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DISSERTATION

AMERICAN INDIAN DROPOUTS AND ACADEMICALLY AT-RISK STUDENTS: AN EXPLORATORY COMPARISON

Submitted by

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Psychology

In partial fulfillment of the requirements

for the Degree of Doctor of Philosophy

Colorado State University

Summer 2002

COLORADO STATE UNIVERSITY

May 10, 2002

WE HEAREBY RECOMMEND THAT THE DISSERTATION PREPARED UNDER OUR SUPERVISION BY GREGORY R. CORNELL ENTITLED AMERICAN INDIAN DROPOUTS AND ACADEMICALLY AT-RISK STUDENTS: AN EXPLORATORY COMPARISON BE ACCEPTED AS FULLFILLING IN PART REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY.

Committee on Graduate Work

Advisor

Department Head

ABSTRACT

AMERICAN INDIAN DROPOUTS AND ACADEMICALLY AT-RISK STUDENTS: AN EXPLORATORY COMPARISON

Low levels of school retention among American Indian adolescents has resulted in calls for more broad based and systematic research on the correlates of dropping out. American Indian dropouts have been compared to their peers who are in good academic standing, but determining the influence of a variety of hypothesized correlates has been clouded by differences in academic abilities between these two groups. A comparison of American Indian students who have academic abilities similar to those of dropouts was predicted to allow the assessment of various correlates of dropping without the moderating influence of academic abilities.

Data for this study was obtained from a NIDA and NIAAA funded study of American Indian adolescents. Participants were drawn from schools located in five different cities (four on reservations and one in a mid-sized city with a high percentage of American Indian students). The initial sample consisted of 827 self-identified American Indian adolescents who were categorized in to three school groups: 1) retained students; 2) academically at risk-students; and, 3) school dropouts. As students dropped out of school they were matched with to other youth: both of similar gender and grade. The academically at risk students were further matched on the grade point average of the dropouts. Portions of a multiscale survey completed by the participants were used in this exploratory study. Missing data, equating participant ages across school status groups

and the use of only at-risk students and dropouts reduced the sample size to 206 American Indian females and 140 American Indian Males.

Scales assessing perceptions of teachers, alcohol involvement, deviant behavior, school misbehavior, cultural identification, and use of an Indian language were subjected to a confirmatory factor analysis to determine their suitability for use with this population. All scales demonstrated measurement coefficients for this sample with the exception of the alcohol involvement scale and the cultural identification measures for females only. A series of ANOVA's with school status and gender as grouping variables were conducted. No interactions between school-status and gender were observed. At-risk students reported higher levels of perceiving teachers to care about the youth and Indians in general compared to dropouts. At-risk students were also less likely to report engaging in misbehavior at school. Correlates were subjected to a discriminant function analysis that correctly classified 77% of the male at-risk students. A similar analysis for females performed poorly. Results are discussed in relationship to gender differences, methodological issues, and prevention strategies.

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ACKNOWLEDGEMENTS

No dissertation can be prepared without the inspiration, guidance, review, and patience of faculty and department support staff. This dissertation is no exception. With that in mind, I would like to extend acknowledgement all the faculty members of the Psychology Department and their support staff. A particular thank you is extended to the staff of the Tri-Ethnic Center for Prevention Research for their assistance in the collection and preparation of data used in this study.

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Introduction

Like many of the indigenous people that once inhabited the earth, American Indian/Alaska Native (AI) adolescents first learned about the world through the oral teachings of family members and elders. Children learned the skills of subsistence living, social relationships, ethics, religion, etc., in the context of the extended family and a closely-knit community. Key elements of the learning process included observation, participating, and ceremonial ritual (DeJong, 1993). For most North American tribal groups, contact with and subsequent domination by Western Europeans resulted in sharp declines in these traditional forms of education (cf. Hayes, 1973). Beginning in the 1800's, Federal Indian Education Policy goals of assimilation and "christianization" supplanted traditional goals and methods of education. These new goals guided the curriculum of Indian Agency and missionary boarding schools through the 1950's (Whiteman, 1986).

In the early 1960's, American Indians began the process of reclaiming self-determination in civil rights and government. At about the same time, scholarly reviews began to highlight the inadequacy and inequities of Federal Indian Education Policy (cf. Deloria, 1974). The reporting of extremely low school completion rates among AI high school students prompted the call for a review and overhaul of Federal Indian Education Policy (Special Subcommittee on Indian Education, Senate Committee on Labor and Public Welfare, 1969). The 1969 Senate report, Indian Education: *A National Tragedy--A National Challenge*, documented rates of dropping out for AI adolescents at twice the national average.

Believing that the key to a prosperous economic future and the preservation of a cultural future required appropriate and relevant education, many tribal governments advocated for an extension of self-determination rights to education. The passage of the Indian Education Act by the United States Congress in 1972 acknowledged the failure of past educational practices and specified new polices designed to meet the unique educational needs of American Indian children. This law, later bolstered by the 1975 Indian Self-determination and Education Assistance Act, paved the way for tribal groups to exercise greater control over and participation in the education of their children. Subsequent changes included the use of culturally relevant curriculums, bilingual education, revised teacher training practices, and institutional changes designed to utilize more American Indian adults in the educational process (Reyhner & Elder, 1989).

Although there are signs of improvement (cf. Reyhner, 1990), many AI tribal groups continue to witness low retention rates for their high school age adolescents. Estimates have placed the dropout rate for some groups of AI adolescents at as high as 90% (Platero, Brandt, Witherspoon, & Wong, 1986, cited in Brandt, 1992) and more typically around 50% (Chavers, 1991). In 1989 the National Center for Educational Statistics reported that AI students dropped out of high school at a rate of 35.5%, a rate about twice the national average and the highest of any United States ethnic or racial group reviewed. In 1991, the Secretary of Education's Indian Nations at Risk Task Force (1991) reported high school dropout rates for AI adolescents at 36%. More recently, the National Center for Education Statistics (1999) reported AI 8th to 12th grade cohort dropout rates that range from 17.1% to 30.4%. Despite the difficulties associated with assessing and calculating accurate dropout rates (for a review of the difficulties

associated with dropout research see Rumberger, 1987), Swisher and Hoisch (1992) concluded that AI students drop out of school at a rate that is one of the highest of any ethnic group in the country.

Governmental initiatives seeking to enhance the education of AI students, produced numerous recommendations for research during the early 1990's. The Indian Nations at Risk Task Force (1991) and White House Conference on Indian Education (1992) encouraged basic and applied research as it relates to the retention of AI students. However, the volume of educational and psychological literature related to this topic is still quite small. The methodology and scope of these studies vary greatly; they frequently share an exploratory nature, report dropout rates for various samples, review methods of assessing and calculating rates, and describe the correlates of dropping out (Swisher & Hoisch, 1992). However, few studies actually research causes of AI students dropping out (Ledlow, 1992). Identifying and examining correlates associated with dropping out offers the potential of constructing theories about the phenomena and designing interventions aimed at promoting retention.

This review surveys the psychological and educational literature as it pertains to the correlates of dropping out for AI students. Although perhaps best described as embryonic, the literature on the correlates associated with AI adolescents dropping out of school extends back at least as far back as the 1960's. Correlates of early school departure among AI students can be broadly organized into categories that highlight the influence of culture, academics, family, and student behavior. Particular attention is given to gender differences inasmuch as information suggests that AI females may drop out of school in higher numbers than males (Peng & Takai, 1983). The review concludes

with a critique of existing literature and a discussion of the specific research question and hypotheses examined in this dissertation.

Student and School Reported Reasons for Dropping Out

Early research on AI adolescent dropouts focused on student reported reasons for leaving school. These self-report explanations for dropping out appear to have formed the foundation for conjecture of possible significant correlates. Examining a survey of 153 Sioux youth who had dropped out of school before the end of ninth grade, Wax (1967) reported perhaps the first published descriptive analysis of students' reasons for dropping out. Rather than focusing on a rejection or dislike of school, many of the descriptions reported by Wax highlighted students' feelings of being pushed or kicked out of school. Wax's descriptions of student statements highlighted the differences of values between rural Sioux adolescents and the more authoritarian and regimented values of Indian boarding schools.

Utilizing a better-detailed methodology, Coladarci (1983) surveyed 46 American Indian dropouts as to their reasons for leaving school. Using a 27 item rationally derived questionnaire, dropouts were surveyed as to which items played a significant role in their decision to leave school. A little less than half of the sample endorsed the item that school was not important for what they wanted to do in life. Roughly, 40% of the respondents indicated that the lack of parental support for school contributed to their decision to dropout. In a similar vein, 48% of the girls noted that problems at home contributed to their decision to dropout. However, only 35% of the boys reported family problems as a reason for leaving school. Over one-third of the sample reported the uneven application of school rules as a prominent reason for dropping out. Similarly,

one-third of the dropouts endorsed not being cared about by teachers, having disagreements with teachers, and not receiving enough teacher assistance with schoolwork as their reasons for leaving school.

Summarizing students' responses, Coladarci concluded that the content of schooling, the absence of AI cultural representation in curriculum material, poor student-teacher relationships, a desire to socialize with other dropouts, and lack of parental support formed the chief professed reasons for dropping-out. He appropriately noted that his methodology prevented him from discerning whether students' perceptions reflected the actual reasons for leaving school.

Three years after the publication of Colardarci's study, Platero, Brandt, Wong, and Witherspoon (1986) published the results of a nine-month study of school dropouts on the Navajo Reservation. *The Navajo Area Study*, detailed in Brandt (1992), was the first large scale Indian dropout study. Researchers not only examined students' reasons for dropping out but also examined methods for calculating dropout statistics, school administrators opinions on what caused Navajo students to dropout, and compared dropouts to non-dropouts on various measures of hypothesized correlates of dropping out.

Drawing from a pool of 1000 7^{th} – 12^{th} grade students identified as school leavers, Navajo-English bilingual field interviewers interviewed 219 dropouts. The final sample represented students from 10 different schools. The absence of some students at the time of interviews, the absence of parent or student permission to participate, and misidentification as a dropout were cited as the chief reasons for a low response rate. Platero, et. al reported that over 50% of the students initially identified as dropouts by local schools had been misidentified as school leavers. Interviewers found that this large

group of presumed dropouts either had enrolled in another school or had already graduated. Platero et. al., labeled this phenomena "floating" and noted that the examination of correlates of dropping out could likely be biased if dropouts were misidentified.

Boredom with school was the chief reason for dropping out of school cited by students in the *Navaho Area Student Dropout Study* (20.5%). Problems with other students and being retained in a grade due to absenteeism earned 15.5% and 14.2% endorsement respectively. Pregnancy/marriage (9.6%), problems with teachers (7.8%), legal problems (7.3%), substance abuse (7.3%), and leaving school to help family members (7.3%) followed as less frequent reasons for dropping out. A smaller percentage of dropouts cited disciplinary problems (5.9%) and academic failure (5.9%) as reasons for dropping out of school.

While these reasons do not closely match those obtained by Coladarci (1983), school administrators' opinions as to why Navajo students dropped out did. Thirty-eight percent of the administrators surveyed in this study indicated that the lack of parental or family support and encouragement for school likely resulted in Navajo students dropping out. Nearly 30% attributed school leaving to academic problems and poor academic performance. Home and family problems (26%) and a lack of interest in education (25%) were the second and third most frequently cited explanation for dropping out. Administrators appeared to see the dropping out phenomena as a function of student characteristics and what was happening in the home.

Platero et. al., also examined the reasons for dropping out among a group of non-dropouts who indicated they planned to dropout in the future. These reasons, as reported

by Brandt (1992), closely paralleled the reasons provided by actual dropouts surveyed in this study. The top four reasons given by students who intended to dropout included boredom with school (36.5%), a previous grade retention (29.2%), problems with other students (28.3%), and problems with teachers (25.1%). Brandt noted that these "at-risk" groups, like the dropouts themselves, cited reasons for dropping out that primarily locate the problem within the school setting rather than as characteristics of the students or their home life.

Dehyle (1989) examined the reasons for dropping out among high school students as part of a broader ethnographic study of Navajo and Ute school leavers. A questionnaire similar to the one devised by Colararci (1983) was used to obtain reasons for leaving school from 168 former students. School leavers ranged in age from 14 to over 27 years of age and previously attended either a public or a tribal school located in the rural southwest. The results of this study closely supported Colardarci's (1983) findings that student-teacher relationships, content of schooling, and parent support were principal student cited factors in the decision to leave school. Additionally, new factors (the need to work and reading problems) were endorsed by a high percentage of dropouts. Problems at home (66%), difficulty with classes (65%), problems with reading (53%), and lack of assistance from teachers (53%) were the most frequently cited reasons. Problems at home were noted to include alcohol or drug abuse, crowded homes, fighting parents, and unemployment. Dropouts also reported lack of parent support (49%), lack of concern by teachers (48%), needing to work (47%), and school not being important (45%).

One of the two schools in this study collected students' reasons for dropping out. Between 1982 and 1986, 122 dropouts provided the school with their "official" reasons for dropping out by completing a school-generated form. Records from this school indicated nearly 40% of these dropouts were required to leave school because of behavioral difficulties or because of "...an active dislike of the school experience." Another third cited their need to work at home or an outside job to support family. Finally, a quarter of the students left having endorsed the "reason unknown" code. Dehyle contrasted these "official" reasons for school leaving with those provided by students in her sample. The failure of the school to include academic problems, poor staff or peer relations, and pregnancy lead Dehyle to view data reported directly by schools with caution.

Ulrick and Borgrink (1990), on behalf of the state of New Mexico, reported reasons for dropping out among 677 AI students during the 1988 and 1989 academic years. Reasons for dropping out were reported by each of the 23 different high schools included in the study and were purported to represent information provided by the student. Having been expelled from school was cited as a reason for dropping out by 25.7% of the boys. Lack of interest in school (23.4%) and inability to adjust to school (9.1%) were named as the second and fourth reason respectively. The third most prevalent reason boys cited for dropping out was to transfer to another school (12.5%). However, this percentage only included those dropouts for whom a request for academic transcripts was never received. For girls, the most common reason for dropping out was lack of interest (20.7%), followed by expulsion (17.8%), and professed transfer to another

school (16.9%). Pregnancy (16.9%) was the fourth most common reason for dropping out mentioned by girls.

AI adolescents and school officials have reported a variety of reasons for early school leaving. Where data is available, it would seem to suggest that school officials perceive dropping out primarily as a function of student characteristics and problems at home. Such characteristics have included lack of interest in education, behavioral problems, and lack of family support. In addition to these factors, dropouts have equally highlighted features of the school and interaction with teachers as reasons for early school departure. These features included lack of curriculum relevance, uneven application of school rules, not being cared about by teachers, lack of academic support, problems with teachers, and problems with peers.

The methodology utilized to collect student and school reasons for dropping out has varied widely. In many cases, the students surveyed have been "...a convenience sample of school leavers" (Dehyle, 1992, p. 27). More often than not, balances of gender and student age are not reported. The largest samples of subjects originate from the rural southwest. Possible differences between tribal groups, urban and rural settings, and types of schools all serve to limit the ability to generalize these results. The types and reporting of student responses have also varied widely. Some studies allowed for multiple reasons while other studies reported only singular reasons. Despite these limitations, student and school reasons for dropping out provided a starting point for postulating a variety of correlates related to the dropout phenomena.

Correlates of Dropping Out

In addition to student and school-reported reasons for dropping out, a number of approaches have been used to examine other correlates of dropping out. Many of the studies are anecdotal (e.g., Brady, 1996), qualitative (e.g., Bowker, 1992), case studies (Chan & Osthimer, 1983; Giles, 1985), or ethnographic (e.g., Dehyle, 1992) in nature. Systematic studies that have compared AI dropouts to non-dropouts on specific variables or correlates using objective measures are very limited. Four studies stand out in this area. Chronologically, the first was the *Navajo Area Student Dropout Study* (Platero et. al., 1986; Brandt, 1992). The second study examined AI dropouts attending urban schools (Eberhard,1989). The third study examined learning styles for high school students and dropouts (Backes,1993). Finally, a series of studies (Bates, 1994; James, Chavez, Beauvais, Edwards, & Oetting, 1995; and, Beauvais, Chavez, Oetting, Deffenbacher, & Cornell, 1996) surveyed AI dropouts, at-risk students, and students in academic good standing. These studies originated from a project called *Alcohol Use, Dropouts, and Indian Youth*. These four studies are unique in both their systematic comparison of dropouts to non-dropouts and their use of objective markers of correlates. Given the significance of these four studies, their methodology is briefly summarized before reviewing a broad array of reported correlates.

The Navajo Area Student Dropout Study (Platero et. al., 1986, Brandt, 1992) selected 1000 "stayers" and 1000 "leavers" from a random stratified sample of 33 schools (grades 7 -12) serving Navajo students in 1986. Dropouts were defined as Navajo students who did not graduate, were not known to be enrolled in any other school, and for whom the school had not received any requests for records. Twenty-two research

hypotheses were proposed for the study. Navajo-English bilingual field interviewers administered surveys in school to students and in the community to school dropouts. In the process of locating dropouts in the community, field interviewers found that over 50% of the students identified by the school as dropouts had either already graduated or transferred to another school. This finding, plus student absences on the day of interviewing and failure of some parents to provide permission to participate resulted in a final response rate of 670 non-dropouts and 219 school dropouts. Student survey data was augmented with school reports. However, schools were hesitant to provide specific achievement data. Survey items primarily included single item variables. Established attitudinal measures or scales were not utilized. Gender differences were reported for some variables.

Eberhard (1989) surveyed four cohorts of AI students attending an urban secondary school from 1980 to 1987. Eberhard identified 262 high school graduates and 106 dropouts. Dropouts were identified by the school district and reported to have left the district for "dropout reasons". All students were interviewed during the spring of 1987. Data included student surveys, parent interviews, and information provided by the school. The use of single and multiple item variables assessed the six correlates in this study. Responses were not differentiated by gender.

Backes (1993) compared the learning styles of American Indian Chippewa and Anglo high school students with school dropouts. American Indian students included 100% of the high school graduates (98) for 1991 and 1992 who attended a high school jointly operated by the Bureau of Indian Affairs and the state Department of Public Instruction. Students were administered the *Gregorc Style Delineator* as part of a

regularly scheduled social studies class. Dropouts (135) represented 40.3% of the total Chippewa dropout population over the preceding four years. Dropouts were defined as students who discontinued attendance in school, did not graduate, and did not transfer to another school. This group included students who discontinued school to become parents, reported an intention to transfer but failed to enroll in the prospective school, and students who discontinued school because of attendance and discipline problems. Dropouts were administered the *Gregorc Style Delineator* at a community college General Education Development center after being contacted by the researcher. Reliability and validity information for the *Gregorc Style Delineator* was presented, however, no information specific to its use with AI students was reviewed. Reported results did not include a breakdown of students and dropouts by gender. Similarly, the categorization of learning styles did not include a reporting of learning styles by gender.

Identifying the patterns of alcohol and drug use among AI dropouts, educationally at risk students, and control students constituted the primary purpose of the *Alcohol Use, Dropouts, and Indian Youth* project. However, in addition to these factors, a variety of other correlates were assessed. Participants were recruited from five sites: four locations on reservations in central or southwestern United States; and, one high school located in a mid-sized southwestern city with a high percentage of AI students. Dropouts were identified as seventh through 12th grade students who had been absent from school for more than a month and had no contact with the school district or excused absences. Each dropout was matched by gender, grade in school, and school with two other students. One of these two students was considered a control. The second student was matched on a grade point average (GPA) that was similar to the dropout. These students comprised

the educationally at-risk group. Data were collected via the administration of self-report surveys and a review of academic records between the summer of 1989 and the winter of 1991. Field locators, fluent in appropriate languages, contacted potential participants and ensured that dropouts had truly left school. Surveys were completed in either schools or other public buildings. In addition to single variables, the survey used in this study included a large number scales with demonstrated reliability and validity among AI adolescents. Results for this project have been reported in several studies (Bates, 1994; James, et. al., 1995; and Beauvais, et. al., 1996) and typically include a review of gender differences.

Correlates Related to Culture

Nearly every study of AI dropouts posits the role of cultural variables as a major reason for early school departure. Swisher and Dehyle (1989) noted that beginning in the late 1960's and early 1970's cultural explanations for the poor academic performance of AI adolescents began to eclipse theories that invoked genetic characteristics, discrimination, and cultural deprivation as possible causes. Ledlow (1992) has summarized a variety of correlates of dropping out under the rubric of a cultural discontinuity hypothesis. This hypothesis postulates that culturally based differences between AI students and the Anglo culture of the school can result in a chain of conflicts that result in a decision to drop out. The term "culturally based differences" is used broadly and includes factors related to cultural identification, language use, learning style, instructional style, and institutional correlates. The sharp distinction between traditional methods of AI education and Federal Indian Education Policy cited earlier contributes to the intuitive sense that the cultural discontinuity hypothesis embodies.

Under the cultural discontinuity hypothesis, majority culture exists at one end of a values continuum and a minority culture at the other end. AI students become caught between two worlds: AI culture and Anglo culture, particularly as it is embodied by the school. Similar to the acculturation stress theory (e.g., Stonequist, 1937; Carroll, 1978), cultural discontinuity theory would predict that students caught between the culture of school and home would suffer from strain and, consequently, demonstrate poor adaptation in both spheres.

Research findings that AI dropouts are characterized by a more traditional cultural identity (therefore more at odds with typically Anglo culture schools) would lend support to the cultural discontinuity theory. With the exception of Giles (1985), most published reports would appear to indicate the opposite. Giles assigned eight students (four dropouts and four non-dropouts) to points on a continuum between Anglo and American Indian value orientations. Giles concluded that those students who evidenced a strong Anglo value orientation were most likely to succeed in high school. In their study of dropouts, Chan and Osthimer (1983) found that AI adolescents with more traditional cultural values were actually more likely to stay in school. Brandt (1992) reported that equal numbers of non-dropouts and dropouts had a strong commitment to various forms of traditionalism. Researchers concluded that traditional values had little or no impact on school achievement or persistence. In a study of 451 Navajo students, Willeto (1999) found that an adherence to traditional Navajo culture was modestly correlated with higher grades and school commitment. The more youth were involved in Navajo cultural conventions, the greater commitment they evidenced toward school and an achievement orientation.

The lack of empirical support for the cultural identification component of the cultural discontinuity hypothesis may be the result of how cultural identification has been assessed. The bipolar and linear continuum of cultural identification under acculturation stress theory precludes the possibility that a student may have high levels of cultural identification in more than one culture. Research utilizing an instrument that independently measured multiple cultural identifications has resulted in a more refined analysis of cultural identification and its impact on school adjustment. Oetting and Beauvais (1990-1991) found high levels of either Indian or Anglo culture associated with successful adjustment to majority culture schools by AI seventh- to twelfth-grade students. The poorest adjustment was associated with a weak identification for both cultures; this was particularly true for males.

Using the same instrument (the Oetting-Beauvais Cultural Identity Inventory, Oetting & Beauvais, 1990-1991), James et. al. (1995) found that Indian cultural identity did not predict dropout or at-risk-status in the *Alcohol Use, Dropouts, and Indian Youth* project. However, Anglo identity predicted school success for both male and female participants. Successful AI students had significantly higher combined Anglo and Indian cultural identity levels then either the at-risk students or dropouts. Conversely, dropouts had the lowest combined cultural identity levels. These results held true equally for males and females. The failure of Indian cultural identity to predict school status was interpreted as the result of high levels of Indian cultural identification across the school status groups (successful, at-risk, dropouts).

Current research would seem to suggest that, at a minimum, traditional cultural identification has little negative impact on school adjustment for AI students. Indeed,

evidence suggests that a traditional cultural orientation may actually enhance school adjustment and therefore decrease the risk of dropping out. Anglo cultural identification also increases the likelihood of successful school performance. High identification with both cultures, being bicultural, is also strongly associated with school success. Weak identification with both cultures was found to be associated with dropping out.

The bipolar and linear conception of the cultural identification appears to have been a limiting aspect of cultural discontinuity theory. While the theory was correct in predicting the Anglo cultural identification promoted success in school, it was incorrect in assuming that traditional cultural identification was the opposite of Anglo identification and hindered school success. The finding that students with low levels of identification with both cultures appear at significant risk for school failure is consistent with acculturation stress theory. However, the theory fails to predict or explain the school success of bicultural students who have successfully adapted to both cultures.

Steinberg, Blinde, and Chan (1984) reviewed direct and indirect evidence that language minority students drop out of school at a rate greater than students whose primary language was English. The issue of language competency is important because it is directly related to early school success and it is a component of cultural identification. The 1990 United States Census indicated that 23% of the AI persons over the age of five speak a language other than English. Nearly one-quarter of that number (88,696) were school age children. Thirty-eight percent of persons over five reported they did not speak English well. Nearly one-quarter of that number (38,643) were school age children.

In their case study of 24 Navajo adolescents (six high school dropouts, nine high school seniors with no future educational plans, and nine high school students with plans

for college), Chan and Osthimer (1983) found that bilingual Navajo/English students were the most successful in school. Willeto (1999), questioned 451 Navajo students about their ability to understand and use the Navajo language. She found that language had no impact on commitment to education, grades, or educational aspirations. In the *Navajo Area Student Dropout Study*, Brandt (1992) reported that over half of all students who persisted in school had been exposed to English before the age of five. Only 26% of the dropouts reported English exposure before age five. However, both groups considered their ability to speak English average (98% of persisters and 95% of dropouts). Both groups felt slightly more proficient in English than Navajo.

In the *Alcohol Use, Dropouts, and Indian Youth* project (James et. al., 1995), language aptitudes and tendencies were measured using five sets of self-report items. Two five item subscales measured English and tribal language proficiency. These scales resulted in separate proficiency scores for each language. A separate scale with seven items assessed breadth of English use. Finally, early language history was assessed for both English and tribal languages. Only childhood use of a tribal language predicted dropout status for both males and females. For males, at-risk students had higher reported use of a tribal language, then dropouts, and successful students the least. Proficiency of tribal language also predicted dropout status for males. Finally, breadth of English use unexpectedly predicted dropout status for males only. Other language variables were not significant predictors of school status. Proficiency with and early exposure to tribal languages was strongly correlated with Indian identity scores. English proficiency, early childhood exposure, and breadth, on the other hand, were relatively

uncorrelated with Indian identity scores. This would appear to suggest that Indian cultural identification does not serve as a barrier to acquiring English language aptitudes.

These findings were consistent with the studies reviewed by Steinberg et. al. (1984). Their review found a strong relationship between English language proficiency and academic success and that the poor school performance of language minority youth was not due to cognitive deficiencies. In other words, poor cognitive abilities did not result in language impairment. If weak cognitive abilities were the source of language difficulties that subsequently impaired achievement, one would expect to see deficits in breadth or proficiency with either language predicting dropout status. Early use of a tribal language by AI children may be a disadvantage in schools that instruct in English for reasons other than academic ability. Bilingualism may offer educational advantages, but level of proficiency with each language may play a mediating role.

Swisher and Dehyle (1989) reviewed and summarized a large body of research regarding the learning style of AI students. They concluded that AI students approach tasks visually, seem to prefer to learn by careful observation which precedes performance, seem to learn in their natural setting experientially, and "...come to learn about the world in ways that are different from mainstream students" (Swisher & Dehyle, 1989, p. 5). In the context of cultural discontinuity theory, failure to accommodate this learning style would lead to academic problems and increased risk for dropping out.

Drawing on research which indicates that majority culture students who are at risk of dropping out learn with a processing style that differs from those students who perform well, Backes (1993) compared the learning style of 98 Chippewa high school graduates with 135 Chippewa high school dropouts. Non-Indian students and dropouts from the

surrounding communities were also assessed. Students and dropouts were administered the *Gregorc Style Delineator*, an instrument that identifies four learning styles: concrete sequential, abstract sequential, abstract random, and concrete random. The abstract-random style is characterized by sensitivity, emotion, personalization, imagination, interpretation, holistic view, aesthetic appreciation, part of a social group, discussion, reflection upon feelings, and adaptability. Of the four styles, abstract-random most closely approximates the learning style of AI students as described by Swisher and Dehyle (1989). Forty percent of the all Chippewa students in this study were categorized as having abstract-random as their dominant learning style. The highest percentage of Anglo students and dropouts (38%) were categorized as having a concrete-sequential learning style. These findings lend support to the notion that AI students learn differently than Anglo students. However, a comparison of the mean scores for learning style revealed no significant differences between Chippewa or Anglo dropouts and non-dropouts from respective groups. Backes speculated that his findings were limited by failure to control for other variables that might contribute to a decision to dropout.

The remaining aspects of the cultural discontinuity theory have not been subject to investigations with objective measures and direct comparisons between successful students and dropouts. Indeed, instructional style and institutional factors would be hard to assess in this format. Some aspects of institutional factors, such as perceptions about teacher's attitudes towards AI and Anglo students, have been addressed and are reported below.

School Correlates

In majority culture, evidence examining the relationship between academic achievement and school persistence has resulted in consistent findings. Steinberg et. al. (1984) reviewed a large number of studies that linked poor performance in reading, vocabulary, and math to early school departure. Two of the studies they reviewed (Walters & Kranzler, 1970; Lloyd, 1978) used a combination of academic achievement and social economic status to predict dropping out with surprising accuracy. Steinberg et. al. concluded that, among majority culture children, weak academic abilities "...contribute to a prediction of school-leaving above and beyond the contribution of family social class" (p. 119).

Hodkinson (1990), in a review of AI students in the National Educational Longitudinal Study conducted in 1988, reported that 29% of AI eighth graders had repeated a grade at least once. Brandt (1992) found a similar percentage of school retentions for both non-dropouts and dropouts in the Navajo Area Student Dropout Study. Dehyle (1992) reported that the average Indian graduate from school districts in her study was reading at only the seventh grade level. School leavers were at least six grade levels behind the national average.

Using student reported school retention, homework persistence, and self-perception of academic performance, Brandt (1992) concluded that academic problems appeared to be a minor factor in a student's decision to leave school. No significant differences were detected in the number of grade retentions for dropouts and non-dropouts in the *Navajo Area Student Dropout Study*. Similarly, the student perceived completion of homework was similar for both school persisters and dropouts. Only

11.1% of the dropouts indicated that they were doing poorly or failing. These figures were only slightly higher for the non-dropouts. Finally, Brandt noted that only 5.9% of the dropouts identified academic failure as their reason for leaving school.

Eberhard (1989) appears to be the only reporter of school based measures of achievement for AI dropouts and non-dropouts. Eberhard compared the Proficiency and Review (PAR) test scores and GPA's of 262 high school graduates and 106 dropouts in an urban community. The PAR test was reported to assess four basic achievement skills: numerical, spelling, language, and reading. Information as to the reliability and validity of this instrument with AI populations was not presented. Students completed the test every semester until they passed or, presumably, left school. Non-dropouts earned significantly higher PAR scores and GPA's compared to early school leavers.

The evidence for the impact of academic abilities on the decision of AI students to drop out appears mixed. While academic problems among AI students are well documented, the specific relationship of these problems to dropping out is not yet clear. Eberhard's (1989) study suggests weak academic abilities are associated with dropping out. However, like many studies, his methodology does not allow for an assessment of the relative contribution of academic abilities compared to other correlates. Large-scale studies using AI adolescents from the southwest would appear to indicate that academic abilities *per se* do not form the principal reason for dropping out. A clear pattern of influence may be clouded due to differences inherent in rural and urban settings. Additionally, and perhaps more importantly, other factors such as early childhood tribal language exposure, perceived relevance of education, perception of teachers' concern for

AI students, family support for school, absenteeism, and transportation difficulties may form complex interactions.

Student reported reasons for dropping out have consistently questioned the relevance of and interest in the education offered by the schools attended by AI adolescents. Brockman (1970) noted that across a various levels of social strata in a northwest tribal community, high school students often left school to obtain employment. The available but limited employment opportunities did not require the skills taught in local school, making later secondary schooling superfluous in the eyes of some students. Dehyle (1992) reported that students in her study did not perceive the school curriculum as connected to life goals. However, this was not interpreted as a rejection of education. School was simply not seen, as an avenue to obtain the knowledge or skills students desired.

Few studies have examined how the relevance or interest in school-based education may vary as a function of other variables. A study by Lin (1985) is an exception. In a survey of 63 male AI students, Lin (1985) found that ratings for the value of education differed significantly as GPA changed. Students with higher GPA's were more likely to value education than those with lower GPA's. While this finding was statistically significant, the mean score of students with a "D" average was still in the positive range of the response continuum. Questions targeting interest in school courses, the relevancy of courses, time spent doing homework and perceived fairness of teachers did not differ across various GPA's.

Brandt (1992) found that both dropouts and non-dropouts in the *Navajo Area Student Dropout Study* reported a high interest in education. Only seven percent of the

non-dropouts reported no plans or expectations for college. Thirty percent of the dropouts reported the absence of plans for college attendance. Forty-six percent of the dropouts expected to return to school and less then nine percent of the dropouts did not expect to return to school.

Student reasons for dropping out have identified family support for education, perceived teacher concern, and perceived availability of academic help as additional school related correlates that may shape a student's decision to leave school prematurely. In her qualitative examination of AI female graduates and dropouts, Bowker (1992) noted that the support of their families, particularly that of their mothers and grandmothers, was the single feature that most strongly characterized high school graduates. Willeto (1999) reported a similar finding among Navajo students. A student's high level of identification with their mother positively influenced grades and commitment to school. Willeto noted that this finding was consistent with the matriarchal nature of Navajo culture. However, direct support and encouragement for school, was not correlated with grades, commitment to school, or college aspirations. Willeto assessed family support and encouragement using a five-item scale. Items included how often parents provided a place to do homework, checked to see if homework was completed, encouraged improved performance on tests, provided help with homework when asked, and praised the student for good work in school.

Results from the Navajo Area Student Dropout Study did indicate that family support was critical to school success. Brandt (1992) found that 82% of non-dropouts said parents and relatives encouraged them to stay in school. Only 57% of the dropouts reported similar encouragement. Seven percent of the dropouts stated their parents did

not encourage them to attend school. This compares to only 2.6% of non-dropouts. Almost 25% of the dropouts stated that those with whom they lived were never involved in school activities. Only 15% of the non-dropouts responded in a similar fashion. Over 40% of both groups of students stated that school would be easier for them if those with whom they lived had more communication with school.

A teacher who is perceived as uncaring may increase a student's sense of futility in the academic enterprise. Dehyle (1989) reported several ethnographic examples in which students translated the minimal attention they received from their teacher into images of teacher dislike and rejection. Despite its frequent mention as a possible correlate, few studies have compared such perceptions of dropouts to non-dropouts. Only James et. al. (1995) appears to have used such a methodology in examining this issue. In the *Alcohol Use, Dropouts, and Indian Youth* project, perceived teacher liking of Indian students did not enter as significant predictor of dropout status for either males or females in a discriminate function analysis. However, low scores on a variable assessing perceived teacher liking of the individual was a strong predictor of dropout status among AI males. This variable also predicted dropout status for females, but to a lesser extent. For females, at-risk students perceived teachers as liking them the most and dropouts perceived being liked least by teachers. Dropouts, however, perceived themselves as being liked only somewhat less than successful students. Perceived teacher liking of Anglo students predicted dropout status for both males and females. James et. al. interpreted these finding as an indication that perceived teacher bias against Indian students is associated with dropping out.

The perceived lack of assistance from a teacher may confirm student feelings of teacher bias and serve to further isolate students from academic assistance. Like perceptions of teacher caring, this correlate is often mentioned but infrequently examined among dropouts, at-risk students, and successful students. Among AI students in general, Lin (1985) found that the perceived availability of help varied by student GPA: students with higher GPA's were significantly more likely to perceive help as readily available than students with low GPA's. Low scores on the perceived availability of help variable predicted dropout status for both for male and female students in the *Alcohol Use, Dropouts, and Indian Youth* study (James et. al., 1995). Successful male students reported the highest levels of perceived availability of help. Male dropouts and at-risk students reported significantly less but similar levels of help availability. For females, the at-risk groups perceived help as being the least available, dropouts perceived it as more available, and successful students perceived the greatest availability of help. Cultural identification did not appear to moderate perceived availability of help. Perceived availability of help had no relationship to Indian identity scores and only small positive correlations with Anglo identity scores.

In addition to attitudinal correlates, two structural variables related to school have been linked to increased risk for dropping out: absenteeism and transportation problems. Multiple absences from school, for whatever reason, might be anticipated to put students behind academically. Further, frequent absences could lead AI students to be "pushed-out" of school by teachers and school administrators. Hodgkinson (1990), using data from the National Educational Longitudinal Study, reported that 11% of AI eighth-grade students had missed five or more days of school during a four-week period. Fifty-seven

percent of the dropouts in the Navajo Area Student dropout study had 16 or more absences from school (Brandt, 1992). Only 11% of non-dropouts reported the same level of absence from school.

Many AI students reside on reservations characterized by substantial distances between home and school. Both dropouts and non-dropouts in Chan and Osthimer's (1983) case study noted that the distance to school and difficulties with transportation served as a negative incentive to attend school. Distance to school differentiated dropouts from non-dropouts in Dehyle's (1989) investigation, but the relationship held only for students 25 years old or older. The Navajo Area Student Dropout Study (Brandt, 1992) found that how dropouts and successful students got to school was different. Nearly twice as many dropouts rode the bus (60.8%) compared to school persisters (35%). Equal percentages (24%) of dropouts and school persisters were driven to school. School persisters, however, were much more likely to walk to school (24.6%) compared to dropouts (4.1%). If school persisters were to miss the bus, most (79.8%) reported they either walked or drove to school. On the other hand, when dropouts missed the bus, less than half (43.8%) could walk or drive to school. Brandt concluded that dropouts tended to live farther from school and less frequently had the means or family support to get to school.

Weak academic skills likely contribute to the risk of dropping out, but the strength of the influence as well as possible moderators are unknown. Available evidence does not clearly support AI lack of interest in education or educational relevance as salient predictors of dropping out. Depending on the type of school curriculum, the realities of economic life in many AI communities certainly may raise issues about school relevancy.

These issues, in turn, could lead to premature school departure. However, systematic data that supports this conclusion is absent. The impact of family support for education has received mixed evidence with some studies finding relationships with academic success and other studies finding no relationship. A student's identification with their mother or grandmother appears to have a positive influence on school persistence. Student perceptions of being liked by the teacher emerged as a strong predictor of school persistence for both males and females. Conversely, perceived teacher bias toward Anglo students predicted dropout status for both males and female students. The perceived availability of help appears related both to academic performance and to dropping out but is not mediated by levels of Anglo or Indian cultural identity. That is, more traditionally identified AI students do not perceive less help to be available from teachers and Anglo identified AI students do not perceive more help to be available from the teacher. The one study that compared the self-reported absenteeism of dropouts and non-dropouts suggests that school absence is a likely risk factor for dropping out, particularly where a student must travel long distances to school.

Correlates Associated with the Family

Family characteristics are often cited as a contributor to the decision to drop out. However, few studies have actually examined how AI dropouts and non-dropouts differ on family characteristics (excluding family support for education and family cultural identification, which are reviewed above). Particularly absent are studies which focus on family dysfunction such as substance abuse and violence. Published reports appear to build upon research findings associated with majority culture students. Family characteristics have been postulated to impact students in a number of ways. Among

majority culture adolescents, youth from lower socioeconomic strata are at increased risk to drop out in comparison to more privileged peers (Steinberg et. al., 1984). Bachman, Green, and Wirtanen (1971) reported that dropouts are more likely to be characterized as having fewer material possessions, coming from single parent families, and having less reading material in the home. The 1990 census revealed that a single parent headed 34% of AI families and nearly 30% of Indian families lived below the poverty level in 1989. Dehyle (1989) found that the realities of economic life for many students in her study required the necessity of an additional worker at home. Brandt (1992) found that students of higher socioeconomic status were less likely to drop out of school. Dropouts were less likely to have working parents (27.8% had working mothers and 42.5% had working fathers) compared to non-dropouts (50.9% had working mothers and 62.5% had working fathers). Willeto (1999) compared levels of parent education and family incomes to the grades of Navajo students and concluded that, while the relationship was positive, it was not significant.

Eberhard (1989) compared family constellation and the number of family moves among AI students and dropouts. The number of parents in the home did not differ significantly between the two groups. However, a tendency for non-dropouts to have both parents home was noted. Dropouts had twice as many family moves as non-dropouts and dropping out increased with the number of moves.

Behavioral Correlates

Behavioral problems are another frequently cited correlate of dropping out of high school. Such problems include misbehavior at school, alcohol use, and delinquency. No studies were found that document differences between AI dropouts and non-dropouts

with regard to misbehavior in school. The lack of such studies may be a function of privacy issues and the difficulty in securing school records of disciplinary referrals.

Several authors have linked AI adolescent alcohol use and heavy drinking to dropout rates as high as 50% (Trimble, Padilla, & Bell, 1987; Clawson, 1990). Such assertions are consistent with high rates of alcohol use among AI adolescents. AI students in their late adolescent years have alcohol misuse patterns that are similar to majority culture adolescents (Beauvais, 1992b). However, this similarity does not extend to early adolescence. Eighth-grade AI students start to use alcohol earlier, use it more frequently, and have a higher rate of use than their Anglo peers (Beauvais, 1992b). Beauvais (1992c) studied the consequences of early alcohol use for AI youth. Alcohol related problems (including problems with school due to alcohol use) are experienced by AI adolescents at three times the rate of their same age Anglo peers. While life-time prevalence rates (the proportion of a population that has used alcohol at a given age) of AI adolescent alcohol usage have varied modestly over the last twenty years, the rate has never been equal to, or lower than the rates of Anglo peers (Beauvais, 1992a). These rates have been based upon surveys of AI students in school. Given the suspected high rate of drinking among older AI adolescent dropouts and the high rate of dropping out for this population in general, these rates may actually be an underestimate. More recent data (Swaim, Beauvais, Chavez, & Oetting, 1997) confirms this suspicion.

Lin (1985) reported higher rates of marijuana use, driving while drunk or stoned, a greater sense of having an alcohol or drug problem, and more frequent school truancy among AI students in comparison to majority culture peers from the surrounding community. AI student alcohol and marijuana use appeared to remain unchanged at

different levels of student GPA. Lin suggested that drug use was pervasive across differing levels of academic achievement. Despite similar rates of alcohol and hard usage, AI students were more likely to see themselves as having a problem with their usage than their Anglo peers. Bowker's (1992) qualitative assessment of 991 AI women between the ages of 17 and 36 suggested that drug and alcohol use played a minor role in a decision to drop out. Like Lin, however, Bowker noted that AI girls were more like to state they had a problem with alcohol even when they drank only occasionally.

In the *Navajo Area Study Dropout Study*, 40% of the dropouts as compared to 26.3% of the non-dropouts reported that alcohol use was either occasionally, sometimes, or always a problem in the home or dormitory where they resided. Utilizing data from the *Alcohol Use, Dropouts, and Indian Youth* project, Beauvais et. al. (1996) found male AI dropouts to have the highest level of heavy drug involvement (32%), followed by academically at-risk students (20.6%) and students in good academic standing (6.1%). Female AI students followed the same pattern with slightly lower numbers (dropouts 20.6%, at-risk 13.9%, and good academic standing 5.1%). Drug involvement was assessed using the Clinical Drug Assessment Scale from *The American Drug and Alcohol Survey*™ (Oetting, Beauvais, & Edwards, 1990).

Bates (1994) used structural equation modeling and data from the *Alcohol Use, Dropouts, and Indian Youth* project to examine causes and effects that alcohol involvement has upon AI youth. Bates found that level of alcohol involvement (as measured by amount and style of alcohol use) predicted dropout status. In other words, as level of alcohol involvement increased the likelihood of being in the dropout category

increased. However, level of alcohol involvement accounted for only five percent of the variance in academic status.

Only one study could be located that examined issues of delinquency with AI dropouts and non-dropouts. Findings from the *Alcohol Use, Dropouts, and Indian Youth* project indicated that AI male dropouts engaged in significantly more violence than at-risk students or students with academic good standing (Beauvais et. al, 1996). Violence perpetration was assessed with the six-item Violence scale (Chavez, Oetting, & Swaim, 1994; Chavez, Edwards, & Oetting, 1989). Female dropouts demonstrated the highest levels of violence in comparison to females in academic good standing, but these levels were significantly lower than AI males in academic good standing. At-risk females did not significantly differ from either female group. Minority dropouts have generally shown higher levels of delinquency than non-dropouts, but delinquency is often correlated with other behaviors that predict school leaving, making the exact relationship difficult to discern (Steinberg et. al 1984).

Gender Correlates

In addition to gender differences reported above, several correlates related to gender bear review. Delk (1974) has suggested that pregnancy is a leading cause for female AI students dropping out. The available empirical data, primarily drawn from student's self report, is mixed. Brandt (1992) found that only 9.6% of dropouts reported leaving school due to marriage or pregnancy. Dehyle (1989), on the other hand, noted that almost half of the female dropouts she studied reported leaving school because of pregnancy. Fifty-one percent of female AI dropouts interviewed by Bowker (1992) indicated they left school because of pregnancy.

Evidence about differential rates of dropping out by gender among AI students has also received mixed evidence. Selinger (1968) reported higher dropout rates for female AI students. Peng and Takai (1983), in their review of 1980 census data, reported that American Indian females had the highest dropout rate of any group. More recently, Kitchen, Velasquez, and Meyers (2000) found that AI males in New Mexico were more likely to drop out of high school than females. Differences in these findings likely reflect the general difficulties in ascertaining dropout rates with this population, the reporting of different types of rates (event, status, or cohort), and differences between samples.

Summary

The reported high drop out rates among AI students has prompted multiple research investigations. AI student reported reasons for dropping out have added another source of information about possible correlates of dropping out. However, few investigations have actually compared AI dropouts to non-dropouts or academically at-risk students on suspected correlates. Even fewer investigations have utilized assessment methods that have demonstrated reliability and validity with this population.

Many of the studies using self-report instruments have utilized single item variables and conducted univariate statistical analysis without corrections for multiple comparisons. Univariate analysis can obscure important information about the interrelationship of correlates and the relative influence of each correlate on dropout status. Multivariate analyses, however, typically requires a greater number of subjects to meet the statistical assumptions of a particular analysis. Because of the heterogeneous nature of Indian education (tribal schools, Bureau of Indian Affairs Schools, public schools on and off the reservation, boarding schools, etc) even within one community,

large-scale collection of data is difficult at best. The extensive logistical planning, fieldwork, and expense required limits the number of such studies. The same difficulties often result in data collection in tribal communities or geographic areas with high and concentrated numbers of AI adolescents. Because of large differences in the culture, economics, and education across tribal groups, generalization of results from homogeneous samples is risky.

While many correlates remain untested, preliminary comparisons highlight a number of correlates that are promising for their ability to distinguish dropouts from non-dropouts. In the area of cultural correlates, AI traditional cultural identity does not seem to predict dropout status and may actually enhance school persistence. Anglo cultural identification predicts school retention. High levels of identification with both cultures also appear to be associated with school success. Several studies indicated that early childhood use of a tribal language predicted dropout status for both males and females. Proficiency of tribal language has been found to be predictive of dropout status, but for males only. A student's identification with their mother predicted school persistence, especially for females. Several different attitudes about teachers were predictive of dropping out: student perceptions of teachers liking Anglo students, teacher liking of the individual, and availability of academic help predict either dropout or academic at-risk status. Objective measures of alcohol involvement predict dropout status, but appear to account for only a small amount of the variance associated this status. AI dropouts are characterized by higher levels of violence perpetration, but it is unclear the degree to which this finding may enter into a prediction of dropping out. Finally, student gender has resulted in differential patterns of correlates associated with dropping out. Taken

together, the results of this review support the notion that dropping out of school among AI students is a multivariate phenomenon. Multivariate analysis approaches offer the potential to assess the relative contribution of correlates and possible mediating influences between correlates. The discriminant analysis by James et. al. (1995) is an example of such an approach.

Examining the differences between academically at-risk students and dropouts might highlight differences that contribute to school retention. If weak academic abilities do play a role in the decision to dropout, comparing students and dropouts of similar academic ability may highlight factors that contribute to persistence. Little is known about academically at-risk students and how they compare to dropouts. James et. al. (1995) reported that their discriminate analyses had little predictive power for academically at-risk students. For both females and males, significant correlates predicted correct membership in the at-risk group a little over a third of the time. This contrasts with a nearly 60% correct classification of successful students. Such knowledge both advance theory building and augment intervention programs designed to prevent dropping out. This exploratory study examines the relative influence of correlates of dropping out among AI high school dropouts and academically at-risk students with specific attention to differences across gender. Three strategies will be employed to maximize identification of correlates that may discriminate between dropouts and at-risk students: correlates studied will be drawn from the review above; where possible, scales will be used as opposed to single items; and, multivariate comparison techniques will be employed.

A rather broad net is often cast in exploratory studies in hopes of providing guidance for future investigations and theory building. Although the literature specific to a comparison of AI academically at-risk students is scanty, studies comparing dropouts to students in assumed academic good standing offer some potential guidance in the formation of hypotheses. Several correlates were chosen for this study based upon the findings of the James et. al. (1995) analyses. The interface between students and teachers plays a critical role in all education. James et. al. demonstrated differences between dropouts and students with regards to perceptions of teaches and their interest in Anglo and Indian students. A supportive relationship with a teacher may contribute to school persistence among academically at-students. On the other hand, the perception that the teacher disliked Indian students, disliked the youth, and liked Anglo students may lead an academically troubled student to dropout. Based upon the results of James et. al., it is postulated that at-risk students would be more likely to perceive a teacher as liking Indian students, liking the youth, and being available for help. Dropouts, on the other hand, are predicted to perceive teachers as liking Indian students less and Anglo students more than at-risk students. With little direction from the literature, it is predicted that females will generally perceive teachers to be more caring for themselves, Indians, and Anglos than males. Female dropouts may be an exception to this prediction and see teachers as caring less for themselves and Indians than at-risk females.

Though often cited by school officials as a chief reason for early school leaving, behavioral problems in school have rarely been systematically examined. Student behaviors such as skipping school and discipline referrals may be more prevalent among dropouts than academically at-risk students. It is also possible that deviant behavior in

general, that is deviant behavior beyond the classroom, will be more strongly associated with dropouts as compared to at-risk students. Given that deviant behavior is typically observed at higher levels for males, it is predicted that males will have higher levels of general deviancy and school misbehavior. Alcohol involvement has been consistently associated with poor school adjustment and dropping out. When academic abilities are held relatively constant, high levels of alcohol involvement may differentiate dropouts from those students who persist in school despite their academic difficulties. Like deviant behavior, alcohol involvement is often reported at higher levels for males However, it is also possible that higher levels of alcohol involvement by girls pose particular problems that lead to a higher rater of dropping out.

Indian cultural identity has not consistently proven to be a better predictor of school persistence in comparison to Anglo cultural identification. There is, however, some evidence to suggest that school persistence is strengthened by Indian cultural identification. High levels of Anglo and Indian identification, being bicultural, may bolster the persistence of academically at-risk students. Previous studies would suggest that higher levels of Anglo and Indian identification are found among students in academic good standing compared to dropouts. At-risk students, in comparison to dropouts, are predicted to be higher in bicultural identification, but have no differences with regard to Indian identification. No gender differences in cultural identification are expected

Aspects of Indian language, which is strongly associated with Indian cultural identity, have been shown to differentially predict dropout status for males and females. For both genders, James et. al. (1995) found that early childhood use of an Indian

language was predictive of dropout status. Proficiency of Indian language predicted dropout status for males alone. It is possible that at-risk students and dropouts differ on these dimensions, but only to a lesser degree.

Several studies suggest that student identification with their mother is a strong protective factor against dropping out. Whether this relationship will prove to be true for at-risk students and dropouts is unclear. It seems plausible that maternal identification might distinguish academically at-risk students from their peers who have dropped out and that females in general might have a higher level of maternal identification than males. Predictions related to this exploratory study of differences between AI academically at-risk students and dropouts are presented in Table 1.

Reporting student reasons for dropping out of school allows for the monitoring of possible changes presented by different cohorts of dropouts. Changes in reasons presented in comparison to previous studies might reflect the change of student attitudes across time, changes in educational practices, or simply variation that is the result of unique characteristics of the sample. In this fashion, student reported reasons might act as a barometer registering changes that could direct future investigations.

Surveys and scales developed for use with adolescents have largely been developed and validated with youth in school. Hence, their reliability and validity among youth who are out of school is rarely known or reported. One way to test the adequacy of scales is with confirmatory factor analysis (CFA) procedures. CFA procedures can be used in situations where a researcher wants to test a hypothesis that particular observed variables link to the underlying factor that they purport to measure (Bollen, 1989; Hayduk, 1987). CFA begins by constructing a model that links measurement variables to

their associated factor. The model, which specifies the relationship between variables and factors, is then compared to actual observations and assessed for goodness of fit. The analysis estimates parameters of the model, i.e., the factor loadings, the variances and covariances of the factor. The analysis also estimates the residual error variances of the observed variables and correlations between factors. The degree of model fit can be used to accept or reject the hypotheses that scales and their variables adequately assess the underlying latent variable. A variety of goodness of fit statistics have been proposed for use in CFA (Loehlin, 1992). The Non-Normed Fit Index (NNFI) and the Normed Fit Index (NFI) have been used to assess for goodness of fit while taking into account both sample size and model complexity (Bentler & Bonnett, 1980). Bentler (1990a) revised the NFI to take into account distortions associated with smaller sample sizes and proposed the Comparative Fit Index (CFI). Bentler (1990b) has recommended the CFI as the index of choice in model evaluation and has suggested a value greater than .90 indicates an acceptable fit to the data. Values for the CFI can range from zero to 1.00.

A goal of multivariate analysis is a description of the relative influence of multiple variables on a dependent variable. Discriminant function analysis (DFA) can address this objective and offers several advantages when working with categorical dependent variables (Stevens, 1996). DFA procedures examine predictors (independent variables) and derive an equation that weights each independent variable. Variable weights are chosen such that their linear sum best separates subjects into their known category of the dependent variable. The weighted linear sum, known as a discriminant function, can be evaluated as to its ability to accurately classify subjects into groups. If the predictive ability of the discriminant function is better than chance, the discriminant

function can be seen as similar to a latent factor associated with the dependent variable categories. By evaluating standardized discriminant function coefficients, an indication of the partial contribution of the variable to the discriminant function while controlling for other independents entered into the equation, the relative contribution of a variable can be assessed. Meaningful variables can be retained and others, which contribute little to group distinctions, can be discarded. Similarly, an examination of the relative size of variable structure coefficients, correlations of each variable with the discriminant function, can assist in the naming of a discriminant function.

Allowing computer statistical packages to determine which variables are used in a discriminant function (known as *stepwise* methods) has been criticized because of the risk of capitalizing on sampling error (Snyder, 1991; Thompson, 1995). Stepwise methods choose the variable that has the most variance in common with the dependent variable as the first item in the discriminant function. The second variable is chosen on its ability to account for new and unique variance. Subsequent variables are chosen in the same manner until little unique variance among the predictors remains unexplained in the dependent variable. Such procedures rely exclusively on the data from which they are drawn. Sampling error alone may lead to the choice of one variable over another without any interpretation as to which variable might have a better chance of generalizing to other populations or more theoretical utility. Huberty (1989) has called for limitations in the use of stepwise methods but recognized the utility for their use in exploratory or preliminary analyses. He suggested the following cautions: 1) the number of variables should be limited to a manageable size; 2) that variables that have contributed little to predictive validity in previous studies be discarded; 3) that variables highly correlated

with other variables not be used; and, 4) variables that are judged not relevant to the present study be excluded.

Method

Sampling Procedure

The data examined in this dissertation were collected as part of the *Alcohol Use, Dropouts, and Indian Youth*[1] project by the Tri-Ethnic Center for Prevention Research at Colorado State University. Given the logistical and economic difficulties associated with a household or random sample across all tribes, tribes were sampled in clusters. Schools located at five different sites provided the initial subject pool. Four of the sites were located on federally recognized Indian reservations in the central or southwestern United States. A high school located in a mid-sized southwestern city and with a high percentage of American Indian students served as the fifth site. The geographic and community characteristics of schools used in this cluster sample can limit and potentially confound findings. However, the eight tribes that utilized the four schools located on these reservations are culturally diverse, widely separated geographically, and have varying degrees of isolation. The inclusion of a non-reservation based school from an urban setting broadened the representativeness of the subject pool.

Research Participants

The original sample of subjects in the *Alcohol Use, Dropouts, and Indian Youth* project consisted of 827 self-identified American Indians that were categorized into three school status groups: (1) students in good academic standing (retained), (2) educationally at risk-students, and (3) school dropouts. Dropouts were defined as seventh through 12th grade students with a period of school absence lasting for one month or longer and having had no contact with the school district or excused absences during that period.

[1] The support for this project was provided through grants from both the National Institute on Drug Abuse (P50 DA07074) and the National Institute on Alcohol Abuse and Alcoholism (AA 08302).

For each dropout, two additional students were identified. Both of these students were selected from the same school as the dropout and matched on ethnicity, grade in school and gender. One of these two students was further matched to the dropout based on GPA. This latter student was labeled as educationally at risk. In other words, being at-risk was defined as having a GPA that was similar to that of a student of the same age and sex who was classified as a dropout. Because of the extremely low GPA's for some dropouts, this match was as close an approximation as was feasible.

Incomplete surveys and missing age, gender, or school status group reduced the sample to 741 participants. Missing data and difficulties with *a priori* age matching in small communities resulted in a 10.3% reduction in subjects and an unequal distribution of ages across cells. Unequal cells presented the risk of violating assumptions for statistical analyses. Given that several variables (such as alcohol involvement and deviant behaviors) are known to be age-related, an uneven distribution of ages across the cells could confound results. To correct for these difficulties, the sample was systematically reduced in size to 519 participants. The reduction procedure involved identifying the gender by academic status cell with the lowest number of subjects at each age level. That number was used with the SPSS 4.0 (UNIX version) *sample* command to randomly select subjects from the remaining two cells. The result was an equal number of subjects in each of the three academic status groups at each age level. For the purposes of this study, only participants in the dropout and educationally at-risk categories were included in the analysis.

The subject pool was 59.5% female (n = 206) and 40.5% male (140). Each academic status group (dropouts and at-risk students) was comprised of 173 subjects.

The ages ranged from 13 to 21 with an overall mean age of 16.49 (sd = 1.32). The mean GPA's were 1.13 (sd = .91) and 1.40 (sd = .78) for the dropout and at-risk groups respectively. The current sample represents a sub sample of data used in the analyses by James et. al. (1995) and Bates (1994).

Materials

The survey utilized in the *Alcohol Use, Dropouts, and Indian Youth* project was a multiscale instrument developed by the staff at the Tri-Ethnic Center for Prevention Research. This 52-page survey took approximately an hour and a half to two hours to complete and contained multiple scales developed from previous projects. The present study utilized four scales from this instrument, several scales used by James et. al., and a number of single variable items.

Perceptions of teachers caring for self and caring for Anglos were assessed with two three-item scales. Items on these scales inquired as to the level teachers cared about the student and Anglos during grade school, junior high school, and in the student's most recent year in school. In a combined Anglo and AI sample, James et. al. (1995) reported internal consistency scores of .66 and .90 for teachers caring about self and teachers caring about Anglos respectively. In the current sample, teachers caring about self and teachers caring about Anglos had internal consistency scores of .72 and .93 respectively. A single item that inquired about the amount of help a student might get at school if they needed help. This item was rated on a four-point scale that ranged from *none at all* to *a lot*.

A two-pronged strategy was utilized to assess a linkage between behavior problems at school and academic status. First, participants were assessed with a five-

item scale that measures self-reported frequency of deviant behaviors. Items in this scale include questions about cheating in school, doing things teachers dislike, doing bad things, lying, and stealing. Such behaviors are likely to put a student at greater risk for being excluded from the school environment. Participants rated the frequency of these behaviors on a four-point scale ranging from *a lot* to *no*. This scale has been used with large samples of AI adolescents with reported internal consistency scores of .75 to .87 (Oetting et. al., 1984; Oetting et. al., 1988). Internal consistency in this sample was found to be .75. Specific consequences of problematic behaviors were assessed with three separate self-report items: number of times kicked-out of school; number of times sent to the office for being in trouble; and, frequency of skipping school. Skipping school was included as it may represent a way of avoiding consequences for misbehavior at school. Participants rated the frequency of these behaviors on a four-point scale ranging from *none* to *10 or more times*.

Alcohol involvement was assessed using a special clinical assessment form of the American Drug Survey™ (1990). This survey includes questions that inquire about lifetime prevalence of fifteen different substances, and use in the last 30 days of twelve different substances. An extended series of questions identifies patterns of alcohol and drug involvement.

The alcohol involvement scale utilized in this study was comprised of six indicator variables: frequency of alcohol use, how one drinks, self-identification as drinker, frequency of being drunk, when one was drunk, and whether or something *bad* was done while drunk. The first question asked how many days the youth used alcohol in the last month. Responses to a five-point scale ranged from *none* to *staying at least a*

little high most of every day. The second question assessed how the youth drinks. On a five-point scale a youth's responses could range from, *I never do it* to *until I get really drunk*. Self-identification as a drinker was measured on a six-point scale ranging from *non-drinker* to *a very heavy drinker*. Possible responses to the frequency of drunkenness question ranged from *none* to *10 or more times* over the last 30 days. Another question inquired as to the occasion for getting drunk (special parties, weekends, during the week, etc.). A final question assessed the number of times the respondent did something dumb while drunk. Responses on this item ranged from *I have never used alcohol* to *3 or more times*. This alcohol involvement scale, with slight variations, has been used in multiple studies with AI adolescents (Oetting, Beauvais, Edwards, & Waters, 1984; Oetting, Edwards, & Beauvais, 1985; Oetting, Beauvais, & Edwards, 1988; and Oetting, Swaim, Edwards, & Beauvais, 1989) with reported internal consistency scores ranging from .87 to .90. Internal consistency in this sample was found to be .91.

The level of Anglo and bicultural (Indian/Anglo) identification was assessed with the Oetting-Beauvais Cultural Identity Inventory (Oetting & Beauvais, 1990-1991). Anglo and Indian cultural identification were each assessed separately on four-item scales. The lead question measures the extent to which a person will follow a particular culture's "way of life." For example, the lead Indian identification question inquires: "Do you live by or follow the American-Indian way of life?" Similar questions inquire if the person's family follows a particular cultural path, if their family is a success in that path, and whether or not the person anticipates being a success in that path. The Anglo identity scale asked the same questions but in reference to the "...White-American way of life." Oetting and Beauvais (1990-1991), in their review of evidence for the reliability

and construct validity of this approach of assessing cultural identification, reported Cronbach alphas of .89 and .87 for AI scores on the Indian identification scale and Anglo identification scale respectively. Similar scores were found in this sample (.85 and .86, respectively).

All responses for this scale were scored on a four-point scale ranging from *a lot* to *not at all*. Total scores for items on each cultural identification scale range from four to 16. The Anglo and Indian scales were summed separately and divided by four to yield a single mean score for each scale. Youth with a score less than two points were considered to have a low level of identity for that identification. Medium cultural identification was between two and three points, while greater than three points indicated high cultural identity. Adding the final Anglo and Indian cultural identity scores and dividing by two resulted in the bicultural identity score. A bicultural identity score greater than three represented a high level of both Anglo and Indian cultural identity. Conversely, a score less than one indicated low levels of both Anglo and Indian identity.

Following James et. al. (1995), several language correlates were operationalized using a variety of self-report items. Childhood language use was measured with a two-item scale. One item inquired about how much the participant spoke a tribal language before starting school; the second asked how much that language was used between the ages of five and ten. Participants responded using a five-point scale that ranged from *never* to *all or nearly all of the time*. Although James et. al. reported an internal consistency score of .88 for their sample (which included both Anglo and AI participants, no other reliability or validity information was presented. The current sample, which was

drawn from the same pool of subjects as James et. al., had an internal consistency score of .85.

Proficiency of a tribal language was measured with four items from the Oetting-Beauvais Cultural Identity Inventory (Oetting & Beauvais, 1990-1991). These items assessed the degree to which a participant spoke, read, thought and dreamt using an Indian language. A typical four-point response scale for these items ranged from *not at all* to *very well*. James et. al. (1995) reported an internal consistency of .88. In the current sample, internal consistency was found to be .81.

Maternal identification was assessed with two self-report variables: how much the participant cared about their mother and how well they got along with her. Possible responses ranged from *a lot* to *not at all* and *very well* to *not at all*. Nineteen participants (nine of the dropouts and ten of the at-risk students) indicated they did not have a mother and were not included in the analysis related to this correlate.

Finally, dropouts rated a list of 22 reasons that may have played a role in their decision to leave school. Each reason was rated on a three-point scale (*very important, kind of important, not at all important*).

Procedure

Local project field locators identified dropouts at each site with the assistance of local school systems. Field locators contacted dropouts, obtained informed consent from the students and their parents, and administered the study survey in the school or other public building. Field locators subsequently identified at-risk students, secured a similar informed consent, and administered the study survey in the school setting.

Multiple precautions (such as separating identifying information from questionnaires, having students place completed surveys directly into envelopes and sealing them, prohibiting field locators from reviewing completed surveys, etc.) were taken to protect students' confidentiality and safeguard their rights as human subjects. All students were paid $20 for their participation.

Results

An ANOVA with gender and academic status as grouping variables tested mean differences on subjects GPA. The analysis yielded only a significant main effect for academic status, $F(1,265)=5.9$, $p < .016$. Dropouts reported a significantly lower GPA than academically at-risk students. The mean GPA (with standard deviations in parentheses) for dropouts was 1.13 (.915) and 1.40 (.784) for academically at-risk students. Although statistically significant, the small difference in GPA's may be of less practical significance($\eta^2=.02$). However, the large amount of missing data for this variable (50 dropouts, 30 at-risk students) calls into question the adequacy of matching subjects on GPA. Hence, actual differences in academic ability for this sample are not clear. Subsequent comparisons between academic status groups were conducted with this limitation in mind.

Confirmatory Factor Analysis

The scales proposed for use in this study were subjected to a confirmatory factor analysis (CFA) to determine their ability to fit the data. Scales with similar domains were tested in a single model with a separate latent factor specified for each scale. For example, the deviant behavior scale and school misbehavior items were combined into a single model. The variables associated with the deviant behavior scale were constrained to load on one factor. The variables measuring school misbehavior were constrained to load on another factor. If scales within each model demonstrated a sufficient fit, they were then subjected to a CFA model specifying all variables loading on only one factor. All of these more parsimonious models failed to adequately fit the data. If the initial model did not demonstrate sufficient fit, it was subsequently tested separately for each

gender group. The following scales demonstrated sufficient or better (CFI ≥ .90) fit for the entire sample: perception of teachers, deviant behavior, school misbehavior, Indian language proficiency, and childhood use of Indian language. Model fit statistics for those scales demonstrating sufficient fit are presented in Tables2 and 3. These tables also include correlations between scales within the same domain. Standardized factor loadings and residuals for the variables of each of the scales noted above are reported in Tables 4 through 8.

The CFA results of the Indian and Anglo cultural identity scales indicated they did not demonstrate and adequate fit for the sample (CFI=.864). However, a separate CFA by gender found the scales to represent adequate factors for males (see Table 4 for model fit statistics and Table 9 for standardized factor loadings and residuals for each variable). Neither the two-factor model (CFI=.827) nor a more parsimonious single factor model fit the data sufficiently for females (CFI=.355). These scales were not included in subsequent analysis for females.

Variables in the alcohol involvement scale failed to load adequately on a single factor resulting in a poor fit (CFI=.845) for this sample. Similar results were obtained with a CFA conducted separately by gender. CFA testing suggested a two-factor model might fit this data. Combining items from the alcohol involvement scale into two separate scales resulted in an excellent model fit (CFI=.997). The first factor included items assessing style of drinking, self-identified type of drinker, and frequency of having done something bad while drunk. The second factor contained items measuring frequency of alcohol use in the last month, frequency of drunkenness in the last month, and occasions for drinking over the last month. It is highly probable that findings from

this CFA are unique to the current sample and have limited ability to generalize to other groups. However, given the theoretical importance placed on the role of alcohol use in the literature related to American Indian dropouts, these scales were included in subsequent analyses. Model fit statistics for the alcohol involvement scales and standardized factor loadings and residuals for each variable are presented in Tables 4 and 8 respectively.

The two variables chosen to assess maternal identification were not subjected to a CFA. A two variable CFA is problematic because it requires more parameters to be estimated than are observed. Such a situation leads to an inadequate number of degrees of freedom required by the analysis. Given the exploratory nature of this study, these items were combined and used in the subsequent analyses. The combination of these two items resulted in an internal consistency of .71 for this sample. A single item variable assessing the perceived availability of help from teachers was also included in the subsequent analysis.

Tests for Gender and Academic Status Differences on Correlates

A series of ANOVA's (with sex and academic status as the grouping variables) were conducted on perception of teacher, deviant behavior, school consequences of misbehavior, Indian language, childhood use of Indian language, cultural identity (for males only) and alcohol involvement scale scores. Comparisons were also made on the summed maternal identification variables and the single variable assessing perceived availability of help from the teacher. To control for multiple comparisons the alpha level was set at $p < .01$. Means and standard deviations for these scales and items are reported in Tables 9, 10, and 11.

Two-way interactions between academic status and gender were not present across any of the scales or variables used in this analysis. Dropouts and males reported their teachers liking Indians less than academically at-risk students and females. No differences appeared across either gender or academic status for the scale assessing the perception that teachers liked Anglos. Academically at-risk students and females felt more liked by teachers than dropouts or males $F(1,334) = 15.885$, $p < .01$ and $F(1,334) = 22.735$, $p < .01$ respectively. The perceived availability of help in school did not differentiate academic or gender groups.

Males reported more deviant behaviors than females $F(1,343) = 25.371$, $p < .01$, but no differences were observed across academic status groups. However, males and dropouts reported higher levels of school misbehavior compared to females and at-risk students $F(1,343) = 11.891$, $p < .01$and $F(1,343) = 11.020$, $p < .01$ respectively.

Dropouts and males reported styles of alcohol involvement very similar to at-risk students and females. The frequency measure of alcohol involvement also failed to differ significantly between dropouts, at-risk students, males, and females. Levels of Indian, Anglo and bicultural identification for males did not differ across academic status groups. Of the two language measures, neither academic status group nor gender demonstrated any statistically significant differences. A youth's identification with their mother, as measured by two individual items, appeared to be similar for dropouts, at-risk students, males, and females.

Discriminant Function Analysis Predicting School Status

The next set of analyses conducted was a series of discriminant function analyses in which teacher liking Indians, teacher liking the youth, and school misbehavior were

used as predictors of students' school status. The order of entry for these predictors was not specified. In the absence of theoretical guidance as to which predictor might take precedence over other, the predictors were allowed to enter the analyses based on the strength of their association with academic status. Bivariate correlations between predictors are presented in Table 13. Perceptions of teachers liking Indians and liking the youth correlated significantly for males and females. School misbehavior and teacher liking the youth demonstrated a strong relationship for males but not females. Based on these findings and because of this study's emphasis on differences across gender, separate analyses by gender were conducted in addition to the total sample. The results of these three analyses are shown in Table 14.

The DFA for the total sample yielded three significant predictors: Teacher liking the youth, school misbehavior, and teacher liking Indians. The linear discriminant function generated by this analysis successfully classified 60.26% of this sample, 54.8% of dropouts, and 65.8% of academically at-risk students. The Indian language proficiency score was included in the linear discriminant function, but it contributed negligibly (the pooled within-groups correlation between this variable and the discriminant function was -.05). At-risk students were characterized by feeling more liked by teachers, reporting less school misbehavior, and feeling their teachers liked Indians more in comparison to students who had dropped out. The overall discriminant function developed from this sample accounted for 6.4 % of the variance in academic status.

Males demonstrated a similar pattern of predictors as was observed in the total sample. Compared to the total sample, a slight improvement in the correct classification

of academic status was noted. For males, predictors successfully classified 77% of the academically at-risk students and 59.7% of dropouts. The overall correct classification rate was 68.29%. The linear discriminant function formed from these three predictors accounted for 16% of the variance in academic status.

None of the four predictors reached a level of significance for females. The poor performance of these variables was reflected in a linear discriminant function that accounted for only 2.6 of the variance associated with academic status. Similarly, the predictive ability of the linear discriminant function was poor: 39.4% of the academically at-risk students and 52.6% of the dropouts were correctly classified. Overall, the discriminant function correctly classified only 56.61% of the females.

Student Reported Reasons For Dropping Out

Due to missing data, only 60% of the dropouts in this sample provided reasons for leaving school. That data is presented for males and females in Table 14. For males, making money for self, being kicked out of school, having bad grades were the first, second, and third reasons identified as *very important* in the decision to leave school. Not having friends was the most frequently endorsed reason that was *not at all important* in male's decision to dropout. For females, making money for self, making money for the family, and having a baby tied as the *very important* reasons for dropping out. Using drugs and alcohol were the most frequently endorsed reasons that were *not all important* in females' decision to dropout.

Discussion

These exploratory comparisons yielded a number of significant relationships between correlates of dropping out and academically at-risk students. Unlike comparisons between dropouts and students in academic good standing, these relationships tended to be less dramatic in both breadth and magnitude. Academically at-risk students reported feeling more liked by their teachers than dropouts did and reported perceiving their teacher as liking Indian students to greater degree than dropouts. At-risk students were less likely to have engaged in misbehavior at school. Misbehavior included skipping school, being sent to the office for being in trouble, and getting kicked out of school. At-risk students and dropouts scored similarly on several correlates despite the suggestions from the literature that they might do otherwise. For example, at-risk students did not score significantly different from dropouts on the perception that teachers liked Anglos, the perceived availability of help, alcohol involvement, deviant behavior, the early use of an Indian language, Indian language proficiency, and maternal identification.

While gender did not interact with school status and the correlates assessed, several gender differences did appear, most in the predicted direction. Females generally perceived being liked by teachers, both individually and because they were Indian, more than males did. As anticipated, females had significantly lower scores on general deviancy, school misbehavior, and frequency of drinking measures than males. However, females appeared no more identified with their mothers than males and their self-reported drinking style was not significantly different from males.

This study examined at least one correlate from each of the major correlate categories covered in the literature review. The majority of predicted differences arose from previous comparisons of dropouts to students in academic good standing, examinations of dropouts without comparisons to others, or generalization from AI youth with academic or behavioral difficulties. Three types of relationships between at-risk students and dropouts can be formulated to interpret findings from this exploratory study. On any given correlate of dropping out (or its opposite, school persistence), at-risk students might score the same as dropouts. That is, they might both share a correlate that distinguishes dropouts from students in academic good standing. Alternatively, at-risk students could be more like their peers who are doing well in school and less like dropouts. In this situation, it would be expected that at-risk students would be differentiated from dropouts on the same correlates that differentiate dropouts from students in academic good standing. Another possibility could have at-risk students score somewhere between dropouts and students in good standing on particular correlates. In this situation, at-risk students might not be much different from either group while at the same time not necessarily being similar.

The matching of students with similar academic abilities, gender, grade and age offered several promises. First, holding academic ability relatively equal offered the potential for a more powerful discernment of the features that distinguish dropouts from at-risk students. In other words, features that distinguish at-risk students and dropouts would not likely be attributable to the differences in academic abilities of students in good standing. Second, a characterization of academically at-risk students who persisted

in school might lead to interventions that help retain these students and offset the risk of dropping out.

In the domain of cultural correlates, two different types of factors were assessed: Cultural identification and language use. Findings about cultural identification were restricted to males because of the failure of the measurement model to fit the data from females. With regard to Indian cultural identification, male at-risk students did not significantly differ from dropouts. Both groups had relatively high levels of Indian identification. The failure of at-risk students and dropouts to differ on levels of Indian identification is consistent with the findings of Brandt (1992) who reported little differences in traditionalism between dropouts and school persisters. However, the absence of a protective effect for Indian cultural identification runs counter to the findings of Chan and Ostimer (1983) and Willeto (1999). Several studies have highlighted the association between Anglo cultural identity and school success. The findings from this study do not support that proposition for students of low academic ability. It may be that an Anglo cultural identification plays a more critical role for students without academic difficulties. Given the difficulty in fitting the measurement model to females, it is also possible that the scales did not have enough power or specificity to discern the distinctions between at-risk students and dropouts. The composite measure of bicultural identification displayed little association with school status in this sample of males. Youth in both groups tended to cluster around the middle part of the scale reflecting a typical combination of moderate to high Indian identity and low to average Anglo identity scale scores. A tentative conclusion would note that

among academically troubled students, Indian or Anglo cultural identification neither presents as a risk or protective factor for dropping out.

The lack of differences between dropouts and at-risk students on the language measures could be interpreted as an indication that the academic problems these youths share result from their similar language scores. However, most youth indicated a rather low frequency of both early childhood use and breadth of use of an Indian language. Over 70% of both school status groups reported either never using an Indian language or speaking only one or two words as a child. Similar percentages were observed for breadth of language use. Given the level and similarity of the percentages, it seems unlikely that academic problems would be the result of these factors. More likely, the low level of Indian language use in this sample simply precluded a strong association with school status,

Perceptions of teachers caring about students were the factors examined among the various correlates associated with student-school interactions. The finding that at-risk students were more likely than dropouts to perceive teachers as caring for them specifically and Indians in general, places at-risk students closer to students in good academic standing. In those few studies that compared students in good standing to dropouts, most found students perceived teachers as more caring and approachable. Perceptions of feeling cared for by the teacher appear associated with school persistence among students with academic difficulties. Conversely, perceiving teachers to be less caring for the youth is associated with dropping out. For the males in this sample, this variable held the greatest strength for predicting school status group membership.

Variables assessing the perception that teachers like the individual and liked Indians were highly interrelated. This was dramatically demonstrated in the DFA. After variance associated with the perception that teachers like the youth was extracted in the first step, so little unique variance remained in the teacher cares for Indians variable that it failed to enter the analysis at any later stages. The inability of this variable to enter as significant predictor of student-status group membership for females, may be the result of a generally high level of endorsement. Although the gender by student-status interaction was not significant in the ANOVA results, females in general were more likely to perceive teachers as caring.

The lack of significant differences between at-risk students and dropouts on perceptions that teachers care for Anglos and perceived availability raise several possibilities. James et. al. (1995) interpreted the presence of differential scores by dropouts and students on this variable as a possible indicator of experienced bias in the classroom. If that was an accurate association, then it would hold that whatever level of bias the youth in this study felt, it was not associated with dropping out. If high levels of bias were present, it would seem that perceived availability of academic assistance would be low. This was not the case with this sample. More than 70% of both groups reported they *got a lot* or *some* help when they needed it. At-risk students and dropouts scored similarly on this variable and, hence, it is not a correlate that either promotes or undermines school persistence among academically troubled youth.

The only factor assessed among the correlates associated with the family was the strength of maternal identification. Although no differences were detected across school-status group or gender, the quality of the two summed variables used to assess this factor

is questionable. The internal reliability of the combined items was low and no external studies point to the validity of using these two variables to assess level of maternal identification.

Among the behavioral correlates reviewed, alcohol involvement, misbehavior at school, and deviance were examined. Despite multiple references to an association between alcohol involvement and dropping out, no such relationship was found in the comparison between at-risk students and dropouts. This finding could be result of equal amounts of alcohol use among these two groups. Such a conclusion would imply that for academically troubled students, alcohol use is not a critical factor in the decision to leave school. Alternatively, alcohol involvement may play a role in the decision to drop out but the measurement methods used in this study did not capture that relationship. The difficulties with the original scales hint at that possibility. Given the alteration of the measures to conform to this sample, the finding of no relationship between alcohol involvement and school-status must be treated tentatively.

Dropouts demonstrated higher levels of misbehavior at school in comparison to at-risk students. Scores on this scale were negatively correlated with perceiving the teacher as caring. While misbehavior at school differentiated at-risk students from dropouts, a more general measure of deviancy did not. This might suggest that deviancy *per se* does not contribute to dropping out among academically troubled students as long as it does not manifest as misbehavior in the classroom. The measures of deviancy and school misbehavior were significantly correlated. As with perceptions of teachers, the correlation of scales may mask the most parsimonious interpretation.

Dropouts' reasons for leaving school give some insight into how this sample compares to samples reported in the psychological and educational literature. Dropouts in this study were constrained to rating the relative importance of 22 reasons for dropping out of school (see Table 14). Fifty percent of the male dropouts identified the need to make money as very important in their decision to dropout. Other reasons included being kicked out of school, having bad grades, and wanting to have fun. Females indicated that the most important reasons for leaving school had to do with family (having a baby, making money for the family, and make money for self). These reasons stand in sharp contrast to students in the *Navajo Area Student Dropout Study* (Brandt, 1992). Boredom with school was cited as the chief reason for dropping out, followed by problems with other students, and grade retention. Principal reasons for leaving school among youth sample by Dehyle (1992) included problems at home, difficulty with classes, and problems with reading. It would appear that the males in this sample are more focused on economic issues and females on the need to support a family than their counterparts from previous cohorts. These differences may reflect increased economic pressures among high school age students.

Implications

This exploratory study has implications for understanding some of the factors that may contribute to school persistence among AI students with academic difficulties. Three principal findings related to correlates may have implications for prevention and intervention programs. Students' perceptions that their teacher cares for them and Indians in general may provide the personal encouragement and support required to offset the struggle associated with academic difficulties. Mentoring programs and teacher

training strategies can be utilized to strengthen the student-teacher relationship. Perceiving the teacher as caring accounted for the most variance in the DFA. However, intervention programs aimed at minimizing or precluding student misbehavior in the school environment could offer two advantages. First, such program may facilitate the perception of being cared for by the teacher. It would not take too many trips to the office or expulsions to get the feeling of not being cared for by a teacher. Second, results of the DFA indicate that self-reports of misbehavior in school appear to include unique variance associated with school status but unassociated with perceptions of the teacher as caring. Misbehavior in school, regardless if one perceives his or her teacher as caring, will likely increase the potential of being "pushed out" of school.

The failure of two measurement models to fit this population raises important questions about the use of scales, even those with a history of reliability and validity, in exploratory research. The alcohol involvement scale and, with females, the cultural identification scales failed to measure the constructs they were designed to assess. It is simply not enough to assume that if a scale demonstrates acceptable reliability, that it indeed measures the implied construct. The failure of these two scales, both of which have previously performed well with AI adolescents, raises three possibilities. First, their failure could be the function of a unique youth sample and unrelated to being comprised of academically troubled students and dropouts. Alternatively, that the sample was comprised of academically troubled youth and dropouts may indicate that the measurement methods have less precision these groups than with regular students. Finally, the use of scales with a small number of items, despite demonstrated internal consistency, may simply not be adequate for measuring constructs such as alcohol

involvement and cultural identification. Using CFA procedures as routinely as checks for internal consistency could prevent misinterpretation associated with measurement error.

Finally, the DFA failed to develop a discriminant equation that even modestly predicted school-status group membership for females. Despite an effort to assess gender differences among correlates of dropping out, little information emerged about relative influence of the differences between female at-risk students and dropouts. Given the lower levels of school misbehavior in females and the failure of the cultural identity scales to be determined valid for this group, females have left with a group of correlates more likely to differentiate males only.

Limitations

In addition to possible limitations already cited, there are multiple reasons why the results of this exploratory study should be treated with caution. As with any large-scale survey, self-selection processes may result in a less than representative sample. Difficulties were encountered in matching dropouts to students of similar grade, gender, and academic abilities. The uneven distribution of students and dropouts across gender and age categories required a post-hoc correction. It is possible that the cure was worse then the problem; attempts to balance the uneven distribution across cells may have introduced a bias that confounded results. Even after a complicated process of matching the age and gender of students across cells, the difficulties in obtaining the desired match was demonstrated by the difference in GPA between the two student status groups. Missing data presented a further possible confounding of results.

As with many studies of an exploratory nature, multiple statistical comparisons run the risk of capitalizing on chance. Although some precautions were taken to

minimize spurious results, such as reducing the alpha level, the sheer number of comparisons raises the possibility of type I error. DFA in particular has been criticized for capitalizing on chance.

Another limitation involves the number and types of correlates chosen for these analyses. A large number factors have been suggested in the literature and it is quite possible that some factors differentiate at-risk students and dropouts to a greater degree than those chosen. It is also possible that an untested correlate moderates the influence and perhaps better accounts for the variability observed in the perceived teacher caring variable.

Finally, the complicated logistics of fieldwork that involves such hard to reach subjects as dropouts can lead to missing data. Missing GPA's accounted for the largest amount of missing data in this study. Its absence highlights the difficulty in obtaining information from schools about student performance.

Future Research

Given the difficulty inherent in large-scale survey research with dropouts, future research might be directed at smaller studies and analysis of existing data sets. Smaller community based studies that both track school leaving and offer preventive interventions may offer better opportunities for assessing the relationship between various correlates of dropping out. For example, mentoring programs might include an outcome component that also addresses specific research questions related to dropping out. Sample size limitations may call for creative research design. An outcome review of mentoring programs with AI students may provide additional insight into the benefits of this approach for protecting academically at-risk students from becoming dropouts.

- The cost, logistics, and effort required for large studies argue for careful attention to existing data sets.

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Table 1
Hypothesized Relations of Predictors to Gender and School Status (Dropout or Academically At-Risk)

Predictor	Gender	School Status
Perceptions of Teacher		
Liking Indians	Higher for females	At-risk students higher than dropouts
Liking Anglos	Higher for males	Dropouts higher than at-risk students
Liking Self	Higher for females	At-risk students higher than dropouts
Willing to Help	Higher for females	At-risk students higher than dropouts
Deviancy	Higher among males	Higher for dropouts than at-risk students
School Misbehavior	Higher among males	Dropouts higher than at-risk students
Alcohol Involvement	Higher among males	Higher for dropouts
Anglo Identification	No difference	At-risk students higher than dropouts
Indian Identification	No difference	No difference
Bicultural Identification	No difference	At-risk students higher than dropouts
Childhood Use of Tribal Language	Higher among males	Dropouts higher than at-risk students
Tribal Language Proficiency	No Differences	Dropouts higher than at-risk students
Positive relationship with Mother	Higher for females	At-risk students higher than dropouts

Table 2
Summary of Confirmatory Factor Analysis: Perception of Teachers and Deviancy

Model and Factors	Fit Indexes χ^2	df	$\chi^{2/df}$	NNFI	NFI	CFI	Factor Correlations Factor 1	Factor 2
Perception of Teachers	112.6	24	4.69	.929	.941	.953		
F1: Teachers Like Indians								
F2: Teachers Like Anglos							.39	
F3: Teachers Like Youth							.30	.64
Deviancy	68.43	19	3.60	.885	.896	.922		
F1: Deviant Behavior								
F2: School Misbehavior							.58	

Note. NNFI = non-normed fit index; NFI = normed fit index; CFI = comparative fit index

Table 3
Summary of Confirmatory Factor Analysis: Alcohol Involvement, Cultural Identity, and Indian Language

Model and Factors	Fit Indexes χ^2	df	$\chi^{2/df}$	NNFI	NFI	CFI	Factor Correlations Factor 1	Factor 2
Alcohol Involvement	13.16	8	1.65	.994	.991	.997		
F1: Style								
F2: Frequency							.75	
Cultural Identity*	57.71	19	3.04	.885	.890	.922		
F1: Indian Identity								
F2: Anglo Identity							.51	
Indian Language	50.83	8	6.35	.914	.947	.954		
F1: Early Childhood Use								
F2: Proficiency							.81	

Note. * = Results are for males only; Note. NNFI = non-normed fit index; NFI = normed fit index; CFI = comparative fit index

Table 4
Confirmatory Factor Analysis Standardized Factor Loadings and Residuals for Perceptions of Teachers

Indicator	Total Sample (N = 346)	
	Factor Loading	Residual
Teachers Like Indians		
In 7th Grade	.823	.567
In Jr. High	.932	.364
Last Year	.756	.655
Teacher Like Anglos		
In 7th Grade	.878	.479
In Jr. High	.971	.241
Last Year	.851	.526
Teacher Like Student		
In 7th Grade	.714	.700
In Jr. High	.583	.813
Last Year	.793	.609

Table 5
Confirmatory Factor Analysis Standardized Factor Loadings and Residuals for Deviancy

Indicator	Total Sample (N = 346)	
	Factor Loading	Residual
Deviant Behavior		
Cheat In School	.563	.826
Do Things Teachers Dislike	.592	.806
Do Bad Things	.686	.727
Lie to People	.621	.783
Steal Things	.614	.789
School Misbehavior		
Skipped School	.572	.820
Kicked Out of School	.595	.804
Sent to Office For Trouble	.797	.604

Table 6
Confirmatory Factor Analysis Standardized Factor Loadings and Residuals for Alcohol Involvement

Indicator	Total Sample (N = 346)	
	Factor Loading	Residual
Style of Involvement		
How Do You Drink	.906	.424
Type of Drinker	.890	.456
Do Something Bad When Drunk	.690	.724
Frequency of Use		
Alcohol Use In Last Month (# of days)	.814	.392
Drunk Last Month (# of days)	.901	.434
When Drunk Last Month	.814	.581

Table 7
Confirmatory Factor Analysis Standardized Factor Loadings and Residuals for Cultural Identity

Indicator	Males (N = 140)	
	Factor Loading	Residual
Indian Cultural Identity		
Family Lives Indian Way	.832	.555
Youth Lives Indian Way	.907	.420
Family a Success In Indian Way	.597	.820
Youth a Success in Indian Way	.697	.717
Anglo Cultural Identity		
Family Lives Anglo Way	.828	.561
Youth Lives Anglo Way	.899	.438
Family a Success In Anglo Way	.599	.801
Youth a Success in Anglo Way	.623	.782

Table 8
Confirmatory Factor Analysis Standardized Factor Loadings and Residuals for Indian Language Use

Indicator	Total Sample (N = 346)	
	Factor Loading	Residual
Indian Language Proficiency		
Speak Indian Language	.798	.602
Read Indian Language	.692	.722
Think in Indian Language	.661	.751
Dream in Indian Language	.655	.756
Early Childhood Use of Indian Language		
Indian Language Before 5	.905	.425
Indian Language 5-10 Years Old	.828	.561

Table 9
Perception of Teacher and Deviancy Scales: Means and Standard Deviations

Domain and Scales	Dropouts (N = 140) Total (N = 173)	Dropouts (N = 140) Males (N = 70)	Dropouts (N = 140) Females (N = 103)	At-Risk Students (N = 206) Total (N = 173)	At-Risk Students (N = 206) Males (N = 70)	At-Risk Students (N = 206) Females (N = 103)
Perception of Teacher						
Teacher Likes Indians[1,2]	9.35	8.59	9.85	9.95	9.82	10.04
	(2.12)	(2.36)	(1.96)	(1.97)	(1.86)	(2.05)
Teacher Likes Anglos	10.28	10.04	10.45	10.57	10.19	10.82
	(2.16)	(2.15)	(2.17)	(2.12)	(2.16)	(2.08)
Teacher Likes Youth[1,2]	9.02	8.11	9.64	9.85	9.53	10.07
	(2.26)	(2.42)	(1.92)	(1.71)	(1.72)	(1.67)
Deviancy						
Deviant Behavior[2]	9.21	10.14	8.58	9.08	10.04	8.42
	(3.00)	(2.96)	(2.88)	(2.97)	(3.32)	(2.53)
School Misbehavior[1,2]	7.19	7.96	6.67	6.40	6.58	6.28
	(2.37)	(2.17)	(2.37)	(2.00)	(2.03)	(1.98)

Note: Means are on top, standard deviations on the bottom; [1]= dropouts and at-risk students differ significantly ($p < .01$); [2]=males and females differ significantly ($p < .01$)

Table 10
Alcohol Involvement, Cultural Identity, and Indian Language: Means and Standard Deviations

Domain and Scales	Dropouts (N = 140) Total (N = 173)	Dropouts (N = 140) Males (N = 70)	Dropouts (N = 140) Females (N = 103)	At-Risk Students (N = 206) Total (N = 173)	At-Risk Students (N = 206) Males (N = 70)	At-Risk Students (N = 206) Females (N = 103)
Alcohol Involvement						
Style of Drinking	2.80	2.94	2.72	2.66	2.74	2.61
	(1.00)	(1.05)	(.96)	(1.03)	(1.21)	(.87)
Frequency of Drinking	2.25	2.49	2.08	2.14	2.27	2.05
	(1.16)	(1.16)	(1.14)	(1.11)	(1.20)	(1.04)
Cultural Identity[3]						
Indian Cultural Identity		2.89			2.99	
		(.93)			(.73)	
Anglo Cultural Identity		2.72			2.55	
		(.97)			(.93)	
Bicultural Identity		1.94			1.77	
		(.69)			(.68)	
Indian Language						
Childhood Use of Indian	4.00	3.97	4.01	3.88	3.98	3.82
Language	(2.40)	(2.32)	(2.46)	(2.13)	(2.13)	(2.18)
Indian Language	7.61	7.40	7.75	7.46	7.27	7.59
Proficiency	(3.38)	(3.45)	(3.35)	(3.18)	(3.00)	(3.30)

Note: Means are on top, standard deviations on the bottom; [1]= dropouts and at-risk students differ significantly ($p < .01$); [2]=males and females differ significantly ($p < .01$); [3]=These scores were computed for males only.

Table 11
Maternal Identification and Perceived Availability of Help at School: Means and Standard Deviations

Domain and Scales	Dropouts (N = 140)			At-Risk Students (N = 206)		
	Total (N = 173)	Males (N = 70)	Females (N = 103)	Total (N = 173)	Males (N = 70)	Females (N = 103)
Maternal Identification	7.11	7.21	7.03	7.28	7.36	7.21
	(1.30)	(1.08)	(1.45)	(1.17)	(1.04)	(1.25)
Perceived Availability of Help in School	1.76	1.86	1.69	1.72	1.73	1.71
	(.73)	(.82)	(.66)	(.76)	(.74)	(.60)

Note: Means are on top, standard deviations on the bottom; [1]= dropouts and at-risk students differ significantly ($p < .01$); [2]=males and females differ significantly ($p < .01$)

Table 12
Correlation among Predictors for Males and Female Participants

Predictors	Teacher Likes Youth	School Misbehavior	Teacher Likes Indians	Indian Language Proficiency
Teacher Likes Youth	-	-.15	.51*	.12
School Misbehavior	-.31*	-	-.06	-.06
Teacher Likes Indians	.60*	-.20	-	.01
Indian Language Proficiency	.18	-.13	.04	-

Note: Scores above the diagonal are for females; those below are for males. * = $p < .01$ (two-tailed).

Table 13
Predictor F-Values in Discriminant Function Analyses among School-Status Groups, Full Sample and Gender Subgroups

Predictor	Total N = 312	Males N = 123	Females N = 189
Teacher Likes Youth	15.44**	15.81**	3.64
School Misbehavior	9.07*	10.95**	1.63
Teacher Likes Indians	7.02*	9.13*	.93
Indian Language Proficiency	.06	.00	.07

Note: ** = $p < .001$, * = $p < .01$

Table 14
Dropouts' Reasons for Leaving School

Reason	Males (N = 44)			Females (N = 57)		
	Very Important	Kind of Important	Not At All Important	Very Important	Kind of Important	Not At All Important
Make Money for Self	50	21	30	29	18	54
I Was Kicked Out	35	28	37	19	19	61
Grades Bad	34	36	30	22	40	38
Have Fun	34	32	34	19	26	54
To be Free	32	39	30	26	21	53
To be with Friends	30	27	43	12	30	60
Hated School	23	46	32	20	36	45
Did Not Like Teachers	22	39	40	18	33	49
Make Money for Family	18	27	55	29	11	61
Couldn't Rise in AM	18	39	43	16	28	56
School was Hard	18	34	48	11	33	56
Always Late	16	43	41	11	33	56
Have a Baby	12	16	72	29	10	60
Get Married	11	16	73	14	5	80
Teachers Did Not Like Me	10	25	65	7	18	75
Was Unhappy	9	30	61	17	14	69
Was Lonely	9	14	77	11	14	75
Used Drugs Too Much	9	14	77	9	7	84
Used Alcohol Too Much	9	18	73	9	12	79
Was Angry	6	25	68	9	18	74
Was Sick	5	21	75	9	14	77
No Friends at School	2	9	89	14	14	72