknap Reservation, Fort Peck Tribes of the Fort Peck Reservation, and Northern Cheyenne Tribe of the Northern Cheyenne Reservation. The federally-recognized tribe is the Little Shell Chippewa Tribe (Montana Governor's Office of Indian Affairs, n.d.).

The Blackfeet Tribe has approximately 15,560 enrolled members with approximately 7,000 living on, or near, the reservation. This tribe is located in the northwestern part of the state and includes 1.5 million acres (Montana Governor's Office of Indian Affairs, n.d.). The Chippewa-Cree Tribe has about 2,500 members and Rocky Boy's reservation is located in northcentral Montana. The Confederated Salish and Kootenai tribes have about 7,753 enrolled members with approximately 5,000 living on, or near, the reservation. The Crow reservation is located in southcentral Montana and has approximately 10,000 enrolled members. The Fort Belknap reservation is located in north central Montana and is made up of the Assiniboine and Gros Ventre tribes. The Fort Peck reservation is located in northeastern Montana where approximately 6,800 Assiniboine and Sioux live. The Northern Cheyenne Indian reservation is located in southeastern Montana that includes 444,000 acres. The Little Shell Tribe of Chippewa Indians includes 4,500 tribal members (Montana Governor's Office of Indian Affairs, n.d.). It is important to note that these communities are culturally diverse (Huffman, 2008), as they vary in

cultural and spiritual beliefs. We cannot assume all American Indians hold the same cultural and spiritual beliefs.

### Montana Colleges

The Montana University System (MUS) encompasses a total of 16 two-and four-year colleges and universities in the state. To compare the enrollment of MUS American Indian and non-American Indian undergraduate students, Table 1.1 reports the total number of students who attended a four-year campus in the MUS, as of each fall term indicated (Montana University System American Indian Student Success Dashboard, n.d.).

Table 1.1. American Indian Student Enrollment at Four-Year MUS Campuses

<b>Fall Term</b>	<b>American Indian Students</b>	<b>Non-American Indian Students</b>
<b>2012</b>	1,466	29,053
<b>2013</b>	1,390	29,054
<b>2014</b>	1,350	28,495
<b>2015</b>	1,391	27,810
<b>2016</b>	1,422	27,498
<b>2017</b>	1,459	26,831
<b>2018</b>	1,437	26,063
<b>2019</b>	1,423	25,057

Table 1.2 reports the American Indian Student enrollment at two-year MUS campuses as of each fall term listed (Montana University System American Indian Student Success Dashboard, n.d.).

Table 1.2. American Indian Student Enrollment at Two-Year Campuses

<b>Fall Term</b>	<b>American Indian Students</b>	<b>Non-American Indian Students</b>
<b>2012</b>	558	8,499
<b>2013</b>	590	8,602
<b>2014</b>	541	8,343
<b>2015</b>	456	8,053
<b>2016</b>	501	10,414
<b>2017</b>	568	10,341
<b>2018</b>	573	10,177
<b>2019</b>	657	10,147

In the Montana University System, the average fall-to-fall retention rates for American Indian students attending two-year campuses were 48.4% for the fall 2012 cohort, 39.5% for the fall 2013 cohort, 48.4% for the fall 2014 cohort, 38.7% for the fall 2015 cohort (Montana University System American Indian Retention Rates, 2016), 46.2% for the fall 2016 cohort, 48.9% for the fall 2017 cohort, 44.2% for the fall 2018 cohort, and 49.5% for the fall 2019 cohort (Montana University System American Indian Student Success Dashboard, n.d.). In comparison, the retention rates for all two-year students in the Montana University System were 59.3% for the fall 2012 cohort, 60.4% for the fall 2013 cohort, 60% for the fall 2014 cohort, 58.3% for the fall 2015 cohort (Montana University System CCA Progress Metric #5: Retention Rates, 2016), 57.6% for the fall 2016 cohort, 58.3% for the fall 2017 cohort, 58.1% for the fall 2018 cohort, and 57.1% for the fall 2019 cohort (Montana University System American Indian Student Success Dashboard, n.d.). These data show that retention rates for American Indian students have been lower than the retention rates of all Montana University System students attending a two-year campus.

For another comparison, the average fall-to-fall retention rates for American Indian students attending a four-year campus in the Montana University System were 48.1% for the fall 2012 cohort, 55.5% for the fall 2013 cohort, 52.8% for the fall 2014 cohort, 60.1% for the fall 2015 cohort, 59.8% for the fall 2016 cohort, 61.8% for the fall 2017 cohort, and 56.3% for the fall 2018 cohort (Montana University System American Indian Student Success Dashboard, n.d.). When observing the retention rates of all students attending a four-year university in the Montana University System, the retention rates were 72.4% for the fall 2012 cohort, 72.6% for the fall 2013 cohort, 72.3% for the fall 2014 cohort, 72.8% for the fall 2015 cohort, 72.6% for the fall 2016 cohort, 73.1% for the fall 2017 cohort, and 73.2% for the fall 2018 cohort (Montana University System American Indian Student Success Dashboard, n.d.). Comparing the retention rates of students from the four-year universities in the Montana University System to those rates from students attending a two-year campus, we observe that the retention rates are higher for those enrolled in a four-year university.

When comparing degree completions of American Indian students in the Montana University System with the rest of the student population, Table 1.3 shows the total number of certificates, associate degrees, and bachelor's degrees awarded in the given academic year to American Indian students and non-American Indian students from the 16 colleges that make up the Montana University System (Montana University System American Indian Student Success Dashboard, n.d.).

Table 1.3. Number of Degrees Conferred

<b>Academic Year</b>	<b>American Indian Students</b>	<b>Non-American Indian Students</b>
<b>2012-2013</b>	236	5,357
<b>2013-2014</b>	278	5,566
<b>2014-2015</b>	263	5,807
<b>2015-2016</b>	269	5,741
<b>2016-2017</b>	275	5,836
<b>2017-2018</b>	250	5,644
<b>2018-2019</b>	294	5,965

Graduation rates help view this information as percentages, and the 150% graduation rates for students who began college in fall 2014 at one of the six 4-year colleges or universities in the Montana University System are listed in Table 1.4, by race/ethnicity. These graduation rates follow a cohort of students who were first-time, full-time, bachelor's degree-seeking students. The data for Pacific Islander students was excluded due to the low cohort number. Table 1.4 also includes the headcounts of students in the cohort by race (Montana University System American Indian Student Success Dashboard- BA Graduation, n.d.).

Table 1.4. Graduation Rates for Four-Year Students, 2014 Cohort

<b>Race/Ethnicity</b>	<b>Cohort</b>	<b>Graduation Rate</b>
<b>American Indian</b>	190	32%
<b>Asian</b>	67	54%
<b>Black</b>	38	32%
<b>Hispanic</b>	199	36%
<b>White</b>	4,137	56%
<b>Multi-racial</b>	91	39%
<b>Race/ethnicity unknown</b>	143	49%
<b>Total</b>	4,865	54%

The 150% graduation rates of associate's degree-seeking students attending one of the six two-year colleges in the Montana University System are shown in Table 1.5. This table excludes data for the three community colleges in the Montana University System, as their data were not published online. The unduplicated headcounts of students in the cohort and 150% graduation rates are listed by ethnicity. These graduation rates follow a cohort of students who were first-time, full-time, associate's degree-seeking students who began at one of the two-year colleges in fall 2017 (Montana University System American Indian Student Success Dashboard- AA Graduation, n.d.). The data for Asian, Black, Pacific Islander, and Multi-racial students were excluded due to the small cohort sizes.

Table 1.5. Graduation Rates for Two-Year Students, 2017 Cohort

<b>Race/Ethnicity</b>	<b>Cohort</b>	<b>Graduation Rate</b>
<b>American Indian or Alaska Native</b>	70	10%
<b>Hispanic</b>	41	10%
<b>White</b>	670	23%
<b>Race/ethnicity unknown</b>	33	21%
<b>Total</b>	814	25%

Among the four-year cohort students, the lowest graduation rates were for Black and American Indian students at 32%. The highest graduation rates were for White students at 56%, followed by Asian students at 54% (Montana University System American Indian Student Success Dashboard- BA Graduation, n.d.). Among the two-year cohort students, the lowest graduation rates were for American Indian and Hispanic students at 10%. The highest graduation rates were for White students at 23%, followed by those with their race or ethnicity unknown at 21% (Montana University System American Indian Student Success Dashboard- AA Graduation, n.d.). These data demonstrate the lower graduation rates in Montana for American Indian

students when compared to students of other races or ethnicities. However, the rates are higher for American Indian students attending Tribal Colleges, which agrees with previous national data (Laden et al., 2000).

Montana has seven Tribal Colleges and the total graduation rate for American Indian or Alaska Native students in the 2008 cohort at these colleges was 27% (Montana University System Diversity Report, 2016b). The graduation rates ranged from 7-50% at these seven colleges (Montana University System Diversity Report, 2016b). The total graduation rate at these colleges was 29%, as the graduation rate for Hispanic students was 50%, White non-Hispanic students 49% (Montana University System Diversity Report, 2016b). In the fall of 2008, there were 2,731 American Indian or Alaska Native students, 12 Asian or Pacific Islander, 9 Black non-Hispanic, 433 White non-Hispanic, 4 with their race/ethnicity unknown, and 0 nonresident alien students attending Tribal Colleges (Montana University System Diversity Report, 2016a). Comparing the overall rates of the two-year and four-year campuses to those at the Tribal Colleges demonstrates that retention rates and graduation rates are higher at Tribal Colleges than at the predominantly White institutions (PWI's).

#### Statement of the Problem

The existing literature demonstrates that American Indian students tend to have lower retention (Shotton et al., 2012) and graduation rates compared to other races across the United States (Guillory, 2009). Ethnic minority males may have even lower retention rates, as Pember (2011) stated they were less likely to attend and graduate from college. The disproportionate retention and graduation rates of American Indian college students in Montana is evident when comparing data for students attending a predominantly White institution (PWI) compared to a

Tribal College. Past research on American Indian college students has identified factors that may be related to their college academic success and completion, and these include high school grade point average (Hoover & Jacobs, 1992; Jeanotte, 1982), age, how they managed and budgeted their financial aid (Jeanotte, 1982), family support (Barnhardt, 1994; Rindone, 1988), motivation to achieve (Falk & Aitken, 1984), study habits (Hoover & Jacobs, 1992; Jeanotte, 1981), cultural and social factors (Huffman et al., 1986; Jeanotte, 1982), and career maturity among freshman and sophomore students (West, 1988). While in some studies, type of high school, socioeconomic status and parent's educational level were related to college persistence and completion, other studies found that they were not related to the academic success of their American Indian participants (Jeanotte, 1982; Rindone, 1988).

In the U.S., the dropout rate for undergraduate college students is 40%, and 40% of students who drop out of college have parents who did not finish college. Age may have a factor in those who are most at risk, as students aged 19 or younger were found to be least likely to drop out (EducationData, 2020). Between 2000 and 2017, the number of American Indian or Alaska Native students who completed a 2 or 4-year degree declined from 30% to 27% (EducationData, 2020). Retention and completion rates at 2-year and 4-year institutions can vary. Two-year postsecondary institutions serve a large proportion of students who are first-generation college students, ethnic minorities, low-income, adult students (Ma & Baum, 2016), or enrolled part-time (Bok, 2015; Ma & Baum, 2016). Only 5% of students in 2-year colleges graduate on time with a 2-year degree, and approximately 16% of students pursuing a certificate program graduate on time. Fewer than 25% of high school graduates who enroll in a 2-year college graduate within three years, and approximately 38% of recent high school graduates who enroll

at a 2-year complete a degree within six years (EducationData, 2020). At 4-year institutions, 23% of American Indian or Alaska Native students graduated within four years and 36% of American Indian or Alaska Native students were more likely to drop out after two years (EducationData, 2020).

Compared to students who attend a 4-year institution, students who attend a 2-year are more likely to commute to campus, work more hours at a job off-campus (Bok, 2015), and enroll in courses part-time (Bok, 2015; Ma & Baum, 2016). These factors may influence their persistence and dropout rates. Some of the top reasons students drop out include financial pressure, academic disqualification, poor social fit, and family support (EducationData, 2020). Other reasons students drop out of college include feeling academically unprepared for the rigor of college courses, a parent or spouse becoming unemployed, illness, financial aid status changes, lack of meaningful relationships with other students on campus, and falling behind in their courses (EducationData, 2020). While there can be many factors that influence a student's decision to leave their institution without a degree, some factors have been identified in helping American Indian students persist in college.

One study that examined Alaska Native graduates found that having a physical space on campus that allowed participants to express their cultural identity and maintain their culture on campus was important to their success, since they were away from home (Barnhardt, 1994). Also, the findings of multiple studies have suggested that the strength students receive from their family, cultural heritage and a culturally supportive institution are important (Belgarde & Loré, 2004; Mosholder & Goslin, 2013).

In an effort to recognize the culture of American Indians, the Montana Indian Education for All is a state law that aims to “recognize the distinct and unique cultural heritage of American Indians and to be committed in its educational goals to the preservation of their cultural language” (Office of Public Instruction, n.d., p.1). The guiding principles for Indian Education for All are referred to as essential understandings and the first is that the languages, cultures, histories, and governments of the sovereign tribes of Montana are very diverse. The second states that there is great diversity among each American Indian individual. The third includes that the ideologies of Native traditional beliefs and spirituality exists today. The fourth indicates that reservations are lands that were reserved by or for tribes even though tribal peoples have been living in North American land for millennia. The fifth states that many federal policies were enacted that affected American Indians at that time, and even today. The sixth is that history is subjective to the point of view of the teller, and that the American Indian perspective often conflicts from the history mainstream historians tell. The seventh is that American Indian tribal nations are inherent sovereign nations and are separate and independent from the federal and state governments (Montana Office of Public Instruction, 2019). Note that these essential understandings have been summarized and the complete details of each may be found in a Montana Office of Public Instruction (2019) report titled, “Essential Understandings Regarding Montana Indians.”

In the postsecondary setting in Montana, the Montana University System implemented a policy to address three areas in regards to American Indian students, faculty, or staff; one of which was to enhance the curriculum with content that increases multicultural awareness and understanding (Montana Board of Regents of Higher Education, 1999). In order to earn an

Associate of Arts, Associate of Science, Bachelor of Arts, or Bachelor of Science at a Montana University System campus students need to complete the Montana University System Core. One of the requirements of the MUS Core is a course that has significant content related to the cultural heritage of American Indians (Montana University System, n.d.). The implementation of Indian Education for All could be a problem of practice, especially if there are inconsistencies in how it is implemented, how it is taught, and how many people participate.

There are many different theories and concepts that attempt to explain and understand the reasons for the lower completion rates among American Indian or ethnic minority students, and two of these include cultural congruity and Transculturation Theory. Cultural congruity emphasizes the importance of culture and cultural identity which may help understand American Indian retention and persistence in college, as the educational activities and exchanges a student has on a college campus may conflict with their own culture (Tierney, 1992). These exchanges and activities may involve verbally participating in class, working independently on school assignments, and competing with classmates (McAndrew et al., 2019) which could potentially affect their persistence in college. Transculturation Theory also emphasizes that persistence in a mainstream college requires the American Indian student to operate at an American Indian cultural level, as well as the mainstream cultural level while still maintaining their cultural heritage (Huffman, 1990). Transculturation theory is important because it will help understand how American Indian students adapt to the dominant culture, while maintaining their own culture (Zamel, 1997) and better understand the student's individual experiences (York-Crockett, 2018). It is also a strength-based approach, as Transculturation theory emphasizes the importance of the cultural identity of American Indian students as a factor to their persistence in college.

Both cultural congruity and Transculturation theory together would help explain American Indian perception of persistence. Huffman (2011) identified cultural identity as having a role in academic success, so American Indian students with a stronger connection to their native culture may be more likely to persist at a mainstream institution of higher education (Moore, 2016).

### Purpose of the Study

The purpose of this quantitative research study involving multiple regression to analyze survey data was to explore whether there was a relationship between cultural congruity and student's intent to persist in college, as well as whether cultural identity was related to intentions of persistence and cultural congruity. Cultural identity was measured through a survey item measuring attachment to ethnic group. This study obtained data from American Indian college students in Montana to learn more about their cultural congruity experiences and perceptions while in college. American Indian students from two colleges in Montana were surveyed; one college is a 2-year public college and the second is a 4-year public college. The 2-year college is located in a small town setting (Peterson's, 2020a) and the 4-year college is located in an urban setting (Peterson's, 2020b).

This study also aimed to identify whether there were differences in cultural congruity experiences for students attending a 2-year college versus a 4-year college. The comparison between the 2- and 4-year colleges was made because of the differences between these two types of institutions. The 2-year colleges typically do not provide dormitories, while the 4-year colleges do. Therefore, results may differ between students who live off-campus versus on-campus. Also, students attending a 2-year campus are more likely to work more hours off-

campus and attend part-time (Bok, 2015) which could lead to differing experiences than students who live on campus at a 4-year college.

### Research Questions

There were two research questions that guided this study: 1) Do American Indian students' cultural congruity levels vary by institutional type (2- versus 4-year) and attachment to their ethnic group? 2) Do American Indian student's intentions of persistence vary by institutional type (2- versus 4-year), cultural congruity levels, and attachment to their ethnic group?

### Control Variables

Based on the literature, this study also asked students for demographic information that has been identified as being an influence to success in college, or as a possible factor to academic persistence. These factors include age (Kruger, 1995), gender (Chee, 2008; Kruger, 1995; Kuh et al., 2006), and parent's educational level (Jackson & Smith, 2001; Millea et al., 2018). A study of Navajo college students found that students seemed to have a small range of perceived career options and suggested that students living on a reservation may be less exposed to professionals of a variety of careers (Jackson & Smith, 2001). Jackson & Smith (2001), suggested that Navajo students would benefit from knowing more professionals who are of their cultural background, and who had positive experiences in college themselves. Another study found that American Indian students who were reared on a reservation reported having more difficulty in transitioning to college (Huffman, 2003). Therefore, this study also asked whether students have lived on a reservation. In order to collect other relevant information, academic rank, academic program, and

whether participants were first-generation college students were also included as control variables.

### Significance of the Study

In order to adequately serve diverse students to succeed in college, college policymakers and employees must better understand how to encourage these students to succeed (Museus & Quaye, 2009). If this study found that there was a relationship between the cultural congruity of American Indian students who attended a 2-year college but not a 4-year college (or vice versa) and their intentions to persist, then this would provide insight about the differences in the experiences students have based on the type of campus they attend. This study also sought to identify whether there was a relationship between the intention of persistence and cultural congruity of American Indian students. These data would provide information about whether or not a student experiencing cultural congruity in college may be more or less likely to want to persist. This would be important information for college campuses to know, so that they can better assist their American Indian students to persist. One such method is to actively seek Indigenous ways of knowing, being, and doing in higher education to address some of the difficulties American Indian students face in higher education, such as assimilation. This could be done with a curriculum that is mandated to be reflective of the state's Indigenous population (Windchief & Joseph, 2015). Important to this is understanding that underrepresented minority communities benefit from pedagogy that "reflects a nuanced way of recognizing cultural and linguistic diversity in educational systems" (Windchief & Joseph, 2015, p.275). American Indian students can also benefit by claiming educational space in higher education to help build a community on campus that respects their culture. This study would contribute to the existing

knowledge about cultural factors that may contribute to American Indian student persistence, specifically their cultural identity and cultural congruity.

### Theoretical or Conceptual Framework

The theoretical and conceptual framework for this study includes Transculturation Theory and the concept of cultural congruity. Fernando Ortiz (1995) and A. Irving Hallowell (1963) first noted the ideas that would form Transculturation theory. Ortiz (1995) defined transculturation as a process to transition from one culture to another. Transculturation theory was created to address the different experiences some American Indian students have in college compared to traditional students. Essentially, transculturation is defined as the process one experiences to learn the norms and beliefs of a new culture. Transculturation theory states that American Indian students participate in learning the culture of mainstream colleges while maintaining and utilizing their cultural heritage to make a strong identity and a sense of purpose (Huffman, 2001). Transculturation theory has two assumptions: that a strong cultural identity is necessary for students to persist in mainstream colleges and that transculturation is a complicated process resulting in the ability to live in multiple cultural settings. The first assumption implies that a strong cultural identity will provide the student with emotional and cultural strength that will allow them to experience a new culture without concern of assimilation or losing their American Indian cultural identity (White Shield, 2004).

Important to Transculturation theory is that the person does not need to lose any part of their cultural identity to successfully interact in another culture (Huffman, 1990).

Transculturation does not lead to cultural loss, as a person is able to maintain their cultural values, beliefs, and ways while learning the beliefs, values, and ways of another culture

(Huffman, 2011). Transculturation is a continuous process that involves exploring a new cultural context, experiencing a new culture, learning how to learn in this new culture (Huffman, 1990) and increase their knowledge of cultural skills (Huffman, 2011). Initially, the person may find the cultural exchanges confusing and unrelatable. However, after time, the person is able to better relate to the new culture in his or her own way. This requires the person to be able to differentiate between their native culture and the new culture, so that they are able to adapt to being in the new culture while maintaining their native culture (Huffman, 1990). By maintaining their native culture, they are able to build a sense of purpose and strong identity (Huffman, 2001). It is important to note that Transculturation theory is a framework that was developed to explain the college experiences of culturally oriented Native American students (Huffman, 2013), but it is not a tested theory. Similar to Transculturation theory is the concept of cultural congruity, as cultural congruity also involves a person assessing their values and the values of their institution of higher education.

Cultural congruity is the concept of how much someone's cultural and personal values align with the values of their college or university (Gloria & Robinson Kurpius, 1996; Gloria et al., 2015). If a student has an increased cultural congruity, this means perceptions of their personal and cultural values are aligned with the dominant campus values (Cerezo & Chang, 2013). Cultural congruity can be a predictor of academic resilience and persistence decisions, based on prior research of Hispanic college students (Castellanos & Gloria, 2007). A student's negative view of their campus climate may be related to their intent to persist, as one study of Latino students found (Castillo et al., 2006). The use of cultural congruity for this study is appropriate because for American Indian college students attending a mainstream campus, they

have a disruptive cultural experience because the campus is culturally different than their own culture (Tierney, 1992). The concept of cultural congruity may better help understand these cultural experiences, as these experiences may lead to academic challenges if they are expected to engage in activities that conflict with their cultural values (McAndrew et al., 2019). This study will use cultural congruity with American Indian students because traditional American Indian cultural values differ than the mainstream culture.

While Transculturation theory and the concept of cultural congruity focus on the cultural values of the student and of the college campus, a focus of this research is on persistence, and Bean and Eaton's Psychological Model helps connect Transculturation theory and cultural congruity to persistence. Bean and Eaton incorporated multiple theories to suggest a psychological lens to understand and explain student departure (Renn & Reason, 2012) that they believed could be used for students of any ethnicity, age, or gender (Bean & Eaton, 2001). This model suggests that "student departure is the direct result of the students' intent to leave, which is influenced by precollege characteristics, interactions with the institutional and external environments, and attitudes about the school experience" (Renn & Reason, 2012, p.183). First, precollege characteristics may include psychological attributes that exist for the student based on their past experiences, abilities, and self-assessments. The most important of these precollege characteristics being self-efficacy assessments, normative beliefs (such as wondering whether the important people in their life believe that their attending college is a good idea), and past behavior (such as wondering whether one has the prior experience that has prepared them to succeed in college) (Bean & Eaton, 2001).

Next, the student interacts with the institution while they continue to interact with people outside of the institution. These interactions may be bureaucratic, such as in areas like financial aid, housing, orientation, advising, and registration. Or, the interactions may be academic, such as interacting with faculty members, advisors, tutors, or other students. Lastly, the interactions may be social if they include social contacts with anyone at the institution, such as fellow students, faculty, or staff. All of these interactions leads the student to a series of self-assessments that help them connect their experiences at the college with their general feelings about the college (Bean & Eaton, 2001). The emotional reactions students have to their college environment will motivate students to engage in adaptive strategies to feel more comfortable and integrated in their environment. Self-efficacy assessment, coping behavior, and locus of control play an important role in understanding the academic and social integration of the student (Bean & Eaton, 2001). Figure 1 is an adapted visual representation of Bean and Eaton's psychological model as it pertains to this study.

The conceptual model, Figure 2, illustrates the purpose of the study and how the factors included in this study are related. While cultural congruity and intent to persist will be measured of each participant, Transculturation theory is not being tested in this research. It is, however, being used to better understand the process American Indian students may experience as they navigate through a campus culture different than their individual culture. This research study assumes that some students are able to use their cultural identity as a strength, based on Transculturation theory. According to Transculturation theory, students must have a strong cultural identity in order to persist in mainstream colleges (Huffman, 2011), so I assume that if a

student has high cultural congruity they have a strong cultural identity, and if they have a high cultural identity they may be more likely to persist.

Figure 1. An adapted psychological model of college student retention (Bean & Eaton, 2001)

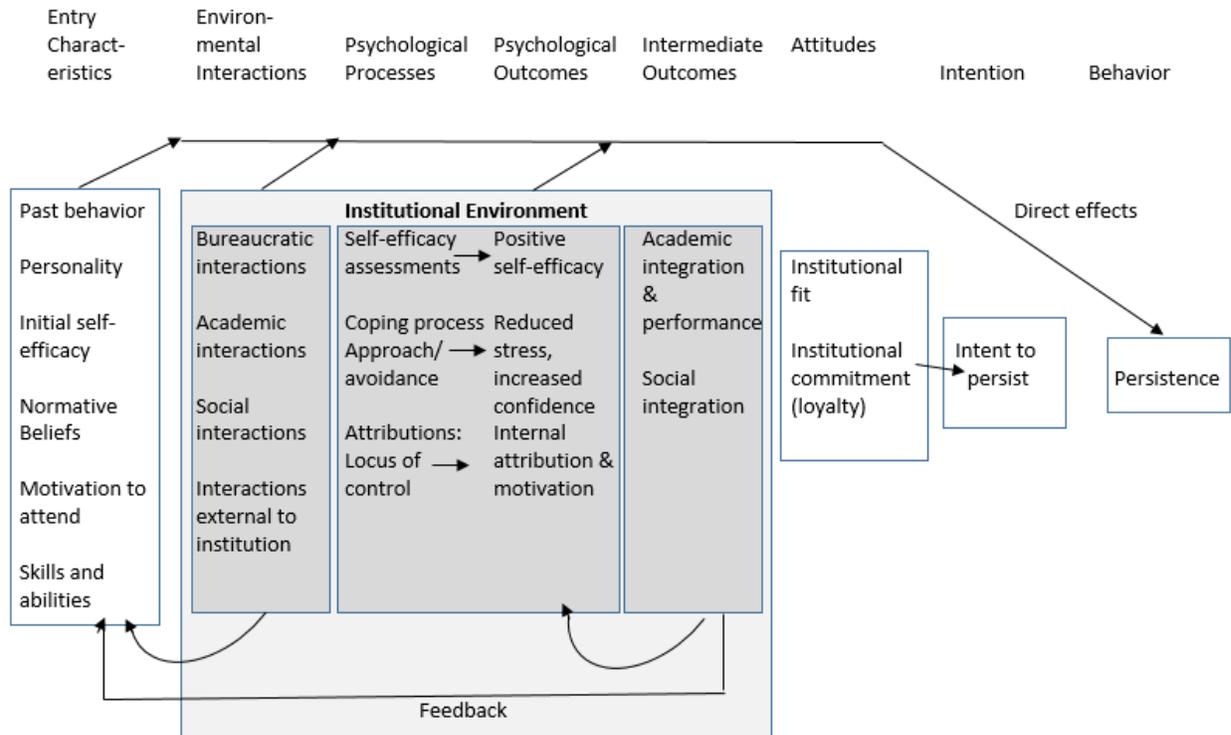
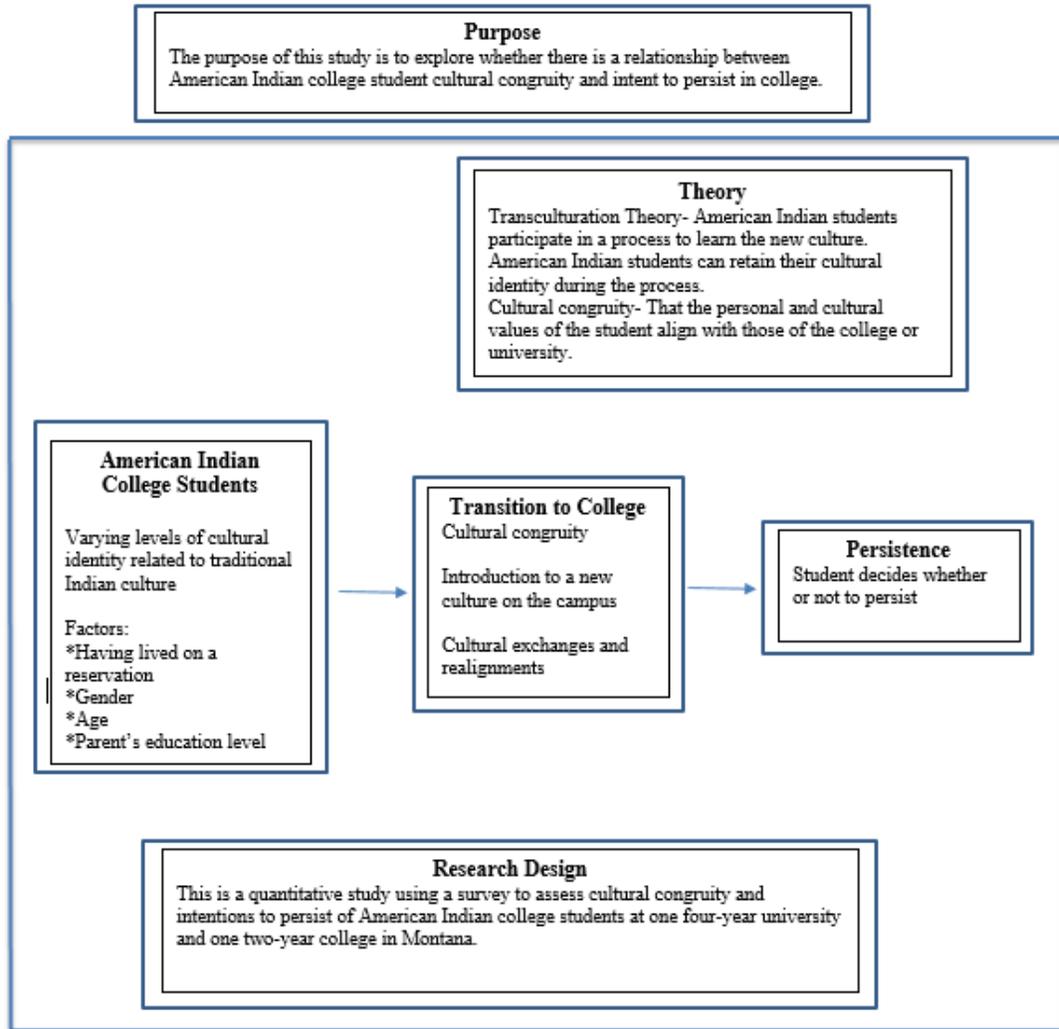


Figure 2. Conceptual Model of the Study



Research Design

This quantitative research study included multiple regression to analyze survey data. Multiple regression allows for the comparison of one dependent variable to multiple independent variables (Grimm, 1995). It also allows researchers to make predictions of one dependent variable from multiple variables (Field et al., 2012).

### Operational Definitions

**Acculturation:** the changes that happen when a person or group interacts with another culture (Flynn et al., 2014; Williams & Berry, 1991) and may include psychological changes (Nwadiora & McAdoo, 1996).

**Acculturative stress:** the stress caused by acculturation when the cultural differences between a person's native culture and a new culture interact that affects the person's physical and mental health (Flynn et al., 2014; Nwadiora & McAdoo, 1996).

**American Indian:** While many articles may use the terms American Indian, Native American, Indian, First Nations people of Canada, native, or Indigenous (Makomenaw, 2012) in this paper I will primarily use the term American Indian to describe a person of native ancestry to North America.

**Assimilation:** This is a type of acculturation, but with assimilation one culture changes much more than the other culture(s) (Garcia & Ahler, 1992).

**Biculturation:** a process where a person maintains parts of their cultural heritage while embracing parts of a new culture that results in some cultural loss (Huffman, 2011). “The bicultural individual is a product rather than a process” (Huffman, 1990, p.9).

**Historical Trauma:** is the emotional and psychological pain that carries on over generations. It is trauma that was caused by massive group trauma experiences (Brave Heart, 2003).

**Historical Trauma Response:** refers to the reaction to historical trauma, and can include depression, anxiety, anger, suicidal thoughts, self-destructive behavior, and substance abuse. Substance abuse is typically a way for the person to avoid their pain through self-medication (Brave Heart, 2003).

**Predominantly White Institutions (PWI's):** an institution of higher education where the majority of students identify their ethnicity as White/Caucasian, usually 50% or more of the student population (Brown II & Clancy II, 2010).

### Assumptions, Limitations, and Delimitations

The assumptions of this study were that American Indian students experience some degree of cultural congruity when they enter college and that higher cultural congruity may lead to persistence in college. This quantitative survey design was chosen to get a better understanding of whether cultural congruity influences students decision to persist in college. An assumption is that I was measuring persistence through student's intention of persistence from a Likert scale. Since all responses were self-reported, it was also assumed that participants were honest about their responses at the time the survey was administered and recalled their experiences accurately.

The limitations of this study were that through my results I was only able to identify whether a relationship existed between the independent and dependent variables. Through multiple regression, one cannot determine causation. As this study did not involve a random sample selection of students, the results are also not generalizable. The results of this study involved students attending two PWI's in Montana, so results cannot be assured to be generalizable to students attending other types of colleges.

The delimitations of this study were that I was not collecting further data from students as to why there may be a difference between their cultural congruity and intentions of persistence, or between intentions of persistence and cultural congruity. The survey instrument I used will only collect data to measure each of these variables but may omit other questions that would get

more details from students to help explain their personal situation and why they responded the way they did regarding their cultural congruity and intent to persist. The results may lead to questions as to why the results were found, but with this quantitative survey research I am focusing on whether a predictive relationship exists between the variables.

### Chapter Summary

The retention and academic success of college students is important, as well as understanding how much of an influence a student's cultural congruity makes on their intentions to persist in college. Since the retention rates of some ethnic minority students may be lower than those of White students, it is important to consider culture with regards to student persistence, especially for American Indian students (Shotton et al., 2012). Learning more about how the cultural experiences of students may influence their persistence can be done by examining their cultural congruity. Better understanding whether a relationship exists between cultural congruity in ethnic minority students, including American Indian students, and their persistence tendencies can help those who work for institutions of higher education understand what their students experience while attending a PWI and whether it influences their decision to stay enrolled.

## CHAPTER TWO

## REVIEW OF THE LITERATURE

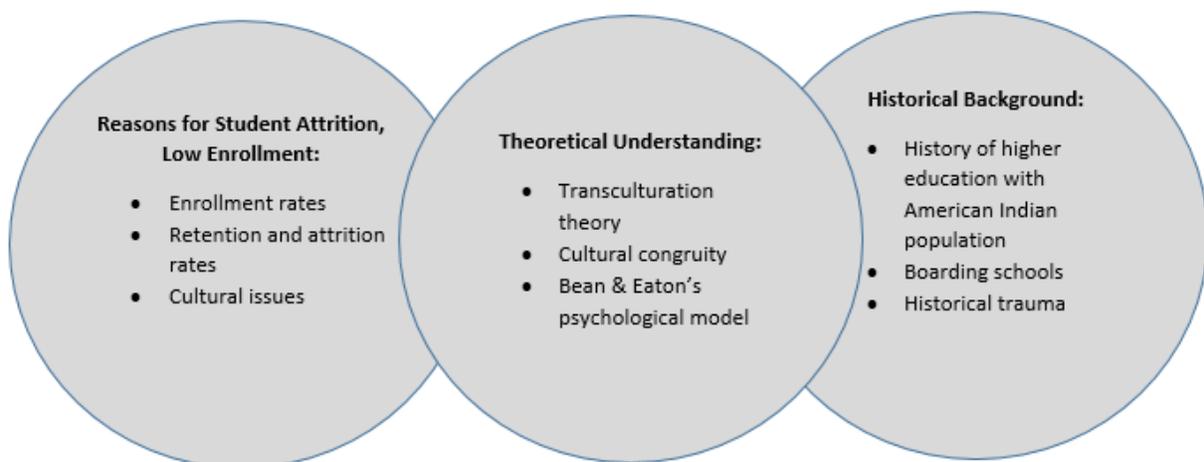
Introduction

The low enrollment, retention, and graduation rates of American Indian college students has been well documented as American Indian students are underrepresented in higher education (Cech et al., 2011). Recruiting American Indian students to attend mainstream colleges has been a challenge for a long time (Guillory, 2009), as is their retention (Shotton et al., 2012). Retention is an even bigger struggle when students are from Indian reservations, as they can feel academically inadequate and isolated (Guillory & Wolverton, 2008). The academic success of American Indian students in college is also a challenge, as they have the lowest graduation rates compared to other student cohorts in mainstream US colleges (Guillory, 2009). A challenge for students is feeling cultural incongruity, which occurs when they are a part of two or more cultures that have different values, beliefs, and social norms (Gloria & Robinson Kurpius, 1996). An important piece to understanding American Indian student's college experiences in college campuses today will lie in learning more about the historical background of American Indian education in the U.S., how persistence is defined in higher education, characteristics about American Indian college students and their challenges to a college degree, and a theoretical knowledge to help conceptualize all of this information.

### Criteria for Selection of Literature

To begin this literature review I used the following search words and phrases to locate articles: American Indian + college + Retention, American Indian + college + success, cultural congruity, cultural congruity + American Indian, cultural congruity + Native American, Native American + college + retention, Native American + college + persistence, Native American + college + success, Transculturation theory, and Bean and Eaton + psychological model. After finding initial articles, their reference pages provided a list of other relevant sources for my research. Figure 3 shows the areas of focus I used to select articles. I also intentionally searched for American Indian authors from the search results in order to obtain a culturally relevant review of the literature. In order to locate more stories told from the first person about historical trauma, I also searched for documentary videos. Documentary videos allowed for the opportunity to obtain information directly from American Indian scholars, and people who could speak directly about their personal experiences.

Figure 3. Diagram of the focus areas for literature review



### Historical Background

Before examining the current trends of American Indian students in PWI's, it is important to understand the historical background of American Indian education due to the historical trauma American Indians endured as a result. This trauma may still contribute to a lack of trust between American Indians and PWI's. Before White settlers came to America, American Indians had their own type of educational system where their children would learn their language and other skills (*Montana Mosaic*, 2006). After White settlers came to America, church-run missions dominated the White education of American Indians, then Indian day schools were introduced on the reservations, followed by reservation based boarding schools, then boarding schools outside of the reservations (*Montana Mosaic*, 2006), and some American Indian men attended colonial colleges (Thelin, 2004). This literature review will focus on the colonial colleges, boarding schools outside of the reservations, and Tribal Colleges and Universities.

#### American Indian students in colonial colleges

In the colonial era, college campuses began to seek donors in England to support the idea of educating American Indians. They hoped to increase their enrollment numbers and financial resources to the college (Carney, 2007; Thelin, 2004). The education would include conversion to Christianity, but the results were that students soon fell ill after starting at the colleges to diseases such as measles, tuberculosis, or alcoholism. At these colleges, the students became trapped between two worlds and attrition was high. The council of Indian chiefs who had originally agreed to send their sons to the colleges refused to renew the scholarship program because they felt the colleges had turned their sons useless and would have been better off getting their leadership education through their tribes (Thelin, 2004).

### Boarding schools

Education for American Indian children had similar results to those of the colonial college experience. Indian boarding schools began with the Carlisle Indian Industrial School (Huffman, 2010; *Montana Mosaic*, 2006) which was open from 1879 to 1918 (Reyhner, 2019; Satterlee, 2002). The creation of Indian boarding schools was a result of the belief in assimilation, as American Indian children were forced to assimilate to mainstream society at these schools (Carney, 2007; Surface-Evans, 2016). Enrollments to the boarding schools were not typically voluntary, but were forced (Flynn et al., 2014; Garrett & Pichette, 2000). In order to get children to attend these boarding schools, tribes received rations of things like cattle or flour from the government in exchange for sending their children to the boarding schools. Some families chose this option in order to eat, and other families protested (Carney, 2007; *Montana Mosaic*, 2006). However, when families protested, rations were withheld in order to force the parents to send their children to the boarding schools. Elders may even have stories about seeing children being taken away from their families as they were sent off to the boarding schools. With the boarding schools being so far away from the communities of the students, at the time it was likely impossible for families to visit their children at the schools (*Montana Mosaic*, 2006). For example, at the Carlisle Indian Industrial School in Pennsylvania, students were sent to the school from as far away as Alaska and California (Reyhner, 2019).

### Forced assimilation at the Indian boarding schools

The boarding schools were a mechanism to force American Indians to assimilate to mainstream society (*Montana Mosaic*, 2006; Satterlee, 2002) and to get rid of everything that was indigenous (Flynn et al., 2014). With students being so distant from their home and their

tribe, they were also distant from influences of their culture, which helped the goal of these schools to assimilate them (Carney, 2007). The attempts to assimilate the children began upon arriving at the schools with a haircut (Garrett & Pichette, 2000). For men, long hair was associated with savagery in mainstream society. However, for American Indians, having long hair is associated with spirituality. One's hair is an essence of their soul, and people will usually only cut their hair when in mourning of someone who has passed away (*Montana Mosaic*, 2006). For a child just arriving at a boarding school and not knowing the English language, they were likely confused upon having their hair cut as they did not understand the purpose for it in White culture and may have even thought someone had died (*Montana Mosaic*, 2006). Andrew, a member of the Chippewa Cree Tribe, spoke about his experiences at a North Dakota and South Dakota boarding school through tears (Richie et al., 2008). His hair was cut and he was hit so often when he would speak in his native language that he forgot his language and only remembered his Indian name (Richie et al., 2008). Students were typically shamed for being who they were, and stories of physical abuse, violence, and sexual abuse describe the experiences at these schools (*Montana Mosaic*, 2006).

Attending Indian boarding schools away from their communities was a traumatic experience for these children. They were used to being in a school system that was supportive and were then required to leave their families, change their appearance (*Montana Mosaic*, 2006), and not allowed to speak in their native languages (Carney, 2007; *Montana Mosaic*, 2006). For most of the day, the children spent their time doing chores, such as cooking, cleaning, and laundry. A small portion of time was spent in an academic setting. These schools also taught

children trades skills, and girls were typically taught to sew, cook, and clean. Boys were trained for a job they could obtain after graduating (*Montana Mosaic*, 2006).

The founder of the Carlisle Indian Industrial School believed that American Indian children had to be removed from their tribes to best teach them to behave and think as Anglo-Americans (Satterlee, 2002). The forced assimilation American Indians faced during the era of Indian boarding schools added to the issues of loss of their Native culture, substance abuse, suicide, and poverty (Flynn et al., 2014; La Due, 1994; Tafoya & Vecchio, 2005). The graduation rates of students at the boarding schools were not very high, as only about 20% graduated high school (*Montana Mosaic*, 2006). Part of this was due to some students succumbing to illness, and part of this may have been due to the harsh environment students had to endure. While boarding schools may have been thought to be the best form of education for American Indians, American Indians did not think it was the best for them (Carney, 2007; *Montana Mosaic*, 2006). Even today, the historical trauma of attending these schools may affect the descendants of former boarding school students (Reyhner, 2019).

### Student Experiences at Indian Boarding Schools

The founder of the Carlisle Indian Industrial School was Richard H. Pratt and he believed the school needed to “kill the Indian, save the man” and civilize “savage” Indian children (Satterlee, 2002, p.3). The Carlisle Indian Industrial School was the first Indian boarding school, but there were many others created. Eventually, about two-thirds of American Indians were educated through these boarding schools (*Montana Mosaic*, 2006). Through the Carlisle Indian School Digital Resource Center, the stories of former students of the Carlisle Indian Industrial

School can be told through their photographs, documents, and in their own words about their experiences with the boarding school.

One former student was Tom Torlino, who was a member of the Navajo nation and went to the Carlisle Indian Industrial School from October 21, 1882 through August 28, 1886. Image 1 is of Tom, and Image 2 shows Tom three years later. The images demonstrate the forced assimilation with the changes in physical appearance that include shorter hair, different style of clothing, and the appearance of lighter skin (*Tom Torlino Student File*, n.d.).

Image 1. Tom Torlino (*Tom Torlino Student File*, n.d.).



Image 2. Tom Torlino three years later (*Tom Torlino Student File*, n.d.).



Katrina Shane attended the Carlisle Indian Industrial School from November 14, 1883 until June 17, 1884 and left the school due to illness. Her Indian name was listed as Katy Shane and she was from the Crow nation living in St Xavier, Montana. In a document to the Carlisle school, Katrina wrote, “I was one of the first of the Crow tribe of Indians to go to Carlisle or any non reservation [sic] school” (*Katrina Shane Student File*, n.d.). Image 3 shows Katrina’s written response to a student survey.

Image 3. Katrina Shane’s first three responses on the Carlisle School’s student survey (*Katrina Shane Student File*, n.d.).

RECORD OF GRADUATES AND RETURNED STUDENTS.  
UNITED STATES INDIAN SCHOOL, CARLISLE, PENNSYLVANIA.

Name Katrina Shane

1. Are you married and if so to whom? Harry J Scott

2. What is your present address? St Xavier Montana

3. Did you attend or graduate from any other schools after leaving Carlisle? Give names of school and dates if possible. no I never attended any other school after leaving Carlisle  
I was one of the first of the Crow tribe of Indians to go to Carlisle or any non reservation school

The student survey from the Carlisle School also asked, “Have you done anything for the betterment of your people?” (*Katrina Shane Student File*, n.d.). To this question, Katrina’s response is shown in image 4 and says:

...I do not believe in the reservation boarding school I think that it would be much better to have day school and finish at a school like Carlisle. I think that they should take children at the age of 12 years at the non reservation [sic] schools. It is the Indian child of today that needs the help of the government...But the time is coming

when the Indian must be able to hold his own against the White people and the school must prepare him for that time. (*Katrina Shane Student File, n.d.*)

Image 4. Katrina Shane’s response to question 11 on the Carlisle School’s student survey (*Katrina Shane Student File, n.d.*).

11. Have you done anything for the betterment of your people? Write fully.

I am being up to the training I received at Carlisle and I think it is a good example of what an Indian could do after they have received the training at a good boarding school.

I do not believe in the Reservation boarding school I think that it would be much better to have day school and finish at a school like Carlisle.

I think that they should take children at the age of 12 years at

The non-Reservation school.

It is the Indian child of today that needs the help of the government. The old Indian will simply live and die as he is. But the time is coming when the Indian must be able to hold his own against the white people and the school must prepare them for that time.

When asked to state anything else of interest connected with their life, Katrina said: “...I am thankful to Carlisle...for [ineligible] start I received in life and hoping that the school work will still go on. I remain your faithful servant...” (*Katrina Shane Student File, n.d.*). She included a post script in this response to say that she included a photograph of herself and her

two youngest children, this photograph is shown in image 5. In her signature, she addressed herself as Katherine Scott, as she was married to Harry Scott and had five children at the time of her survey response. She and her family lived in St Xavier, Montana as farmers and raised stock (*Katrina Shane Student File*, n.d.).

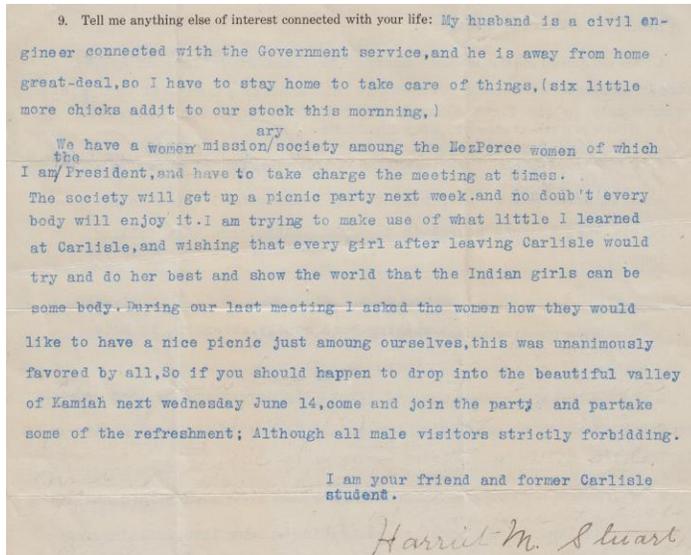
Image 5. Katrina Shane and her two youngest children (*Katrina Shane Student File*, n.d.).



Harriet Mary Elder was another student at Carlisle from February 20, 1880 to August 27, 1886 and was a member of the Nez Perce Nation. She was a woman who expressed interest in having beautiful gardens and maintaining a clean and organized home. She wrote an article in a newspaper where she stated, “Let us all try to show the white people we can have just as good and clean homes as any body [sic], and have our surroundings just as attractive as any” (*Harriet Mary Elder Student File*, n.d.). She then added, “This is the only way we can keep off the diseases that breed in filth and dirt. Some people may point a finger at us and say we are too proud but let us go ahead and use what we have learned in school to the best of our ability. The people will fall in line after awhile [sic] if we keep our courage up” (*Harriet Mary Elder Student File*, n.d.). In her student survey, Harriet mentioned her marriage to an engineer and trying to use what she learned at the Carlisle School and hoping other Indian girls will leave Carlisle and

“show the world that they can be somebody” (*Harriet Mary Elder Student File*, n.d.). Marriet’s response to the student survey is shown in *image 6*.

Image 6. Harriet Mary Elder’s response to student survey (*Harriet Mary Elder Student File*, n.d.)

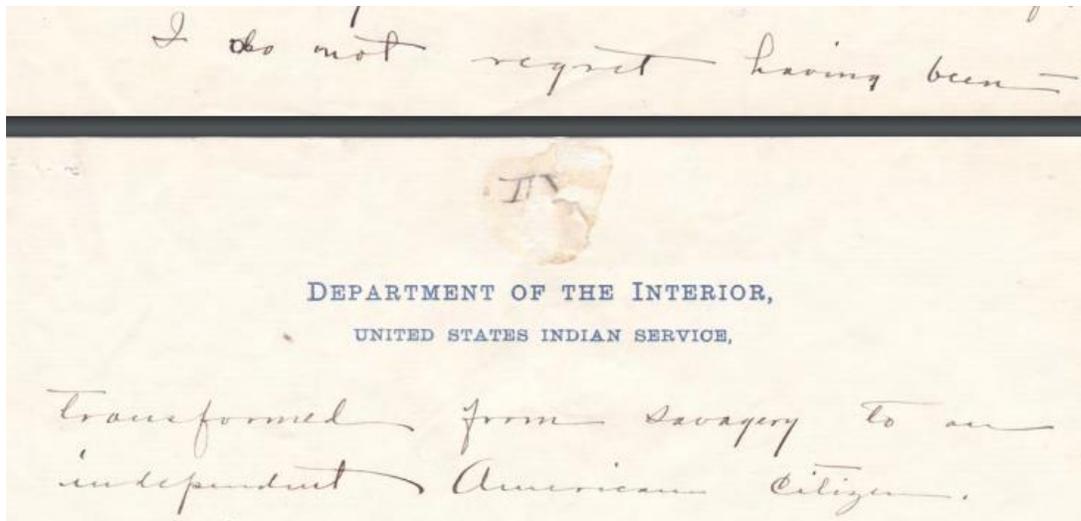


At the age of fifteen years old Chauncey Yellow Robe (Killed in the Timber) began his education at Carlisle in 1883 and graduated in 1894. Chauncey’s words describing his experience and purpose at Carlisle shows a person who desired to assimilate because he believed it would better his life, as well as the lives of his people (*Chauncey Yellow Robe (Killed in the Timber) Student File*, n.d.). Image 7 shows some of what Chauncey wrote in a correspondence addressed to Mr. Friedman on December 20, 1910. The statement reads, “I do not regret having been transformed from savagery to an independent American citizen” (*Chauncey Yellow Robe (Killed in the Timber) Student File*, n.d.). In this same letter, Chauncey also wrote:

Through my experience I believe that there is only one way to educate the Indian is to take him away from his environment on the reservation and give him ample

opportunity in the thickest atmosphere of civilization and he will become a worthy citizen. (Chauncey Yellow Robe (Killed in the Timber) Student File, n.d.)

Image 7. Letter to Mr. Friedman from Chauncey Yellow Robe (Killed in the Timber) (*Chauncey Yellow Robe (Killed in the Timber) Student File, n.d.*).



Chauncey also completed a student survey for the Carlisle school and his response to one of the survey questions is shown in Image 8. Chauncey's response states:

At the age of fifteen years I was taken away to the far east to school by [ineligible] R. H. Pratt. Wearing my ful[sic] Indian [ineligible], long hair, painted face, feathers, moccasins, and blanker and not knowing a word of English. Yet, in a few years I was able to pass [ineligible] from the silent walls of the school house as an independent American citizen. To educate the Indians is not a disgrace to the American civilization. (Chauncey Yellow Robe (Killed in the Timber) Student File, n.d.)

Image 8. The response of Chauncey Yellow Robe (Killed in the Timber) to the student survey (*Chauncey Yellow Robe (Killed in the Timber) Student File, n.d.*).

12. Tell me anything else of interest connected with your life.

At the age of fifteen years  
I was taken away to the far  
east to school by Brig. Gen. T. H. Pratt.  
Wearing my full Indian costume -  
long hair, painted face, feathers, moccasins,  
and blanket and not knowing a  
word of English yet, in a few  
years I was able to pass out  
from the silent walls of the  
school house as an independent -  
American citizen.  
To educate the Indian is not  
a disgrace to the American  
civilization.

Image 9. Chauncey Yellow Robe (Killed in the Timber) in 1883 (*Chauncey Yellow Robe (Killed in the Timber) Student File, n.d.*).



Image 10. Chauncey Yellow Robe (Killed in the Timber) in 1894 (*Chauncey Yellow Robe (Killed in the Timber) Student File*, n.d.).



Image 11 shows a part of a letter addressed to a staff member at the Carlisle school, where Chauncey wrote the following:

Kindly accept my hearty congratulations for the young men and women who are about to leave the old Carlisle, and go out into the world to help us fight for better conditions of our race into higher civilization. Some time [sic] in the future I hope to visit my alma mater.

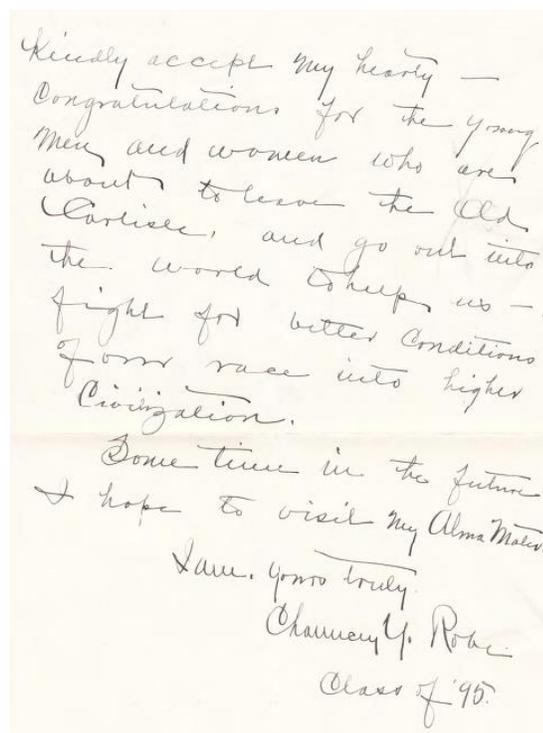
I am yours truly,

Chauncey Y. Robe

Class of '95

(Chauncey Yellow Robe (Killed in the Timber) Student File, n.d.)

Image 11. Chauncey's letter to Mr. Friedman at the Carlisle school (*Chauncey Yellow Robe (Killed in the Timber) Student File*, n.d.).



Kindly accept my hearty -  
 Congratulations for the young  
 men and women who are  
 about to leave the old  
 Carlisle, and go out into  
 the world to help us -  
 fight for better conditions  
 for our race into higher  
 civilization.  
 Some time in the future  
 I hope to visit my Alma Mater.  
 Love, yours truly,  
 Chauncey Y. Robe  
 Class of '95.

While some of these former students shared fond memories and positive experiences with the Carlisle school, not all student memories of their time in the boarding schools are positive; there are other former students who depict having negative experiences (*Montana Mosaic*, 2006; Reyhner, 2019; Weaver & Brave Heart, 2008). One survivor described her identity being taken from her, as her hair was cut for the first time at an Indian Boarding School (*Boarding School Healing*, n.d.). Another survivor described the pain, anger, and loneliness she experienced and not being comforted by the matrons at the boarding school (*Boarding School Healing*, n.d.). Anthropologist Simon Ortiz described an interesting phenomenon to help explain the discrepancies in past student's accounts of their time at the boarding schools called *survivor's syndrome*. He defined this to be when a person survived an experience but looks back at it

fondly. Those who did not survive the experience, with experiences that included abuse, disease, or alcoholism, will not have positive views of their experience (*Montana Mosaic*, 2006). To contrast this explanation, some elders will say that going to a boarding school was a way for them to learn what they needed to survive in a quickly-changing world (*Montana Mosaic*, 2006). The historical trauma that exists from the boarding school experience was that when the children who attended these schools became parents, some of the negative experiences at these schools were passed down to their children. This included physical abuse, child neglect, sexual abuse, or alcoholism (*Montana Mosaic*, 2006). Boarding schools negatively impacted individuals, families, tribal communities, and tribal nations (National Native American Boarding School Healing Connection, n.d.). To individuals, they lost their identity; families lost their parental power; tribal communities lost their language and sense of community; tribal nations experienced a weakened structure (National Native American Boarding School Healing Connection, n.d.). Essentially, “the school system was being run to meet the needs of the government, not the students, and that need was acculturation” (Carney, 2007, p.72).

### Tribal Colleges and Universities

American Indian students who attend a Tribal College or University (TCU) will have a much different college transition and experience than if they attend a PWI. Tribal Colleges and Universities were created in the 1960s (Carney, 2007; *AIHEC: Who we are*, n.d.) to meet the needs of their communities that were geographically isolated and had no other local access to postsecondary education (American Indian Higher Education Consortium, 1999). Tribal Colleges and Universities honor the values, culture, history, and language of their tribal nation (Conrad & Gasman, 2015; Cuningham & Redmond, 2001; Makomenaw, 2012) in an educational

setting that promotes cultural growth (Machamer, 2000) and incorporates American Indian culture into the curriculum (American Indian Higher Education Consortium, 1999). The mission of these colleges “support Indigenous identity and cultural congruency” (White Shield, 2004, p.120) and have Native faculty who can serve as mentors (American Indian Higher Education Consortium, 1999; Cuningham & Redmond, 2001). Tribal Colleges and Universities attract students who want to stay at home while going to college (Belgarde & Loré, 2004). The academic success of American Indian students who attend a TCU are greater than those who attended a PWI (American Indian Higher Education Consortium, 1999; Laden, Millem, & Crowson, 2000). At the TCUs, there is a sense of camaraderie among the students (Lee, 2007) that may contribute to their higher success rates. One qualitative study found that participants benefited from the “cultural support of the tribal college in which cultural identity was reinforced” (Madison, 2007, p.83). Tribal Colleges and Universities are also very successful because they are guided by tribal leaders, families, organizations, government, local businesses, and industry (American Indian Higher Education Consortium, 1999; Belgarde & Loré, 2004; Cuningham & Redmond, 2001).

### College Transition and the College Experience

The reasons why American Indian students choose to attend and persist through college are very diverse and complex (Guillory, 2009). American Indian students are more likely to enter college as nontraditional students, with children, first-generation, and having a lower academic preparation for the rigor of college (Flynn et al., 2012; Jackson et al., 2003). A lack of academic preparation for the level needed in college has been identified as one of the reasons American Indian students have struggled academically in college (Flynn et al., 2012; Guyette & Heth,

1983). This challenge can be even greater for students who attended secondary schools on reservations compared to students who did not (Huffman, 2003). A lack of academic preparation can be a large enough barrier for students to not complete their college education. In one study of 22 Navajo college students, participants indicated that one of the challenges for them in college was realizing they were not adequately prepared for the rigor (Jackson & Smith, 2001), which aligns with other studies that have indicated American Indian students commonly mention that a lack of academic preparation from their primary and secondary school education is a barrier to their success in college (Guillory & Wolverson, 2008; Guillory, 2009). Lack of academic preparation is not just an issue during the initial transition to college, as students in their third year of college may still indicate they feel academically underprepared compared to their White classmates (Guillory & Wolverson, 2008). Guillory and Wolverson (2008) also found that some American Indian students identified family, being a single parent, and lack of adequate financial support as barriers to their persistence in college. It is important to present these past research findings, as they share what challenges American Indian students have experienced in their transition to, and experiences in, college and provides for a broad historical overview of what their experiences in colleges have been like. However, these findings have been criticized for being deficit-oriented. This study is unique in that it focuses on the value of American Indian culture in their transition to college. This focus is important because it will highlight the strength that American Indian students bring with them to college.

### Financial Aid Barriers

One issue American Indian students may face while transitioning to college is completing the financial aid process or receiving sufficient aid (Flynn et al., 2012; Flynn et al., 2014)). The

financial aid process can be confusing for students and being unable to understand the paperwork may even be considered a social injustice (Flynn et al., 2014) because many students have financial burdens that can influence their retention in college, as they may be working part-time jobs to support themselves, or their families, while in school (Guillory & Wolverton, 2008). Makomenaw (2012) found that some American Indian students stated they encountered negativity from their financial aid office regarding their American Indian tuition waivers. Other studies have found that finances were a barrier because there just was not enough financial aid received (Falk & Aitken, 1984) to cover the cost of childcare, tuition, or rent (Guillory, 2009). The retention of students may be jeopardized when students are not able to financially support themselves and their families, if they have children.

### Persistence Considerations

As students continue through college, several factors have been found to help or hinder their persistence; these factors may include social support (Flynn et al., 2012; Guillory & Wolverton, 2008), parental support (Guillory & Wolverton, 2008; Jackson et al., 2003), lack of tribal support (Falk & Aitken, 1984), commitment (Creighton, 2007), multicultural offices (Guillory, 2009; Jackson et al., 2003), warmth from faculty and staff (Jackson et al., 2003), peer mentoring programs, academic counseling (Guillory, 2009). Other risk factors to student persistence include being a first-generation college student, being enrolled in college part-time, being a single parent, working full-time, and caring for a dependent (Aragon, 2004; Jackson et al., 2003). Social isolation may be another experience American Indian students face when transitioning to college. Past research has indicated that underrepresented minorities may feel like they do not belong on campus (Creighton, 2007), and may not persist when they feel socially

isolated and have few friends at school (Smith et al., 2014). Smith et al. (2014) found this may be even more true for students who grew up on, or near, a reservation or within a traditional tribal community-- based on their study of American Indian students pursuing a science, technology, engineering, or mathematics degree. One way to help students feel less isolated on campus, and increase their sense of belonging, is through building relationships with faculty members which may lead to their academic success (Guillory & Wolverton, 2008)—especially if the faculty are also American Indian (Makomenaw, 2012). Another way to address this issue, and to help increase student success, are to create cultural centers to be a shared space for students of similar cultures, as prior research has suggested that students who utilized the cultural center on their campus felt it was strongly related to their persistence in college and they felt less isolated (Guillory, 2009). Makomenaw (2012), similarly, found that students expressed feeling like they belonged on their PWI by being able to interact with other American Indian students on campus. Jackson, Smith, and Hill (2003) found that some American Indian students felt their participation in their campus' cultural center or American Indian clubs were essential for them, as they received social support they needed, and some of the participants even suggested that participating in such groups should be required.

Family support has also been identified as critical for American Indian student academic success in college (Falk & Aitken, 1984; Guillory, 2009; Jackson et al., 2003). In some American Indian communities, earning a college degree is viewed as admirable and students may get encouragement, respect, and emotional support from their family, clan, and tribal members (Belgarde & Loré, 2004). Family involvement while attending college may help ease the student's transition from high school to college, as can giving back to their tribal community

(Guillory, 2009). For students in one study, they stated that their family and community were reasons for them to want to persist in college and graduate (Guillory, 2009). As American Indian culture is a collectivist one (Guillory & Wolverton, 2008; McKeachie & Svinicki, 2013), having family involvement and support is beneficial for students to help them persist (Falk & Aitken, 1984).

Cultural issues can arise, when students begin college, and this may create barriers for them to persist. Such cultural issues include responsibility to family, misinterpretation of social behavior, acculturation, acculturative stress, cultural incongruity, and racism and discrimination. Since American Indian students are more likely to be nontraditional students with families, and because they may have responsibilities to their family, some students may have family responsibilities that may lead to their attrition (Guillory & Wolverton, 2008; HeavyRunner & DeCelles, 2002). One's family, extended family, and receiving social support have been found are critical components of traditional American Indian values (Flynn et al., 2012). However, faculty and college staff at PWI's may not understand this responsibility to family and extended family, and their values may be misunderstood. A study by Flynn, Olson, and Yellig (2014) found that student's social behaviors were misinterpreted, as those from the predominately White culture made assumptions about the meaning of their behavior without asking for clarification. Some of the common misinterpretations include a lack of eye contact being interpreted as a lack of confidence (McKeachie & Svinicki, 2013), the obligation of attending rituals mistaken as being non mandatory, elders speaking for students interpreted as a lack of assertiveness, spiritual practices mistaken for illegal activities, and bringing children to professional meetings being interpreted as unprofessional (Flynn et al., 2014). Many of these misinterpreted social behaviors

relate to honor and spiritual devotion (Flynn et al., 2014) but are misunderstood to be negative in Western culture.

For American Indian students who transition from tribal lands to a PWI, the transition can cause acculturative stress as they try to navigate between their tribal culture and adapting to the predominately White cultural values (Flynn et al., 2014). Acculturation is the transformative process that occurs when two or more cultures interact (Flynn et al., 2014; Garcia & Ehler, 1992; Williams & Berry, 1991) and acculturative stress occurs when the differences between a person's native culture and a new culture causes problems that cannot be solved quickly (Wong & Wong, 2007). Having a collectivist orientation may increase acculturative stress (Goldston et al., 2008), which is important to note for American Indian students. American Indian students who quickly transition from tribal lands to a predominately White cultural setting may experience negative effects, such as a loss of cultural identity, due to the stress this causes (Mail, 1989), and the ability to express their Indigenous identity is important (Shield, 2004). However, some students may want to acculturate, as participants in one study indicated they wanted to do due to their family legacy, to combat the negative stereotypes against American Indians, and because they did not want to fall into the negative consequences due to life on a reservation such as alcoholism or drug use (Flynn et al., 2014). For some students, encountering these cultural conflicts feels like the decision is to maintain their cultural identity or to assimilate, so they may end up choosing to move back home and not continue with college (Huffman, 1990). However, these are not the student's only options. A student may be able to navigate the new culture without losing their cultural identity, and it is important to note that not all students will deal with cultural conflicts in college (Huffman, 1990).

College campuses have their own values and norms, and colleges in the U.S. reflect middle class (Huffman, 1990), mainstream American values (Castellanos & Gloria, 2007) which can conflict with American Indian values. While American culture values competition, American Indians may value cooperation. Other possibly conflicting mainstream American values include placing the needs of yourself over the needs of the group, relying on an expert rather than your family, competing over cooperating, present time orientation, and independence from parents (Sanders, 1987, as cited in Garrett & Pichette, 2000). Attending a college where the values are different than one's own may leave students feeling cultural incongruence (Gloria & Robinson Kurpius, 1996). Establishing a space for cultural expression can help students persist in college and strengthening their cultural identity can also contribute to their persistence (Huffman, 2001; Minthorn, 2014; White Shield, 2004). Doing so may allow them to learn to maintain their cultural identity and that they do not need to assimilate.

Students who strongly identify with traditional American Indian culture have likely lived all of their life, or most of their life, on reservations (Huffman, 1990). When they transition to college, prior research has found that students may experience racism or stereotypes (Huffman, 1991; Jackson et al., 2003; Makomenaw, 2012) and discrimination in obvious or concealed ways (Flynn et al., 2012; Flynn et al., 2014), especially if they were more culturally traditional (Huffman, 1991). The racism students have experienced can include passive racism, such as being ignored or being singled out as a representative of their culture, where students expressed feeling isolated (Jackson, Smith, & Hill 2003). However, students are much less likely to experience racism if they attend a Tribal College or University, versus a PWI (Makomenaw, 2012).

Transculturation Theory and Cultural Congruity

This study utilized Transculturation theory and the concept of cultural congruity to better understand American Indian student's experiences in college and how they may be related to their persistence. The beginnings of Transculturation theory were in the social sciences with Fernando Ortíz, a Cuban writer and ethnographer (Ortiz, 1995), and A. Irving Hallowell, and American anthropologist, who introduced the concept of transculturation (Hallowell, 1963). Ortiz (1995) coined the term *transculturation* to be used in sociological terminology and suggested it be used to replace the term *acculturation*. Ortiz (1995) described transculturation as:

...the different phases of the process of transition from one culture to another because this does not consist merely in acquiring another culture, which is what the English word *acculturation* really implies, but the process also necessarily involves the loss or uprooting of a previous culture, which could be described as a deculturation. (p. 102)

Hallowell (1963) coined the term *transculturalization* to describe the “phenomenon that involves the fate of persons rather than changes in socio-cultural systems,” (p.523) within the context of *Indianization*. Hallowell (1963) described *Indianization* as what occurred when a non-Indian person lived with, and among, Indians, married an Indian, had children with an Indian, or even held positions of power amongst the Indians. It was acculturation that Hallowell (1963) described as leading to socio-cultural system changes, unlike *Indianization* which he described as an example of *transculturization*.

In more recent literature, transculturation is described as a form of socialization that includes the process of learning a new culture (Huffman, 2010). It involves exchanges between cultures where a person is constantly learning and growing their cultural skills and knowledge,

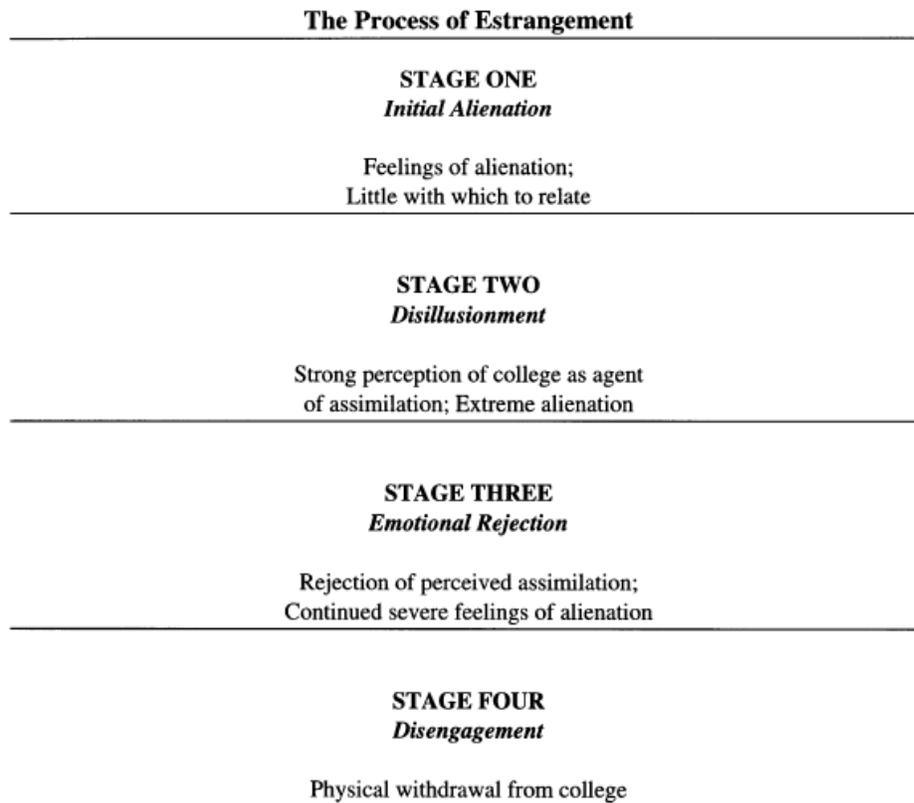
and emphasizes the ability for people to build upon their prior cultural knowledge (Huffman, 2010). Another important piece to transculturation is that the cultural exchanges do not have to lead to any cultural loss (Huffman, 2011), which American Indian students may feel they need to do (Huffman et al., 1986). This distinguishes transculturation from a similar concept of biculturation, because biculturation involves the person adopting aspects of the mainstream culture (Huffman, 2011), while transculturation does not require one to lose any part of their cultural identity (Huffman, 2010). Transculturation theory was formed to specifically describe the unique college experiences of some American Indian students to understand how American Indian students, including those who are culturally traditional, persist in college (Huffman, 2010). This theory states that American Indian college students engage in a process to learn the mainstream culture in higher education and are still able to retain, and rely on, their cultural heritage to create a strong identity (Huffman, 2001). The basis of transculturation includes two assumptions (Huffman, 2011); the first is that the ability for American Indian students to express their cultural identity, in full, at mainstream institutions of higher education is very crucial for the success of students (White Shield, 2004). White Shield (2004) states that in order to increase the enrollment and persistence of American Indian students, the mainstream institutions must provide their students with the opportunities to develop and maintain their cultural identity and attachment to traditional Native values. Huffman (2011) indicates that having a strong cultural identity will allow American Indian students to build the confidence to explore a new culture without the fear that they have to lose a part of their culture through assimilation. The second assumption of transculturation is that it is a type of socialization process where the person is able to engage in more than one cultural setting (Huffman, 2001).

Based on the results from a study of 69 American Indian college students—many of whom were Lakota, Huffman (2001) identified four cultural masks: Assimilated, marginal, estranged, and transculturated. A cultural mask is the process one goes through to build their ethnic identity and includes the way in which they use and project that ethnic identity (Huffman, 2001). Assimilated students were those who identified with the mainstream college culture and experienced few difficulties while in college. Marginal students were somewhat assimilated, but also wanted “some identification and affiliation with more traditional American Indian culture” (Huffman, 2001, p.6). Estranged students “had strong identification with traditional American Indian culture” (Huffman, 2001, p.6) and aggressively rejected assimilation (Huffman, 2001). They viewed the mainstream culture as a threat to their ethnic identity, did not trust the college setting, and had very difficult college experiences. Like the estranged students, transculturated students “also had strong identification with traditional American Indian culture” (Huffman, 2001, p.6) and did not want to assimilate. However, unlike the estranged students, transculturated students used their ethnic identity as a social-psychological strength and got strength and confidence from their cultural mask. These students showed confidence that came from their ethnic identity and had successful academic experiences (Huffman, 2001). Based on the interviews Huffman (2001) conducted, he identified the stages of estranged students: initial alienation, disillusionment, emotional rejection, and disengagement, shown in Figure 4. Huffman (2001) noted that the social, emotional, and cultural isolation the participants experienced was quickly followed by the detachment of the institution.

The first stage, initial alienation, describes the feelings these students experienced, likely due to being a culturally traditional American Indian on a mainstream college campus that

appeared rigid, formal, and unfamiliar. These culturally traditional American Indian students felt overwhelmed because they did not have many familiar cultural connections on campus and were

Figure 4. The process of estrangement (Huffman, 2001, p.7)



socially isolated. The second stage, disillusionment, describes students being frustrated by disillusionment at the institution. Students felt the campus was an invitation for assimilation, felt alienated, and wanted very much to maintain their cultural identity. The disillusion the students felt soon turned into an emotional rejection of the institution, the third stage. At this stage, students did not value the institution much, which they felt rejected them, and they prepare to disengage. The fourth stage, disengagement, came after students disengaged from their campus

physically or emotionally. The disengagement stage involves the physical withdrawal from the institution (Huffman, 2001).

In contrast, the process of transculturation will lead to student persistence in a mainstream college. Through interviews with college students (Huffman, 2001) -- including American Indian students who attended predominately non-Indian institutions, were attending reservation community colleges but had previously attended non-Indian institutions, and students who had dropped out of non-Indian institutions (Huffman, 1990) -- Huffman (1990, 2001) outlined four stages in the process of transculturation and are shown in Figure 5. The first stage, initial alienation, is the same as the first stage in the process of estrangement. In this stage, culturally traditional students did not relate to much at their campus, felt alienated from other American Indian students they viewed as assimilated (Huffman, 1990), and may have felt lonely, isolated, depressed, and that their cultural identity was the risk for their educational experience (Huffman, 2001). This is the stage where culturally traditional American Indian students are at risk of not persisting, and while students in this stage may want to leave their campus, those who experienced the process of transculturation decided to stay at their institution long enough to experience the next stage, self-discovery. In this stage, once culturally traditional American Indian students have endured feeling alienated, they reach a transculturation threshold where most start to realize that they are academically capable and that they can interact with other Native and non-Native students without losing their cultural identity. Many students realize that they succeeded because they were American Indian, had not tried to be anything else, and could remember a specific event where they persisted in spite of challenges while using their cultural heritage as a strength (Huffman, 1990; Huffman, 2001). At this stage, students felt more

comfortable in college. The threshold is based on student interviews from Huffman's (1990) research where some students described experiencing such events. One student described how he reached this threshold:

I really had to do some searching and really some finding out; am I going to accept the way I am or am I going to try to conform or am I just going to leave it alone? Finally I had to accept what I was and that there are some things that are more to being an Indian than just the 'Indian.' There was [sic] feelings and family and culture, there was [sic] ways of doing things. When I learned to separate the two and learn that this is the way you do it at work, this is the way you do it at home, and you conduct your family affairs this way, then that's good. I think the turning point came when I decided to separate the two... Then I resolved my 'Indianness' and the way the system works. (Huffman, 1990, p.4-5)

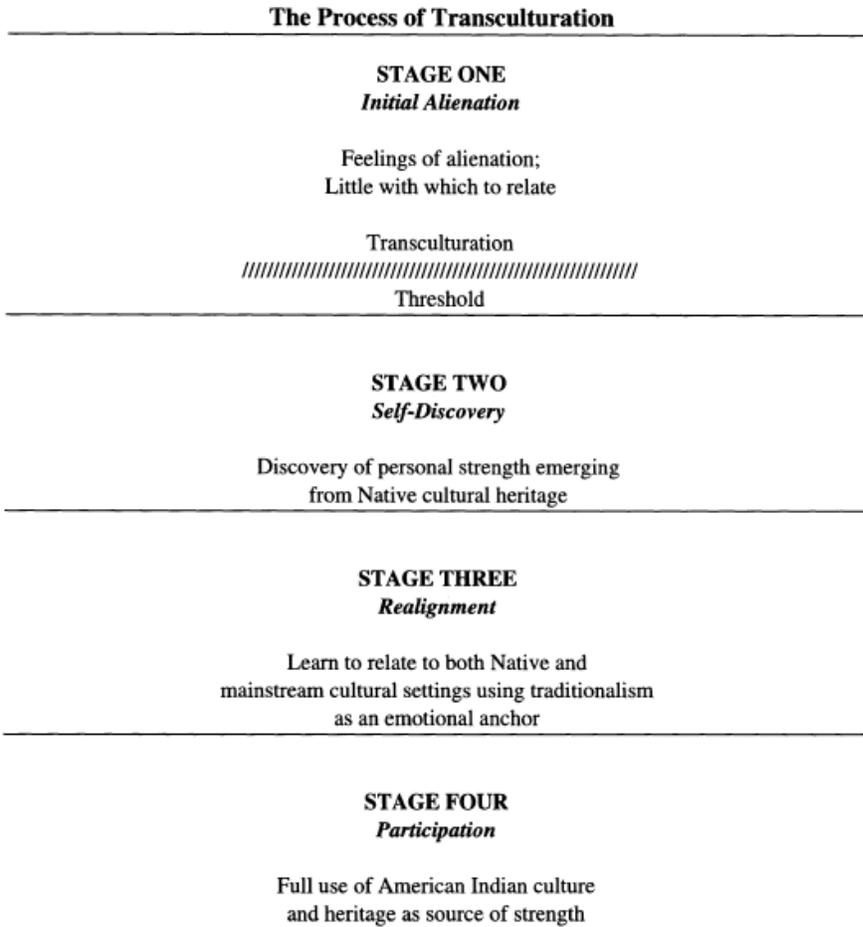
Another student in Huffman's research (1990) described it this way:

The first thing I found out when I came to college is how much Indian I was... I'd say my strongest identification with my own 'Indianness' has been since I've been here... It's a real source of strength because I guess it sort of gives me a reason for being here. (p.5)

In the third stage, realignment, students adjust their personal, social, and academic realms and begin to learn how to relate at both cultural levels depending on the situation. Students also evaluate their values, attitudes, and goals and compared them to those of their institution, as well as use "the appropriate norms and behavior" (Huffman, 2001, p.14) to operate in more than one culture (Huffman, 1990; Huffman, 2001). The final stage, participation, occurred when most students had overcome feeling alienated, were settling in to college and focusing on their studies to complete their education. In order to do so, students use their cultural heritage as "a source of strength, confidence, and identity" (Huffman, 2001, p.15). Based on the results from Huffman's (2001) qualitative study, he suggested transculturation hypothesis to help account for the different college experiences of the estranged and transculturated students. Huffman's (2001) research identified the transculturation hypothesis as the socialization process culturally

traditional American Indian students experience that results in their being able to persist in a mainstream college while maintaining their strong cultural identity.

Figure 5. Process of transculturation (Huffman, 2001, p.12)



Transculturation hypothesis has four major dimensions, the first being American Indian ethnic identity as an emotional anchor. This describes how transculturated students build a strong self-identity which allowed them the skills to interact with, and succeed in the mainstream culture. The confidence and sense of purpose shown was due to being an American Indian. The second dimension is the importance of the transculturation threshold; the transculturation

threshold is the specific event in which some transculturated students chose to maintain and use their cultural identity (Murakami & Mackey, 2018), which led to self-discovery and the creation of the transculturated cultural mask (Huffman, 2001).

The third dimension of the transculturation hypothesis is the ability to engage in two cultural settings, which happens without assimilation. Students increase their cultural knowledge and learn necessary skills and is then able to interact with two different cultures while maintaining their cultural identity. The fourth dimension of transculturation hypothesis is the process of cultural learning; this requires that students are secure with their ethnic identity. This security will allow students to explore and engage in the mainstream culture, thus learning the culture of their new social environment (Huffman, 2001). This is important because “successful performance in college requires dual operation at a Native American cultural level and a college mainstream level” (Huffman, 1990, p.10).

Cultural congruity is a concept that compares a person’s cultural and personal values to those of their college (Gloria & Robinson Kurpius, 1996), which can describe how they feel they fit in their institution (Bordes & Arredondo, 2005). Someone that has a high cultural congruity between his or her personal and cultural values to those of their higher education institution indicates their values are aligned (Cerezo & Chang, 2013). Thus, a person with lower cultural congruity would indicate their personal and cultural values do not agree as highly with their college’s values. One study found that American Indian student perceptions of their institutional environment was related to their decisions of nonpersistence (Gloria & Robinson Kurpius, 2001). Because cultural congruity can be a predictor in student persistence (Castellanos & Gloria, 2007), I decided to incorporate this with transculturation theory. As a student learns another

culture, as defined by transculturation theory, their cultural congruity of personal and cultural values compared to those of their college may help explain their decision to persist. A similar term to cultural congruity in the literature is cultural conflict. Cultural conflict occurs when there are differences between the values, behaviors, or political power “of those of the dominant status and those of the minority status” (Huffman, 2001, p.2). For some culturally traditional American Indian students, the challenges they experience from cultural conflict may be too overwhelming for them so they ultimately do not persist in college as a result. However, other students who encounter those same challenges are able to overcome them and persist in college (Huffman, 2001). Transculturation theory may help explain why some of the students persist while others do not.

### Persistence

Student success is important, if not imperative, in higher education. Student success is generally defined as their persistence and graduation from college (Strayhorn, 2015). While there are other ways to define success-- such as measuring student outcomes based on what the institution identifies they want their students to learn, many campuses do not measure that outside of the classroom so those data are unknown (Renn & Reason, 2012). Typically, though, institutions measure student success in college by persistence, satisfaction (Smart et al., 2006), and degree completion (Renn & Reason, 2012). Studying and collecting data about student retention began around the 1930's and continues today (Renn & Reason, 2012). Persistence refers to the student returning to college after initially enrolling until they graduate (Seidman, 2012), and can be measured term-to-term, year-to-year, or for any length of time the institution is interested in gathering those data. As many colleges measure the retention of their students, the

data typically includes six-year graduation rates for first time, full-time freshmen attending four-year universities, and this rate has been about 50% for many decades (Renn & Reason, 2012).

Campuses that measure student persistence may also study their attrition rates, which are the proportion of students who are not retained but instead drop out, quit school, or simply not return for their next term. Persistence is a term used to describe the individual phenomenon of the college student continuing to reach for their educational goal (Renn & Reason, 2012).

Persistence may be influenced by many factors, such as the challenges American Indian students may face during the socialization process they might experience as they engage in the mainstream culture (Huffman, 2001). For students who do not meet the transculturation threshold, they may experience the process of estrangement and leave the institution. For other American Indian students, they may choose to stay enrolled, meet the transculturation threshold, and experience the process of transculturation and persist (Huffman, 2001). Other factors to student persistence can include socioeconomic status, being employed or married, or having young children (Lepell, 2002).

Different from retention rates, student persistence may be reached even if the student does not earn a college degree if their goal did not involve getting a diploma (Renn & Reason, 2012). To further complicate the study of retention, a student may find work before graduating, decide to postpone school for a semester or longer, run out of financial aid, or experience any life changes that prevent them from completing a degree. All of these reasons would essentially hurt an institution's retention rate that can affect how the college is funded under performance-based funding models.

### 2-Year Versus 4-Year Institutions

Two-year institutions that offer certificate and associate degrees may vary in several ways from four-year institutions that offer bachelor's degrees. Table 2.1 outlines some of the differences, which could influence the experiences American Indian students have in college based on what type of institution they attend. Two-year campuses "serve a large proportion of minority, first-generation, low-income, and adult students" (Ma & Baum, 2016, p.5). Students who attend a two-year college are more likely to be non-traditional aged, which is age 24 and older (Ma & Baum, 2016), and are more likely to enroll part-time (Bok, 2015; Ma & Baum, 2016) because they are working more hours at a job off-campus (Bok, 2015). Compared to students attending a four-year college, students at a two-year college were more likely to be employed while in college, and more likely to work full-time. Two-year college students tend to be more likely to come from a family of lower socioeconomic status and first-generation college students than those students who attend a four-year college (Ma & Baum, 2016). Two-year colleges typically have more students who commute to campus, as they are less likely to live in residential housing (if it is even offered by their campus), and less likely to play an active role in having their students participate in extracurricular activities (Bok, 2015). Due to these differences, an American Indian student who attends a two-year college may have very different experiences than if they attend a four-year college.

Table 2.1 Comparison of two-year to four-year postsecondary institutions

<b>Two-year</b>	<b>Four-year</b>
Non-traditional aged	Traditional-aged
Students more likely to be enrolled part-time	Students more likely to be enrolled full-time
Working full-time	Not working full-time
Students living off-campus	Students living on-campus
Students less likely to be involved in extracurricular activities	Students more likely to be involved in extracurricular activities

### Chapter Summary

The history of American Indian students in higher education in the United States is one that includes forced assimilation (Mosley-Howard et al., 2016) but Transculturation theory suggests this is not a requirement in order for these students to persist in college today. American Indian college students may feel their values are incongruent with those of their mainstream college, especially those who are culturally traditional, and these may lead to challenges where students decide to not persist in college. These challenges can include feelings of isolation or alienation. Besides the challenges of transitioning to a mainstream college, American Indian students may have other barriers that may affect their persistence such as not being academically prepared for the rigor of college, a lack of financial aid, and experiencing racism. Factors that have previously been shown to be helpful for students to persist have included receiving parental support, receiving social support on campus, and being allowed to express their cultural identity on campus. American Indian student persistence is a complex topic, as each student is a unique individual with their own experiences and values.

## CHAPTER THREE

## METHODOLOGY

Introduction

The purpose of this study was to learn whether a relationship exists between cultural congruity and intentions to persist in college from American Indian students attending a 2-year campus and a 4-year campus in Montana by administering an online survey. The two research questions for this study were: 1) Do American Indian students' cultural congruity levels vary by institutional type (2- versus 4-year) and attachment to their ethnic group? 2) Do American Indian student's intentions of persistence vary by institutional type (2- versus 4-year), cultural congruity levels, and attachment to their ethnic group? This study sought to identify whether their experiences aligned with the concept of cultural congruity and Transculturation theory.

The results of this study may help understand whether cultural congruity will influence American Indian student's intent to persist, and, thus, their decision to stay enrolled in college until graduation. This is important because American Indian student retention in institutions of higher education is the lowest when compared to other populations (Shotton et al., 2012). This was a quantitative study using multiple regression, which allows for measuring the dependent variables and then attempting to make predictions.

Research Design and Rationale

This quantitative study utilized multiple regression to analyze survey data. Multiple

regression allows for the comparison of one dependent variable to multiple independent variables (Grimm, 1995; Keller, 2016). It also allows the ability to determine whether a predictive relationship exists between the variables (Field et al., 2012), by telling us how effective the independent variables are as predictors of the dependent variable (Keller, 2016). Multiple regression may be used when the levels of measurement for the variables are continuous or categorical (Grimm, 1995). This design was appropriate for this study because the dependent variables were continuous, and the independent variables were categorical. Also, as there is much to learn about the college experiences of American Indian students, quantitative research efforts are necessary (Huffman, 2008), and can provide empirical analysis (Lin, 1985).

Students attending a 2-year and 4-year campus in the Montana University System who identified themselves as American Indian or Alaska Native on their admissions application, or in their student portal, were invited to complete this survey via email. The rationale for this research design was that it is important to collect data from multiple American Indian students in order to identify whether a relationship exists between the variables of this study. Having responses from a larger sample size also helps to identify whether the responses from students are common or rare amongst the sample. Another rationale for this study was that American Indian culture is collectivist culture, therefore gathering data from a group of students would value the experiences and opinions from the group of students. Lastly, a lot of recent research on American Indian college students have been in the context of major research universities that enroll a large number of American Indian students. Therefore, research that includes smaller, rural campuses are important (Huffman, 2008). While Great Falls College MSU and MSU Billings are not rural campuses, they do enroll students who come from rural areas in Montana.

### Positionality

I am aware that my research interests were influenced by my personal experiences. I am a Hispanic, female, and first-generation college student. As a minority undergraduate college student, I was aware that my culture was different than the mainstream American culture. However, I acknowledge that every person has different experiences which is why I am interested in this study. I value the unique experiences of American Indian students attending a 2-year college or a 4-year university and want to learn more about their perceptions of cultural congruity and how it may affect their persistence in college. As a current college staff member, I believe that learning about these experiences will help college practitioners understand and serve their American Indian students better, and in a way that respects their cultural identity.

### Ethical Considerations

I acknowledge that I approached this study as an outsider, as I am not American Indian. As such, I wanted to respect the participants in my study, as well as the information about American Indians, their culture and values that I read about in the literature review. The relationship I had with participants was to respect their voices by presenting my findings in a manner that was respectful. With respect to reciprocity, this study generated findings that institutions can use to develop a more inclusive culture; one that recognizes and embraces the cultural identities and strengths that American Indian students bring with them to campus. This is especially important when the cultural distance between student's culture of origin and the mainstream campus culture, expectations, and norms are incongruent. Thus, a benefit to the participants is that their voices will be heard by their campus leaders. Another potential benefit for the participants was that I offered a raffle for prizes. Not every participant will receive a

monetary gift, but those who entered the raffle had an opportunity to receive a gift for their time in completing the survey. Relevance was also a consideration for this study, which is why the survey questions were only those needed to measure cultural congruity, intent to persist, and the control variables. The control variables were chosen based on the literature review that suggested students who differed by those variables may have different college experiences. Respect, relevance, reciprocity, and responsibility are the four R's presented by Kirkness and Barnhardt (1991). These four R's were most relevant to my study as they honor a two-way exchange between colleges and their American Indian students (Kirkness & Barhardt, 1991); an exchange that is grounded in cultural attunement and ethics.

### Context and Setting

Participants for this study were recruited from a 2-year campus within the Montana University system called Great Falls College Montana State University (GFC MSU), and a 4-year campus called Montana State University, Billings (MSU Billings). Of the 16 Montana University System schools, one 2-year campus and one 4-year campus were chosen for this study. Great Falls College MSU was chosen as the 2-year campus because I was employed there. Great Falls College Montana State University is a small, public, open enrollment college located in Northcentral Montana. The services at GFC MSU include the Native American Enrichment Center which is a meeting place for students and offers workshops, a Native American student group, and the Montana American Indian Scholars program which is a mentorship program (Native American Enrichment Center, n.d.). Montana State University, Billings is a comprehensive college (Peterson's, 2020b) located in Southeastern Montana. The services this college offers their American Indian students include a Native American

Achievement Center which provides internships, workshops, and is a part of several on campus cultural activities on campus. MSU Billings also provides an American Indian Outreach Student Services document that lists the contact information of many services that students may need, such as childcare, employment, and health services in the community (Native American Achievement Center, n.d.). Table 3.1 compares some quick facts between the two campuses: total size of the campus which refers to the unduplicated headcount of all students (including graduate students, if applicable), the total number of faculty (includes both full-time and part-time), and the student-to-faculty ratio (College Navigator—Great Falls College Montana State University, n.d.; College Navigator—Montana State University Billings, n.d.) for the fall 2018 term.

Table 3.1. Campus Facts

<b>Fall 2018</b>	<b>Great Falls College Montana State University</b>	<b>Montana State University Billings</b>
<b>Size</b>	1,514	4,315
<b>Faculty (Full-time)</b>	42	153
<b>Faculty (Part-time)</b>	74	148
<b>Student-to-Faculty Ratio</b>	12:1	14:1

Great Falls College Montana State University was selected because it is where I was currently employed, and it was also the campus reported as having the largest number of American Indian students enrolled in the fall 2016 semester compared to the other two-year campuses in the Montana University System (Montana University System American Indian Enrollment, 2016). In the fall 2016 semester, GFC MSU had 144 American Indian students enrolled, which was 8.6% of their student population (Montana University System American

Indian Enrollment, 2016). Table 3.2 reports the total number of American Indian and non-American Indian students at GFC MSU for the fall 2016 to 2019 terms (Montana University System American Indian Student Success Dashboard, n.d.). This table provides data for these four years to show how many students, on average, enroll at GFC MSU. Participants for this study were selected through a census sample and the survey was sent out via email to all American Indian or Alaska Native students who were 18 years or older, and were not a dual enrollment high school student, at GFC MSU.

Table 3.2. Great Falls College Montana State University Student Population by Ethnicity Group

<b>Fall Term</b>	<b>American Indian Students</b>	<b>Non-American Indian Students</b>
<b>2016</b>	144	1,530
<b>2017</b>	146	1,545
<b>2018</b>	127	1,387
<b>2019</b>	131	1,184
<b>Percent of 2016-2019 Enrollment</b>	8.8%	91.2%
<b>Average between 2016-2019</b>	137	1,412

Montana State University Billings was the 4-year campus selected for this study because I had a contact at the campus who could guide me in navigating their Institutional Review Board review processes before approving a student survey on their campus. This contact person was invaluable in accessing data, as they could help answer questions along the way and provide help in knowing who to contact on their campus with questions or issues. Access to data was the reason another 4-year college in the MUS was not chosen, and a decision was made to select predominately White institutions (PWI) instead of a Tribal College or University (TCU). The

literature described American Indian student’s cultural congruity at PWI’s, therefore I wanted to measure the cultural congruity at two Montana PWI’s. Selecting a TCU to be a part of this study would also have brought on other challenges in administering a survey at a campus where the researcher did not have a contact. Table 3.3 reports the total number of American Indian and non-American Indian students as of the fall terms between 2016 and 2019 at MSU Billings (Montana University System American Indian Student Success Dashboard, n.d.). Participants from this campus were also selected using a census sample.

Table 3.3. Montana State University Billings Student Population by Ethnicity Group

<b>Fall Term</b>	<b>American Indian Students</b>	<b>Non-American Indian Students</b>
<b>2016</b>	164	2,403
<b>2017</b>	178	2,272
<b>2018</b>	179	2,215
<b>2019</b>	206	2,100
<b>Percent of 2016-2019 Enrollment</b>	7.5%	92.5%
<b>Average between 2016-2019</b>	182	2,248

#### Population and Sample

The population for this study was American Indian college students in Montana attending two of the campuses in the Montana University System. There are currently 16 institutions that are a part of the Montana University System. These include two flagship universities, four regional universities, and ten 2-year colleges (Montana University System, 2017). Montana State University Billings was chosen because it was the 4-year campus that had the closest number of American Indian students as Great Falls College and because they have a Diversity Center, which I contacted to tell them about my study.

I used a census sample and sent my survey to all students at Great Falls College MSU and MSU Billings who identified themselves as American Indian or Alaska Native on their admissions application or through their student portal. In Fall 2020, when the survey was administered, the American Indian student enrollments were 110 and 183 at GFC MSU and MSU Billings, respectively (Montana University System American Indian Student Success Dashboard, n.d.), I did not want to sample from a small number of students. I wanted to get as many responses to the survey as possible, thus my rationale for sending the survey to all American Indian or Alaska Native students at both campuses.

A power analysis was used to help determine the sample size for a study (Murphy et al., 2003). For example, a power of .8 signifies that if this study were repeated multiple times, there would be an 80% chance of getting a statistically significant result if there is an effect. Based on the accessible population of American Indian students at each institution, surveys were sent to 108 American Indian students at GFC MSU and 174 at MSU Billings. A sample size calculator was used to estimate the ideal sample size for a confidence level of 90% and a margin error of 5%. This calculation resulted in a sample of 78 from GFC MSU and 107 from MSU Billings. However, 32 participants from GFC MSU and 35 from MSU Billings responded to the survey which yielded individual response rates of 32% and 20% respectively. Table 3.4 is a frequency table of each control variable, showing the proportion of responses by institution. The majority of the samples from both institutions were females, 88% at GFC MSU and 82% at MSU Billings. The majority of the students were in the 18-24 age group, 47% at GFC MSU and 46% at MSU Billings. The proportion of first-generation college students were almost equally distributed at each campus, 50% at GFC MSU and 44% at MSU Billings. From the GFC MSU survey

respondents, the majority were pursuing a Health Professions and Sciences academic program, while at MSU Billings the majority were pursuing a Health Professions and Sciences or Liberal Arts and Social Sciences program. At both institutions, the majority had completed 0-29 credits, 47% at GFC MSU and 38% at MSU Billings. The majority of students from GFC MSU reported a cumulative grade point average (GPA) between 3.00 and 3.49, 50%, while at MSU Billings the majority reported a 2.50 to 2.99 cumulative GPA, 32%. In regards to family college attendance, the majority of students from GFC MSU either had a mother who attended college, 38%, or no one in their family had attended college, 34%. From MSU Billings, the majority of students indicated their mother had attended college, 38%. At both campuses, the majority of students indicated they had not previously attended a Tribal College or University, 84% from GFC MSU and 65% from MSU Billings.

Table 3.4. Frequency Table of Control Variables

<b>Control Variable</b>	<b>Great Falls College Montana State University</b>	<b>Montana State University Billings</b>	<b>Chi-Square or Fisher's Exact Test</b>
<b>Gender</b>			$p = .734$
Male	13%	18%	
Female	88%	82%	
<b>Age</b>			$\chi^2 (2, 66) = 0.051,$ $p = .975$
18-24	47%	46%	
25-34	28%	29%	
35-64	25%	26%	
<b>First-Generation College Students</b>			$\chi^2 (1, 66) = 0.229,$ $p = .632$
Yes	50%	44%	
No	50%	56%	
<b>Academic Program</b>			
Business or Accounting	9%	6%	
Education or Teaching	3%	9%	
Health Professions and Sciences	53%	35%	

Liberal Arts and Social Sciences	3%	35%	
Unknown	31%	15%	
<b>Credit completion</b>			
0-29 credits	47%	38%	
30-59 credits	31%	24%	
60-89 credits	19%	15%	
90+ credits	3%	24%	
<b>Cumulative Grade Point Average</b>			
0.00-1.99	3%	6%	
2.00-2.49	6%	6%	
2.50-2.99	31%	32%	
3.00-3.49	50%	26%	
3.50-4.00	9%	29%	
<b>Family College Attendance</b>			
No one	34%	26%	
Sibling	16%	6%	
Spouse/partner	3%	15%	
Mother	38%	38%	
Father	9%	15%	
Legal guardian	0%	0%	
<b>Tribal College Attendance</b>			
Yes	16%	35%	
No	84%	65%	

### Test of Group Equivalencies with T-test and Chi-square

A series of tests were conducted to understand the similarity on specific demographic and background characteristics. These tests for group equivalencies were used to understand any significant differences in important background characteristics that may be a result of small sample sizes at each institution and subsequent small cell sizes for the variables. For the cultural congruity, persistence, and attachment to ethnic group variables, independent group t-tests were used to determine group equivalency. Chi-square tests were conducted to measure group

equivalencies for the gender, first-generation college student, and age variables. The analysis showed no group differences on measures of cultural congruity, persistence, attachment to ethnic group, gender, first-generation college student, and age.

Results of the independent group t-test between students attending the 2-year college ( $M= 5.9$ ,  $SD= .944$ ) versus the 4-year college ( $M= 5.6$ ,  $SD= 1.067$ ) did not have a statistically significant difference in cultural congruity,  $t(64)= 1.0$ ,  $p= .310$ . There was no significant effect for institutional type,  $t(64)= -0.8$ ,  $p= .448$ , between persistence scores of the 2-year college participants ( $M= 3.1$ ,  $SD= 1.532$ ) and 4-year college participants ( $M= 3.4$ ,  $SD= 1.538$ ). Regarding the attachment to ethnic group variable, participants from the 2-year college ( $M= 3.0$ ,  $SD= .740$ ) compared to those from the 4-year college ( $M= 3.4$ ,  $SD= .597$ ) did not have statistically significant scores,  $t(64)= -1.9$ ,  $p= .061$ .

A chi-square test of independence was performed to test group equivalency of institutional type and the control variable gender. Since one cell did not have at least 5 values, a Fisher's exact test was conducted, which found that the relationship between the variables was not significant,  $p = 0.734$ . A chi-square test of independence was performed to test group equivalency of institutional type and the control variable first-generation college student, and the relationship between these variables was not significant,  $X^2 (1, N= 66) = 0.229$ ,  $p= .632$ . The chi-square test of independence performed on institutional type and age found that there was not a statistically significant difference between these variables,  $X^2 (2, N= 66) = 0.051$ ,  $p= .975$ .

#### Data Collection Procedures

Before collecting data, I first completed an Internal Review Board (IRB) application.

After submitting the IRB application and after receiving approval, I submitted my IRB application, IRB approval letter, survey questions, and consent form to the Office of Institutional Research at GFC MSU per their campus policy for conducting surveys on campus for review (Great Falls College MSU Policy Manual, 2016). I also completed a Survey Request Form to document the purpose, description, security measures, and other details of my study. Since I was currently the Institutional Researcher and Data Analyst in the Office of Institutional Research at GFC MSU and was the one who reviews survey requests for the campus, I assigned a proxy to review the documents of my survey request to eliminate bias. After submitting the online survey request form, the proxy for the Office of Institutional Research gave a response within five business days. Once the study was approved, I sent the survey to all American Indian students enrolled who were not a high school dual enrollment student, were age 18 or older, and who had not completed a Restriction of Release of Information form.

To begin the data collection process at MSU Billings, I submitted a copy of my IRB application, approval letter, consent form, and survey questions to their IRB for review. Once approved, I contacted their Student Data Steward for approval and submitted the same documents (copy of my IRB application, approval letter, consent form, and survey questions) to them. After my study was approved, I contacted their Institutional Research, Analysis, and Programming department for assistance in emailing the survey to the students.

The survey was in electronic format through *Qualtrics* and was available for students to complete for four weeks. Since I offered a raffle for prizes, my survey gave the option for students to type in their email address. In order to ensure student confidentiality, I extracted identifying information from the survey data file to ensure I did not maintain a copy of the

results where their contact information was tied to their responses. I did not share the raw data file with anyone else to ensure student confidentiality. At the end of data collection, I randomly selected three participants from each campus to contact about their prize. Data will be destroyed after ten years.

### Variables, Constructs, and Instrumentation

The independent variables for this study were whether the student was attending a two-year or four-year campus (institutional type), attachment to their ethnic group, and the student's cultural congruity. Whether the student was attending a two-year versus a four-year campus was a nominal variable, while attachment to ethnic group and cultural congruity were interval variables. The level of measurement for the independent variables may be continuous or categorical in a multiple regression study (Grimm, 1995). The dependent variables were cultural congruity and intentions of persistence. Both of these variables were interval variables, as they came from scores from a survey instrument. Cultural congruity was used as both an independent variable and a dependent variable because it allowed me to examine the differences in levels of cultural congruity based on institutional type to ensure that the two samples were similar. Intent to persist was selected so that the research could be conducted within one semester and because it was more feasible; if persistence was measured instead, then student identification numbers would have been needed and then the researcher would have needed to contact the participating campuses in a later semester to identify those survey respondents who persisted to a future semester.

The control variables for this study were the student's gender, age, first-generation college student status, number of credits completed, academic program, self-reported cumulative

grade point average, whether or not they have ever attended a Tribal College or University, and family college attendance. These variables were selected based on the literature for being potential factors that could influence the results for this study as presented in chapter 2. The constructs include cultural congruity and intentions of persistence.

The primary independent variables for institutional type was coded 0= 2-year and 1= 4-year. The cultural congruity measure was coded on a scale of 1 to 7, where 1= Not at all, and 7= A great deal. Persistence was measured on a 5-point Likert scale, and the scale depended on the question. For example, the question that asked, "How much thought have you given to stopping your education here perhaps transferring to another college, going to work, or leaving for other reasons?" the scale was 5= Very little thought, and 1= A lot of thought, so that a scale of 5 indicated a higher intent of persistence. For the control variable of academic program, the codes were 1= education or teaching, 2= business or accounting, 3= liberal arts and social sciences, 4= unknown, and 5= health professions and sciences. For credit completion, the codes were 1= 0-29 credits, 2= 30-59 credits, 3= 60-89 credits, 4= 90 or more credits. For age, the codes were 1= 18-24, 2= 25-34, 3= 35-64. Gender was coded 0= male, 1= female. Cumulative grade point average was coded 1= 0.00-1.99, 2= 2.00-2.49, 3= 2.50-2.99, 4= 3.00-3.49, 5= 3.50-4.00. Family college attendance was coded 1= no one, 2= sibling, 3= spouse/partner, 4= mother, 5= father, and 6= legal guardian. Tribal college attendance was coded 0= yes, 1= no. Attachment to ethnic group was coded 1= strongly agree, 2= somewhat disagree, 3= somewhat agree, 4= strongly agree.

Table 3.5. Variables and levels of measurement

	<b>Variable</b>	<b>Level of Measurement</b>	<b>Coding</b>
<b>Independent Variables</b>	Type of Institution: 2-year or 4-year	Nominal	0= 2-year, 1= 4-year
	Cultural Congruity	Interval	1= Not at all, 7= A great deal
	Attachment to ethnic group	Interval	1= strongly disagree, 2= somewhat disagree, 3= somewhat agree, 4= strongly agree
<b>Dependent Variables</b>	Cultural Congruity	Interval	1= Not at all, 7= A great deal
	Intentions of Persistence: Institutional commitment and degree commitment	Interval	5-point Likert scale used; values depended on question
<b>Control Variables</b>	Academic Program	Nominal	1= Education or Teaching, 2= Business or Accounting, 3= Liberal Arts and Social Sciences, 4= Unknown, 5= Health Professions and Sciences
	Credit completion	Ordinal	1= 0-29 credits, 2= 30-59 credits, 3= 60-89 credits, 4= 90+ credits
	Age	Ordinal	1= 18-24, 2=25-34, 3= 35-64
	First-Generation College Student	Nominal	0= yes, 1= no
	Gender	Nominal	0= male, 1= female
	Cumulative Grade Point Average	Ordinal	1= 0.00-1.99, 2= 2.00-2.49, 3= 2.50-2.99, 4= 3.00-3.49, 5= 3.50-4.00
	Family College Attendance	Nominal	1= no one, 2= sibling, 3= spouse/partner, 4= mother, 5= father, 6= legal guardian
Tribal College Attendance	Nominal	0= yes, 1= no	

The Cultural Congruity Scale (CCS) created by Gloria and Kurpius (1996) and two sections of questions from the College Persistence Questionnaire created by Davidson, Beck, and Milligan (2009) were used in this study. The CCS is a measure of a student's congruity between their cultural values and those of their college (Gloria & Robinson Kurpius, 1996). Seven of the

items on the CCS are reverse-scored, so higher scores indicate an increased sense of cultural congruity. The CCS has had students respond to the statements in a Likert-type scale from 1 (*not at all*) to 7 (*a great deal*) (Gloria & Robinson Kurpius, 1996), 1 (*strongly disagree*) to 4 (*strongly agree*) (Gloria et al., 2015), 1 (*not at all true*) to 7 (*very true*) (Cano et al., 2014), or a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*) (Constantine & Watt, 2002). For this study, I chose to use the original 7-point Likert scale of 1 (*not at all*) to 7 (*a great deal*) as that was how it was used when the instrument was validated. Adding up the responses obtained a total congruity score for each participant, where higher scores mean a greater cultural congruity (cultural fit) between the participant's values and the values of their institution (Constantine & Watt, 2002). Refer to Appendix A to view the survey items.

The CCS was originally piloted with ethnic minority college students from a large southwestern university, and then validated with two large samples of Hispanic students from two large universities (Gloria & Robinson Kurpius, 1996). Since then, it has mainly been used with ethnic minorities attending a PWI (Constantine & Watt, 2002). The convergent and discriminant validity of the CCS was assessed to show construct validity (Gloria et al., 2015). In the study by Gloria, Castellanos, and Herrera (2015), the instrument was administered twice to the same participants, two weeks apart, and the CCS showed a reliability above a .70 each time it was administered. The CCS was originally administered with the University Environment Scale (UES) and Gloria and Robinson Kurpius (1996) stated that the most effective use of the CCS and UES would be to use them together. However, for this study the UES did not fit with the constructs and variables being examined, and based on the reliability and validity of the scale, I

decided to use it in combination with questions from another instrument—the College Persistence Questionnaire.

The College Persistence Questionnaire was originally created with six factors: institutional commitment, degree commitment, academic integration, social integration, support services satisfaction, and academic conscientiousness (Davidson et al., 2009). Since the factors that best addressed the constructs of this study were institutional commitment and degree commitment, only the questions for those two factors were included in my survey. These two factors include questions pertaining to a student's decision to stay at their college and complete their degree, which aligned with my variable of intentions of persistence. In Davidson, Beck, and Milligan's (2009) study, they controlled for high school class rank and standardized test scores and found that institutional commitment, along with two other factors, were significant predictors of enrollment status. One of the colleges that participated in Davidson, Beck, and Milligan's (2009) study to create the College Persistence Questionnaire gathered test-retest data that showed the institutional commitment factor resulted in consistent scores over a 5-week period. Due to the reliability and validity of the College Persistence Questionnaire, I chose to include two of the factors in my survey. Both of these instruments have not been validated for use with American Indian students. However, since they have been used with minority students and align with the constructs of this study, they were the best fit. Also included in the survey was an open-ended question that asked, "Are there any other comments you would like to share," in order to give students the opportunity to elaborate on any of their responses or share any other comments. The survey instrument for my study that include the combined questions from the

Cultural Congruity Scale and the College Persistence Questionnaire, as well as the control variable questions, can be found in Appendix A.

### Missing Data

The responses from one participant from the 4-year college were excluded from the data analysis because of systematic omission of a focal variable (cultural congruity). For the survey items measuring cultural congruity and persistence, there were five missing values from four unique participants on five survey items. For these five survey items, mean replacement was used to address the missing values so as to not exclude these students from the analysis. This was critical given the sample size. Mean replacement is where the missing data is replaced with the mean value of that item's responses (Curley et al., 2019). For the survey item, "I feel that I have to change myself to fit in at school," the one missing response was substituted with a value of 6.02. For, "My family and school values often conflict," the one missing response was substituted with a value of 6.28. For, "I feel accepted at school as an ethnic minority," the one missing value was substituted with 4.97. For, "As an ethnic minority, I feel as if I belong on this campus," the one missing value was substituted with 5.09. For, "I can talk to my family about my struggles and concerns at school," the one missing value was substituted with 5.68. Mean replacement was appropriate because there was a small number of missing values-- only one missing value for each of five survey items measuring cultural congruity and persistence (Curley et al., 2019; Zhang, 2016). For the attachment to ethnic group statement of "I feel a strong attachment towards my ethnic group," the one missing value was replaced with the mean imputation of 3.2. There were no missing data for the control variables used in this study including gender, age, and first-generation college student status. The additional descriptive data

including academic discipline, cumulative GPA, family college attendance, and Tribal college attendance were not used in the regression analysis due to the small sample size.

### Data Preparation

An exploratory factor analysis was conducted to examine if the sample was consistent with the findings from the literature that the 13 items of the cultural congruity measure represented one latent construct of cultural congruity. The results of the factor analysis indicated three distinct factors. However, only one survey item loaded on Factor 3. I chose to use the original latent variable of cultural congruity based on prior literature for two reasons. One, the instrument had been previously validated using all 13 items and I wanted to maintain integrity. Second, the latent construct of cultural congruity using all 13 items had the greatest variability in responses and highest Cronbach's alpha ( $\alpha = 0.85$ ). The exploratory factor analysis results are located in Appendix D. For the measurement of persistence, one single survey item was used.

### Data Analysis

Robust regression was used to analyze the first research question with the STATA command of `rreg` to account for the dependent variable of cultural congruity being negatively skewed, and robust regression with the STATA command that includes `vce(robust)` was used to analyze the second research question to account for standard errors and nested data. STATA 16 was used to run the analyses. Robust regression weights each unit based on the total influence in the model. Therefore, if there were any effects from individuals residing in the same institution, robust regression would weight these influential observations based on the residuals. Robust regression does not affect the beta coefficients but adjusts the standard errors to achieve more

accurate p-levels (Mehmetoglu & Jakobsen, 2016). Hierarchical Linear Modeling would be the preferred procedure to account for this nested effect. However, the sample size for each institution was too small to have level one and level two data with an adequate power (Woltman et al., 2012). To address this, the cluster command for robust regression was used to address any potential autocorrelations among the individuals within each institutional type.

The model building strategy was the same for each research question. The first three models were reduced models where the focal variables were regressed on the dependent variables in a set of binary regressions. The final model was the full model that included all focal variables as well as the three control variables used in the analysis. This approach was used to first independently examine the net effect of the relationships between the focal variables and dependent variables (Kelley & Bolin, 2013). Then, the addition of the control variables allowed me to examine how the focal variables changed when the control variables were accounted for in the final model.

I measured the construct of intentions of persistence through student responses to one of the survey items from the questions from the institutional commitment and degree commitment factors of the College Persistence Questionnaire. Cultural congruity was measured through student responses to the Cultural Congruity Scale. I analyzed whether there were relationships between the following variables: 1) cultural congruity and institutional type (2-year or 4-year), 2) cultural congruity and attachment to ethnic group, 3) cultural congruity with institutional type (2-year or 4-year) when controlling for gender, age, and first-generation college student status, 4) intentions of persistence and institutional type (2-year or 4-year), 5) intentions of persistence and cultural congruity, 6) intentions of persistence and attachment to ethnic group, 7) intentions of

persistence with institutional type (2-year or 4-year), cultural congruity, and attachment to identity, and 8) intentions of persistence with institutional type (2-year or 4-year), cultural congruity, and attachment to ethnic group when controlling for gender, age, and first-generation college student status.

I then tested all regression assumptions for each research question by conducting robust regression to examine a set of models for each research question. For the first research question, do American Indian student's cultural congruity levels vary by institutional type (2-year versus 4-year) and attachment to their ethnic group? The three models were: cultural congruity= institutional type; cultural congruity= attachment to ethnic group; and cultural congruity= institutional type + attachment to ethnic group + control variables.

For the second research question, do American Indian student's intentions of persistence vary by institutional type (2-year versus 4-year), cultural congruity levels, and attachment to their ethnic group?, the models were: persistence= institutional type; persistence= cultural congruity; persistence= attachment to ethnic group; persistence= institutional type + cultural congruity + attachment to ethnic group; and persistence= institutional type + cultural congruity + attachment to identity + control variables.

### Assumptions

Assumptions for multiple regression studies include the type of variables, non-zero variance, multicollinearity, no correlation between independent variables and extraneous variables, homoscedasticity, independent errors, normally distributed errors, independent data, and linearity (Field et al., 2012). Assumptions were checked using the regcheck command in STATA 16. The first assumption is that all independent variables be at least categorical, and the

dependent variable must be "quantitative, continuous, and unbounded" (Field et al., 2012, p.271). The second assumption is that independent variables must vary in value and not have a variance of zero (Field et al., 2012). The third assumption is that there must not be a perfect multicollinearity between any of the independent variables (Field et al., 2012). In STATA 16, this was checked by computing variance inflation factors. The fourth assumption is that independent variables are not correlated with any extraneous variables that may be influencing the dependent variable (Field et al., 2012). This was checked with a Linktest in STATA 16. The fifth assumption is homoscedasticity, which means that "the residuals at each level of" the independent variables must have the same variance (Field et al., 2012, p. 272). This was checked through a Breusch-Pagan hottest in STATA 16. The sixth assumption is that there are independent errors, meaning that for "any two observations the residual terms should be uncorrelated" and can be tested by the Durbin-Watson test (Field et al., 2012, p.272). The seventh assumption involves normally distributed errors, which assumes that differences between the model with predicted values and the observed data are close to zero (Field et al., 2012). A Shapiro-Wilk test of normality was used to test this assumption. The eighth assumption is to have independent data, so that each value for the dependent variable comes from a different participant (Field et al., 2012). The last assumption is linearity, which occurs when the mean values for the dependent variable for each increment of the independent variables lie on a straight line (Field et al., 2012). Testing the assumptions for the full model of the first research question resulted in a violation, as residuals were not normally distributed. All other assumptions were met, so robust regression was used to account for this error. Testing the assumptions for the full model of the second research question resulted in no violations.

A correlation analysis was conducted to examine the association among the independent, dependent, and control variables. The correlation matrix is shown in Table 3.6. The results show correlations of  $-.227$  to  $.387$  among the six variables, which means there is no perfect linear relationship between any of the predictor variables. An assumption of regression is that there is no multicollinearity between the predictor variables, and none of the predictor variables correlated highly with another (higher than  $.80$ ) so it does not suggest the presence of multicollinearity (Field, 2013).

Table 3.6. Correlation Table of Independent, Dependent, and Control Variables

	Persistence	Cultural Congruity	Attachment to Ethnic Group	Gender	Age Range	First-Generation College Student
Persistence	1					
Cultural Congruity	$.387^{**}$	1				
Attachment to Ethnic Group	$-.227$	$-.273^*$	1			
Gender	$-.044$	$.060$	$-.125$	1		
Age range	$.209$	$.227$	$-.044$	$-.204$	1	
First-Generation College Student	$.070$	$.182$	$-.081$	$.110$	$-.115$	1

\* $p < .05$ . \*\* $p < .01$ .

### Study Reliability and Validity

Reliability is the extent that a study can be repeated with similar results (Boudah, 2011). For an instrument to be reliable it must be consistent (Bryman & Cramer, 2003). Two important factors to reliability are internal reliability (Singh, 2007) and external reliability. Internal reliability refers to an instrument with multiple-item scales being internally consistent

and measuring the same thing (Bryman & Cramer, 2003). External reliability refers to how consistent an instrument is over time with the same participants (Bryman & Cramer, 2003).

To address the reliability of this study, I chose two instruments that have previously been measured for reliability. To have greater internal reliability I must also ensure that data collection and analysis would be consistent if repeated (Boudah, 2011). To address the reliability of this study I included the survey instrument and instructions in Appendix A, consent form in Appendix B, and the email sent to students with the survey link in Appendix C to document the communication students received regarding this study. Threats to the reliability of this study would be if any student does not answer honestly to each statement or if they are unaware of some of their information, such as class rank or grade point average.

Validity refers to the extent that an instrument is measuring what it intends to measure, and not something else, and assumes there is reliability (Bryman & Cramer, 2003; Singh, 2007). The types of validity in quantitative research are internal and external validity (Boudah, 2011). Internal validity takes into account extraneous variables that could be influencing the results of the study (Singh, 2007). Construct validity is a category of internal validity and is when the researcher attempts to deduce a hypothesis based on a theory that is related to the concept to anticipate certain results (Bryman & Cramer, 2003). To address the internal validity of this study, I included control variables based on past literature that indicated they may influence an American Indian student's persistence in college. Both instruments I used have already been validated by the researchers who created them. However, there may be other confounding variables not included in this study that may have influenced the relationship between the independent variables and the dependent variables. These include whether or not the

student lived on campus, whether they were employed more than half-time while enrolled in school, and whether or not they participated in extracurricular activities. Also, the data are nested based on the students attending two institutions.

External validity is the degree to which an observed relationship among variables can be generalized to other populations (Boudah, 2019; Singh, 2007). To generalize findings to other populations, the study must have participants who are similar to the population and not just a convenience sample (Boudah, 2019). Using a large, representative participant sample will have a greater external validity than a study that uses a small, distinctive group of participants (Boudah, 2019). Since I did not sample my population, this was a threat to the external validity of my study. My results may only apply to the participants, if response rates were low.

### Chapter Summary

Multiple regression was the most appropriate method to analyze survey data with the independent and dependent variables of this study. The Cultural Congruity Scale and the College Persistence Questionnaire was used to measure student's cultural congruity and intentions of persistence, and other questions were included in the survey to address the control variables in this study and measure attachment to ethnic group. A quantitative study allowed for the experiences of multiple American Indian students to be examined to learn more about their cultural congruity and how it may be related to persistence.

## CHAPTER FOUR

### RESULTS

#### Introduction

This chapter explains the results of this study which examined the intentions of persistence and cultural congruity of American Indian or Alaska Native students attending Great Falls College MSU and MSU Billings. The results include the tests of all regression assumptions for each research question using robust regression. These analyses were conducted to answer the two research questions of this study: 1) Do American Indian students' cultural congruity levels vary by institutional type (2- versus 4-year) and attachment to their ethnic group? 2) Do American Indian student's intentions of persistence vary by institutional type (2- versus 4-year), cultural congruity levels, and attachment to their ethnic group?

#### Descriptive Data Results

This section presents the results of the descriptive statistics for the independent and dependent variables. The findings indicate that the average cultural congruity score was 5.8 on a 7-point scale, so closer to a higher cultural congruity. The average persistence score was 3.2 on a 5-point scale, so closer to the middle. Table 4.1 shows the focal variables and the range of responses that were received, the coding range of possible responses for each item, the mean of all responses to each item, and the standard deviation. Cultural congruity and persistence were the main independent and dependent variables. The cultural congruity index ranged from scores of 2.6 to 7, with scores of 1 to 7 being possible on the scale (coding range). The mean score was

5.8 and standard deviation was 1.0. The standard deviation of 1.0 shows that the majority of the sample spread from a low of 4.8 to a high of 6.8. As the skewness of -1.010 is very close to -1.000, it indicates that cultural congruity is not a skewed distribution. The kurtosis of 3.700 indicates that the distribution is slightly heavy tailed and peaked (Hair et al., 2014).

Intentions of persistence was measured through responses to the question shown in the table, and scores ranged from 1 to 5—which was also the coding range. Mean scores were 3.2 and the standard deviation was 1.5. The mean indicates that, overall, students were neutral in regards to their intentions of persistence. The standard deviation of 1.5 indicates that, on average, each score is 1.5 points on the 5-point scale away from the mean. A skewness of -0.154 for the persistence measure does not indicate a skewed distribution, as the value is greater than -1 but lower than 1 (Hair et al., 2014). A kurtosis of 1.485 is not greater than 3, so it is not heavy tailed or light tailed (UCLA Institute for Digital Research & Education, n.d.).

The survey item that measured attachment to ethnic group is the third focal variable listed in Table 4.1. Responses to the survey item ranged from 2 to 4, and the coding range was 1 to 4. The mean score was 3.2, which demonstrates that, overall, students had a stronger attachment to their ethnic group. The standard deviation of 0.684 demonstrates that on average each score is 0.684 points away from the mean. A skewness of -0.279 does not indicate a skewed distribution since the value is not less than -1 (Hair et al., 2014), and a kurtosis of 2.157 does not indicate a heavy tailed or light tailed distribution, as it is not greater than 3 (UCLA Institute for Digital Research & Education, n.d.).

Table 4.1. Focal variables

<b>Focal Variables</b>	<b>Range</b>	<b>Coding Range</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Skewness</b>	<b>Kurtosis</b>
Cultural Congruity Index	2.62 to 7	1 to 7	5.8	1.0	-1.010	3.700
How much thought have you given to stopping your education here perhaps transferring to another college, going to work, or leaving for other reasons?	1 to 5	1 to 5	3.2	1.5	-0.154	1.485
I feel a strong attachment towards my own ethnic group	2 to 4	1 to 4	3.2	0.684	-0.279	2.157

Table 4.2 shows the frequency of the independent variable institutional type and control variables gender, age, and first-generation college student. Overall, the students in the sample were balanced between the two institutions, as approximately 48.5% attended GFC MSU and 51.5% attended MSU Billings. There were more females (84.8%) who participated in this study than there were males (15.2%). Students were more likely to be in the 18-24 age range (45.5%) compared to 25-34 (28.8%) or 35-64 (25.8%). Students in the sample were slightly less likely to be a first-generation college student (47.0%) compared to students who had a parent or legal guardian who attended college (53.0%).

Table 4.2. Independent and control variables

<b>Independent and Control Variables</b>	<b>%</b>
Institutional Type	
GFC MSU= 0	0- 48.5%
MSU Billings=1	1- 51.5%
Gender	
0= male	0- 15.2%
1= female	1- 84.8%
Age	
1= 18-24	1- 45.5%
2= 25-34	2- 28.8%
3= 35-64	3- 25.8%
First-Generation College Student	
0= yes	0- 47.0%
1= no	1- 53.0%

### Analyses

In this next section I present the results of the robust regression organized by hierarchical model building and research questions. An alpha level of  $p < 0.10$  was used to interpret statistical significance based on the small sample size (Lavrakas, 2008) and 90% confidence intervals are presented, along with the alpha levels, to provide a measure of confidence to the unstandardized beta coefficients.

### Regression Analysis of Variables

Robust regression was used to examine the relationships between the two dependent variables in this study, cultural congruity and persistence, and the three independent variables, institutional type, attachment to ethnic group, and cultural congruity. The full models for both research questions included the full set of control variables: gender, age, and first-generation college student status. Three models were used for the first research question: Do American Indian student's cultural congruity levels vary by institutional type (2- versus 4-year) and

attachment to their ethnic group? Model 1 was cultural congruity index= institutional type; Model 2 was cultural congruity index= attachment to ethnic group; and Model 3 was cultural congruity index= institutional type + attachment to ethnic group + controls. The cultural congruity index was the average score for all items of the Cultural Congruity Scale.

Table 4.3 shows the results from the three models. The reduced Model 1 examined the relationship between institutional type and cultural congruity, and the results describe how well cultural congruity is predicted by institutional type. The F-test was not significant, indicating that institutional type does not significantly predict levels of student cultural congruity,  $R^2 = 0.015$ ,  $F(1, 64) = 1.11$ ,  $p = 0.296$ . As robust regression was used using the `rreg` command in STATA 16 to obtain the  $R^2$  value, an adjusted  $R^2$  was not reported. Institutional type only accounts for 1.5% of the variance in the model.

Model 2 examined the relationship between cultural congruity and attachment to their ethnic group and the results indicate how well cultural congruity is predicted by attachment to ethnic group. The F-test was significant, suggesting that there is a statistical relationship between attachment to ethnic group and student's perceived level of cultural congruity. Attachment to ethnic group explains 5.1% of the variance in student's perceived level of cultural congruity,  $R^2 = 0.051$ ,  $F(1,64) = 3.98$ ,  $p = 0.050$ . Since robust regression was used using the `rreg` command in STAT 16 to obtain the  $R^2$  value, an adjusted  $R^2$  was not reported. As I further explored this relationship, the unstandardized regression coefficient indicates a significant negative relationship between student's perceived attachment to their ethnic group and levels of cultural congruity ( $\beta = -0.350$ , 90% CI:  $-0.644, -0.057$ ,  $p = 0.050$ ). The unstandardized beta coefficient,  $\beta = -0.350$ , falls within the 90% confidence interval range, which further supports the probability of

achieving the same coefficient 90% of the time when taking multiple samples from the population. Since the confidence intervals do not include zero, then I can assume this effect is present in the population. This indicates that for a one-unit increase in student's attachment to their ethnic group, student's levels of cultural congruity decrease by approximately a third-point on a 7-point scale. The practical significance will be discussed in chapter five.

In the full model (Model 3) when the controls were added, the relationship between the student's attachment to ethnic group and perceived levels of cultural congruity remained significant. The F-test for the full model shows that the linear combination of focal variables and control variables significantly related to student's perceived levels of cultural congruity  $R^2=0.106$ ,  $F(5, 60)= 1.98$ ,  $p= 0.095$ . An adjusted  $R^2$  was not reported since robust regression was used using the `rreg` STATA 16 command to obtain the  $R^2$  value. The linear combination of student's institutional type, attachment to ethnic group, and the three control variables (gender, age, and first-generation college student status) explain 10.6% of the variance in student's perceived level of cultural congruity. However, institutional type was not significant. A closer examination of the unstandardized coefficients showed that attachment to their ethnic group and age significantly predict student's perceived levels of cultural congruity in the full model. The unstandardized regression coefficient demonstrates a significant negative relationship between student's perceived attachment to their ethnic group and levels of cultural congruity ( $\beta= -0.314$ , 90% CI:  $-0.622, -0.005$ ,  $p= 0.095$ ). The unstandardized regression coefficient between age and student's levels of cultural congruity indicate a significant positive relationship ( $\beta= 0.275$ , 90% CI:  $0.022, 0.527$ ,  $p= 0.074$ ). The negative relationship between student's attachment to their ethnic group and perceived levels of cultural congruity indicates that, on average, a one-unit

increase in attachment to ethnic group was associated with approximately a one-third of a unit decrease in perceived levels of cultural congruity on a 7-point scale. Therefore, on average, based on a one-unit increase in attachment to ethnic group, student's mean score of 5.8 on levels of cultural congruity would be reduced to 5.5 on a 7-point scale when controlling for other variables. The positive relationship between student's age and perceived levels of cultural congruity shows that, on average, students are one-fourth of a category higher in perceived levels of cultural congruity for every one-unit increase in age. The age ranges were 18-24, 25-34, and 35-64. This suggests that older students have higher levels of cultural congruity. The 90% confidence interval for the unstandardized coefficients for attachment to their ethnic group and age further support the statistical relationships; the attachment to ethnic group unstandardized coefficient ( $\beta = -0.314$ , 90% CI: -0.622, -0.005,  $p = 0.095$ ) suggests that if an additional sample was taken from the population there is a 90% likelihood that their unstandardized coefficient for attachment to ethnic group would fall within the range of the confidence interval. Also, zero, meaning no effect, does not fall within that interval. For age, the unstandardized coefficient ( $\beta = 0.275$ , 90% CI: 0.022, 0.527,  $p = 0.074$ ) states that if an additional sample was taken from the population then there would be a 90% chance that their unstandardized coefficient for age would fall within the range of the confidence interval.

Since age and attachment to ethnic group were significant independent variables, I ran a post hoc analysis to examine whether there was a significant interaction between these two variables. Results demonstrated that there was no interaction between these two variables,  $F(3, 62) = 2.90$ ,  $p = 0.042$ . The unstandardized coefficient for age ( $\beta = 0.004$  with a CI of 90%: -1.194, 1.202,  $p = 0.996$ ), attachment to ethnic group ( $\beta = -0.543$  with a CI of 90%: -1.300,

0.213,  $p= 0.235$ ), and the interaction between age and attachment to ethnic group ( $\beta= 0.081$  with a CI of 90%: -0.285, 0.447,  $p= 0.713$ ), were not significant.

Table 4.3 Unstandardized Regression Coefficients for Cultural Congruity in Research Question 1

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
	<b>B(SE)</b>	<b>B(SE)</b>	<b>B(SE)</b>
Institutional Type Great Falls College MSU (reference) MSU Billings	-0.253 (0.240) $p=0.296$ 90% CI: -0.654, 0.148		-0.205 (0.249) $p=0.414$ 90% CI: -0.621, 0.211
Attachment to Ethnic Group		-0.350 (0.176) $p=0.050^*$ 90% CI: -0.644, -0.057	-0.314 (0.185) $p=0.095^*$ 90% CI: -0.622, -0.005
Gender Male (reference) Female			0.073 (0.348) $p=0.835$ 90% CI: -0.508, 0.653
Age			0.275 (0.151) $p=0.074^*$ 90% CI: 0.022, 0.527
First-Generation College Student Yes (reference) No			0.330 (0.245) $p=0.183$ 90% CI: -0.080, 0.740
Number of Observations	66	66	66
Intercept	5.976	6.975	6.531
R-squared	0.015	0.051	0.106

\* $p < .10$

Robust regression using the `vce(robust)` option in STATA was used to analyze the second research question because the assumption of normally distributed residuals was not violated.

Five models were used for the second research question: Do American Indian student's

intentions of persistence vary by institutional type (2- versus 4-year), cultural congruity levels, and attachment to ethnic group? Model 1 was persistence= institutional type; Model 2 was persistence= cultural congruity index; Model 3 was persistence= attachment to ethnic group; Model 4 was persistence= institutional type + cultural congruity index + attachment to ethnic group; and Model 5 was persistence= institutional type + cultural congruity index + attachment to ethnic group + controls. Table 4.4 shows the results from the five models.

Model 1 examined the relationship between institutional type and persistence and describes how well intentions of persistence is predicted by institutional type. The F-test was not significant, which indicates that institutional type does not significantly predict levels of persistence, adjusted  $R^2 = -0.006$ ,  $F(1, 64) = 0.58$ ,  $p = 0.448$ . Model 2 examined the relationship between cultural congruity and persistence, essentially how much intentions of persistence is predicted by cultural congruity. The F-test was significant, which suggests that there is a statistical relationship between levels of cultural congruity and intentions of persistence, adjusted  $R^2 = 0.137$ ,  $F(1, 64) = 13.27$ ,  $p = 0.001$ . Cultural congruity explains a significant amount of variability in intentions of persistence, as it explains 13.7% of the variance in student's intentions of persistence. The adjusted  $R^2$  of 0.137 differed slightly than the R-squared value of 0.150. To further understand this relationship, the unstandardized regression coefficient of 0.587 for cultural congruity ( $p = 0.001$ ) indicates that student's average persistence score is 0.587 higher for every one-unit increase in student's level of cultural congruity on a 7-point scale.

Table 4.4 Unstandardized Regression Coefficients for Persistence in Research Question 2

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model 5</b>
	B(SE)	B(SE)	B(SE)	B(SE)	B(SE)
Institutional Type Great Falls College MSU (reference) MSU Billings	0.289 (0.378) p= 0.448 90% CI: -0.342, 0.919			0.548 (0.360) p= 0.133 90% CI: -0.052, 1.149	0.523 (0.369) p= 0.162 90% CI: -0.094, 1.139
Cultural Congruity		0.587 (0.161) p= 0.001* 90% CI: 0.318, 0.856		0.552 (0.173) p= 0.002* 90% CI: 0.263, 0.840	0.514 (0.201) p= 0.013* 90% CI: 0.178, 0.850
Attachment to Ethnic Group			-0.507 (0.281) p= 0.076* 90% CI: -0.976, -0.037	-0.378 (0.292) p= 0.201 90% CI: -0.866, 0.110	-0.392 (0.299) p= 0.195 90% CI: -0.892, 0.108
Gender Male (reference) Female					-0.219 (0.415) p= 0.599 90% CI: -0.912, 0.474
Age					0.202 (0.246) p= 0.414 90% CI: -0.209, 0.613
First-Generation College Student Yes (reference) No					0.008 (0.372) p= 0.984 90% CI: -0.615, 0.630
Intercept	3.094	-0.133	4.863	0.997	1.090
R-squared	0.009	0.150	0.051	0.196	0.213
Adjusted R-squared	-0.006	0.137	0.036	0.158	0.133
Root MSE	1.535	1.421	1.502	1.404	1.425

\*p&lt;.10

Model 3 examined the relationship between attachment to ethnic group and persistence. The F-test was significant, which suggests a statistical relationship between student's attachment to their ethnic group and intentions of persistence, adjusted  $R^2 = 0.036$ ,  $F(1, 64) = 3.24$ ,  $p = 0.077$ . Student's attachment to their ethnic group explains 3.6% of the variability in intentions of persistence. The unstandardized regression coefficient indicates a significant negative relationship between attachment to ethnic group and persistence ( $\beta = -0.507$  with a CI of 90%: -0.976, -0.037,  $p = 0.076$ ); for every one-unit increase in a student's attachment to ethnic group as measured by their response to the survey item, there was approximately a half-point decrease in their response to the 4-point scale survey item measuring intention of persistence.

Model 4 examined the relationship between intentions of persistence, and the linear combination of predictors including institutional type, cultural congruity, and attachment to ethnic group. The F-test was significant, suggesting that there is a statistical relationship between intentions of persistence, institutional type, cultural congruity, and attachment to ethnic group. The adjusted  $R^2$  was 0.158, which means that institutional type, cultural congruity, and attachment to ethnic group account for 15.8% of the variability in students intentions of persistence, adjusted  $R^2 = 0.158$ ,  $F(3, 62) = 5.76$ ,  $p = 0.002$ . There is a small change of approximately 3.8% between the R-squared and adjusted R-squared. This suggests that the linear combination of independent variables is fairly efficient in explaining the variance in persistence. The unstandardized coefficient of 0.552 for cultural congruity ( $p = 0.002$ ) indicates a significant relationship between levels of cultural congruity and intentions of persistence, where participant's average persistence scores were 0.552 units higher for every one-unit increase in cultural congruity. The 90% confidence intervals for the unstandardized coefficients for cultural

congruity supports the statistical relationship; if an additional sample was taken from the population there is a 90% chance that the unstandardized coefficient for cultural congruity would be within the range of the confidence interval ( $\beta = 0.552$ , with a CI of 90%: 0.263, 0.840,  $p = 0.002$ ).

Model 5 was the full model that included the control variables of gender, age, and first-generation college student status. This model examined the relationship between institutional type, levels of cultural congruity, and attachment to ethnic group to intentions of persistence, when controlling for gender, age, and first-generation college student status and the F-test was also significant even when the control variables were added, adjusted  $R^2 = 0.133$ ,  $F(6, 59) = 3.41$ ,  $p = 0.006$ . The adjusted  $R^2$  value indicates that the linear combination of student's institutional type, levels of cultural congruity, attachment to their ethnic group, and the control variables of gender, age, and first-generation college student status explain 13.3% of the variance in student's intention of persistence. There is a large change of approximately 8.0% between the R-squared and adjusted R-squared. The large change in R-squared suggests that the addition of controls may not provide additional explanatory power over the focal variables. The unstandardized coefficient of 0.514 for cultural congruity ( $p = 0.013$ ) indicates that the average persistence score was 0.514 points higher for every one-unit increase in cultural congruity on a seven-point scale. On average, based on a one-unit change in perceived levels of cultural congruity, student's mean score of 3.2 on persistence would increase to 3.7 on a 5-point scale when controlling for other variables. There were no statistical relationships between persistence and the set of controls including gender, age, and first-generation college student status.

Since cultural congruity and attachment to ethnic group were significant independent variables in Model 2 and Model 3, respectively, I ran a post hoc analysis to examine whether there was a statistical interaction between levels of cultural congruity and the attachment to ethnic group measure. The post hoc model was: persistence = cultural congruity + attachment to ethnic group + cultural congruity\*attachment to ethnic group. The results indicated that there was no interaction between the two variables,  $F(3, 62) = 4.11, p = 0.010$ . The unstandardized coefficient for cultural congruity ( $\beta = 0.381$  with a CI of 90%: -1.337, 2.100,  $p = 0.712$ ), attachment to ethnic group ( $\beta = -0.548$  with a CI of 90%: -3.440, 2.344,  $p = 0.753$ ), and the interaction between cultural congruity and attachment to ethnic group ( $\beta = 0.044$  with a CI of 90%: -0.446, 0.534,  $p = 0.881$ ), were not significant.

### Qualitative Data

The survey gathered qualitative data in the form of open-ended survey responses to the question, “Are there any other comments you would like to share?” Fifteen participants typed a comment and five typed a response of “no” or “none.” Of the fifteen comments, seven provided additional details regarding the first-generation college student question by clarifying who in their family had either attended college or earned a college degree. Two comments were positive feedback regarding how well their campus provide a welcoming environment. The first of this comment stated, “I feel like universities in MT do a great job welcoming Native students,” and the second stated, “I have no complaints[,] this school is inviting and accommodating.” Three comments provided additional details about the participants. For example, one comment mentioned the participant was a veteran. One comment mentioned a negative experience at their

campus, “I feel that some professors have been harder on me because I am Native American. It is a horrible thing to think that some professors are racist and have grade[d] me more harsh [sic] than others.” Another comment said, “Thanks for the opportunity,” and the final comment indicated the student was considering changing their major.

### Chapter Summary

The purpose of this research was to survey American Indian or Alaska Native students attending Great Falls College MSU and MSU Billings to understand if their cultural congruity, intentions of persistence, and attachment to ethnic group are related. An electronic survey was sent during the fall 2020 semester to all American Indian or Alaska Native students attending Great Falls College MSU and MSU Billings who were 18 years of age or older, and were not current high school students, and the response rate at Great Falls College MSU was 30%, and it was 20% at MSU Billings. Results found significant relationships between several of the variables: attachment to ethnic group and cultural congruity, age to cultural congruity, cultural congruity to persistence, and attachment to ethnic group to persistence (only when these were the only two variables in the regression equation).

## CHAPTER FIVE

## CONCLUSIONS

Introduction

The purpose of this quantitative study was to explore whether there was a relationship between cultural congruity, American Indian students' intentions of persistence in college, and attachment to ethnic group. This study also explored whether there was a difference in cultural congruity experiences for students attending a 2-year versus a 4-year college, as well as a difference in intentions of persistence by institutional type. This chapter includes an overview of the study, methodology, discussion of the results, and recommendations for practice and future research.

Overview

The purpose of this study was to identify if a significant relationship existed between American Indian college student's cultural congruity or intentions of persistence with their institutional type (2-year versus 4-year). Such results would indicate students may have different experiences based on the type of institution they are attending, as 2-year colleges can differ greatly from 4-year colleges. These differences in institutional types could impact the way in which American Indian students experience college. Also, this study aimed to identify whether other cultural factors were related to persistence, which were cultural congruity and attachment to their ethnic group as a measure of cultural identity, to know whether students who experience greater cultural congruity were more likely to persist. This information is important for campuses

to know so that they can investigate ways to better assist American Indian college students to persist. This study utilized an electronic survey to measure the cultural congruity of American Indian or Alaska Native students attending a 2-year and 4-year college in the Montana University System using the questions from the Cultural Congruity Scale. Intentions of persistence was measured using a single survey item, and attachment to ethnic group was measured through one of the questions from the Multigroup Ethnic Identity Measure (Phinney, 1992).

The survey data were analyzed using robust regression to determine if relationships existed between the independent, dependent, and control variables. The independent variables were institutional type, cultural congruity, and attachment to ethnic group. The dependent variables were cultural congruity and intentions of persistence. Chapter 4 describes the results of the analyses. The significance of this study is that the findings may help to better understand whether institutional type, cultural congruity, or attachment to ethnic group may influence American Indian college student's persistence in college. This study focused on students attending one of the 2-year and 4-year colleges of the Montana University System. As the experiences American Indian students have attending a 2-year campus may differ than those attending a 4-year campus because the campus cultures are generally different, this study focused on institutional type as one of the variables. This study is an important problem of practice as it contributes knowledge of how institutions might increase persistence; retention among American Indian students has been lower compared to all other students in the Montana University System (Montana University System American Indian Student Success Dashboard, n.d.). As enrollment of American Indian students in any degree-granting postsecondary institution declined between 2000 and 2018, while enrollment of all college students increased during that timeframe

(National Center for Education Statistics, 2019), it is even more important to ensure that American Indian students are able to persist and graduate. Cultural congruity is a multifaceted construct that measures a student's perception between their culture of origin and the culture of the institutions. The experience that American Indian students have at a 2-year college may differ than those who attend a 4-year institution. Two-year colleges tend to have more ethnic minority, first-generation, low-income, and adult students (Ma & Baum, 2016) and have students who are less likely to participate in extracurricular activities (Bok, 2015).

### Summary of Methodology

This study utilized an electronic survey that was sent to American Indian or Alaska Native students 18 years old and older who were not current high school students taking college courses at a 2-year and 4-year college of the Montana University System. The survey instrument included questions to measure cultural congruity, intentions of persistence, attachment to ethnic group, and the control variables. Responses to the 13 questions measuring cultural congruity were used to create an index, and the score from that index was used to determine levels of cultural congruity with higher values being more culturally congruent. The survey was sent to 108 students attending the 2-year college, and to 174 students attending the 4-year college during the fall of 2020, and data from 66 respondents were used in this study.

Survey data was analyzed using STATA software. Descriptive statistics, tests of group equivalencies using t-test and chi-square tests, and regression analyses were conducted. The dependent variables were cultural congruity and intentions of persistence. The independent variables were institutional type (2-or 4-year college), attachment to ethnic group, and cultural congruity. The control variables used in the regression analyses were gender, age, and first-

generation college student status. Responses to the question about family college attendance was used to determine whether a student was a first-generation college student or not, and these yes or no responses were used for the control variable. Multiple regression analysis used a model building approach to examine the research questions.

### Discussion of Research Results

This section describes the research questions and the results that answer each question.

#### Research Question 1

Do American Indian student's cultural congruity levels vary by institutional type (2- versus 4-year) and attachment to their ethnic group?

The main findings from the set of regression analyses showed a significant negative relationship between attachment to ethnic group and student's perceived levels of cultural congruity, and a significant positive relationship between a student's age and their perceived levels of cultural congruity in the full model controlling for institutional type, gender, and first-generation college student status. The full model explained 10.6% of the variance in American Indian student's perceived levels of cultural congruity. Student's attachment to their ethnic group was a significant predictor of perceived levels of cultural congruity, which showed that on average American Indian students who have a stronger attachment to their ethnic group report lower levels of cultural congruity. Additionally, on average, older students reported high levels of cultural congruity. A post hoc analysis examining the interaction between age and attachment to ethnic group showed no significant relationship with perceived levels of cultural congruity.

This finding suggests that age and attachment to ethnic group do not interact to influence perceived levels of cultural congruity.

Attachment to ethnic group was measured based on student's level of agreement to the question: I feel a strong connection towards my own ethnic group. This question was on a 4-point scale from strongly agree to strongly disagree and came from the Multigroup Ethnic Identity Measure (Phinney, 1992). Cultural congruity was measured through an index from participant's responses to the 13 questions that were from the Cultural Congruity Scale (Gloria & Robinson Kurpius, 1996). The Cultural Congruity Scale has been used to measure other minoritized student's cultural distance between their culture of origin and the campus culture, and its influence on persistence. The psycho-sociological measure addresses questions about self, institution, and family. For example, these survey items asked students about their perceptions of whether they feel they can show their cultural identity on their campus or not, with questions such as "I feel that I have to change myself to fit in at school," "I try not to show the part of me that are 'ethnically' based," and "I often feel like a chameleon, having to change myself depending on the ethnicity of the person I am with at school" (Gloria & Robinson Kurpius, 1996). Other items ask about their comfort level as related to their culture and friends at school, "I feel that my ethnicity is incompatible with other students," "I can talk to my friends at school about my family and culture," and "I feel that my language and/or appearance make it hard for me to fit in with other students." Other items address possible conflicts students may endure in college related to their family and culture, "I feel I am leaving my family values behind by going to college," and "My ethnic values are in conflict with what is expected at school." Another item addresses how much a student's family and college life agree, "I can talk to my family about my

friends from school,” “My family and school values often conflict,” and “I can talk to my family about my struggles and concerns at school.” The last two items ask whether students feel they belong on campus, “I feel accepted at school as an ethnic minority,” and “As an ethnic minority, I feel as if I belong on this campus.” As the findings showed that the higher a student’s attachment to their ethnic group was, the lower their cultural congruity score, there may be connections between the cultural congruity survey items and the attachment to ethnic group survey item that is relevant.

The Cultural Congruity Scale was made to “assess more affective- and belief-based perceptions of university life” (Gloria & Robinson Kurpius, 1996, p.543) and my results showed that the more a student felt attached to their ethnic group, the lower their levels of cultural congruity. Essentially, this means that students who were more strongly attached to their ethnic group were less likely to feel that they fit in at their college. This cultural incongruity between student’s strength of cultural attachment and the college culture may leave students feeling as though they have to shed their cultural identity or assimilate to “fit in.” This potential explanation is supported by Kuh and Love’s (2000) cultural propositions that suggest cultural distance between a student’s culture of origin and the institution’s dominant culture may leave students feeling as though they have to adapt to the institution. Tierney’s (1992) research further substantiates this claim by showing that the values of American higher education may be inconsistent with native culture. It is important to note that American Indian students may experience cultural distance differently. Some American Indian students might come from a college-going culture that prepares them for what to expect when they enter college. For other students this transition may be in greater conflict with their “meaning-making systems” (Kuh &

Love, 2000). Transculturation theory may help explain these possible conflicts and their relationship to the student's strong attachment to their ethnic group.

Transculturation theory assumes that a strong cultural identity is necessary to persist in college, as it will give the student an emotional and cultural anchor to help them experience a new culture without fear of assimilation or losing their cultural identity in any way (White Shield, 2004). It also assumes that transculturation is a complicated process that results in the student being able to engage in more than one cultural setting (Huffman, 2001). Assuming Transculturation theory can apply with the students in this study, and that students fit in one of the stages of the theory, then perhaps the students with a stronger attachment to their ethnic group had not reached transculturation, which may help explain why their cultural congruity was lower. If the cultural masks Huffman (2001) described can be applied to this study, then it may be possible that the students with a stronger attachment to their ethnic group identify strongly with traditional American Indian culture, reject assimilation, view the campus culture a threat to their ethnic identity, and do not trust the college setting which is why their perceived levels of cultural congruity were lower. If this is the case, this may lead them to respond to the survey items from the Cultural Congruity Scale, such as "I feel that I have to change myself to fit in at school," differently than a student who has gone through transculturation and do not feel like they need to change who they are to fit in at college. Transculturation theory and the cultural masks were described in detail in Chapter 2.

The significant positive relationship between age and cultural congruity may be due to students having more life experiences that allowed them to feel more comfortable with their cultural identity and personal values while they engage in a culture different than their own. One

participant stated, "...I have spent 20 years in the military so I have had the luxury of a diverse setting that wasn't able to let race matter. As such[,] I accepted my heritage quite awhile [sic] ago. Considering the context of your survey, I thought that would be pertinent information. I would fully expect a young native student to have more obstacles (family support, assumptions of reality or prejudice) than I have had culturally." Their comment indicates that they came to a point where they accepted their heritage, and this may be a student who used their cultural identity as an anchor to navigate through the mainstream culture. This student's life in the military happened away from their culture of origin, which may have contributed to the development of skills and knowledge needed to embrace transculturation.

Another possible explanation is that perhaps a younger student is more likely to still be living with their immediate family and may answer questions like "My family and school values often conflict" differently than an older student. A younger student may split their time between their college campus and the home they share with a family that may not agree with their decision to attend college. The literature states that family support may be a factor in American Indian student's college completion (Barnhardt, 1994; Rindone, 1988), so if there is a difference in the support that a younger student receives compared to an older student who may be married and have a family of their own then this may help explain the relationship. Another possibility is whether older students answered the survey questions based on their family that includes a spouse and children instead of their immediate family. If the student's spouse and children are more supportive, then older students may be responding to the question with that family in mind.

## Research Question 2

Do American Indian student's intentions of persistence vary by institutional type (2- versus 4-year), cultural congruity levels, and attachment to their ethnic group?

The main findings from the regression analyses showed a significant positive relationship between perceived levels of cultural congruity and student's intentions of persistence in the full model, while controlling for institutional type, attachment to ethnic group, gender, age, and first-generation college student status. This full model explained 13.3% of the variance in student's intentions of persistence. Also, on average, students with higher levels of cultural congruity were more likely to indicate they intended to persist. An interesting result in the binary regression analysis showed a direct positive result between student's attachment to ethnic group and persistence. However, when intentions of persistence were regressed on attachment to ethnic group, levels of cultural congruity, and institutional type the significant relationship between attachment to ethnic group and persistence went away. This suggests that when student's perceived levels of cultural congruity and attachment to ethnic group competed for the relationship with persistence, the more dominant association with student's level of cultural congruity remains significant. This finding aligns with the previous research question in which there was a significant negative relationship between attachment to ethnic group and perceived levels of cultural congruity. Lastly, an analysis examining the interaction between attachment to ethnic group and perceived levels of cultural congruity showed no significant relationship with persistence. This finding suggests that attachment to ethnic group and perceived levels of cultural congruity do not interact to influence persistence.

To better understand the positive relationship between perceived levels of cultural congruity and student's intentions of persistence, one may consider the questions from the

Cultural Congruity Scale. The Cultural Congruity Scale asks questions related to their connection with family, peers, the institution, and themselves. These areas combine to generate an overall measure of student's perceived level of cultural congruity. For example, the family questions address how much the student's family and college life agree. The peer questions ask how much they feel their culture agrees with their friends at school. The institution questions pertain to whether they feel they can show their cultural identity on campus, and the questions about themselves ask whether they feel they belong on campus.

Certain items on the Cultural Congruity Scale may receive higher scores if students are experiencing more family support, positive interactions with others on campus, and thus feel less like to have to "change" to fit it. Students who feel their family is supportive of them attending college may respond more favorably to the question, "I can talk to my family about my struggles and concerns at school." Also, students who feel they do not need to assimilate to fit in with their campus culture may respond lower on the scale to the questions, "I feel that I have to change myself to fit in at school." "My ethnic values are in conflict with what is expected at school," and "I try not to show the parts of me that are 'ethnically' based." For some American Indian students, parental support has been shown to be a factor in their persistence (Guillory & Wolverton, 2008; Jackson et al., 2003), therefore if students feel they do have that family support they may be more likely to persist. Warmth from faculty and staff (Jackson et al., 2003) has also been shown to be related to American Indian persistence. Therefore, students who have had positive campus interactions may also be more likely to persist.

Conversely, American Indian students who may have had negative interactions with other on campus, such as experienced racism, may respond lower on the questions, "As an ethnic

minority, I feel as if I belong on this campus,” and “I feel accepted at school as an ethnic minority” which would be related to their cultural congruity score. One participant stated, “I feel that some professors have been harder on me because I am Native American. It is a horrible thing to think that some professors are racist and have grade[d] me more harsh (sic) than others.” Bean and Eaton’s Psychological Model can help explain why this may be related to persistence. This model states that student departure is a direct result of the student deciding to leave, which was influenced by precollege characteristics, interactions with the institutional and external environments, and the student’s attitudes about their college experience (Renn & Reason, 2012). Students who may have experienced racism on their campus would have negative interactions with their institution, and this could contribute to their intention of leaving. These interactions would lead the student to self-assess and connect these experiences with their general feelings about their college (Bean & Eaton, 2001), and contribute to the student’s decision to persist or not.

The binary relationship between student’s attachment to ethnic group and persistence became nonsignificant in the presence of student’s perceived level of cultural congruity. However, the potential of this existing relationship may warrant some discussion. Huffman (2011) identified cultural identity as playing a role in student’s academic success, so American Indian students with a stronger connection to their native culture may be more likely to persist at a mainstream college (Moore, 2016). Transculturation theory assumes that a strong cultural identity is required for students to persist in mainstream colleges (White Shield, 2004), and so it would help explain why students who were more strongly attached to their ethnic group were

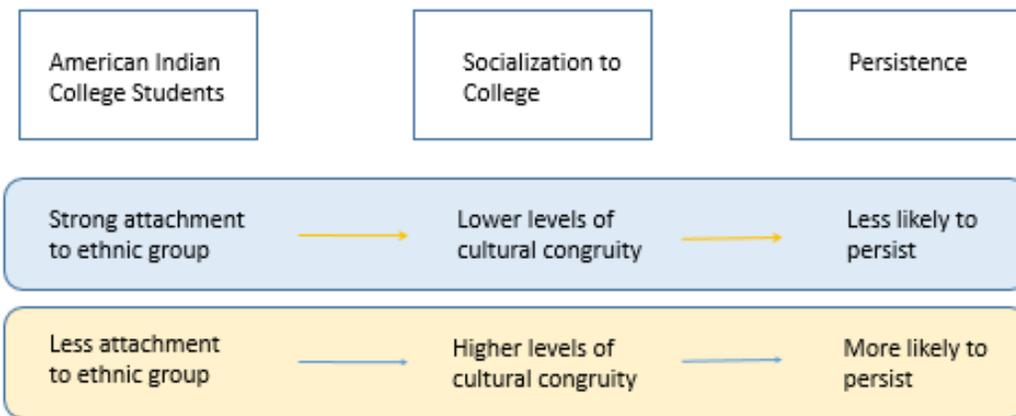
more likely to indicate intentions of persistence. This positive binary relationship between attachment to ethnic group and persistence warrants additional investigation.

### Conceptual Understanding

The main findings of this research emphasize the relationships among American Indian student's attachment to ethnic group, perceived levels of cultural congruity, and intentions of persistence. Huffman's theory of transculturation offers a way to think about how American Indian student's attachment to their ethnic group may contribute to increased persistence in college. In the binary regression, student's attachment to ethnic group was positively associated with intentions of persistence, which may provide tentative support to Transculturation theory. This study added insight to the complexity of the role that American Indian student's strength of attachment to their ethnic group may have in the socialization process, and subsequent persistence. Huffman's theory of transculturation is a theory of socialization of American Indian students attending a PWI. One major finding that may help us to understand the complexity of the role that American Indian student's ethnic attachment has on the socialization process is their perceived levels of cultural congruity. Indeed, stronger ethnic attachments were associated with lower levels of cultural congruity, whereas higher levels of cultural congruity were associated with greater likelihood to persist. Figure 6 provides a conceptual model that adds additional complexity to Huffman's Transculturation theory by showing when American Indian students report greater attachment to their ethnic group they experience lower levels of cultural congruity. In this study, cultural congruity measured American Indian student's perception of cultural distance between their culture of origin and the campus culture, as well as the perceptions of their experiences. Those students who reported more favorable experiences and less cultural

distance were the ones most likely to persist. These initial patterns in the data suggest that the relationship between American Indian student's attachment to ethnic group and their perceived cultural congruity should be further explored as part of the socialization process.

Figure 6. Conceptual model of significant results



### Unexpected Results

The results did not find a significant relationship between institutional type and cultural congruity or persistence. The two institutions in this study were a 2-year and a 4-year college in Montana. Initially, I believed that student responses to the survey would differ based on which institution they were attending. Generally speaking, 2-year colleges are commuter campuses where students are more likely to work more hours off-campus than 4-year students (Bok, 2015), and be non-traditional aged (Ma & Baum, 2016). On the contrary, 4-year colleges generally offer on-campus housing, enroll more traditional-aged students who are less likely to be working full-time. Thus, I expected that the college experiences of students attending these two types of institutions would differ. Due to this, I believed that there would have been significant

differences in how students from each campus responded to the survey. However, the 2-year campus has student clubs and organizations, as well as a Native American center. The 4-year campus offers on-campus housing, student clubs and organizations, and a Native American center. Perhaps these two campuses are more similar, with regard to the types of experiences American Indian students have on the campuses. There may also be other variables where these institutions are more similar than different, perhaps in how faculty interact with their students, how students interact with each other, or how campus offices interact with students.

A surprising result was that there was no significant relationship between first-generation college student status and cultural congruity or persistence. First-generation college students may not know what to expect in college, or perhaps they had expectations about what it would be like that differed than the reality. If the students had not attended college prior to their enrollment at their current institution, then I would have expected a level of cultural incongruity as they learned what the campus culture is. Another surprising result was that there was also no significant relationship between age and persistence. As older students have more life experiences, I would have expected that older students would be more likely to intend to persist.

### Limitations

A limitation of this study was that with multiple regression, the predicted values will not be perfect and error should be expected (Gravetter & Wallnau, 2011). Regression is used to demonstrate relationships and prediction among variables but does not provide a causal path for the relationships among the variables. Further, there are likely many factors that influence student's perceived levels of cultural congruity and persistence that were not accounted for, such as institutional support systems, institutional agents and champions, and classroom experiences.

A second limitation of this study are the response rates. From the 2-year college, there was a 30% response rate, but from the 4-year college there was a 20% response rate. The total number of students who responded to the survey from the 2-year college was 32 and 35 responses were from the 4-year college, although one of the student's responses from the 4-year were omitted from analysis. The sample sizes that were needed in order to obtain a confidence level of 90% and margin of error of 5% were 78 from the 2-year and 107 from the 4-year. Similarly, a third limitation is the low power. Based on the sample sizes from each institution, the power was calculated at .108. This means that if this study were repeated multiple times, there is a 10.8% chance of obtaining a statistically significant result when there is an effect.

Due to the lower number of responses, a fourth limitation is the inability to analyze the data using Hierarchical Linear Modeling (HLM). As this study analyzed data from students attending two institutions, the students are nested within the two institutions and HLM could account for this nested effect. A fifth limitation is that the participants from each institution were not obtained through a random sample. Since a census sample was used there could have been response bias, which could change the results. Perhaps students who did not participate had already stopped attending college and were no longer checking their email, which could have changed the distribution of responses for the persistence variable. A sixth limitation is that this study was conducted during the COVID-19 pandemic where students may have been impacted by losing their jobs, becoming sick, or having a family member in their care become sick which would have affected their intentions to persist in college. If this study was conducted in a time outside of the pandemic, it is possible the results could have been different.

A seventh limitation is the possible inability to generalize the results to other similar institutions. The two institutions in this study are located in a state with a large American Indian or Alaska Native population, which makes them unique from other states (U.S. Census Bureau, 2019). The students who participated in this study may not be representative of students attending other similar institutions, so if that is the case then generalizing the results would not be appropriate.

Another limitation is with the attachment to ethnic group variable as a measure of cultural identity. American Indian student's ethnic identities may range on a continuum that was not captured by this research using a single-survey item. Grande, San Pedro, and Windchief (2015) described the complexity in identifying what it means to be Indigenous, which they stated could include "relationship: to land, to community, and to being and becoming" (p.111), among other elements. Thus, a single survey item could not capture multiple elements of cultural identity to measure attachment to their ethnic group. Similarly, cultural congruity is a multi-faceted construct that addresses the psychosocial experiences of student's perceptions between their culture of origin and the culture of the institutions. This multifaceted construct may not allow us to see subtle differences in the role that family, peers, institution, and the individuals have in this process.

Lastly, another limitation of this study was that there are confounding variables that were not included in the analyses. One such variable is whether or not the students had ever lived on a reservation. It may be possible that students who had lived on a reservation may differ in their attachment to their ethnic group than students who had never lived on a reservation. Another confounding variable is whether students participated in their campus Native American Center.

If students who do participate in their campuses Native American Center differ in their cultural congruity, intentions of persistence, or attachment to their ethnic group than students who had not participated, then this would inform campuses as to the potential impact their centers have on the dependent variables of this study. Also, not including control variables such as whether or not students lived on campus and whether or not students worked on-or-off campus was another limitation, because students who differ in these variables may differ in how they would respond to the survey items measuring cultural congruity or persistence.

### Recommendations for Future Research

This section suggests several recommendations based on the results from this study. First, the institutions in this study were a 2-year and 4-year Predominantly White Institution in Montana. Future research could include students from a Tribal College or University. This would allow for comparisons between the different types of institutions to determine if a significant predictive relationship exists between institutional type and the dependent variables, cultural congruity and intentions of persistence. Tribal Colleges and Universities promote cultural growth (Machamer, 2000) and incorporate Native culture into their curriculum (American Indian Higher Education Consortium, 1999). Their missions vary greatly from PWI's, as they "support Indigenous identity and cultural congruency" (White Shield, 2004, p.120). American Indian students attending a Tribal College have been shown to have higher retention and graduation rates (Laden et al., 2000), so the campus culture may contribute to that.

A second recommendation is to analyze the dependent variable of intentions of persistence as two factors—degree commitment and institutional commitment. The original use of the College Persistence Questionnaire analyzed the responses using six factors (Davidson et.

al, 2009), and the survey items in my study included only those from the degree commitment and institutional commitment factors. With more participants, the use of the factors may provide more details to understand the relationship between intentions of persistence and the other variables of this study. A third recommendation would be to measure persistence, rather than just the intentions of persistence. This would allow the ability to know whether a student continued their studies at their current institution the following term, or the next year.

A fourth recommendation would be to include more control variables from the literature, such as grade point average. Due to the lower number of survey responses and variability amongst responses, only three control variables were used in this study. In studies with larger response rates, additional controls could be included.

Lastly, an additional recommendation would be to conduct a qualitative study to further examine the findings from this study. A qualitative approach, such as phenomenology, would be able to collect data that provides more context as to why levels of cultural congruity had a stronger relationship with intentions of persistence than attachment to ethnic group. It would also be able to gather input directly from students to know what experiences they have in mind when identifying their level of cultural congruity and deciding whether to persist or not. Bean and Eaton's Psychological Model suggests that a student who does not persist is due to their decision to leave. This decision is influenced by precollege characteristics, their interactions with the institution and their external environments, and their attitudes about their experiences (Renn & Reason, 2012). A qualitative approach would better understand what interactions and experiences students had, which led to their decision to persist or not.

### Implications for Practice

The results of this study found significant relationships between the independent and dependent variables, but whether the results have practical significance is important. While the relationships were significant, the unstandardized regression coefficients may not be large enough for some colleges to consider them meaningful. For example, would a one-unit increase in student's attachment to their ethnic group that saw an average of third-point decrease in their level of cultural congruity on a 7-point scale be enough to drive institutional change? Campuses that want to increase the persistence of American Indian students may argue that any small increase in the persistence is beneficial. With this in mind, the data from this study offers several implications for practice.

First, the negative relationship between student's attachment to ethnic group and their perceived level of cultural congruity may support the programming of cultural centers that can aide in helping students get to know their campus and feel more comfortable. The results demonstrate that students who indicated a stronger attachment to their ethnic group had a lower cultural congruity, and cultural congruity can be a predictor in student persistence (Castellanos & Gloria, 2007). Cultural congruity can describe how students feel they fit in their institution (Bordes & Arredondo, 2005). Intentional programs aimed to help American Indian students feel comfortable, accepted, and that they belong may be beneficial, as one study found that American Indian student perceptions of their institutional environment was related to their decisions of nonpersistence (Gloria & Robinson Kurpius, 2001). Some examples of such programming could include mentoring programs and hosted events through a campus cultural center. As Transculturation theory states that American Indian college students expressing their cultural

identity at their college is crucial for their success (White Shield, 2004). Examples of cultural expression include wearing eagle feathers at their graduation ceremony and speaking in their native language on campus. Programs that aim at helping students achieve this are important through cultural learning opportunities. Hurtado's (1997) work shows that majority and minority groups change when they come in contact with each other. Colleges can facilitate this process through cultural exchange opportunities. Instructors can create what Tierney (1992) calls "communities of difference" to embrace multiple cultures that already exist and invite new ones to develop.

As the results found that a positive relationship exists between student's age and their perceived levels of cultural congruity, this also suggests that intentional programming to help traditional aged students feel comfortable at their institution may be beneficial to help their persistence. As one participant commented on the survey, "I am a full-time employee and do all my schooling online. I'm 24 and if I answered this when I first attended college at 18 my answers would be different. However[,] with maturity I have grown and take my schooling more serious and I do it not onl[y] [to] better myself, but my family." This may suggest that intervention programs for traditional aged students may need to be different than programs for non-traditional aged students. For traditional aged students, interventions that increase their comfort level with their college may be beneficial, as this may help students understand that they can express themselves and their cultural identity without needing to lose any part of their cultural identity. This is consistent with one of the essential understanding from Montana's Indian Education For All that describes American Indians as being on a cultural identity continuum (Office of Public Instruction, n.d.). One possibility would be to connect traditional

aged students with non-traditional aged students, so that traditional aged students may learn from those who have stories to share about how they view their purpose for being in college, much like the participant's comment.

The results also found a positive relationship between cultural congruity and intentions of persistence. For colleges, this would imply that if their American Indian students feel that their cultural and personal values align with those of their institution they are more likely to indicate that they will persist. These results should motivate campuses to continue, or create programs, that will help their American Indian students see the connection between their cultural and personal values to the values of their institution. Transculturation theory assumes that transculturation is a process where students learn to engage in more than one cultural setting (Huffman, 2001) and that a strong cultural identity is needed for students to persist in a mainstream college (White Shield, 2004). Therefore, students may benefit by learning they do not need to suppress their cultural identity while at college.

### Positionality and Reflexivity

Through this study I learned information about the American Indian college students attending the 2-year and 4-year college in my study who chose to participate in this survey. As I am not American Indian, I approached this study as an outsider. I conducted this study while considering the respect, relationship, reciprocity, and relevancy. My relationship with participants involved obtaining their responses to the survey and sharing the results in a respectful manner. They each chose to answer the questions and share their responses to survey items about their experiences, opinions, and about themselves. Thus, I wanted the results from their information to be used to change institutional culture so that it will acknowledge the

strengths that American Indian students have which comes from their cultural identity. Both institutions in this study have indicated that they want me to share the results of the study with them, as they are interested in the findings, so the participants in this study have potentially shared their personal experiences so that change can occur on their campus to benefit all American Indian students on their campus. The relevancy in this study was that variables in this study were chosen based on the literature, and some of the relationships examined in the regression analyses did indicate significant results.

### Chapter Summary

The results from this study found several significant relationships between the independent and dependent variables: attachment to ethnic group was negatively related to perceived levels of cultural congruity, age was positively related to perceived levels of cultural congruity, perceived levels of cultural congruity was positively related to intentions of persistence, and attachment to ethnic group was negatively related to intentions of persistence in the bivariate regression but not in the full model. The partial point increases and decreases in the student's responses to the survey items measuring cultural congruity, persistence, and attachment to ethnic group may be small which can question the practical significance these results have for colleges who may want to make data-driven decisions to improve the persistence and completion of American Indian students. Overall, the findings add to the literature by providing new insights into the complicated relationships among American Indian student's attachment to ethnic identity, perceptions of cultural congruity, and likelihood to persist.

REFERENCES CITED

- AIHEC: *Who we are* (n.d.). American Indian Higher Education Consortium (AIHEC). Retrieved from <http://aihec.org/who-we-are/index.htm>
- American Indian Higher Education Consortium (1999). *Tribal colleges: An introduction. A report by American Indian Higher Education Consortium and the Institute for Higher Education Policy*. Retrieved from <http://www.ihep.org/research/publications/tribal-colleges-introduction>
- Aragon, S. R. (2004). Information processing patterns of postsecondary American Indian/Alaska Native students. *Journal of American Indian Education*, 43(3), 1–21.
- Barnhardt, C. (1994). *Life on the Other Side: Alaska Native Teacher Education Students and the University of Alaska Fairbanks* [Doctoral dissertation, University of British Columbia]. <https://eric.ed.gov/?id=ED382415>
- Bean, J., & Eaton, S. B. (2001). The psychology underlying successful retention practices. *Journal of College Student Retention: Research, Theory & Practice*, 3(1), 73–89. <https://doi.org/10.2190/6R55-4B30-28XG-L8U0>
- Belgarde, M. J. & Loré, R. K. (2004). The retention/intervention study of Native American undergraduates at the University of New Mexico. *Journal of College Student Retention: Research, Theory & Practice*, 5(2), 175–203.
- Boarding School Healing*. (n.d.). Native American Rights Fund. Retrieved from <https://www.youtube.com/watch?v=8HZgmJmdpf8>
- Bok, D. (2015). *Higher Education in America*. Princeton University Press. Kindle Edition.
- Bordes, V., & Arredondo, P. (2005). Mentoring and 1st-year Latina/o college students. *Journal of Hispanic Higher Education*, 4(2), 114–133. <https://doi.org/10.1177/1538192704273855>
- Boudah, D. J. (2011). *Conducting Educational Research: Guide to Completing a Major Project*. SAGE Publications.
- Brave Heart, M. Y. H. (2003). The Historical Trauma Response Among Natives and Its Relationship with Substance Abuse: A Lakota Illustration. *Journal of Psychoactive Drugs*, 35(1), 7–13. <https://doi.org/10.1080/02791072.2003.10399988>
- Brown II, C. M., & Dancy II, E. T. (2010). Predominantly White Institutions. In *Encyclopedia of African American Education* (pp. 524–526). SAGE Publications, Inc. <https://doi.org/10.4135/9781412971966>

- Bryman, A. & Cramer, D. (2003). *Quantitative Data Analysis with Minitab: A Guide for Social Scientists*. Routledge.
- Cano, M. Á., Castillo, L. G., Castro, Y., de Dios, M. A., & Roncancio, A. M. (2014). Acculturative stress and depressive symptomatology among Mexican and Mexican American students in the U.S.: Examining associations with cultural incongruity and intragroup marginalization. *International Journal for the Advancement of Counseling*, 36(2), 136–149. <https://doi.org/10.1007/s10447-013-9196-6>
- Carney, C. (2007). *Native American Higher Education in the United States* (1 edition). Routledge.
- Castellanos, J., & Gloria, A. M. (2007). Research considerations and theoretical application for best practices in higher education: Latina/os achieving success. *Journal of Hispanic Higher Education*, 6(4), 378–396. <https://doi.org/10.1177/1538192707305347>
- Castillo, L. G., Conoley, C. W., Choi-Pearson, C., Archuleta, D. J., Phoummarath, M. J., & Van Landingham, A. (2006). University environment as a mediator of Latino ethnic identity and persistence attitudes. *Journal of Counseling Psychology*, 53(2), 267–271. <https://doi.org/10.1037/0022-0167.53.2.267>
- Cech, E. A., Metz, A. M., Babcock, T., & Smith, J. L. (2011). Caring for our own: The role of institutionalized support structures in Native American nursing student success. *Journal of Nursing Education*, 50(9), 524–531.
- Cerezo, A. & Chang, T. (2013). Latina/o achievement at predominantly White universities: The importance of culture and ethnic community. *Journal of Hispanic Higher Education*, 12(1), 72–85.
- Chauncey Yellow Robe (Killed in the Timber) Student File*. (n.d.). Carlisle Indian School Digital Resource Center. Retrieved from [http://carlisleindian.dickinson.edu/student\\_files/chauncey-yellow-robe-killed-timber-student-file](http://carlisleindian.dickinson.edu/student_files/chauncey-yellow-robe-killed-timber-student-file)
- Chee, C. L. (2008). Academic persistence of Native American undergraduates [Ph.D., Arizona State University]. In *ProQuest Dissertations and Theses*. <http://search.proquest.com/central/docview/304686536/abstract/F6466C1F3B4B4FA7PQ/5>
- Conrad, C., & Gasman, M. (2015). Tribal Colleges and Universities: Culturally responsive places. In *Educating a Diverse Nation* (pp. 35–92). Harvard University Press; JSTOR. <https://www.jstor.org/stable/j.ctt1c84cnp.7>

- Constantine, M. G., & Watt, S. K. (2002). Cultural congruity, womanist identity attitudes, and life satisfaction among African American college women attending historically black and predominantly white institutions. *Journal of College Student Development; Baltimore*, 43(2), 184-194.
- Creighton, L. M. (2007). Factors affecting the graduation rates of university students from underrepresented populations. *International Electronic Journal for Leadership in Learning*, 11. <https://eric.ed.gov/?id=EJ987305>
- Curley, C., Krause, R. M., Feiock, R., & Hawkins, C. V. (2019). Dealing with Missing Data: A Comparative Exploration of Approaches Using the Integrated City Sustainability Database. *Urban Affairs Review*, 55(2), 591–615. <https://doi.org/10.1177/1078087417726394>
- Davidson, W.B., Beck, H. P., & Milligan, M. (2009). The college persistence questionnaire: Development and validation of an instrument that predicts student attrition. *Journal of College Student Development*, 50(4), 373-390.
- EducationData (2020). *College Enrollment Statistics [2020]: Total + by Demographic*. Retrieved September 2, 2020, from <https://educationdata.org/college-enrollment-statistics/>
- Falk, D. R., & Aitken, L. P. (1984). Promoting retention among American Indian college students. *Journal of American Indian Education*, 23(2), 24–31.
- Field, A. (2013). *Discovering Statistics Using IBM SPSS Statistics: And Sex, Drugs, and Rock “N” Roll*, 4<sup>th</sup> edition, SAGE Publications.
- Field, A., Miles, J., & Field, Z. (2012). *Discovering Statistics Using R*. SAGE Publications. Kindle Edition.
- Flynn, S. V., Duncan, K., & Jorgensen, M. F. (2012). An Emergent Phenomenon of American Indian Postsecondary Transition and Retention. *Journal of Counseling & Development*, 90(4), 437–449. <http://doi.org/10.1002/j.1556-6676.2012.00055.x>
- Flynn, S. V., Olson, S. D., & Yellig, A. D. (2014). American Indian acculturation: Tribal lands to predominately White postsecondary settings. *Journal of Counseling and Development*, 92(3), 280-293.
- Garcia, R. L., & Ahler, J. G. (1992). Indian education: Assumptions, ideologies, strategies. In J. Reyhner (Ed.), *Teaching American Indian students* (pp. 13-32). Norman, OK: University of Oklahoma Press.

- Garrett, M. T., & Pichette, E. F. (2000). Red as an apple: Native American acculturation and counseling with or without reservation. *Journal of Counseling and Development, 78*(1), 3–13.
- Gloria, A. M., Castellanos, J., & Herrera, N. (2015). The reliability and validity of the cultural congruity and university environment scales with Chicana/o community college students. *Community College Journal of Research and Practice, 40*(5), 426-438. <https://doi.org/10.1080/10668926.2015.1066276>
- Gloria, A. M., & Robinson Kurpius, S. E. (1996). The validation of the Cultural Congruity Scale and the University Environment Scale with Chicano/a students. *Hispanic Journal of Behavioral Sciences, 18*(4), 533–549. <https://doi.org/10.1177/07399863960184007>
- Gloria, A. M., & Robinson Kurpius, S. E. (2001). Influences of self-beliefs, social support, and comfort in the university environment on the academic nonpersistence decisions of American Indian undergraduates. *Cultural Diversity and Ethnic Minority Psychology, 7*, 88-102.
- Goldy-Brown, S. (2017). 12 surprising benefits of a college degree. *Plexuss.com*. Retrieved from <https://plexuss.com/news/article/benefits-of-a-college-degree>
- Goldston, D. B., Molock, S. D., Whitbeck, L. B., Murakami, J. L., Zayas, L. H., & Hall, G. C. N. (2008). Cultural Considerations in Adolescent Suicide Prevention and Psychosocial Treatment. *American Psychologist, 63*(1), 14–31.
- Grande, S., San Pedro, T., & Windchief, S. (2015). Indigenous Peoples and Identity in the 21st Century: Remembering, Reclaiming, and Regenerating. In *Multicultural Perspectives on Race, Ethnicity, and Identity* (3rd ed., pp. 105–122). The National Association of Social Workers (NASW).
- Gravetter, F. J. & Wallnau, L. B. (2011). *Essentials of Statistics for the Behavioral Sciences*. Wadsworth Cengage Learning.
- Great Falls College MSU Policy Manual (2016). Governance and Organization, Policy 110.1 Surveys. Retrieved from [http://www.gfcmsu.edu/about/policies/PDF/100/110\\_1.pdf](http://www.gfcmsu.edu/about/policies/PDF/100/110_1.pdf)
- Grimm, L. G. (1995). *Reading & Understanding Multivariate Statistics*. (P. R. Yarnold, Ed.). Washington, D.C: American Psychological Association.
- Guillory, R. M. (2009). American Indian/Alaska Native college student retention strategies. *Journal of Developmental Education, 33*(2), 14.

- Guillory, R. M., & Wolverton, M. (2008). It's About Family: Native American Student Persistence in Higher Education. *Journal of Higher Education*, 79(1), 58–87.  
<https://doi.org/10.1080/00221546.2008.11772086>
- Guyette, S., & Heth, C. (1983). *American Indian higher education: Needs and projections*.  
<https://eric.ed.gov/?id=ED232810>
- Hair, J., Hult, G. T., Ringle, C., & Sarstedt, M. (2014). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). *2014 Faculty Bookshelf*.  
<https://digitalcommons.kennesaw.edu/facbooks2014/39>
- Hallowell, A. I. (1963). Papers in honor of Melville J. Herskovits: American Indians, White and Black: The phenomenon of transculturalization. *Current Anthropology*, 4(5), 519–531. JSTOR.
- Harriet Mary Elder Student File*. (n.d.). Carlisle Indian School Digital Resource Center. Retrieved from [http://carlisleindian.dickinson.edu/student\\_files/harriet-mary-elder-student-file](http://carlisleindian.dickinson.edu/student_files/harriet-mary-elder-student-file)
- HeavyRunner, I., & DeCelles, R. (2002). Family Education Model: Meeting the student retention challenge. *Journal of American Indian Education*, 41(2), 29–37.
- Hoover, J. J., & Jacobs, C. C. (1992). A survey of American Indian college students: Perceptions toward their study skills/college life. *Journal of American Indian Education*, 32(1), 21–29.
- Huffman, T. (1990). The transculturation of Native American college students. *Faculty Publications - School of Education*. Retrieved from [http://digitalcommons.georgefox.edu/soe\\_faculty/113](http://digitalcommons.georgefox.edu/soe_faculty/113)
- Huffman, T. E. (1991). The experiences, perceptions, and consequences of campus racism among Northern Plains Indians. *Journal of American Indian Education*, 30(2), 25–34. JSTOR.
- Huffman, T. (2001). Resistance theory and the Transculturation hypothesis as explanations of college attrition and persistence among culturally traditional American Indian students. *Journal of American Indian Education*, 40(3), 1–23.
- Huffman, T. (2003). A comparison of personal assessments of the college experience among reservation and nonreservation American Indian students. *Journal of American Indian Education*, 42(2), 1-16.
- Huffman, T. (2008). Factors associated with the personal assessment of college among American Indian students at a rural university. *Rural Educator*, 29(3), 18–29.

- Huffman, T. (2010). *Theoretical Perspectives on American Indian Education: Taking a New Look at Academic Success and the Achievement Gap*. Rowman Altamira.
- Huffman, T. (2011). Plans to live on a reservation following college among American Indian students: An examination of Transculturation Theory. *Journal of Research in Rural Education*, 26(3).
- Huffman, T. (2013). Native American educators' perceptions on cultural identity and tribal cultural education: An application of Transculturation Theory. *Journal of American Indian Education*, 52(3), 21–40. JSTOR.
- Huffman, T. E., Sill, M. L., & Brokenleg, M. (1986). College achievement among Sioux and White South Dakota Students. *Journal of American Indian Education*, 25(2), 32–38.
- Hurtado, S., & Carter, D. F. (1997). Effects of College Transition and Perceptions of the Campus Racial Climate on Latino College Students' Sense of Belonging. *Sociology of Education*, 70(4), 324–345. <https://doi.org/10.2307/2673270>
- Jackson, A. P. & Smith, S. A. (2001). Postsecondary transitions among Navajo Indians. *Journal of American Indian Education*, 40(2), 28–47.
- Jackson, A. P., Smith, S. A., & Hill, C. L. (2003). Academic Persistence among Native American college students. *Journal of College Student Development*, 44(4), 548–565.
- Jeanotte, L. D. (1982). *A study of the contributing factors relating to why American Indian students drop out of or graduate from educational programs at the University of North Dakota* [University of North Dakota]. <https://eric.ed.gov/?id=ED214737>
- Katrina Shane Student File*. (n.d.). Carlisle Indian School Digital Resource Center. Retrieved from [http://carlisleindian.dickinson.edu/student\\_files/katrina-shane-student-file](http://carlisleindian.dickinson.edu/student_files/katrina-shane-student-file)
- Keller, Dana K. (2016). *The Tao of Statistics: A Path to Understanding (With No Math)*. SAGE Publications. Kindle Edition. Second edition.
- Kelley, K., & Bolin, J. H. H. (2013). Multiple Regression. In T. Teo (Ed.), *Handbook of Quantitative Methods for Educational Research* (pp. 71–101). Sense Publishers. [https://doi.org/10.1007/978-94-6209-404-8\\_4](https://doi.org/10.1007/978-94-6209-404-8_4)
- Kirkness, V. J., & Barnhardt, R. (1991). First Nations and Higher Education: The Four R's — Respect, Relevance, Reciprocity, Responsibility. *Journal of American Indian Education*, 30(3), 1–15.

- Kruger, M. L. (1995). *A Longitudinal Study of Native American Persistence in Community Colleges*. <https://eric.ed.gov/?id=ED426722>
- Kuh, G. D., Kinzie, J., & Buckley, J. A. (2006). *What matters to student success: A review of the literature: Commissioned report for the National Symposium on Postsecondary Student Success: Spearheading a dialog on student success* (National Postsecondary Education Cooperative, Rep.).
- Kuh, G. D. & Love, P. G. (2000). Cultural perspective on student departure. In J. M. Braxton (Ed.), *Reworking the Student Departure Puzzle* (p. 196-212). Vanderbilt University Press.
- Laden, B. K., Millem, J. F., and Crowson, R. L. (2000). "New Institutional Theory and Student Departure." In J. M. Braxton (ed.), *Reworking the Student Departure Puzzle*. Nashville, Tenn.: Vanderbilt University Press.
- La Due, R. (1994). Coyote Returns: Twenty sweats does not an Indian expert make. In N. Gatrell (Eds.), *Bringing Ethics Alive: Feminist Ethics in Psychotherapy Practice* (1<sup>st</sup> ed., pp. 93-111). New York: Haworth Press, Inc.
- Lavrakas, P. (2008). *Encyclopedia of Survey Research Methods*. Sage Publications, Inc.
- Lee, T. S. (2007). Successes and challenges in higher education transitions. *Tribal College Journal*, 19(1), 30-35.
- Lin, R.-L. (1985). The promise and problems of the Native American student: A comparative study of high school students on the reservation and surrounding areas. *Journal of American Indian Education*, 25(1), 6–16.
- Little Shell Chippewa Tribe*. (n.d.). Who We Are. Retrieved May 6, 2021, from <https://www.montanalittleshelltribe.org/>
- Ma, J., & Baum, S. (2016). Trends in Community Colleges: Enrollment, Prices, Student Debt, and Completion. *Student Debt*, 23. Retrieved on August 26, 2020 from <https://research.collegeboard.org/pdf/trends-community-colleges-research-brief.pdf>
- Machamer, A. M. (2000). *Along the read road: Tribally controlled colleges and student development*. [Doctoral dissertation, University of California, Los Angeles]. <https://digitalcommons.unomaha.edu/cgi/viewcontent.cgi?article=1047&context=slcedt>
- Mail, P. D. (1989). American Indians, stress, and alcohol. *American Indian and Alaska Native Mental Health Research: Journal of the National Center*.

- Makomenaw, M. V. A. (2012). Welcome to a new world: Experiences of American Indian tribal college and university transfer students at predominantly White institutions. *International Journal of Qualitative Studies in Education*, 25(7), 855-866.
- McAndrew, L. M., Slotkin, S., Kimber, J., Maestro, K., Phillips, L. A., Martin, J. L., Credé, M., & Eklund, A. (2019). Cultural incongruity predicts adjustment to college for student veterans. *Journal of Counseling Psychology*, 66(6), 678–689.  
<https://doi.org/10.1037/cou0000363>
- McKeachie, W., & Svinicki, M. (2010). *McKeachie's Teaching Tips: Strategies, Research, and Theory for College and University Teachers*. Cengage Learning.
- Mehmetoglu, M., & Jakobsen, T. G. (2016). *Applied Statistics Using Stata: A Guide for the Social Sciences*. SAGE.
- Millea, M., Wills, R., Elder, A., & Molina, D. (2018). What Matters in College Student Success? Determinants of College Retention and Graduation Rates. *Education*, 138(4), 309-322. Retrieved from [https://link-gale-com.proxygf.lib.montana.edu:3443/apps/doc/A543610935/PROF?u=mtlib\\_1\\_915&sid=PROF&xid=03cef073](https://link-gale-com.proxygf.lib.montana.edu:3443/apps/doc/A543610935/PROF?u=mtlib_1_915&sid=PROF&xid=03cef073)
- Minthorn, R. S. (2014). Accommodating the Spiritual and Cultural Practices of Native American College and University Students. *Journal of College & University Student Housing*, 41(1), 154–163.
- Montana Board of Regents of Higher Education (1999). Policy 1920-Minority Achievement, Policy and Procedures Manual. Retrieved from <https://mus.edu/borpol/bor1900/1902.pdf>
- Montana Governor's Office of Indian Affairs (n.d.). Tribal Nations. Retrieved from <https://tribalnations.mt.gov/tribalnations>
- Montana Mosaic: Indian Boarding Schools*. (2006). The Montana Experience: Stories from Big Sky Country. <https://www.youtube.com/watch?v=FOe-x1aUP2o>
- Montana Office of Public Instruction (2019). Essential Understandings Regarding Montana Indians. Retrieved from <https://opi.mt.gov/Portals/182/Page%20Files/Indian%20Education/Indian%20Education%20101/essentialunderstandings.pdf>
- Montana University System (n.d.). Operational Rules for the Montana University System Core. Retrieved from <https://www.mus.edu/transfer/MUScoreoperatingrules.pdf>
- Montana University System (2017). Montana University System. Retrieved from <http://mus.edu/>

- Montana University System American Indian Enrollment (2016). Headcount, Fall 2005-2016. Retrieved from <http://mus.edu/data/AmInd/MUS%20Am%20Indian%20Enrollment%202001-2016.pdf>
- Montana University System American Indian Retention Rates (2016). Retrieved from <http://mus.edu/data/AmInd/MUS%20Am%20Indian%20Retention%202016.pdf>
- Montana University System American Indian Student Success Dashboard (n.d.). Enrollment- MUS Fall Enrollment, Retention- Retention Rates, Completions- MUS Completions. Retrieved from <https://mus.edu/data/AmInd/AI-EnrollmentDashboard.html>
- Montana University System American Indian Student Success Dashboard- BA Graduation (n.d.). Bachelor's Graduation Rates. Retrieved from <https://mus.edu/data/AmInd/AI-EnrollmentDashboard.html>
- Montana University System American Indian Student Success Dashboard- AA Graduation (n.d.). Associate's Graduation Rates. Retrieved from <https://mus.edu/data/AmInd/AI-EnrollmentDashboard.html>
- Montana University System CCA Progress Metric #5: Retention Rates (2016). Percentage of First-time Full-time Freshmen Returning for a Second Yea of Enrollment in the MUS. Retrieved from [http://mus.edu/CCM/CCA%20Progress%20Metric%205%20-%20Retention%20Rates\\_by\\_campus.pdf](http://mus.edu/CCM/CCA%20Progress%20Metric%205%20-%20Retention%20Rates_by_campus.pdf)
- Montana University System Diversity Report (2016a). Ethnic/Racial Minority Enrollment Counts & Distributions. Retrieved from <http://mus.edu/data/diversity/DR%202009%20-%20Enrollment%20Counts%20&%20Distributions.pdf>
- Montana University System Diversity Report (2016b). Tribal College (2-yr) Graduation Rates. Retrieved from <http://mus.edu/data/diversity/DR%202009%20-%20Grad%20Rates%20Tribal%20College.pdf>
- Moore, E. (2016). Exploring Native American students' attitudes, beliefs, and behaviors toward academic success and tribal affiliation (Order No. 10148386). Available from ProQuest Central; ProQuest Dissertations & Theses Global. (1830780547). Retrieved from <https://search.proquest.com/docview/1830780547?accountid=150508>
- Mosholder, R., & Goslin, C. (2013). Native American college student persistence. *Journal of College Student Retention: Research, Theory & Practice*, 15(3), 305–327. <https://doi.org/10.2190/CS.15.3.a>

- Mosley-Howard, G. S., Baldwin, D., Ironstrack, G., Rousmaniere, K., & Burke, B. (2015). Niila Myaamia (I Am Miami): Identity and Retention of Miami Tribe College Students. *Journal of College Student Retention: Research, Theory & Practice*, 17(4), 437–461.
- Murakami, E. T., & Mackey, H. J. (2018). *Beyond Marginality: Understanding the Intersection of Race, Ethnicity, Gender and Difference in Educational Leadership Research*. IAP.
- Murphy, K. R., Myers, B., & Wolach, A. (2003). *Statistical Power Analysis: A Simple and General Model for Traditional and Modern Hypothesis Tests*. Routledge.
- Museus, S. D., & Quaye, S. J. (2009). Toward an intercultural perspective of racial and ethnic minority college student persistence. *Review of Higher Education*, 33(1), 67–94. <https://doi.org/10.1353/rhe.0.0107>
- National Center for Education Statistics (2017a). *Digest of Education Statistics*, Table 320.20. Retrieved September 3, 2020, from [https://nces.ed.gov/programs/digest/d17/tables/dt17\\_320.20.asp?referer=raceindicators](https://nces.ed.gov/programs/digest/d17/tables/dt17_320.20.asp?referer=raceindicators)
- National Center for Education Statistics (2017b). *Digest of Education Statistics*, Table 321.20. Retrieved September 3, 2020, from [https://nces.ed.gov/programs/digest/d17/tables/dt17\\_321.20.asp?referer=raceindicators](https://nces.ed.gov/programs/digest/d17/tables/dt17_321.20.asp?referer=raceindicators)
- National Center for Education Statistics (2017c). *Digest of Education Statistics*, Table 322.20. Retrieved September 3, 2020, from [https://nces.ed.gov/programs/digest/d17/tables/dt17\\_322.20.asp?referer=raceindicators](https://nces.ed.gov/programs/digest/d17/tables/dt17_322.20.asp?referer=raceindicators)
- National Center for Education Statistics (2017d). *Digest of Education Statistics*, Table 323.20. Retrieved September 3, 2020, from [https://nces.ed.gov/programs/digest/d17/tables/dt17\\_323.20.asp?referer=raceindicators](https://nces.ed.gov/programs/digest/d17/tables/dt17_323.20.asp?referer=raceindicators)
- National Center for Education Statistics (2017e). *Digest of Education Statistics*, Table 324.20. Retrieved September 3, 2020, from [https://nces.ed.gov/programs/digest/d17/tables/dt17\\_324.20.asp?referer=raceindicators](https://nces.ed.gov/programs/digest/d17/tables/dt17_324.20.asp?referer=raceindicators)
- National Center for Education Statistics (2019). *Digest of Education Statistics*, Table 306.20. Retrieved September 3, 2020, from [https://nces.ed.gov/programs/digest/d19/tables/dt19\\_306.20.asp?current.asp](https://nces.ed.gov/programs/digest/d19/tables/dt19_306.20.asp?current.asp)
- National Native American Boarding School Healing Connection (n.d.). Impact of Historical Trauma. *Impact of Historical Trauma*. Retrieved from <https://boardingschoolhealing.org/education/impact-of-historical-trauma/>

- Native American Achievement Center*. (n.d.). Retrieved April 5, 2021, from <https://www.msubillings.edu/naac/>
- Native American Enrichment Center* (n.d.). *Great Falls College MSU*. Retrieved April 5, 2021, from <http://www.gfcmsu.edu/naec/>
- Nwadiora, E., & McAdoo, H. (1996). Acculturative stress among Amerasian refugees: Gender and racial differences. *Adolescence*, 31(122), 477–487.
- Office of Public Instruction (n.d.). Indian Education General Information. Retrieved from <https://opi.mt.gov/Educators/Teaching-Learning/Indian-Education-for-All/Indian-Education-General-Information#94930647-general-implementation-resources>
- Ortiz, F. (1995). *Cuban Counterpoint: Tobacco and Sugar* (H. de Onís, Trans.). Duke University Press Books.
- Pember, M. A. (2011). Circle of Strength: Tribal Colleges Aim to Recruit and Retain Native Male Students. *Tribal College Journal of American Indian Higher Education*, 22(4).
- Peterson's (2020a). Great Falls College Montana State University. Retrieved from [https://www.petersons.com/college-search/montana-state-university-great-falls-college-of-technology-000\\_10003895.aspx](https://www.petersons.com/college-search/montana-state-university-great-falls-college-of-technology-000_10003895.aspx)
- Peterson's (2020b). Montana State University, Billings. Retrieved from [https://www.petersons.com/college-search/montana-state-university-billings-000\\_10004196.aspx](https://www.petersons.com/college-search/montana-state-university-billings-000_10004196.aspx)
- Phinney, J. S. (1992). The Multigroup Ethnic Identity Measure: A New Scale for Use with Diverse Groups. *Journal of Adolescent Research*, 7(2), 156–176. <https://doi.org/10.1177/074355489272003>
- Renn, K. A., & Reason, R. D. (2012). *College Students in the United States: Characteristics, Experiences, and Outcomes*. John Wiley & Sons. Kindle Edition.
- Reyhner, J. (2019). Carlisle Indian Industrial School: Indigenous histories, memories, & reclamations, edited by Jacqueline Fear-Segal and Susan D. Rose. *History of Education*, 48(3), 430–432. <https://doi.org/10.1080/0046760X.2018.1485972>
- Richie, C., Heape, S. R., Agent, D., Ross, G., Tipre, K., Schellenberg, A., Castaldo, R. J., Adkins, J., Avery, D., & Rich-Heape Films (2008). *Our spirits don't speak English Indian boarding school*. Rich-Heape Films. Retrieved from <https://www.youtube.com/watch?v=2u3VOZ4n4aM>

- Rindone, P. (1988). Achievement motivation and academic achievement of Native American students. *Journal of American Indian Education*, 28(1), 1–8.
- Sanders, D. (1987). Cultural conflicts: An important factor in the academic failures of American Indian students. *Journal of Multicultural Counseling and Development*, 15(2), 81–90.
- Satterlee, A. (2002). *The Carlisle Indian Industrial School* (Non-Journal). Retrieved from <http://files.eric.ed.gov/fulltext/ED472262.pdf>
- Seidman, A. (2012). *College Student Retention: Formula for Student Success*. Rowman & Littlefield.
- Shotton, H., Lowe, S. C., & Waterman, S. J. (2012). Beyond the Asterisk: Understanding Native Students in Higher Education. In *Stylus Publishing, LLC*. Stylus Publishing, LLC.
- Singh, K. (2007). *Quantitative Social Research Methods*. SAGE Publications.
- Smart, J., Feldman, K., & Ethington, C. (2006). *Holland's Theory and Patterns of College Student Success*. 50.
- Smith, J. L., Cech, E., Metz, A., Huntoon, M., & Moyer, C. (2014). Giving back or giving up: Native American student experiences in science and engineering. *Cultural Diversity and Ethnic Minority Psychology*, 20(3), 413–429. <http://doi.org/http://dx.doi.org.proxybz.lib.montana.edu/10.1037/a0036945>
- Strayhorn, T. L. (2015). Reframing academic advising for student success: From advisor to cultural navigator. *NACADA Journal*, 35(1), 56–63.
- Surface-Evans, S. (2016). A landscape of assimilation and resistance: The Mount Pleasant Indian Industrial Boarding School. *International Journal of Historical Archaeology*, 20(3), 574–588. <https://doi.org/10.1007/s10761-016-0362-5>
- Tafoya, N. & Vecchio, A. D. (2005). Back to the future: An examination of the Native American holocaust experience. In M. McGoldrick, J. Giordano, & N. G. Preto (Eds.), *Ethnicity and family therapy* (3<sup>rd</sup> ed., pp 55-63). New York: Guilford Press.
- Tierney, W. G. (1992). An anthropological analysis of student participation in college. *The Journal of Higher Education*, 63(6), 603–618. <https://doi.org/10.2307/1982046>
- Tom Torlino Student File* (n.d.). Carlisle Indian School Digital Resource Center. Retrieved from [http://carlisleindian.dickinson.edu/student\\_files/tom-torlino-student-file](http://carlisleindian.dickinson.edu/student_files/tom-torlino-student-file)
- UCLA Institute for Digital Research & Education (n.d.). *Descriptive statistics using the summarize command: Stata Annotated Output*. Retrieved April 17, 2021, from

<https://stats.idre.ucla.edu/stata/output/descriptive-statistics-using-the-summarize-command/>

- U.S. Census Bureau (2013-2017). ACS Demographics and Housing Estimates, 2013-2017 American Community Survey 5-Year Estimates. Retrieved on March 23, 2019 from <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>
- U.S. Census Bureau (2014). Facts for Features: American Indian and Alaska Native Heritage Month: November 2014. Retrieved from <http://www.census.gov/newsroom/facts-for-features/2014/cb14-ff26.html>
- U.S. Census Bureau (2019). ACS Demographics and Housing Estimates. Retrieved from <https://data.census.gov/>
- U.S. Census Bureau & Ogunwole, S.U. (2002). The American Indian and Alaska Native Population: 2000. Retrieved from <https://www.census.gov/prod/2002pubs/c2kbr01-15.pdf>
- Weaver, H.N. & Brave Heart, M. Y. H. (2008). Examining two facets of American Indian identity: Exposure to other cultures and the influence of historical trauma. *Journal of Human Behavior in the Social Environment*. [https://doi.org/10.1300/J137v02n01\\_03](https://doi.org/10.1300/J137v02n01_03)
- White Shield, R. (2004). The retention of Indigenous students in higher education: Historical issues, federal policy, and Indigenous resilience. *Journal of College Student Retention: Research, Theory & Practice*, 6(1), 111–127. <https://doi.org/10.2190/HWKH-8LC1-WP90-45K0>
- Windchief, S., & Joseph, D. H. (2015). The Act of Claiming Higher Education as Indigenous Space: American Indian/Alaska Native Examples. *Diaspora, Indigenous, and Minority Education*, 9(4), 267–283. <https://doi.org/10.1080/15595692.2015.1048853>
- Woltman, H., Feldstain, A., MacKay, J. C., & Rocchi, M. (2012). An introduction to hierarchical linear modeling. *Tutorials in Quantitative Methods for Psychology*, 8(1), 52–69. <https://doi.org/10.20982/tqmp.08.1.p052>
- Wong, P. T. P., & Wong, L. C. J. (2007). *Handbook of Multicultural Perspectives on Stress and Coping*. Springer Science & Business Media.
- York-Crockett, B. J. (2018). *Barriers and Enablers to Native American Persistence in Higher Education Programs: Narratives from Mississippi Band of Choctaw Indians* [The University of Southern Mississippi]. Retrieved from <https://search.proquest.com/docview/2038866078/abstract/7306AEC0467F4639PQ/1>
- Zamel, V. (1997). Toward a model of transculturation. *TESOL Quarterly*, 31(2), 341. doi:10.2307/3588050

Zhang, Z. (2016). Missing data imputation: Focusing on single imputation. *Annals of Translational Medicine*, 4(1). <https://doi.org/10.3978/j.issn.2305-5839.2015.12.38>

## APPENDICES

APPENDIX A

SURVEY INSTRUMENT



Your participation in this survey voluntary; you may skip any questions you do not wish to answer.

For each of the following items, indicate the extent to which you have experienced the feeling or situation at school. Use the following ratings:

- 1 Not at all
- 2
- 3
- 4
- 5
- 6
- 7 A Great Deal

- |  |                                  |
|--|----------------------------------|
| I feel that I have to change myself to fit in at school.   | <input type="button" value="v"/> |
| I try not to show the parts of me that are "ethnically" based.   | <input type="button" value="v"/> |
| I often feel like a chameleon, having to change myself depending on the ethnicity of the person I am with at school. | <input type="button" value="v"/> |
| I feel that my ethnicity is incompatible with other students.  | <input type="button" value="v"/> |
| I can talk to my friends at school about my family and culture.  | <input type="button" value="v"/> |
| I feel I am leaving my family values behind by going to college.   | <input type="button" value="v"/> |
| My ethnic values are in conflict with what is expected at school.  | <input type="button" value="v"/> |
| I can talk to my family about my friends from school.  | <input type="button" value="v"/> |
| I feel that my language and/or appearance make it hard for me to fit in with other students.                         | <input type="button" value="v"/> |
| My family and school values often conflict.  | <input type="button" value="v"/> |
| I feel accepted at school as an ethnic minority.   | <input type="button" value="v"/> |
| As an ethnic minority, I feel as if I belong on this campus.   | <input type="button" value="v"/> |
| I can talk to my family about my struggles and concerns at school.   | <input type="button" value="v"/> |

The next nine questions ask you about your reactions to many aspects of your life at your current college. Please consider each question carefully and select the answer that is most true to you.

Your participation is voluntary.

	Very certain	Somewhat certain	Neutral	Somewhat uncertain	Very uncertain
At this moment in time, how certain are you that you will earn a college degree?	<input type="radio"/>				

	Very strong	Somewhat strong	Neutral	Somewhat weak	Very weak
At this moment in time, how strong would you say your commitment is to earning a college degree, here or elsewhere?	<input type="radio"/>				

	Very strong	Somewhat strong	Neutral	Somewhat weak	Very weak
How strong is your intention to persist in your pursuit of the degree, here or elsewhere?	<input type="radio"/>				

	Very supportive	Somewhat supportive	Neutral	Somewhat unsupportive	Very unsupportive
How supportive is your family of your pursuit of a college degree, in terms of their encouragement and expectations?	<input type="radio"/>				

	Very likely	Somewhat likely	Neutral	Somewhat unlikely	Very unlikely
How likely is it that you will earn a degree from here?	<input type="radio"/>				

	Very confident	Somewhat confident	Neutral	Somewhat unconfident	Very unconfident
How confident are you that this is the right university for you?	<input type="radio"/>				

	Very likely	Somewhat likely	Neutral	Somewhat unlikely	Very unlikely
How likely is it that you will reenroll here next semester?	<input type="radio"/>				

	A lot of thought	Some thought	Neutral	Little thought	Very little thought
How much thought have you given to stopping your education here perhaps transferring to another college, going to work, or leaving for other reasons?	<input type="radio"/>				

	Very disappointed	Somewhat disappointed	Neutral	Not very disappointed	Not at all disappointed
When you think of the people who mean the most to you (friends and family) how disappointed do you think they would be if you quit school?	<input type="radio"/>				

Indicate how much you agree or disagree with the following statement.

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree
I feel a strong attachment towards my own ethnic group.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What is your primary major? (Example: Business, Chemistry, Education, Registered Nursing, Liberal Studies, etc.)

How many credits have you completed at this institution?

- 0-29 credits
- 30-59 credits
- 60-89 credits
- 90+ credits

What is your current cumulative Grade Point Average (GPA)?

- 0.00 - 1.99
- 2.00 - 2.49
- 2.50 - 2.99
- 3.00 - 3.49
- 3.50 - 4.00

Have you ever attended a Tribal College or University?

- Yes
- No

What is your gender?

- Male
- Female
- Other

What is your age?

- 18 - 24
- 25 - 34
- 35 - 44
- 45 - 54
- 55 - 64
- 65 or older

Has anyone in your family attended some college or completed a college degree or certificate? If so, who?

- Mother
- Father
- Legal Guardian
- Sibling
- Spouse/Partner
- No one

Are there any other comments you would like to share?

Thank you for completing the survey. If you would like to enter the raffle for one of the prizes please type your first name and email address below. If not, you may skip this question.

First Name

Email address

APPENDIX B

PARTICIPANT CONSENT FORM FOR PARTICIPATION IN HUMAN RESEARCH AT  
MONTANA STATE UNIVERSITY

**PARTICIPANT CONSENT FORM FOR PARTICIPATION IN  
HUMAN RESEARCH AT MONTANA STATE UNIVERSITY**

**Project Title:** Examining the cultural congruity and intentions of persistence among American Indian college students in Montana

**Description:** You are being asked to participate in a research study about persistence in college. The results of this study may help college staff and faculty understand the relationship between American Indian student's intent to persist and how they perceive their culture matches the culture of their campus. You were selected as a possible participant because you have identified yourself as American Indian or Alaska Native.

**Procedures Involved:** Participation is voluntary. If you agree to participate you will be asked to respond to a survey. Participation is voluntary and you can choose to not answer any questions you do not want to answer and/or you can stop anytime. Participation or non-participation will not affect your grade(s) or class standing. This one-time survey is short, and should take approximately 10 minutes.

**Risks and Benefits:** There are minimal foreseen risks to the participation of this study. This study covers perception of cultural congruity so there could be students who have negative experiences who may find those questions unpleasant.

**Source of Funding of Project:** NA.

**Cost to subject:** None.

**Financial Compensation:** All participants may enter a raffle for one of the following prizes: (3) \$30 Amazon gift cards, (1) 7" tablet.

**Confidentiality:** Your name and contact information will be stored separately from your survey responses and will never be used to connect you with your responses. These data will be stored securely and then destroyed after ten years.

**Participant's Rights:** This research has been reviewed by the Institutional Review Board at Montana State University. If you have any questions or concerns about this research project, you may contact Eleazar Ortega [eleazar.ortega@gfcmu.edu]. If you have additional questions about the rights of human subjects they can contact the Chair of the Institutional Review Board, Mark Quinn, (406) 994-4707 [mquinn@montana.edu].

**By proceeding to the survey beginning on the next page, you are providing your informed consent to participate in this study.**

APPENDIX C

INITIAL EMAIL COMMUNICATION TO STUDENTS

Dear [GFC MSU or MSUB] Student,

You have been selected to participate in a survey that is being conducted as part of a doctoral project at Montana State University Bozeman on whether a student's intention to persist in college is related to their perceptions of cultural congruity (the degree to which one's personal values align with those of their college) of American Indian or Alaska Native college students in Montana.

The survey will take approximately 5-10 minutes to complete. Your participation is completely voluntary; you may exit the survey at any time. As a thank you for your time, upon completion of the survey you may enter a raffle for one of the following prizes: (3) \$30 Amazon gift cards, (1) 7" tablet.

Please complete the survey by (DATE).  
SURVEY LINK: [survey hyperlinked here]

Thank you in advance for your willingness to share your opinions through this survey. Your feedback is valuable in informing Montana college campuses of the experiences of their American Indian or Alaska Native students.

Eleazar Ortega  
Doctoral student at MSU Bozeman

APPENDIX D

EXPLORATORY FACTOR ANALYSIS OF CULTURAL CONGRUITY MEASURE

An exploratory factor analysis was conducted for the construct of cultural congruity, as an index of the responses to those questions was created. Three factors had an Eigenvalue of 1 or higher, and these three factors explain 61.46% of latent constructs. I examined the factor loadings and scree plot. A scree plot showed larger declines between Factors 1 and 2, and Factors 2 and 3, with flatter declines between Factors 3 and 4 and the remaining factors, but because Factor 3 had an Eigen value greater than one I did not exclude it. I also examined the rotated factor loadings (shown in the table below) and the Cultural Congruity Scale items that more heavily loaded on Factor 1 were the first, second, third, fourth, sixth, seventh, and tenth items. The items that more heavily loaded on Factor 2 were the eleventh and twelfth items. The item that more heavily loaded on Factor 3 was the fifth item. The eighth, ninth, and thirteenth items were not most heavily loaded on one single factor so they were excluded and three indexes were created to represent Factors 1, 2, and 3. The second table below shows a correlation matrix of each cultural congruity item to the three factors. A Cronbach's alpha test for reliability for the items in Factor 1 (Conflicts) and Factor 2 (Campus belonging) resulted in  $\alpha = 0.832$  for Factor 1, and  $\alpha = 0.880$  for Factor 2. Factor 3 could not be analyzed because a Cronbach's alpha test requires more than one item.

#### Rotated Factor Loadings and Unique Variances

<b>Variable</b>	<b>Factor 1 Conflicts</b>	<b>Factor 2 Campus Belonging</b>	<b>Factor 3 Campus Friends</b>	<b>Uniqueness</b>
Item 1	0.716	0.196	0.357	0.321
Item 2	0.666	-0.088	0.198	0.510
Item 3	0.823	0.146	0.175	0.270
Item 4	0.646	0.248	-0.154	0.498
Item 5	0.033	0.048	0.801	0.354
Item 6	0.586	-0.152	0.011	0.633

Item 7	0.718	0.270	-0.029	0.411
Item 8	0.250	0.399	0.743	0.227
Item 9	0.559	0.388	0.206	0.494
Item 10	0.710	0.125	0.213	0.435
Item 11	0.042	0.869	0.120	0.229
Item 12	0.176	0.885	0.166	0.158
Item 13	0.225	0.467	0.512	0.470

Correlation Matrix of Cultural Congruity Factors.

Questions	Factors		
	Conflicts	Campus belonging	Campus friends
<b>Factor 1- Conflicts</b>			
I feel that I have to change myself to fit in at school	0.794	0.301	0.182
I try not to show the parts of me that are “ethnically” based	0.705	0.148	0.216
I often feel like a chameleon, having to change myself depending on the ethnicity of the person I am with at school	0.852	0.238	0.162
I feel that my ethnicity is incompatible with other students	0.673	0.196	0.002
I feel I am leaving my family values behind by going to college	0.571	0.066	0.020
My ethnic values are in conflict with what is expected at school	0.700	0.303	0.148
My family and school values often conflict	0.700	0.230	0.170
<b>Factor 2- Campus belonging</b>			
I feel accepted at school as an ethnic minority	0.210	0.947	0.226
As an ethnic minority, I feel as if I belong on this campus	0.339	0.944	0.237
<b>Factor 3- Campus friends</b>			
I can talk to my friends at school about my family and culture	0.175	0.245	1.000