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Faculty-Student Interaction and the Educational Outcomes of Native American College Students: A Comparison of First-Generation and Continuing-Generation College Students

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ABSTRACT

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Utilizing the College Student Experiences Questionnaire, (CSEQ) a regression analysis was run to identify the ways in which 95 Native American college students attending an elite, religious, predominantly White institution (PWI) interact with faculty. These interactions were used to predict correlations with the educational outcomes of (1) aspirations for graduate school, (2) GPA and (3) overall gains from college. The findings were further disaggregated by first-generation and continuing-generation status.

The findings suggest that none of the faculty-student interactions or demographic variables were significantly correlated with aspirations for graduate school. Gender, class standing and age were significantly correlated with GPA. A better relationship with faculty members positively correlated with five of the estimate of gains, suggesting that the better a students' relationships with faculty, the greater their overall gains from college. The current study found that first-generation students did not socialize with a faculty member outside of class as much as continuing-generation students. However, this study found that first-generation students reported better relationships with faculty than continuing-generation students and being more willing than continuing-generation students to work harder as a result of feedback from an instructor.

The findings identify faculty-student interactions that can lead to success in higher education for Native American college students, as well as understanding how these interactions compare or differ for first-generation and continuing-generation Native American college students.

Keywords: faculty-student interaction, first-generation students, continuing-generation students, Native American college students.

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Background

Higher education enrollment in the United States has increased by more than four million students over the past decade and stands at an estimated 21 million college students nationally (Ross, et al., 2012). Enrollment in higher education is expected to remain steady as labor and employment forecasts predict that most occupations will require some form of post-secondary education (Chickering & Gamson, 1991). Recent changes to the elementary and secondary education system in most states now focus on preparing students for *success in college and careers* with the voluntary adoption of The Common Core Standards (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010).

The increase in college enrollment over the past decade has largely been attributed to growth in the attendance of women and minority students in higher education. According to the National Center for Education Statistics, female students outnumber male students in Bachelor, Masters and Doctoral degree programs as well as overall graduation rates, a pattern that is consistent across all ethnicities (Ross, et al. 2012). This is hardly surprising as females have greater high school graduation rates than males, which again is consistent across all ethnicities.

Since 2000, college enrollment by students of color has increased by six million students with more than a quarter of college students being students of color (Kim, 2011). Among these incoming students are first-generation college students, coming from homes where neither parent has obtained a college degree (Ishitani, 2003). Education has been considered "the great equalizer" (Mann, 1868, p. 669), as it has the potential to improve the economic, social and cognitive circumstances of its graduates (Kuh, Cruce, Shoup, Kinzie & Gonyea, 2008). However, inequalities regarding the access and attainment of education itself perpetuate

significant achievement gaps that overwhelmingly affect underrepresented minorities (Carey, 2004; Chaney, Muraskin, Cahalan & Goodwin, 1998).

While the overall increase in college enrollment, especially in regards to underrepresented minorities, sounds promising, the fact remains that college graduation rates in general remain staggering low and drop-out rates exceptionally high (Kim, 2011). Low retention and graduation rates have not gone unnoticed by higher education stakeholders and have prompted efforts to improve the educational outcomes of students and instill good institutional practices at the schools they attend (Kuh, Kinzie, Schuh, & Whitt, 2010).

Beginning in 1984, The Study Group on the Conditions of Excellence in American Higher Education proposed conditions to better involve students in the learning process, Chickering and Gamson (1987) developed *Seven Principles for Good Practice in Undergraduate Education*, and *Making Quality Count*, was published for the Education Commission of the States' (1995). Likewise, instruments such as the National Survey of Student Engagement (NSSE) and the College Student Experiences Questionnaire (CSEQ) have been created to not only identify successful clusters of educational practices, but to measure them.

It comes as no surprise then that the interaction between students and faculty, the obvious participants in higher education, has been acknowledged as having significant potential for facilitating positive educational outcomes for students. A number of educational researchers have constructed models and theories identifying the conditions under which faculty-student interactions facilitate positive student learning and development (Astin, 1993; Pascarella, 2001, Tinto, 1987, 1993). Empirical studies have further documented the positive relationship between faculty-student interactions (Kuh & Hu, 2001; Pascarella & Terenzini, 1991; Umbach &

Wawrzynski, 2005); but also suggest that not all students profit from faculty-student interaction in the same manner (Kuh & Hu, 2001; Lundberg & Schreiner, 2004).

Statement of the Problem

While academia has celebrated the advancement in theory and empirical evidence highlighting faculty-student interactions, claiming benefits from positive interactions in areas such as student persistence, self-esteem, career goals, academic development and institutional commitment (Brown & Kurpius, 1997; Kuh & Hu, 2001; Wilson, Wood, & Gaff, 1974), there is sufficient reason to question whether the existing theories, models and empirical evidences are applicable beyond the White student population. Up until the 1990s, the research has focused on aggregate samples of faculty-student interactions with college students (Kim, 2010, Pascarella & Terenzini, 1991; Watson & Kuh, 1996), it remains to be seen if minority student interactions with faculty would produce similar outcomes. Given that minority student enrollment rates have more than doubled in the last few decades and minorities have been found to face challenges in higher education dissimilar to their White counterparts (Eimers & Pike, 1997; Kim, 2010; Pascarella & Terenzini, 1991), a need for further research is necessary.

Well-meaning researchers have acknowledged this gap in the research and have attempted to explore the comparison of White student-faculty interactions to those of minority students. However, their efforts have disregarded the fact that minority students represent numerous distinct ethnicities and cultures and are not *dichotomous categories* (Cole, 2010). Studies identifying participants as *White/Non-White* or *Minority/Non-Minority* (e.g., Eimers, 2001) have done little to advance any particular minority group (Allen, 1992; Watson & Kuh, 1996).

Although research concerning minorities in education is needed, it is often the case that minority groups with larger student populations or experiencing the fastest growth are examined. A recent surge in the enrollment of Black and Latino students has also seen a rise in the number of studies aimed at improving their educational experience in college. Similarly, with more than one-third of college students being first-generation students (Landers, 2010), numerous studies have focused on understanding their experiences in higher education as they face challenges both academically and culturally that put them at high risk for early departure from college (Choy, 2001; Horn & Nunez, 2000; Pascarella, Pierson, Wolniak & Terenzini, 2004). In contrast, the experiences of certain under-represented minority groups continue to be overlooked, as is the case with Native Americans in higher education (Tierney, 1992).

Native Americans are the smallest minority group in undergraduate education representing 1% of students in higher education (Kim, 2010), because of their small population, they are often left out of higher education research and reports (e.g. Chang, 2005). The American Council on Education which publishes a biennial report entitled, "The Status of Minorities in Higher Education," admits that it has only included data on Native Americans since 2008. The addition of a new survey by the Census Bureau (the American Community Survey) has facilitated the inclusion of Native American data in the American Council on Educations' recent reports (Kim, 2011).

The limited information that has been collected concerning Native Americans in higher education tells a story of severe under achievement in education with the lowest rates of college enrollment (Reddy, 1993) and the highest college drop-out rates, an astonishing 75 to 93 per cent (Guyette & Heth, 1984). The only group at higher-risk than Native American college students, are a sub-set of first-generation Native American college students.

Despite the fact that Native American students face overwhelming odds to their success and are the most at-risk group in higher education today, they are almost entirely absent from the higher education literature (Carney, 1999; Demmert & Bell, 1991; Tierney, 1992). With so much of the higher education literature touting the positive benefits of faculty-student interaction both socially and academically, it would be remiss to overlook the potential educational outcomes that faculty-student interactions could provide for a marginalized and under-represented minority group.

Notwithstanding previous research regarding faculty-student interaction in higher education, there are questions that remain unanswered. In what ways does faculty-student interaction predict the educational outcomes of Native American college students? How does this compare for first-generation students and continuing-generation college students? To answer these questions, the current study will examine the faculty-student interaction between faculty and Native American college students attending a predominantly White institution (PWI); it will further examine the effect on their educational outcomes. The experiences of first-generation students will be compared to those of continuing-generation students.

Purpose of the Study

The purpose of this study was to examine faculty-student interactions between a predominantly White faculty and Native American college students attending a predominantly White, highly selective, high research university that is privately owned and religiously focused. This study examined a longitudinal data set containing a total sample of 105 first-generation and continuing-generation Native American students pursuing an undergraduate degree at a private, not-for-profit, highly selective research university.

Using the aforementioned data set, the nature of the faculty-student interactions were examined to identify the conditions under which they occur. Previous research regarding faculty-student interactions refers to the interactions in terms of formal or informal, inside or outside the classroom, academic/intellectual or personal, and frequent or occasional (Kim & Sax, 2009; Kuh & Hu, 2001; Pascarella, Seifert, & Whitt, 2008; Tinto, 1993). Existing studies suggest that informal contact can significantly influence freshman persistence (Pascarella & Terenzini, 1977; 1979) and academic development (Wilson et al., 1974), while others claim that frequency of contact has the greater potential for positive impact (Brown & Kurpius, 1997). Faculty-student interactions will be examined during this study to understand the frequency and the circumstances under which Native American college students interact with faculty.

During this study the educational outcomes of Native American students will also be examined. The research regarding faculty-student interactions follows a number of positive educational outcomes for college students. Among the positive educational outcomes that faculty-student interaction boasts are academic development, sense of purpose, stronger career goals, improved commitment to graduate and stronger institutional commitment (Brown & Kurpius, 1997; Pascarella & Terenzini, 1979; Wilson et al., 1974). Particular attention will be paid toward educational outcomes that indicate academic development; traditional measures such as Grade Point Average (GPA), aspirations for graduation and graduate school, and an estimate of positive gains that occur during college (listed in Table 2 of chapter 3) will be examined. GPA has been reported as a singular predictor in the success of Native American students (Pottinger, 1990), and aspirations for graduation and graduate school have been linked to satisfaction with the college experience of Native American students (Brown & Kurpius, 1997).

First-generation and continuing-generation status will be among the background information studied to understand if parental education is correlated with the ways students interact with faculty. The existing empirical research suggests that first-generation and continuing-generation students differ in their interactions with faculty and consequentially may benefit in a different manner (Kuh & Hu, 2001; Lundberg & Schreiner, 2004).

The purpose of this study is to examine the following research questions:

1. In what ways does faculty-student interaction predict the educational outcomes of Native American college students?
2. How does this compare for first-generation and continuing-generation students?

The findings from the current study will be utilized to identify faculty-student interactions that can lead to success in higher education for Native American college students, as well as understanding how these interactions compare or differ for first-generation and continuing-generation Native American college students. Finally, the findings from this study will be used to inform the Dean of Students, at the university the respondents attend, of possible initiatives that can lead to success in higher education.

Significance of the Study

As a first-generation and indigenous college student, I am keenly aware of the achievement gaps that exist in education, and more specifically in higher education. In deciding to undertake a comprehensive and demanding research project, such as a dissertation, it was necessary for me to pursue a topic that not only interested me, but a topic that had the potential to improve the educational outcomes for people like me, indigenous and first-generation students. The interactions between the major stakeholders in higher education, faculty and students, have been found to significantly affect student development and success in college (Astin, 1993;

Lamport, 1993; Pascarella & Terenzini, 1991). This study adds to the current research, yet, differs in a number of ways.

First, the current study acknowledges the potential benefits that faculty-student interaction may contribute to educational outcomes; but unlike most existing studies, this study differs by attempting to understand faculty-student interactions involving a rarely examined group of Native American college students. This is a divergence from the current research which has focused primarily on the experiences of an aggregate student population, the majority of which have been White (Kim, 2010). Instead, this study aims to explore the experiences of students with the lowest levels of college enrollment and the highest drop-out rates, students that are under-represented and have consistently been ignored in the higher education literature—Native Americans. This study will address the conditions under which Native American college students interact with faculty members and the nature of their interactions at a predominantly White institution, given that 90% of Native American college students attend PWIs.

Correlations between the faculty-student interactions and the purported educational outcomes will be examined to predict their impact on success in higher education. The general higher education literature has examined successful practices in higher education as well as instruments to measure these practices. However, the overall low rates of Native American college student persistence create a lack of Native Americans responses to instruments (e.g. National Survey of Student Engagement, NSSE) aimed at providing feedback about their college experience. These instruments are often administered biennially or just prior to graduation. The respondents in this study are participants in a specific Native American initiative at a specific selective, private religious university which administers the survey earlier on in the college experience of Native American students.

The second way this study differs is regarding the use of respondents. Previous studies examining faculty-student interaction with under-represented minority groups have used sample populations collected from a national data set. To obtain sufficient numbers, researchers have often selected respondents from a cross-section of varying higher education institutions (e.g. Lundberg, 2007). Instead of trying to understand the differing policies or practices of numerous higher education institutions taken from a cross section of higher education institutions, this analysis will focus on reporting the experiences of Native Americans at one specific institution.

Third, this study differs from existing studies because the information collected during this study will be further disaggregated by first-generation and continuing-generation status for Native American college students. The existing research has failed to address the experience of first-generation students in comparison with their continuing-generation counterparts of the same ethnicity; perpetuating an assumption that all first-generation students experience college in the same manner. However, the current study examined faculty-student interaction of Native American students by first-generation and continuing-generation status. The existing studies have typically examined students as an aggregate, examining first-generation students, the majority of whom are minority students, and compared them with continuing-generation students, the majority of whom are from a White student population (Choy, 2001; Pascarella, et al., 2004). It is expected that this study will provide useful information to understand the frequency and conditions under which Native American students interact with faculty members. The disaggregation by first-generation and continuing-generation status will further identify ways in which institutional practices can be implemented to provide appropriate support to improve student success in higher education. Notable differences between first-generation and continuing-generations (as well as other differences in background information) can guide

advisers and policy makers in the construction of programs and initiatives that are aimed at improving the college experience and success of underrepresented and at-risk student populations in a beneficial manner.

The current study has significant implications for informing institutions, faculty, advisers and Native American college students themselves of the conditions that produce desirable educational outcomes for success in higher education. The ability to improve faculty interactions with students can have a direct effect on improving not only the classroom experience, but the higher education experience in general (Cole, 2010). Furthermore, the ability to ameliorate the educational outcomes of Native Americans has the potential to influence the future continuing-generations of Native American college students, the majority of whom attend predominantly White institutions.

Chapter 2
Literature Review

The purpose of this chapter is to identify and position the current and relevant literature regarding, (a) faculty-student interaction in higher education and its' effect on educational outcomes, (b) Native American students in higher education, including historical and current achievement in higher education (c) first-generation college student achievement in higher education, in comparison to continuing-generation students. The intent of this chapter is to present an interdependent synthesis and analysis of these bodies of literature and to provide sufficient evidence to understand the significance of the underlying research questions that this study aims to answer, regarding faculty-student interactions and its effect on the educational outcomes of first and continuing-generation Native American college students.

The research regarding faculty-student interaction is vast and encompasses decades of theories and models on student development. Although a large number of earlier studies seemed intent on examining aggregate college student populations, the majority of which were a White student population (Kim, 2010; Pascarella & Terenzini, 1991; Watson & Kuh, 1996); more recent years have seen the inclusion of empirical evidences on a disaggregated, non-White student population in an attempt to further refine predisposed theories and models.

The next segment of my review will focus on the experience of Native Americans in higher education. Despite the efforts of many stakeholders, achievement gaps in educational attainment continue to exist (Ross et al., 2012). Native American students experience some of the largest gaps in achievement and continue to struggle in access to and persistence in higher education (Freeman & Fox, 2005). The last few decades have been an era of self-determination, in which Native American tribes have toiled to bridge the achievement gap by instituting their own Tribal Colleges and Universities (TCUs) (DeVoe & Darling-Churchill, 2008). While these

TCUs have experienced great success with retention and college satisfaction, the majority of Native American college students continue to attend predominantly White institutions, where their experience is often dissimilar to their White counterparts (Guyette & Heth, 1984; Jackson, Smith, & Hill, 2003; Reddy, 1993; Tierney, 1992).

The final section of the literature review will examine the impact of college on first-generation college students on an aggregate level, as well as how they compare to their continuing-generation counterparts. Recent studies illuminate the issues that first-generation students experience as they embark on an unchartered journey into higher education (Ishitani, 2003; Lohfink & Paulsen, 2005). A thorough analysis of the relevant literature will position the current research questions and convey the urgency and importance of the current study.

Faculty-Student Interaction and Educational Outcomes

As I explored the research regarding faculty-student interaction, it seemed apparent that the literature was positioned within the college impact literature. Therefore, to facilitate a thorough understanding of faculty-student interaction, I will undertake an analysis of the impact that college can have on students. According to Tinto (1993), both social and academic integration are necessary to produce successful educational outcomes in college, clarifying that the two are not necessarily independent but rather interconnected.

Tinto's model of institutional departure. Tinto's longitudinal model of institutional departure (1987, 1993) (based upon his theory of student departure) takes into consideration the pre-entry attributes that all students bring with them to college, such as family background, skills and abilities which influence the goals and commitments one has prior to college entry. Tinto suggests that these pre-entry attributes are added upon when the individual is exposed to the institution and experiences academic environments (such as involvement with faculty) and social

environments (including extracurricular activities) that influence one's social and academic integration into the institution. Tinto's model examines the pre-college attributes and institutional experiences over time as they influence departure within an institution of higher education.

Tinto (1987, 1993) further concludes that based upon a student's social and academic integration into an institution, a student's goals and commitments can lead to a positive outcome of persistence, but a lack of social and academic integration lead a student to feel like they do not *fit* with the institution and an early departure or dropout may follow. Although Tinto's longitudinal model of institutional departure only shows an outcome of departure, it is possible that if the student experiences satisfaction with the academic and social integration that the positive goals and commitment to the institution would result in an outcome of persistence or graduation.

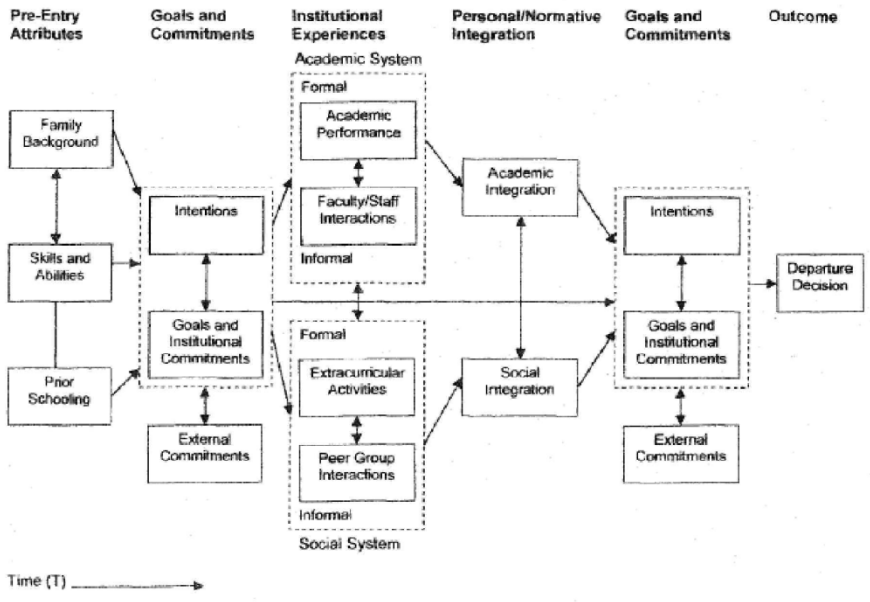

Figure 1. Tinto's longitudinal model of institutional departure.

Astin's input-environment-outcome model. Astin (1993, 1999) posits that student involvement is the physical and psychosocial effort that a student exerts in the college experience; the resulting student development and learning that takes place during college are dependent upon this level of involvement. Astin's (1984) theory of student involvement has been a central tenet to the college impact literature, and conveys the varying forms of involvement that should take place during college including academic work, extracurricular activities and faculty-student interactions. His theory suggests that the more involved the student is during the college experience the greater the learning and personal development that will result.

Astin (1962, 1991) also proposes an Input-Environment-Outcome model (I-E-O) which is somewhat similar to Tinto's model of institutional departure in that they both claim a) students bring a predisposition with them to college, b) students are further influenced by the environmental variables of the college (programs, policies, faculty, etc.) and c) outcomes are a result of the student's experience after exposure to the institutional environment. Astin's I-E-O model gives a number of possible outcomes from a student's experience that fall under intellectual and behavioral categories, while Tinto's model focused on departure or persistence as the only outcomes. As Tinto's (1993) work has largely been concerned with persistence as a measure of a successful educational outcome, Astin's (1991) work has been primarily concerned with a student's intellectual and personal development as measures of successful educational outcomes. These educational researchers have significantly influenced the discussion regarding the college impact literature. Their research offers a significant contribution to understanding the potential impact that faculty-student interactions can have on students' college experience, including their decision to persist, satisfaction in college, and academic and social development.

Although the literature extols the beneficial outcomes of interactions between faculty and students, it is necessary to probe deeper and understand the specific conditions under which positive benefits occur and to understand why students do not necessarily interact with faculty or benefit from interactions in an identical manner (Lundberg & Schreiner, 2004). In an effort to provide an appropriate analysis of the relevant literature, I will employ Astin's I-E-O model as it relates to the faculty-student interaction literature. To begin, I will describe the inputs that students bring to the college environment that can potentially affect their interactions with faculty, followed by college environment variables and their influence on student engagement with faculty, and finally I will discuss the literature regarding faculty-student interactions and their impact on varying educational outcomes.

College Inputs

The higher education literature suggests that the characteristics or inputs that students bring to college can predict the nature and quality of their college experience (Astin, 1993; Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006; Pascarella & Terenzini, 1991; Tinto, 1993). Inputs such as socioeconomic status, family background, academic preparedness, ethnicity, major field and gender have been cited as predictors of faculty-student interaction (Allen, 1992; Kim, 2006). Kuh (1995) found that gender influenced the nature of interactions with faculty; women students were reportedly more likely to interact with faculty to improve confidence and find purpose in their learning, while men interacted with faculty to improve their cognitive complexity. Tinto (1993) further noted a differential impact with gender; his findings suggest that faculty-student interactions within in the students' major were more important for males than for females.

Family background, such as level of education can also affect the level of interaction a student experiences in college. First-generation students, where neither parent has graduated

from college (Ishitani, 2003), generally have lower academic aspirations and often experience cultural and language barriers, all predictors that reduce their likelihood of interacting with faculty (Crisp & Nora, 2010; Lundberg & Schreiner, 2004). Socio-economic status can further contribute to predictions of faculty-student interactions in college. Walpole's (2008) research discovered that African American students from low-income households had lower grades, interacted less with faculty and achieved lower levels of degree attainments than their African American counterparts from higher income households.

According to Chang (2005) ethnic minorities and underrepresented students have a limited knowledge of the education system and a desire to interact with faculty was sometimes considered contrary to their cultural tendencies. Similarly, immigrant families' lack of knowledge of academia often results in their inability to ask questions or schedule necessary appointments with faculty and staff (Rendon & Valadez, 1993). Cole (2010) concedes that race-related issues have an effect on the frequency and quality of interactions that students experience with faculty while attending predominantly White institutions (PWIs). Minority students often deal with assumptions about academic preparedness and faculty perceptions of minority students which can influence faculty-student relationships (Anaya & Cole, 2001). In another study, African American students reported feeling ignored in their classes and by their faculty members (Solórzano, Ceja, & Yosso, 2001). Love (1993) describes a perception of *social distance* between minority students and White faculty. This distance grows as minority students feel separated by differences in social, economic and cultural capital with their predominantly White faculty.

Astin (1999) reports that the traditional faculty pedagogy favors the student that is academically prepared; he further posits that faculty should adjust their pedagogy to

accommodate underprepared students, to facilitate their active rather than passive participation in the learning process. Students that may appear underprepared are often ignored or overlooked by faculty as differences in learning styles are oft times misread as academic deficiencies needing remediation rather than being embraced as diverse talents (Chickering, 2006) or *funds of knowledge* (Cutri, Manning, & Chun, 2011). Rendon & Valadez (1993) claim that faculty can be resistant to changes that would improve their understanding of diverse student populations and, as a result, ignore the potential that students may contribute to the enrichment of the learning environment. A qualitative study involving the experiences of Native American college students discovered that these students experienced a lack of recognition and a devaluation of their culture which encouraged their disengagement from college (Garrod & Larimore, 1997).

However, in an example from the University of California, Berkeley, Treisman (1992) describes how a change in instructional strategies led to significant improvements for groups of historically underserved students enrolled in college calculus classes. In this particular situation, a large number of students from underrepresented minority groups were failing their calculus class even though they had the academic prerequisites and the ability to succeed. The instructors theorized that the problem was an *environmental disorientation*, rather than a lack of motivation or ability, as originally thought. An understanding of the students' backgrounds and experiences prompted Treisman and others to formulate a program responsive to the needs of this diverse group of students with great success. Quite simply, they provided opportunities for students to spend time in class working in small groups to address mathematical problems. The majority of these failing students came from low socioeconomic backgrounds where they often studied by themselves and had previously perceived study groups as cheating, rather than as collaborative learning opportunities.

I mention this specific example for a number of reasons: (1) to illustrate the effect that faculty can have on the educational outcomes of students, (2) to highlight that it wasn't until the faculty members understood the experience of these students that they were able to understand how to improve their understanding and learning of the subject and (3) the faculty members originally believed that the students' ethnicity was the reason for their poor academic performance. Had the faculty continued with their preconceived notions that these students were underprepared, lazy or incapable; these students probably would have failed the calculus course, possibly leading to an early departure from the higher education system.

Eimers (2001) further asserts that minority students can feel isolated on college campuses which results in lower levels of engagement and difficulty in seeking help from White faculty members. According to Hurtado (2002), institutions that are concerned with the racial campus climate and undertake endeavors to improve the situation facilitate an environment that experiences frequent interaction amongst its members. Higher education has the potential to improve inequalities based on race or ethnicity; accordingly inclusive campuses are at the forefront of educating minority and underrepresented students (Mayo, Murguia, & Padilla, 1995). Although students begin college with certain characteristics or predispositions toward faculty interaction, their experience within the campus environment can influence their actual level of involvement with faculty (Chang, 2005). Pascarella & Terenzini (1991) additionally acknowledge that when students are valued and taken seriously, interactions between students and faculty are a common occurrence and can facilitate their integration into the college environment.

College Environment

While the characteristics that students bring to the college environment are important in shaping their experiences, it is the quality of effort expended during college that can have a much greater impact (Pace, 1984; Pascarella & Terenzini, 1991). Kuh & Hu (2001) declared the most important finding from their research was that faculty-student interaction encourages students to dedicate more of their efforts to educationally purposeful practices. Frequent faculty-student interaction can have a significant effect on student involvement and is closely correlated to college satisfaction, more so than any pre-college attribute or other environmental variable (Astin, 1993).

Faculty, often unintentionally, serve as role models, counselors and supporters to students in the college environment and are often the initial and most prominent representatives of an educational institution (Arredondo, 1995; Terenzini & Pascarella, 1980). In this manner, the actions of faculty can largely be translated as the attitude of an institution, and can impact a student's institutional commitment. Tinto (1987) claims that

> An institution's capacity to retain students is directly related to its ability to reach out and make contact with students and integrate them into the social and intellectual fabric of institutional life. It hinges on the establishment of a healthy, caring environment which enables individuals to find a niche in the social and intellectual communities of the institution. (pp. 180-181).

An extreme fulfillment of this objective is found in residential learning communities, based on the traditional residence colleges of Oxford and Cambridge universities. According to Smith (1994), "residential colleges . . . and universities in North America are rediscovering the venerable benefits of teachers and students living, dining, and studying in the same building" (p.

241). While this is a prime example of an effort to encourage contact between students and faculty, the majority of higher education institutions are pursuing alternative and less invasive methods to accomplish the same objective. However, this example does bring to light the effect that institutional type can have on encouraging faculty-student interaction. Even before a student enters a classroom, some studies claim that institutional type, size and selectivity can affect the level of interaction a student will have with faculty (Kuh & Hu, 2001; Pascarella, 1980).

The respondents in the current study attend a religious institution, 98.5% of students at the institution belong to the religion sponsoring the university (NCES, 2014). It's unclear from the literature just how religion affects faculty-student interactions, although findings suggest, faculty who consider themselves spiritual are more likely to incorporate student-centered and active learning methods into their teaching (Warren, 1997). The use of student-centered teaching methods has been correlated with greater academic achievement, intellectual and social maturity in comparison to traditional methods of lecturing by faculty (Henson, 2003).

Anaya & Cole (2001) posit that the type of institution is an indicator of the type of educational environment and the resulting faculty-student interaction one might expect. Astin (1993) reports that institutional size along with the research expectations of faculty can negatively influence interaction and eventually the personal and social development of a student; he clarifies that it is not necessarily the type of institution that has an effect on the development of undergraduate students, but rather the opportunities they are afforded at these institutions. Astin found that institutions with low faculty-student ratios positively affected student development as faculty members were able to interact more readily with students; he determined that it was the commitment of the institution to the learning and development of the student that was of particular significance, rather than the class size or type of institution.

Rendon (1994) exhorts that providing opportunities is not enough for minority students. He suggests that faculty members be active in mentoring and supporting nontraditional students. Lohfink & Paulsen (2005) discovered that educational outcomes, such as persistence, were positively related to first-generation student enrollment in larger institutions and negatively related to their attendance at private institutions. They found that by attending larger institutions, first-generation students were able to interact with other students who were inexperienced with college like themselves. However, in smaller and private universities it was more difficult for first-generation students to identify with students like themselves. The institution involved in the current study is considered a large, private not-for-profit, religious, selective research university with an average faculty-student ratio of 1:21(NCES, 2014).

Numerous studies suggest the positive benefits associated with faculty-student interaction (Astin, 1993, 1999; Bean & Kuh, 1984; Education Commission of the States, 1995; Kuh & Hu, 2001; Lamport, 1993; Pascarella & Terenzini, 1977, 1979, 1991, 2005; Terenzini, Pascarella & Bliming, 1996; Tinto, 1993). Nevertheless, the empirical evidence proposes that students do not necessarily interact and profit from faculty-student interactions in the same way (Lundberg & Schreiner, 2004; Nettles, 1991). A closer analysis can provide a breadth of knowledge regarding varying faculty-student interactions and the circumstances under which they occur. The faculty-student interaction literature can be categorized into two main areas, in-class and out-of-class interactions. In-class interactions are often correlated with formal and academic faculty-student interactions, while out-of-class interactions involve informal and non-academic interactions (Mayo et al., 1995). The college impact literature often refers to the in-class interactions as academic integration and the out-of-class interactions as social integration, thereby suggesting that for social and academic integration to take place, both in- and out-of-class interactions must

also take place. According to Cox and Orehovec (2007), the overwhelming majority of studies concerning faculty-student interactions examine the interactions that take place inside the classroom.

Tinto (1993) states that once students gain some form of social acceptance in college, they begin to place a greater emphasis on academic involvement. Terenzini et al. (1996), however, learned that minority students were more focused on their academic integration from the beginning than their non-minority peers who were focused on developing friendships or social integration. The frequency of contact between faculty and students has been reported to improve during the collegiate experience. Olsen et al. (1998) discovered that faculty-student interactions for freshmen students were related to understanding class assignments. After a year, the same students were interacting with faculty with greater intellectual depth. As students advance into their major fields, they attend smaller classes which allow for more interaction with faculty. Kuh & Hu (2001) also suggest that when students are in their upper division courses they have developed enough knowledge to converse more freely with their faculty members. Ku & Hu (2001) noted that faculty seemed more at ease interacting with academically developed students who were members of their discipline.

While some researchers emphasize the importance of the frequency of faculty-student interactions (Pascarella & Terenzini, 1991), others claim it is the quality of the interactions that have the greatest impact on intellectual growth (Cotten & Wilson, 2006). Although faculty interaction has been shown to positively influence student achievement for all students (Kuh & Hu, 2001), Kim (2006) found that faculty-student interactions positively influenced the educational aspirations of White students but not the educational aspirations of African American, Asian American and Latino students. Furthermore, Asian American students

reportedly experience levels of faculty-interaction considerably lower than their White, African American, Latino and Native American counterparts (Kim, 2006).

Cilliers & Sternberg (2001) posit that faculty who connect with students on an individual level improve the learning of students from non-traditional learning styles. Gestures such as smiling, eye contact, proximity to the student as well as complimenting and providing specific feedback have been associated with positive expectations from faculty toward students (Jussim & Eccles, 1992). According to Cole (2010), these kinds of gestures and behaviors encourage students to interact with faculty and have a direct effect on the classroom experience.

Faculty instructional techniques contribute to the persistence of college students and their intellectual development (Umbach, Padgett, & Pascarella, 2010). The environment inside the classroom can convey to students whether the faculty member is approachable. If faculty members are found to be accessible, students are more likely to interact with them outside of the classroom (Cotton & Wilson, 2006). Anaya & Cole (2001) found that minority students were often less than satisfied with interactions involving faculty members during class and perceived faculty as being unwilling to interact with them. Dissatisfied interactions during class negatively influence interactions with faculty outside of class (Cole, 2007). Wilson, Wood, & Gaff (1974) refer to these as *accessibility cues,* the cues that faculty convey to students which encourage or discourage further interaction outside the classroom. Hurtado (1994) reports that one in six high-achieving Latina/o college students felt that faculty were more helpful and accessible to White students. Tinto (1993) assumes that when students interact with faculty members in the classroom, students will increase their institutional commitment and realize that they belong in college. However, if students are experiencing negative interactions with faculty in the

classroom they begin to see themselves at odds with the faculty member, and in turn the institution and departure from the institution is imminent.

Astin (1993) proposes that the two most influential characteristics of faculty are (a) their focus on being research-oriented, and (b) their emphasis on being student-oriented. Referring to Tinto's (1993) model, Nagda, Gregerman, Jonides, Von Hippel, and Lerner (1998) discovered that faculty-student research projects positively influence student persistence. Working on just one research project with faculty could be enough to position a student within their field and discipline, providing them with necessary experience and confidence to persist (Kim, 2006). Light (2001) states that such an experience is pivotal in preparing students to know "how to think," rather than "what to think." Faculty who are focused on student-oriented philosophies and meaningful interactions are more likely to interact with students outside of class (Cox, McIntosh, Terenzini, Reason, & Lutovsky Quaye, 2010).

According to some, a lack of evidence exists that informal contact with faculty outside the classroom achieves any form of socialization that results in academic achievement, unless of course the interaction involves the discussion of academic subjects such as papers or coursework (Anaya & Cole, 2001). Pascarella and Terenzini (1991) agree that an academic focus must be present in social interactions for faculty-student interactions to be of significant benefit. Other researchers admit that socialization and informal contact with faculty regarding non-academic subjects were extremely helpful for minority students, and further influenced their intellectual achievement (Mayo et al., 1995). Eimers (2001) agrees that minority students that experience positive interactions with faculty also improve their academic achievement at higher levels than their White counterparts.

Lundberg & Schreiner (2004) explored faculty-student interactions and disaggregated the results by ethnicity. Their findings suggest that Native Americans and African American students who discussed their personal concerns with faculty experienced greater academic achievements; the results for Asian Americans and Latino's did not significantly impact academic achievements. Mayo et al. (1995) also found that meeting with faculty outside of class improved the academic performance of African American students as well as White students.

Kuh & Hu (2001) declare that social interactions outside of class can indirectly influence a students' college experience, as it contributes to their view of and satisfaction with the institutional environment and encourages further effort. However, they encourage faculty to include informal discussions of what they are learning inside the classroom and how it can be applied beyond the classroom. Cox (2007) suggests there is a distinct connection between positive student outcomes and the frequency and depth of out-of-class-interaction between faculty and students. A lack of presence on campus after classes has been found to negatively correlate with the quantity of faculty interaction (Lind, 1997), for example, if a student is not on campus after their classes they will not experience faculty-student interactions (Chang, 2005). Pascarella & Terenzini (1991) suggest that student interactions outside the classroom are highly correlated with aspirations for attending graduate school, which presumes a number of positive educational outcomes such as satisfaction with college and college persistence.

College Outcomes

Astin (1962) initially claimed that faculty-student interactions contributed to a number of developmental outcomes but not necessarily to educational outcomes. Since that time he has conceded that the more contact between faculty and students, both inside and outside the classroom, the more significant the impact on educational outcomes—especially for minority

students (Astin, 1993). The passage of time between his assertions has seen a plethora of studies which have advanced the knowledge regarding faculty-student interactions and have provided greater detail in understanding the circumstances in which they occur. Chang (2005) found faculty-student interaction to be central to the achievement of college students and further suggests that these interactions influence educational outcomes such as aspirations for higher education, self-esteem, academic achievement and transition to college life. Astin (1993) agrees that when other variables are held constant, faculty-student interaction positively affects a variety of educational outcomes. Among the educational outcomes he names are academic attainment, individual and intellectual growth, and a positive view of one's contribution to improve society. It seems clear from Astin's assertion that faculty-student interaction facilitates the intellectual and social maturity of an individual to proceed beyond graduation.

Tinto (1993) has proclaimed that academic and social integration are necessary for students to persist and succeed in college. When students do persist and graduate from college the educational outcomes, they experience are both academic and social. One indicator of academic achievement is Grade Point Average (GPA) which has been cited as the singular factor in predicting persistence in college (Tinto, 1975). Mayo et al. (1995) declare that faculty-student interactions have a significant influence on GPA. In their research, Mexican-American, African American and Native American students that interacted with faculty outside of class experienced improved GPA's. Specifically, African Americans benefited substantially from the out-of-class interactions with faculty, while the Mexican-American and Native American students that were satisfied with faculty but did not interact with faculty outside of class did not experience any significant effect on their GPA.

While it is not difficult to understand that some interactions that students experience with faculty are not positive, Cole's (2010) findings discovered a significant impact regarding minority students and the feedback they received from faculty. In his study, he found that minority students' academic performance was negatively impacted when faculty gave feedback regarding the quality of their academic work. This was an interesting finding, as it is the nature of faculty to give feedback to students in an effort to improve their academic work, and the ability to give prompt feedback is one of the effective educational principles that Chickering and Gamson (1987) recommend. However, upon the disaggregation of the data by ethnicity, this finding was no longer considered statistically significant—another example of why data should be disaggregated by ethnicity to provide an accurate analysis.

Both the empirical research and the theoretical literature suggest that feedback from faculty can greatly affect the learning and development of a student (Stipek, 2002). Good relationships with faculty are conducive to academic success and the valuing of student talents improve student growth academically, socially, professionally and individually (Allen, 1992; Sorcinelli, 1991). Faculty-student interactions can influence educational outcomes beyond GPA, including aspirations for further education. Positive interactions with faculty can positively influence student satisfaction and retention (Astin, 1993). Faculty-student interaction is integral to the accomplishment of the most significant educational outcome—a quality educational experience. It seems reasonable to assume that the two agents (faculty and students) that are most likely to interact in the college environment can contribute to the positive educational outcome of a quality educational experience (Pascarella & Terenzini, 1991).

Native Americans in Higher Education

The enrollment of Native American students in higher education has more than doubled over the past few decades, and nowadays represents roughly 1% of all students attending institutions of higher learning in the United States (DeVoe & Darling-Churchill, 2008; Freeman & Fox, 2005). This percentage, although seemingly low, is representative of the number of Native Americans in the country as a whole taken from the US Census in 2010 (Norris, Vines, & Hoeffel, 2012). While some may argue that Native Americans are not necessarily underrepresented in higher education, especially given the aforementioned statistics, the retention and graduation rates, however, reveal a significant achievement gap that has been well documented between Native Americans and every other ethnicity present in higher education (Jackson et al., 2003; Skinner et al., 1998; Steward, 1993).

The graduation rates for Native American college students are staggering low, reportedly between 8 and 15 percent (Guyette & Heth, 1984; Reddy, 1993). The U.S. Department of Education reports that for Native American students attending NCAA Division One schools, the graduation rate is considerably higher, approximately 36% (as reported in Jackson et al., 2003). Regardless of the differences in the reporting of the graduation rates for Native American college students, it seems clear that in comparison to their White and minority counterparts Native Americans students are persisting and graduating from college at much lower rates. Although there are numerous reports that communicate the lack of educational achievement by Native Americans (e.g. Demmert & Bell, 1991; Devoe & Darling-Churchill, 2008; Freeman & Fox, 2005), there is very little research or evidence to explain why Native Americans are failing to achieve similar educational outcomes to their White and minority counterparts (Mayo et al., 1995; Pavel & Padilla, 1993).

According to the United States Census Bureau, Native Americans are considered the most disadvantaged racial minority group in America (2002; Hughes, Kroehler, & Vander Zanden, 2001). The Commission for the *Indian Nations at Risk* delivered a report revealing that the research relevant to educating Native American and Alaska Natives was not only scarce but inferior in quality and was not meeting the intellectual, cultural, financial or social needs of Native American communities (Demmert & Bell, 1991). Their report further identified the effects of a lack of a quality education—namely shortages of qualified school teachers, mental and health care professionals, scientists and professionals from within the Native communities—forcing Native American communities to relinquish their abilities to be independent (Demmert & Bell, 1991).

Of increasing concern to tribal and national leaders is the surge in social problems involving Native Americans. Along with the lack of access to a quality education, Native Americans face increased exposure to drugs and alcohol at a very early age (Freeman & Fox, 2005). In 2003, some 20% percent of Native American children aged between 12 and 17 years of age had used alcohol within the last month. These same students were more likely to have also used marijuana in the previous month (Freeman & Fox, 2005). The American Indian College Fund reports that many Native Americans living on reservations feel the absence of appropriate role models, particularly role models in educational attainment, which perpetuates a lack of understanding of the higher education experience.

In 2006, more than a quarter of Native Americans were living in poverty, this poverty rate is more than twice as high as the general population. The rate was even higher for Native Americans living on reservations—an astounding 36 percent were living in poverty (Devoe & Darling-Churchill, 2008). Unemployment rates follow a similar trend; Native Americans

without a high school diploma face an unemployment rate of 29% compared to 12% for Whites, 19% for African Americans and less than 10% for Latino's. The greater the educational attainment of Native Americans, the lower their unemployment rates; for those with a high school diploma and those with a bachelor degree, the unemployment rate was 12% and 2%, respectively (DeVoe & Darling-Churchill, 2008).

Native Americans who do obtain a bachelor degree earn upwards of 25% more than Native Americans with only a high school diploma, a significant difference in income, particularly over the life span of an individual (DeVoe & Darling-Churchill, 2008). Achieving higher educational levels not only improves the employability of Native Americans and their lifetime earnings potential but also improves many social and economic resources, such as increasing their life expectancy and improving the quality of life for their children. While the number of Native Americans earning degrees more than doubled between 1976 and 2003, they were still less likely to earn a degree in comparison to their White and minority counterparts (Freeman & Fox, 2005).

Responsibility for the lack of college graduates has been blamed on low quality elementary and secondary schools that have failed to educate students regarding postsecondary opportunities. This lack of preparation is evident in the college entrance exam scores that have been exceptionally low, considerably lower than other minority groups (Demmert & Bell, 1991). While much of the general population may assume that these poor quality schools are the result of inferior tribally controlled reservation schools, the reality is that between 85% and 90% of Native American elementary and secondary students attend public schools (Demmert & Bell, 1991). DeVoe and Darling-Churchill (2008) report that in 2006, 14% of Native American

children were served in conjunction with the Individuals with Disabilities Education Improvement Act (IDEA), the highest percentage across all races/ethnicities.

In 1990, an estimated 65 percent of Native Americans aged 25 and older had graduated high school, while 75 percent of the general U.S population for the same age group had completed their high school education (Pavel, Swisher, & Ward, 1995). However, more than half of Native American high school graduates do not pursue postsecondary opportunities, and less than 10% of Native Americans that begin college persist to graduation, much lower than any other race/ethnicity (Freeman & Fox, 2005). In 2003, Native Americans aged 18-24 years of age (this being considered the traditional college age) were less likely than African Americans, White and Asian/Pacific Islanders to be enrolled in college. Native Americans that do begin college often face extreme differences in cultural and social practices and leave the mainstream institutions, returning home without obtaining a degree (Guyette & Heth, 1984). Lin, LaCounte, and Eder (1988) report that many Native Americans experience circumstances such as isolation that negatively affect their perceptions of college, and result in them feeling that the "White campus is hostile towards them" (p. 13).

The American Indian College Fund reports that Native Americans experience many of the high-risk factors for departure from college; these include enrolling as an older student (i.e. not directly after high school), having dependents such as children to support, being a single parent and attending college on a part-time basis. The large number of Native American students returning from mainstream higher education institutions without a degree has prompted tribal leaders to develop higher education institutions that embrace *traditional ways of knowing*, known as Tribal Colleges and Universities (TCUs). These TCUs are generally located on or

very close to reservations, permitting closer access to higher education for Native Americans and allowing them to maintain close cultural ties with their tribes and families.

TCUs were created to alleviate many of the barriers Native Americans face in college, creating an environment conducive to culturally relevant pedagogies (DeVoe & Darling-Churchill, 2008). There are more than 32 fully accredited TCUs offering postsecondary opportunities ranging from certificates and diplomas, to associate and bachelor degrees as well as a few master degree programs. These TCUs educate more than 30,000 students each year. The attendance rate at TCUs is growing at almost twice the rate of Native Americans in general higher education. The enrollment at TCUs is predominantly Native American, and approximately 30% of faculty members and 80% of staff are Native American.

Although Native Americans that attend TCUs have a high retention and graduation rate, compared to Native Americans attending traditional higher education universities, they enroll only about 10% of Native Americans students that are present in postsecondary institutions (DeVoe & Darling-Churchill, 2008). The majority of Native American college students attend institutions of higher education quite dissimilar to TCUs. These institutions are typically predominantly White institutions, where Native Americans are the minority and faculty members are predominantly White. Jackson et al., (2003) report that "native American students are the minority among minorities, and as such may still be subject to prejudices that more populous minorities have begun to overcome" (p. 562).

Attendance at traditional higher education institutions not only emphasizes, but expects, autonomy as an individual, a concept which is considered a Western value. Students that come from reservations have often been raised in a collectivist environment and can find themselves at odds with the western focus present on college campuses (Jackson et al., 2003). Adapting to the

college environment can be particularly difficult for Native Americans as they come from very distinct and unique tribes, highlighting the fact that not all Native Americans are alike.

First-Generation and Continuing-Generation Students

Virtually all students that begin institutions of higher education experience a process of leaving old lives and relationships behind and beginning a new life which requires independence. First-generation students experience an exasperated "breaking away" which often includes loneliness, stress and a transitional time of disorientation (London, 1989, p. 144). The definition of first-generation students included in this study will be broadly defined as students where neither parents have graduated from college (Ishitani, 2003). This definition is consistent with Pace & Kuh's (1998) College Student Experience Questionnaire (CSEQ) and allows the disaggregation of results from the survey by first-generation and non-first-generation status. To be consistent with the literature, I will refer to non-first-generation students as continuing-generation students (Lohfink & Paulsen, 2005).

An absence of family members as role models can affect family relationships as first-generation students attend college and are unable to find their families advice, experiences or recommendations relevant (London, 1992). First-generation students also experience lower levels of engagement than their continuing-generation peers, due to a lack of implicit knowledge and experience with the higher education environment (Pike & Kuh, 2005). However, first-generation students who interact with faculty experience greater educational outcomes such as a higher GPA and persistence and experience satisfaction overall with their college experience (Amelink, 2005).

First-generation students are more likely to be minorities and come from low income households which speak a language other than English (Lohfink & Paulsen, 2005). First-

generation students attend less selective institutions and live off campus, further influencing their levels of involvement on campus. Astin (1993) found a high correlation between students that live on campus and student involvement. Conversely, students that live off campus are less engaged in the college environment. The effect of on-campus living has been taken seriously, and now many institutions require freshmen to reside on campus. The university in the current study has a housing policy which requires freshman students to live on-campus and other single students to live close by in university-approved housing.

First-generation students typically register for fewer credit hours, worry more about failing and decide to attend college in an effort to improve their family's financial situation (Lohfink & Paulsen, 2005; Pascarella, et al., 2004). Retention rates for first-generation students are generally higher at four-year institutions (NCES, 2000) and are negatively correlated with attendance at private institutions, emphasizing a differential impact regarding institutional size. Persistence levels are improved for higher income first-generation students as well as for students that are engaged in the academic environment, particularly with faculty-student interactions (Lohfink & Paulsen, 2005). First-generation students that are less involved academically and socially, experience educational outcomes inferior to their continuing-generation counterparts (Pascarella et al., 2004).

Summary

The purpose of this chapter was to identify and position the current and relevant literature regarding: (a) faculty-student interaction in higher education and its' effect on educational outcomes; (b) Native American students in higher education, including historical and current achievement in higher education; and (c) first-generation college student achievement in higher education in comparison to continuing-generation students. Having examined the appropriate

literature, it is apparent that faculty-student interaction may improve student engagement and has the potential to provide positive educational outcomes for college students. However, the relevant studies that have explored faculty and student engagement lack sufficient evidence to describe the circumstances that facilitate positive faculty-student interaction for Native American college students and fail to examine the effect of this interaction on their educational outcomes.

These findings should come as no surprise given the absence of research regarding Native Americans in the higher education literature. It does, however, highlight a need for further research regarding first-generation and continuing-generation Native American college students and the potential impact of faculty-student interaction on their educational outcomes. The following chapter will describe the methodology that will be employed to understand and operationalize the current research questions:

1. In what ways does faculty-student interaction predict the educational outcomes of Native American college students?
2. How does this compare for first-generation and continuing-generation Native American college students?

Chapter 3
Methods

In this chapter, I will explain the rationale for the methods selected for the current research project including: (a) the selection of participants involved in the current research; (b) the research methods employed; and (c) the data analysis procedures that were carried out. This study aimed to explore the effect of faculty-student interaction on the educational outcomes of Native American students and to make comparisons between first-generation and continuing-generation students. It was intended that finding answers to the overarching research questions would inform and advise program coordinators, advisers, faculty and the Dean of Students at the respective university of practical applications that would improve the educational experience and outcomes of Native Americans college students at a highly selective predominantly White institution.

Participants

The participants involved in the current study were first-generation and continuing-generation Native American students that attend Brigham Young University; a private, religious, highly selective, predominantly White institution located in Provo, Utah. In an effort to understand the experience of underrepresented or minority students (such as Native Americans or first-generation students), researchers often invoke qualitative methodologies, to provide *a rich thick description* of their experience (Guba & Lincoln, 1985; Holloway, 1997). While this may provide great detail regarding the social and cultural context of one's experience, it is not always easily applicable to the situation that desires improvement. To receive answers to the questions I am asking, it is necessary to understand the circumstances of more than a handful of students in an attempt to understand a general overview of how Native American students interact with faculty on one predominantly White campus. For this purpose, responses to a

nationally administered survey instrument, the 4th edition of the College Student Experience Questionnaire (CSEQ) (Pace & Kuh, 1998), were made available to the researcher from an existing longitudinal data set that was collected by the Dean of Students at the elite, predominantly White institution.

The CSEQ responses were originally collected from students that were part of a specific program for Native American students at one predominantly White institution with rigorous admission standards. The number of Native American students in higher education in the United States is close to 1% of the total student population (and correlates with Native Americans representing 1% of the general population). However, only about 0.5% of students at the respective university were identified as being Native American. All participants of this study self-identified as Native Americans. The researcher understands that Native Americans represent vast and differing tribes and cultures, however the majority of participants in the institutional initiative identify as Navajo. As part of their involvement in the program, Native American students were invited to respond to the CSEQ survey to help improve their general college experience. To better understand the Native American college students involved in the current study, background information was collected from the CSEQ survey to describe the participants; information such as age, gender, and classification in college were collected.

Instrument

The CSEQ questionnaire measures variables regarding the college experience based on a framework that acknowledges institutional efforts in improving student engagement, namely Pace's theory of *quality of effort*. The CSEQ survey disregards previous research which relied primarily on student demographics in determining levels of college success and instead supports the research and literature that suggests that student experiences and engagement affect their

success in college (Astin, 1993; Kuh, 1995; Pascarella & Terenzini, 1991; Terenzini et al., 1996; Tinto, 1993) and that the more effort that is expended, the greater the satisfaction with college (Pace, 1984).

The CSEQ was designed to measure the effort that students expend during college and elicits responses to more than 150 items to provide a thorough analysis of a student's experience. The first section of the survey involves general demographic items including ethnicity, class standing, parental education levels and other items descriptive of the college student. The second portion of the survey is divided into three areas, pertaining to: 1) college activities; 2) the college environment; and 3) an estimate of gains (Gonyea, Kish, Kuh, Muthiah, & Thomas, 2003).

The college activities section examines the frequency of specific behaviors, for example, statements such as, "used the library as a quiet place to read or study materials you brought with you," are made. The statements offer four possible responses on a Likert-type scale, including *never, occasionally, often* and *very often*. In the college environment section, students are asked to rate statements about their institution. Statements such as "emphasis on developing academic, scholarly, and intellectual qualities" are scored once again on a Likert-type scale with 1 being a weak emphasis and 7 being a strong emphasis. If respondents felt their institution placed a strong emphasis on developing academic, scholarly and intellectual qualities, they would rate that statement a 7. The final section of the survey is the estimate of gains section. This section is comprised of 25 statements that measure the progress that students feel they have made by attending the institution and is often utilized as a measure of educational outcomes. The current study will utilize 9 of these 25 statements that were deemed relevant by the Dean of Students at the participating university. A sample statement from this section includes, "Becoming aware of

different philosophies, cultures, and ways of life" with possible responses being *very little, some, quite a bit,* or *very much*. In total, the CSEQ contains 166 items pertaining to the college experience that provide relevant and useful information for researchers.

The CSEQ instrument has been used to examine research questions similar to the current study. Lundberg & Schreiner (2004) used the CSEQ to measure the quality and frequency of faculty-student interactions as a predictor of learning and disaggregated their results by ethnicity. Lundberg (2007) utilized the CSEQ to understand how student involvement and institutional commitment to diversity predicted student learning for Native American college students. Pike & Kuh (2005) compared the intellectual development and engagement of first-generation and continuing-generation college students by employing the CSEQ instrument. The studies that typically employ the CSEQ instrument generally draw from a national database of CSEQ respondents, as was the case in the aforementioned studies (e.g. Lundberg, 2007; Lundberg & Schreiner, 2004; Pike & Kuh, 2005). By utilizing the national database, researchers are able to analyze responses gathered from specific groups from a cross section of ethnicity, class standing (such as freshmen), or institutional type, to name a few. This form of sampling differs from the current study's respondents who are all students at one predominantly White institution and are all participants in an institutional Native American initiative. This initiative aims to provide Native American students with the resources and support they need to succeed in their higher education endeavors.

The current study asks the following research questions:

1. In what ways does faculty-student interaction predict the educational outcomes of Native American college students?

2. How does this compare for first-generation and continuing-generation Native American college students?

Table 1 displays the 11 faculty-student interaction items from the CSEQ that were used to measure the frequency of faculty-student interactions. FAC1 through FAC10 responses were reported on a Likert-type scale, including 1=never, 2=occasionally, 3=often and 4=very often. ENVFAC was reported on a Likert-type scale ranging from 1, weak emphasis to 7, strong emphasis. GPA was calculated by transferring the self-reported letter grades to a 4.0 GPA scale, A=4.0, A- to B+=3.5, B- to C+=2.5. Aspirations for graduate school, *(Do you expect to enroll for an advanced degree when, or if, you complete your undergraduate degree?)*, was a yes/no binary response, and first-generation or continuing-generation status was determined by transforming, *Did either of your parents graduate from college?* into a yes/no response.

Table 1

Faculty-Student Interaction Factors

Item	Description
FAC1	Talked with your instructor about information related to a course you were taking (grades, make-up work, assignments, etc.).
FAC2	Discussed your academic program or course selection with a faculty member.
FAC3	Discussed ideas for a term paper or other class project with a faculty member.
FAC4	Discussed your career plans and ambitions with a faculty member.
FAC5	Worked harder as a result of feedback from an instructor.
FAC6	Socialized with a faculty member outside of class (had a snack or soft drink, etc.).
FAC7	Participated with other students in a discussion with one or more faculty member outside of class.
FAC8	Asked your instructor for comments and criticisms about your academic performance.
FAC9	Worked harder than you thought you could to meet an instructor's expectations and standards.
FAC10	Worked with a faculty member on a research project.
ENVFAC	Relationships with faculty members.

Consistent with previous studies which have utilized the CSEQ to measure educational outcomes, the current study will include *estimate of gains* factors as an additional measure of educational outcomes for Native American college students. The Dean of Students at the participating university selected nine of the twenty-five estimate of gains to be analyzed; these nine estimate of gains are displayed in Table 2 below.

Table 2

Estimate of Gains from the College Experience

Item	Description
GNWrite	Writing clearly and effectively.
GNPhils	Becoming aware of different philosophies, cultures, and ways of life.
GNValues	Developing your own values and ethical standards.
GNOthers	Developing the ability to get along with different kinds of people.
GNAnaly	Thinking analytically and logically.
GNQuant	Analyzing quantitative problems (understanding probabilities, proportions, etc.).
GNSynth	Putting ideas together, seeing relationships, similarities, and differences between ideas.
GNInq	Learning on your own, pursuing ideas, and finding information you need.
GNAdapt	Learning to adapt to change (new technologies, different jobs or personal circumstances, etc.).

Validity

Although the CSEQ instrument is entirely self-reported, prior research has suggested that self-reports are valid under the following conditions:

1. The information requested is known to the participants;
2. The questions are phrased clearly and unambiguously;
3. The questions refer to recent activities;
4. The respondents think the questions merit a serious and thoughtful response;
5. Answering the question does not threaten, embarrass, or violate the privacy of the respondent or encourage the respondent to respond in socially desirable ways (Kuh et al., 2001, p.9)

Respondents to the CSEQ survey are asked to remember experiences that have taken place during the current school year. Approximately 95% of respondents complete the entire survey which demonstrates that respondents comprehend the questions and find them worthy of a response (Kuh, Vesper, Connolly, & Pace, 1997). The CSEQ has demonstrated its reliability and validity from its initial use in 1979; since that time it has been administered to more than 350,000 college students (Kuh et al., 1997; Pace, 1987, 1992; Pace & Swayze, 1992). Of the 105 CSEQ surveys that were collected from the Native American college students in the current study, 94 had completed all the questions on the survey, representing approximately 90% of respondents.

Data Analysis Methods

To address the current study's research questions regression analysis was employed. More specifically stepwise regression analysis was selected to identify the relationship between the independent variables and dependent variables, with the General Linear Model used to

display the findings involving grades and estimates of college gains. In this study the faculty-student interaction factors were the independent variables and grades, aspirations for graduate school and an estimate of college gains were the dependent variables. Stepwise regression analysis was chosen because of its ability to examine all of the variables in the data set and choose the variables that are highly correlated to obtain a model of best fit.

The stepwise method of regression combines both forward selection and backward elimination regression analyses. During forward selection each of the independent variables are examined one at a time and a p-value is calculated. Variables with a p-value within a specified alpha, such as 0.05 in the current study, are included and considered significant, however once a variable is included it cannot be removed. Backward elimination includes all of the variables in the model and eliminates the larger p-values that are outside the specified alpha (>0.05) until the remaining variables all contain a p-value smaller than or equal to 0.05; once a variable is removed from the model it cannot be added in. Whereas, the stepwise regression includes variables that are added one at a time and remain in the model if they have a p-value below 0.05. After one variable is added the model is checked to see if it is significant before the next variable is included in the model. This continues until each of the variables included in the model are significant with a p-value of 0.05 or smaller (Beal, 2005; 2007). After stepwise regression was run for the dependent variables of grades and estimate of college gains it was further processed through the General Linear Model or GLM. This did not change the output or findings regarding these variables, but permitted meaningful output for the continuous dependent variables GPA and Estimate of Gains, showing the difference between the means and related p-values.

One of the stated purposes of this study was to provide feedback to the Dean of Students regarding faculty-student interaction and its effect on grades, aspirations for graduate school and

an estimate of gains from college. Utilizing regression analysis allows the highly correlated variables of faculty-student interaction to be identified as they affect grades, aspirations for graduate school and gains from college. For this purpose regression analysis facilitated the identification of variables that are a best fit with the intent that the variables identified will be used to inform the Dean of Students of specific faculty-student interactions that may predict correlations with grades, aspirations for graduate school and overall gains from attending college. However, variables dropped from the model may still be correlated with grades, aspirations for graduate school and overall gains from college but provide no significant effect beyond the variables identified as a best fit to the regression model.

Research question one. In what ways does faculty-student interaction predict the educational outcomes of Native American college students? To answer this question stepwise regression was run for the faculty-student interaction factors with each of the dependent variables, grades, aspirations for graduate school and then for each of the nine selected estimates of gains. The demographic variables of age, gender and class standing were also included to clarify that significant findings were a result of the faculty-student interaction factors and not attributed to factors such as age, gender and class standing. The continuous variables of GPA and the 9 estimate of gains were further run using the GLM.

Research question two. How does this compare for first-generation and continuing-generation students? To answer the second research question the stepwise regression needed to include the status of the respondents as first-generation and continuing-generation status to offer a comparison to the results of the first question. To facilitate this process the binary variable regarding whether the respondents' parent(s) had graduated from college was included. The first research question ran the model without the parents' graduated from college variable and to

answer the second question a second model was run including whether the respondents' parent(s) had graduated from college. The same process in question one was followed measuring the correlation between faculty-student interaction and grades, aspirations for graduate school and each of the nine estimate of gains. However, in the second model the binary independent variable regarding whether respondents' parents had graduated from college was included.

A final analysis was run including whether a parent had graduated from college as a dependent binary variable. To be consistent with the other dependent analyses that were run for GPA, aspirations for graduate school and the 9 estimate of gains, the same independent variables were utilized, including the 11 faculty-student interaction factors and the demographic factors of age, gender and class standing.

Summary

The purpose in answering these research questions is to provide information to faculty, advisers, policymakers and the Dean of Students of the involved institution as well as students on the effect of faculty-student interaction on the educational outcomes of Native American college students. The disaggregation by first-generation and continuing-generation status further enables faculty, advisers and policy makers to be better prepared to support the needs of students that may differ because of their family members' experience with the higher education environment. The following chapter will report the findings as obtained from the data analysis and the concluding chapter will discuss the implication of these findings.

Chapter 4
Findings

Having addressed the state of the research regarding faculty-student interaction, and identifying and discussing appropriate methods to answer the current study's research questions; I will now present each of the research questions and the resulting findings. The following chapter will discuss the implications these findings have on the existing research regarding faculty-student interactions and educational outcomes.

Research Question One

In what ways does faculty-student interaction predict the educational outcomes of Native American college students? This is the main research question of the current study and answering this question involves examining the 11 faculty-student interaction factors with each of the three separate educational outcomes: (1) aspirations for graduate school (2) GPA and (3) nine of the estimate of gains. Three demographic variables gender, age and class standing were included in each of the analyses to adjust for factors that could not be controlled and to ensure that any noted correlations with the faculty-student interaction factors were accurate and not attributed to the demographic variables. A stepwise regression was run for the binary dependent variable *aspirations for graduate school*. A stepwise regression was also run for *GPA* and the 9 *estimate of gains*; because these are continuous dependent variables, a further General Linear Model (GLM) was run after identifying significant variables from the stepwise regression.

Faculty-student interaction and aspirations for graduate school. The first part of the research question examined the 11 faculty-student interactions with the specific educational outcome of *aspirations for graduate school*. It was assumed that running this analysis would identify any of the 11 specific faculty-student interactions that might affect aspirations for graduate school. It was found that none of the 11 faculty-student interaction factors were

significantly correlated with aspirations for graduate school, at a p-value of less than or equal to 0.05. This was surprising, given that close to 80 percent of respondents indicated that they planned to attend graduate school and led me to expect that at least one of the 11 reported faculty-student interaction factors would be highly correlated. Pascarella & Terenzini (1991) had found that student interactions with faculty outside the classroom are highly correlated with aspirations for attending graduate school. Kim (2006) also found that faculty-student interactions positively influenced the educational aspirations of White students but not the educational aspirations of African American, Asian American and Latino students; given this finding I had anticipated either a positive or negative correlation with faculty-student interaction and aspirations for graduate school. More specifically, I had expected *FAC6 Socialized with a faculty member outside of class (had a snack or soft drink, etc.)* to be significantly correlated, but none of the faculty-student interaction factors or age, gender and class standing were significantly correlated. This was the only analysis that did not produce any significantly correlated variables.

Faculty-student interaction and GPA. The second part of the first research question looked at the 11 faculty-student interaction factors and their correlation to GPA. The stepwise regression was run to identify the significant variables of the model and then the GLM was run to further identify the significance of each of the variables in the model, given that the dependent variable, GPA, was a continuous one. Consistent with the findings for faculty-student interaction and aspirations for graduate school the findings reported that none of the 11 faculty-student interaction factors were significantly correlated to GPA. Once again this was an unexpected finding; Lundberg & Schreiner (2004) explored faculty-student interactions and disaggregated the results by race/ethnicity. Their findings suggest that Native Americans and African

American students who discussed their personal concerns with faculty experienced greater academic achievements. Mayo et al. (1995) also found that meeting with faculty outside of class improved the academic performance of African American students, as well as White students. However, this analysis did identify significant correlations with GPA by each of the included demographic variables gender, class standing and age.

GPA by gender. The GLM identified a significant difference between the mean GPA for Males and Females with a p-value of 0.0045. Table 3 displays the finding which suggests that grades differ significantly by gender and male GPA's were on average 0.71 higher than females. The survey instrument used in the current study did require the self-reporting of GPA's; it is possible that males may have over inflated their GPA in comparison to female students. Frucot & Cook (1994) found that males over reported their GPAs more than females; however Kuh (2003) reports that if responses are kept private and the respondents do not feel the pressure to respond in *socially desirable* ways, the responses given are generally accurate. The finding is suggestive of a significant difference that could be attributed to more than the self-reporting of GPA.

Table 3

Differences in GPA by Gender

Gender	Mean	Standard Error
Male	3.58	0.14
Female	2.87	0.17

GPA by class standing. The GLM also identified a significant difference in the mean grades between Senior and Sophomore students with a p-value of 0.0002; suggesting that Seniors GPAs

are significantly higher than Sophomore students. None of the other pairwise comparisons were found to be significant. Table 4 shows the mean GPA by class standing and the associated standard error. Olsen et al. (1998) reported that as students advance into their major fields, they attend smaller classes which allow for more interaction with faculty. It is thought that this interaction may further influence GPA. Kuh & Hu (2001) also suggest that when students are in their upper division courses they have developed enough knowledge to converse more freely with their faculty members and their faculty are more at ease interacting with academically developed students who are members of their discipline. It may be that as students advance in class standing they are more likely to take classes in their field of interest which may positively affect their GPA.

Table 4

Differences in GPA by Class Standing

Class Standing	Mean	Standard Error
Freshman	2.63	0.41
Sophomore	2.43	0.25
Junior	3.06	0.22
Senior	3.60	0.23

GPA by age. The GLM estimated a negative slope of -0.80 (standard error of 0.18 and p value of <0.0001) for age as it relates to grades. It estimated that for each increase in the age category, there is a reduction of 0.80 in GPA. The age categories were 19 or younger, 20-23, 24-29, 30-39, 40-55, over 55. The difference in the mean GPA for a 23 year old student and a student aged between 24-29 years of age would identify with a drop in GPA of 0.80. This is an

interesting finding, considering that in the above analysis of GPA by class standing the mean of Seniors were significantly different and higher than the mean of Sophomores. Seniors are typically older than Sophomores, yet the GPA by age in this analysis is negative for an increase in the age category. This is however, consistent with the literature which suggests that students over the age of 24, often referred to in the literature as non-traditional students, face challenges in higher education different to those of traditional students (Xiong, 2009). Non-traditional students frequently have dependents, full-time employment and other stressors that may affect their academic performance or GPA.

Faculty-student interaction and the estimate of gains. This section comprises the nine estimate of gains that were selected by the Dean of Students at the respective university. These gains reflect overall college gains that students feel they have achieved during their college experience. Eight of the nine estimate of gains identified at least one faculty-student interaction factor which was significantly correlated and two of the nine gains were significantly correlated with the demographic variable gender.

Table 5 identifies significant correlations between the estimate of gains and faculty-student interaction factors. This table suggests significant correlations for five estimate of gains and the faculty-student interaction factor ENVFAC, the relationship with faculty. The fourth estimate of gain *developing the ability to get along with different kinds of people* is positively correlated with four faculty-student interaction factors and negatively correlated with one faculty-student interaction factor as well as gender.

Table 5

Summary of Significant Findings for Estimate of Gains and Faculty-Student Interaction

Factors	GN Write	GN Phils	GN Values	GN Others	GN Analy	GN Quant	GN Synth	GN Inq	GN Adapt
Fac1							positive		
Fac2	positive								
Fac3									
Fac4				positive	negative				
Fac5				positive				positive	positive
Fac6				positive			positive		
Fac7			positive						
Fac8	negative			negative					
Fac9									
Fac10									
EnvFac	positive	positive		positive	positive			positive	
Gender				negative		negative			
Age									
Class									

The first estimate of gains *writing clearly and effectively* was significantly positively correlated with ENVFAC or *relationships students had with faculty,* the better the relationship with faculty the more likely students reported greater gains from *writing clearly and effectively*. A higher response in the ENVFAC category indicated that students found faculty members *approachable, helpful, understanding, and encouraging.* The more often students *discussed their academic program or course selection with a faculty member*, FAC2, the greater their gains in *writing clearly and effectively*. However, FAC8 had a negative correlation, suggesting that an increased frequency in *asking an instructor for comments and criticism about their academic performance* resulted in students reporting lower levels of gains in *writing clearly and effectively*. This negative correlation could be a result of students receiving frequent feedback from faculty and interpreting this constructive criticism as a lower perception of their overall

gains in *writing clearly and effectively*, as many times feedback is in response to a paper or a written exam.

The second estimate of gains *becoming aware of different philosophies, cultures, and ways of life* was positively correlated with ENVFAC, relationships with faculty, with a significant p-value of <.0001. It is important to remember that all respondents in this study were Native American college students and that the faculty at the respective institution were predominantly White. The findings suggest that the better the relationships with faculty the greater the gains the students reported in *becoming aware of different philosophies, cultures, and ways of life.* As Native American students experienced a better relationship with faculty they may better understand White faculty and their philosophies; perhaps it is through this positive relationship that Native American students learn how to interact with faculty from a different culture and with different philosophies. Cilliers and Sternberg (2001) found that faculty who connect with students on an individual level improve the learning of students from non-traditional learning styles.

The third estimate of gain *developing your own values and ethical standards* was highly correlated with FAC7. The more frequently a student *participated with other students in a discussion with one or more faculty members outside of class*, FAC7, the more students reported gains in *developing their own values and ethical standards*, with a p-value of 0.015. Astin (1993) found that, when other variables are held constant, faculty-student interaction positively affects academic attainment, individual and intellectual growth and a positive view of one's contribution to improve society. Astin asserts that positive faculty-student interaction has the potential to improve the intellectual and social maturity of a student. Light (2001) agrees that

these positive interactions with faculty, educate students on "how to think," rather than "what to think."

The fourth estimate of gain was positively correlated with four variables and negatively correlated with two. ENVFAC, FAC4, FAC5, FAC6 were all positively correlated with *developing the ability to get along with different kinds of people*, while FAC8 and gender were negatively correlated. Gender was a highly correlated variable with *developing the ability to get along with different kinds of people.* However the findings differed for male and female, with males reporting a positive relationship with this estimate of gain and females experiencing a negative relationship. Male respondents were more likely to have developed the ability to get along with different kinds of people while females reported lower levels.

ENVFAC was another significant positively correlated variable which suggests that the better the relationship with faculty members the more students gained in *developing the ability to get along with different kinds of people.* This finding is consistent with Astin, (1993), who suggests that positive faculty interactions can have a significant effect on student involvement and is closely correlated to college satisfaction, more so than any pre-college attribute or other environmental variable. Faculty members can become a reflection of the institution and *approachable, helpful, understanding, and encouraging* faculty members can communicate to college students that the college environment is a positive one. Faculty, often unintentionally, serve as role models, counselors and supporters to students in the college environment, positive interactions with them can largely be interpreted as the attitude of an institution and promote involvement and positive relationships with other members in the college environment (Arredondo, 1995; Terenzini & Pascarella, 1980).

FAC4 was also positively correlated which suggests that the more students *discussed career plans and ambitions with a faculty member* the more they gained in *developing the ability to get along with others.* This follows the same understanding as mentioned above in ENVFAC, the better the student interprets their interactions with faculty the more they gain in the ability to get along with others. FAC5 *worked harder as a result of feedback from an instructor* was significantly correlated with *developing the ability to get along with different kinds of people*. FAC6 *socialized with a faculty member outside of class (had a snack or soft drink, etc.* was identified as a variable in the model with a p-value of 0.0551; while this is not conclusive of a significant variable it is suggestive of a correlation between FAC6 and *developing the ability to get along with different kinds of people*.

FAC8 *asked your instructor for comments and criticisms about your academic performance* was significantly negatively correlated with developing the ability to get along with different kinds of people. However, consistent with the findings for the estimate of gains *writing clearly and effectively*, this variable too was negatively correlated. This finding suggests that the more frequently students *asked instructors for comments and criticisms about academic performance,* the less they gained in *developing the ability to get along with different kinds of people*.

The fifth estimate of gain *thinking analytically and logically*, identified two faculty-student interaction factors that were significantly correlated, ENVFAC and FAC4. ENVFAC was positively correlated and suggested that the better the relationship with faculty the more gains they reported in thinking analytically and logically. Eimers (2001) proposes that minority students that experience positive interactions with faculty also improve their academic achievement and at higher levels than their White counterparts. FAC4 *discussed your career*

plans and ambitions with a faculty member presented an interesting finding, namely a negative finding, the more students *discussed their career plans and ambitions with faculty,* the lower their gains in *thinking analytically and logically* or phrased another way the less students *discussed their career plans and ambitions with faculty*, the higher their gains in *thinking analytically and logically.*

The sixth estimate of gain, *analyzing quantitative problems (understanding probabilities and proportions, etc.)* reported a lack of findings for any of the faculty-student interaction variables. However, the inclusion of the demographic variables identified a significant correlation with gender. Males had a positive correlation, suggesting that they experienced greater gains in analyzing quantitative problems while females were found to have a negative correlation. Kuh (1995) found that female students were more likely to interact with faculty to improve confidence and find purpose in their learning, while men interacted with faculty to improve their cognitive complexity. Tinto (1993) further noted a differential impact with gender; his findings suggest that faculty-student interactions within the students' major area were more important for males than for females.

The seventh estimate of gain, *putting ideas together, seeing relationships, similarities, and differences between ideas* found two faculty-student interaction variables that were positively correlated, FAC1 and FAC6. First, the more frequently *students talked with instructors about information related to a course (grades, make-up work, assignments, etc.), FAC1,* the more they reported gains in *putting ideas together, seeing relationships, similarities, and differences between ideas*. Pascarella & Terenzini (1991) suggest that an academic focus must be present in social interactions for faculty-student interactions to be of significant benefit. Second, FAC6, *socialized with a faculty member outside of class (had a snack or soft drink,*

etc.), suggested that more frequent visits with faculty influenced gains in *putting ideas together, seeing relationships, similarities, and differences between ideas*. Mayo et al., 1995 found that socialization and informal contact with faculty regarding non-academic subjects were extremely helpful for minority students, and further influenced their intellectual achievements.

The eighth estimate of gain *learning on your own, pursuing ideas, and finding information you need* was positively correlated with two faculty-student interaction factors. FAC5 suggests that *working harder as a result of feedback from an instructor* influences gains in *learning on your own, pursuing ideas, and finding information you need*. As mentioned earlier Astin (1993) reports that faculty student interaction not only has the potential to improve academic achievement but can positively improve the maturity, social and intellectual growth of students. The better the relationship with faculty members (ENVFAC) the greater gains a student reports in *learning on their own, pursuing ideas, and information needed*. This supports the notion that a better relationship with faculty helps students to develop a better grasp on how to succeed in higher education. Students reported high responses as they found faculty members more *approachable, helpful, understanding, and encouraging*. Jussim and Eccles, 1992 found that gestures such as smiling, eye contact, proximity to the student as well as complimenting and providing specific feedback were associated with positive expectations from faculty toward students. Cole (2010), further suggests that these kinds of gestures and behaviors encourage students to interact with faculty and have a direct effect on the classroom experience and higher education experience.

The ninth and final estimate of gain*, learning to adapt to change (new technologies, different jobs or personal circumstances, etc.)*, identified one faculty-student interaction variable that was positively correlated, FAC5 *worked harder as a result of feedback from an instructor*.

The more frequently students' *worked harder as a result of feedback from an instructor,* the more they were able to *adapt to change*. College is a time of great change and it doesn't seem surprising that if a student was able to work harder when given feedback from their instructor that they would be adaptable to change. Working harder as a result of feedback describes a student who is teachable and flexible.

This completes the findings in response to the first research question: In what ways does faculty-student interaction predict the educational outcomes of Native American college students? The analysis from the first research question has shown that none of the faculty-student interaction factors were significantly correlated with Native American students' aspirations for graduates school or GPA. However, the demographic variables of gender, class standing and age were significantly correlated with GPA, with females experiencing a negative correlation. Class standing was positively correlated suggesting that as students advance in class standing their GPA improves. Age was negatively correlated, suggesting that for an increase in the age category a drop in GPA occurred. The nine estimate of gains identified significant correlations with the faculty-student interactions and gender. Overall these correlations identified the positive relationship between their relationship with faculty, and five of the estimate of gains. The fourth estimate of gain *developing the ability to get along with different kinds of people* was positively correlated with four of the faculty-student interaction factors and negatively correlated with one faculty-student interaction factor and gender. The next section will address the second research question regarding a comparison of findings by first-generation and continuing-generation status.

Research Question Two

How does this compare for first-generation and continuing-generation students? To answer the first question the initial analysis was run for the 11 faculty-student interaction factors with each of the educational outcomes, aspirations for graduate school, GPA and each of the 9 estimate of gains and the three demographic variables, age, gender and class standing. To answer the second research question the variable of whether a student was first-generation or continuing-generation was included. This binary independent variable was added and reported no significant findings that differed from the initial analysis suggesting that when included there was no difference to any of the faculty-student interaction factors regarding aspirations for graduate school, GPA , the nine estimate of gains, age, gender, or class standing based on whether a student was a first-generation or continuing-generation student.

However, including whether a student was first-generation or continuing-generation as a binary dependent variable produced some interesting results. The model ran continuing-generation as the output value, meaning that the analysis would show the output for a continuing-generation student. The inverse of the output would show the output for a first-generation student, as it represented a binary variable. Any p-value of 0.05 or less would indicate a significant presence in the model for either continuing-generation status or first-generation status. A positive estimate from a table of Maximum Likelihood Estimates would indicate a positive correlation for continuing-generation students and a negative correlation for first-generation students. A negative estimate from the same table would suggest a negative correlation for continuing-generation students and a positive correlation for first-generation students. Running this variable as the dependent variable and all the other variables (11 faculty-

student interaction factors, age, gender and class standing) as independent variables produced some significant findings.

As shown below in Table 6, using first-generation or continuing-generation student status as a dependent variable identified four significant variables in the model, CLASS, ENVFAC, FAC6 and FAC5. Whether a parent had graduated or not resulted in a binary variable, a positive correlation to the variables identified as positive for one group was the inverse or negative for the other. Table 6 shows these variables as being positive or negative for the respective first-generation or continuing-generation status. Class standing was a significant variable in the analysis for first-generation and continuing-generation status; however the breakdown of this variable provided little insight other than freshmen were more likely to be first-generation students in comparison to seniors, etc. providing more descriptive statistics rather than inferential statistics. The inclusion of ENVFAC, FAC6 and FAC5 in the model provided more information and insight than the variable of CLASS as it pertained to first-generation and continuing-generation status.

ENVFAC, *relationships with faculty members*, was negatively correlated with being a continuing-generation student. This finding suggests that first-generation students experienced better relationships with faculty than continuing-generation students. The current institution is considered a highly selective, private, high research university and perhaps the first-generation Native American respondents had been conditioned or prepared through intervention programs to develop good relationships with faculty. It is also possible that these same respondents may be from regions where they frequently interacted with White faculty during their secondary education and were familiar with the expectations or cultural differences they might encounter on a predominantly White campus. Furthermore, continuing-generation Native American

students may have felt that they had the skills, knowledge and support network to persist in college without having to develop a better relationship with faculty members. A student that needs more help from faculty may rate their relationship better as they receive the needed assistance, but a student that is not in need of help may not necessarily rate their relationship with faculty lower. Amelink (2005) reports that first-generation students who do interact with faculty experience greater educational outcomes such as a higher GPA and persistence and are more satisfied with their college experience.

Table 6

Summary Table of Differences by Generation

	First-Generation	Continuing-Generation
Fac1		
Fac2		
Fac3		
Fac4		
Fac5	positive	negative
Fac6	negative	positive
Fac7		
Fac8		
Fac9		
Fac10		
EnvFac	positive	negative
Age		
Class	Freshman	
Gender		

FAC6, *socialized with a faculty member outside of class (had a snack or soft drink, etc.)* had a positive relationship with being a continuing-generation student. Kuh & Hu (2001) declare that social interactions outside of class can indirectly influence a students' college experience, as it contributes to their view of and satisfaction with the institutional environment and encourages further effort. Continuing-generation students may feel more confident in interacting with

faculty in non-academic ways; whereas first-generation students may not and only feel comfortable interacting as it relates to academic issues.

FAC5, *worked harder as a result of feedback from an instructor*, had a negative relationship with continuing-generation students and a positive relationship with being a first-generation student. Perhaps first-generation students expect to receive feedback as they may not have family or role models to provide them with such information; whereas continuing-generation students may receive their own feedback from family members and in turn discount or be surprised by the feedback from faculty members.

Summary

The findings to the first research question suggest that the responses to the survey were not conclusive in identifying correlations between the 11 faculty-student interaction factors and aspirations for graduate school or GPA. The findings did however identify significant demographic variables that are correlated with the GPA of Native American students in the current study. The findings to the first research question also suggest significant correlations between the nine estimate of gains and specific faculty interaction factors as well as the correlations with the demographic variables age, gender and class standing. Regarding the second research question the findings identified significant ways that first-generation and continuing-generation students differed in their relationships with faculty, in their socializing with faculty, and working harder as a result of feedback from an instructor.

The final chapter will discuss the implications these findings have on the existing research regarding faculty-student interactions and the educational outcomes of first-generation and continuing-generation Native American college students.

Chapter 5
Discussion

The final chapter presents a summary of the study and conclusions from the analysis of data in the previous chapter. This chapter will also provide a discussion of the implications of the findings and make recommendations for further research.

Summary of Findings

The purpose of this study was to understand how faculty-student interactions affect the educational outcomes of Native American college students and to discover if this differed by first-generation and continuing-generation status. Although, sufficient research exists heralding the benefits of faculty-student interaction, it has examined an aggregate college student population, the majority of which have been White students. The last two decades have seen a greater presence of minority students in higher education, calling for a need to understand if the faculty-student interaction literature, based upon White student behaviors, is applicable to minority students. The higher education literature suggests that minorities experience challenges dissimilar to White students (Eimers & Pike, 1997; Kim, 2010; Pascarella & Terenzini, 1991). The findings from this study will be used to inform stakeholders in higher education of specific interactions that may lead to positive educational outcomes. These findings will also inform the Dean of Students at the private, elite, religious university where the data was collected.

The most disadvantaged group of minority students in higher education are, Native Americans. Despite the fact that they are the most at-risk group in higher education today, they are almost entirely absent from the higher education literature (Carney, 1999; Demmert & Bell, 1991; Tierney, 1992); it would be remiss to overlook the potential educational outcomes that faculty-student interactions could provide for a marginalized and under-represented minority group. The current study asked two research questions: (1) In what ways does faculty-student

interaction predict the educational outcomes of Native American college students? and (2) How does this compare for first-generation and continuing-generation students? It was hoped that the findings of this study would answer these two questions and improve the faculty-student interaction for participants of a specific Native American initiative at the respective institution.

This study fills a void in the literature by adding to the research in three distinct ways. First, of all this study has utilized respondents from a specific minority group, Native Americans. Previous research regarding faculty-student interactions has focused on these interactions with an aggregate of students, or categorized students as White/Non-White, Majority/Minority. The use of a specific minority group, such as Native Americans, allows the researcher to understand if these students' interact with faculty in ways similar to their counterparts in higher education. It not only identifies similarities, but can indicate how these interactions affect several educational outcomes, aspirations for graduate school, GPA and an overall estimate of gains from college.

Second, the respondents in this study are all participants in a specific Native American initiative at one religious, predominantly White institution with rigorous admission standards. The existing studies regarding faculty-student interaction with minority groups draw respondents from a national data base. Utilizing data from a national data base limits the inference of findings as they may suggest numerous institutional policies or programs that may be a variable in the reported outcomes of the respective students' responses.

Thirdly, this study not only uses the responses of Native American students, but attempts to understand their responses as influenced by their parents' education. The higher education literature suggests that college students whose parents have not attended college, first-generation students, are at higher risk for dropout. Numerous studies posit that these students may interact

with faculty differently and experience dissimilar educational outcomes than continuing-generation students whose parents have graduated from college.

The data from the current study was made available to the researcher by the Dean of Students at the participating university. It contained responses to a College Student Experiences Questionnaire (CSEQ) survey that had been administered to participants in a specific Native American initiative, from 2008-2013. The surveys from 105 respondents were collected, however, because of some incomplete surveys 94 were analyzed and used in the findings. Consistent with previous studies utilizing the CSEQ survey, regression analysis was performed.

To answer the first research question a stepwise regression was run. A stepwise regression was run for the faculty-student interaction factors with each of the dependent variables, grades, aspirations for graduate school and then for each of the nine selected estimates of gains. The demographic variables of age, gender and class standing were also included to clarify that significant findings were a result of the faculty-student interaction factors and not attributed to factors such as age, gender and class standing. A further general linear model (GLM) was run for the continuous dependent variables, GPA and the nine estimate of gains.

The findings of this analysis did not indicate any of the faculty-student interaction factors or demographic variables as significantly contributing to students' aspirations for graduate school. It did identify gender, class standing and age as significantly correlating with GPA. The GPA of male students' was on average 0.71 higher than females, on a 4.0 scale, with a p-value of 0.0045. The GLM also identified a significant difference in the mean grades between Senior (3.60) and Sophomore (2.43) students with a p-value of 0.0002. None of the other pairwise comparisons were found to be significant. The GLM estimated a negative slope of -0.80

(standard error of 0.18 and p value of <0.0001) for age as it relates to grades. It estimated that for each increase in the age category, there was a reduction of 0.80 in GPA.

The findings suggest a number of correlations for the first estimate of gain *writing clearly and effectively*. The higher students rated their relationships with faculty, the more likely students reported greater gains from *writing clearly and effectively*. The more often students discussed their academic program or course selection with a faculty member, the greater their gains in *writing clearly and effectively*. An increased frequency in asking an instructor for comments and criticism about their academic performance resulted in students reporting lower levels of gains in *writing clearly and effectively*.

Becoming aware of different philosophies, cultures, and ways of life, was significantly correlated with relationships with faculty. The findings suggest that the better the relationships with faculty the greater the gains the students reported in *becoming aware of different philosophies, cultures, and ways of life*. The more frequently a *student participated with other students in a discussion with one or more faculty members outside of class*, the more likely students were to report gains in *developing their own values and ethical standards*.

Developing the ability to get along with different kinds of people identified a number of significant variables. The first variable gender reported a positive relationship for males and a negative relationship for females. The better the relationship with faculty the more students reported *developing the ability to get along with others*. The more students discussed career plans and ambitions with a faculty member the more they gained *in developing the ability to get along with others*. The harder students worked as a result of feedback from an instructor was significantly correlated as was socializing with a faculty member outside of class. Asking an instructor for comments and criticisms about academic performance was also significantly

correlated but in a negative way. This was consistent with the findings for the estimate of gains *writing clearly and effectively*, which was also negatively correlated.

A better relationship with faculty was correlated with higher reported gains in *thinking analytically and logically*. Discussing career plans and ambitions with a faculty member presented an interesting finding, namely lower gains in *thinking analytically and logically*. Gender was the only variable significantly correlated with *analyzing quantitative problems (understanding probabilities, proportions, etc.)*, males were positively correlated, suggesting that they experienced greater gains in analyzing quantitative problems while females reported fewer gains.

Two variables were significantly correlated with the estimate of gain, *putting ideas together, seeing relationships, similarities, and differences between ideas*. The more frequently students talked with instructors about information related to a course (grades, make-up work, assignments, etc.), the more they reported gains in *putting ideas together, seeing relationships, similarities, and differences between ideas*. The findings also suggest that the more frequently students socialized with faculty outside of class the higher the reported gains in *putting ideas together, seeing relationships, similarities, and differences between ideas*.

Working harder as a result of feedback from an instructor influences gains in *learning on your own, pursuing ideas, and finding information you need*. The better the relationship with faculty members, the greater gains a student reported in *learning on their own, pursuing ideas, and information needed*. The more frequently students' worked harder as a result of feedback from an instructor the better able they were in *learning to adapt to change*.

To answer the second research question an identical stepwise regression was run but with the inclusion of whether a *parent had graduated from college* as an independent binary (yes/no)

variable. The same process in question one was followed measuring the correlation between faculty-student interaction and grades, aspirations for graduate school and each of the nine estimate of gains as well as with the demographic variables of age, gender and class standing. The only difference being the inclusion of whether a *parent had graduated from college.* However, after running the analysis for this second question no differences were found in comparison to the first research question.

To help identify differences between first-generation and continuing-generation students the variable of whether a *parent had graduated from college* was then included in the analysis, but this time as a dependent binary variable. Whether a *parent had graduated from college*, was now a dependent variable like aspirations for graduate school, GPA and the nine estimate of gains had been in their separate analyses. Running a separate analysis for *parent had graduated from college* as a dependent variable identified numerous findings.

Class standing was a significant variable in the analysis for first-generation and continuing-generation status. The higher the relationships with faculty members, was negatively correlated with continuing-generation status, indicating that the better the relationship was with faculty the less likely the student was to be a continuing-generation student. This suggests that first-generation students experienced better relationships with faculty than continuing-generation students. Students that socialized with a faculty member outside of class (had a snack or soft drink, etc.) was positively correlated with continuing-generation students. First-generation students socialized with a faculty member outside of class less than continuing-generation students. Continuing-generation students worked harder as a result of feedback from an instructor less than first-generation students. Some of the findings from this study were consistent with the faculty-student interaction literature and others were surprising.

Interpretation of Findings

This section will discuss the findings from the current study and its relationship with the faculty-student interaction literature. As mentioned earlier there is very little research regarding Native American students and faculty-student interaction, the higher education literature has generally studied faculty-student interactions for an aggregate student body which has consisted of mostly White students (Eimers & Pike, 1997; Kim, 2010; Pascarella & Terenzini, 1991). Although, the literature suggests that minority students experience college dissimilar to their White counterparts (Kim, 2010; Pascarella & Terenzini, 1991; Watson & Kuh, 1996), it was unclear how the analysis of this particular data set might compare to the existing faculty-student interaction literature.

The study found that none of the 11 faculty-student interaction factors were significantly correlated to GPA in contrast to the findings of Lundberg & Schreiner (2004) who explored faculty-student interactions and disaggregated the results by ethnicity. Their findings suggest that Native Americans and African American students who discussed their personal concerns with faculty experienced greater academic achievements. Mayo et al. (1995) also found that interacting with faculty outside of class improved the academic performance of African American students, as well as White students. The current study did identify significant correlations with GPA by each of the included demographic variables gender, class standing and age.

A significant difference was found between the mean GPA for males and females, Frucot & Cook (1994) found that males over reported their GPAs more than females; however Kuh (2003) reports that if responses are kept private and the respondents do not feel the pressure to respond in socially desirable ways, the responses given are generally an accurate reflection. The

difference between the means of 0.71 on a 4.0 scale is suggestive of a significant difference that could be attributed to more than the self-reporting of GPA. The current study's finding regarding GPA and class standing is consistent with the literature. Olsen et al. (1998) reported that as students advance into their major fields, they attend smaller classes which allow for more interaction with faculty. Kuh & Hu (2001) also suggest that when students are in their upper division courses they have developed enough knowledge to converse more freely with their faculty members.

The negative correlation between GPA and age is consistent with the literature which suggests that students over the age of 24, often referred to in the literature as non-traditional students, face challenges in higher education different to those of traditional students (Xiong, 2009). Non-traditional students frequently have dependents, full-time employment and other stressors that may affect their academic performance or GPA.

Students reporting better relationships with faculty were highly correlated with a number of estimated gains and are consistent with the literature. The better the relationships with faculty, the greater the gains the students reported in *becoming aware of different philosophies, cultures, and ways of life*. As Native American students experienced a better relationship with faculty they may better understand White faculty and their philosophy and culture. This finding is consistent with the findings of Cilliers and Sternberg (2001) who suggest that faculty that connect with students on an individual level improve the learning of students from non-traditional learning styles.

The better the relationship with faculty members, the more students gained in *developing the ability to get along with different kinds of people*. This finding is consistent with Astin, (1993), who suggests that positive faculty interactions can have a significant effect on student

involvement and is closely correlated to college satisfaction, more so than any pre-college attribute or other environmental variable. Faculty members are often a reflection of the institution and approachable, helpful, understanding, and encouraging faculty members can encourage involvement and positive relationships with other members in the college environment (Arredondo, 1995; Terenzini & Pascarella, 1980).

The better the relationship with faculty members, the more gains students' reported in *thinking analytically and logically*. Eimers (2001) proposes that minority students that experience positive interactions with faculty also improve their academic achievement and at higher levels than their White counterparts. The better the relationship with faculty members the greater gains a student reported in *learning on their own, pursuing ideas, and information needed*. Students reported high responses as they found faculty members more approachable, helpful, understanding, and encouraging. Jussim and Eccles (1992) found that gestures such as smiling, eye contact, proximity to the student as well as complimenting and providing specific feedback were associated with positive expectations from faculty toward students. Cole (2010), further suggests that these kinds of gestures and behaviors encourage students to interact with faculty and have a direct effect on the classroom experience and higher education experience.

The more frequently a student participated with other students in a discussion with one or more faculty members outside of class, the more likely students were to report gains in *developing their own values and ethical standards*. Astin (1993) found that, when other variables are held constant, faculty-student interaction positively affects academic attainment, individual and intellectual growth and a positive view of one's contribution to improve society and improves the intellectual and social maturity of a student. Light (2001) agrees that these

positive interactions with faculty, educate students on "how to think," rather than "what to think."

When using first-generation and continuing-generation status as a dependent binary variable significant correlations were found with Fac5, Fac6 and EnvFac. According to the literature first-generation students, where neither parent has graduated from college, Ishitani, (2003), generally have lower academic aspirations and often experience cultural and language barriers—all predictors that reduce their likelihood of interacting with faculty (Crisp & Nora, 2010; Lundberg & Schreiner, 2004). The current study found that first-generation students did not socialize with a faculty member outside of class as much as continuing-generation students. However, this study found that first-generation students reported better relationships with faculty than continuing-generation students and being more willing than continuing-generation students to work harder as a result of feedback from an instructor.

The most surprising finding from this study was that none of 11 the faculty-student interaction factors were significantly correlated with students' aspirations for graduate school. Although 80% of respondents were planning on attending graduate school, neither faculty-student interaction or demographic variables (gender, class standing and age) were significantly related to this aspiration. Yet, the existing literature suggests that faculty student interaction outside of class is closely correlated with aspirations for graduate school (Pascarella & Terenzini, 1991). The findings from this analysis suggest to me that these Native American students have participated in pre-college intervention programs aimed at encouraging graduate school attendance. Brigham Young University offers a Summer of Academic Refinement (SOAR) program to prepare minority, first-generation and underrepresented students for success in higher

education. The majority of Native American students accepted to BYU have been participants of the SOAR program.

Another plausible reason for these surprising findings may be due to the rigorous academic environment of a highly selective institution, such as BYU. My experience as an indigenous, first-generation high school graduate taught me that success in higher education meant hard work. Obtaining a bachelor's degree meant overcoming many difficult challenges and by the time I was ready to graduate with my bachelor's degree I felt like I was finally getting over the *hump*. Graduate school was enticing to me because I had finally learned how to navigate the higher education system.

One faculty-student interaction variable presented a particularly interesting finding, namely, the more students discussed their career plans and ambitions with faculty, the lower their gains in thinking analytically and logically. It's possible that Native American students were receiving adequate support regarding career plans and ambitions from advisors involved with the Native American initiative, lessening the need to discuss these plans with faculty. This finding could also be understood in its inverse, namely the less frequently Native American students discussed career plans and ambitions with faculty the higher their gains in thinking analytically and logically. This does support the thought that perhaps advisors can replace the role of faculty for some minority students. It is known that the advisor for Native American students at this particular institution is Native American; Native American students may prefer to discuss career plans and ambitions with someone they feel they can relate to, especially at a predominantly White institution.

Another surprising finding was regarding one of the faculty-student interaction factors, FAC10, *worked with a faculty member on a research project*. The literature touts that this is a

faculty-student interaction that can have the greatest impact on aspirations for graduate school, GPA and an overall gains from college. Referring to Tinto's (1993) model, Nagda et al., (1998) discovered that faculty-student research projects positively influence student persistence. Working on just one research project with faculty could be enough to position a student within their field and discipline, providing them with necessary experience and confidence to persist (Kim, 2006). However, this was not identified as a significant variable in any of the analyses.

Limitations

The use of a self-reported GPA in the study made it difficult to determine if the difference in the mean GPA between male and female was attributed to males overinflating their grades, as the literature suggests (Frucot & Cook, 1994,) or was attributed to something else. With a data set of this kind (having respondents from a specific initiative) the use of actual GPAs would have provided more conclusive findings in regards to the demographic variables that were found to be significant.

The findings in this study were limited, as there was no appropriate pre-test conducted. The makers of the CSEQ survey also have a pre-test version, the College Student Expectations Questionnaire (CSXQ). Comparing Native American students' expectations of faculty-student interactions to their actual experiences would have provided more information to understand their relationship with faculty.

The use of the CSEQ survey was useful in identifying faculty-student interactions but following up with interviews would have aided in the understanding of the findings. Working with a faculty member on a research project has been found to have significant impact on students' academic achievement (Kim, 2006, Nagda et al., 1998,). This faculty-interaction factor was not identified as a significant variable in any of the analyses that were run; but it is unclear

why this wasn't significant. Being able to interview students in regards to faculty-student interaction factors that the literature has identified as significant would provide greater understanding of their faculty-student interactions.

Recommendations for Future Research

The respondents in the current study attend a religious institution, 98.5% of students at the institution belong to the religion sponsoring the university (NCES, 2014). It's unclear from the current study the impact that religion had on the interaction between faculty and students. The current literature suggests that faculty who consider themselves spiritual are more likely to use student-centered teaching methods (Warren, 1997). These methods have been correlated with greater academic achievement, intellectual and social maturity in comparison to traditional methods of lecturing by faculty (Henson, 2003). However, gaps remain in the understanding of the terms *spirituality* and *religion*. Faculty who are focused on student-oriented philosophies and meaningful interactions are more likely to interact with students outside of class (Cox et al., 2010). Given the nature of the institution I think understanding the correlation of religion with faculty-student interactions and educational outcomes would be profitable. Utilizing the current instrument it was difficult to know the impact that religious congregational worship, callings, missionary service had on the educational experience of Native Americans at BYU. Would Native American students at a non-religious institution experience similar interactions? Or, does being a member of the predominant religion help Native American students to interact more or have a better relationship with faculty? Were there differences in the faculty-student interactions between Native American students of the dominant religion and those that were not? For this reason I think a semi-structured survey with open-ended questions may have provided pertinent information to understand the correlation of religion with the educational experiences of Native

American students. The current instrument provided sterile feedback and controlled the depth of the responses. To better understand the experience of Native American students with faculty we could benefit from asking Native American students to explain their interactions with faculty; thereby viewing the experience from their perspective.

My final recommendation for future research comes as a result of viewing the demographic data, and retention and graduation rates from the involved institution, BYU. Accessing information for this school through the Integrated Postsecondary Education Data System (IPEDS) revealed that Native American students attending BYU had a reported graduation rate of 56%, significantly higher than the national average. However, the group that had the lowest graduation rate was Native Hawaiian or other Pacific Islanders, with a graduation rate of 43%. As a member of this group I feel a need to try to understand and improve upon this graduation rate.

Conclusion

The findings of this study suggest that faculty-student interaction factors and demographic variables such as age, gender and class standing can have a significant effect on the educational outcomes (GPA and estimate of gains) of Native American college students. However, none of the faculty-student interaction factors or demographic variables influenced a students' aspiration for graduate school. Native American students' reporting better relationships with faculty also reported important gains from college.

This study further identified the impact that parental education can have on a students' interaction with faculty, as first-generation and continuing-generation students differed in some of their interactions with faculty. First-generation students were less likely to socialize with a faculty member outside of class; however, this study found that first-generation students reported

better relationships with faculty and were more likely to work harder as a result of feedback from an instructor.

The current study has significant implications for informing institutions, faculty, advisers and Native American college students of the conditions that produce desirable educational outcomes for success in higher education. The ability to improve faculty interactions with students can have a direct effect on improving not only the classroom experience, but the higher education experience in general (Cole, 2010). Furthermore, the ability to ameliorate the educational outcomes of Native Americans has the potential to influence the future continuing-generations of Native American college students, the majority of whom attend predominantly White institutions.

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