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# School Achievement and Dropout among Anglo and Indian Females and Males: A Comparative Examination[1]

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> *Tokalakiya wounspe yuha unyanpi kte.* ("Into the future we must go with education.")
> —From a poster by Michael Lee Willcuts for the Black Hills Special Services Cooperative

Regardless of the specifics they might emphasize, commentators seem to agree that basic skills are the key to individual and community success. Basic skills, such as reading and mathematics, are the foundation for learning other skills and for effective functioning.[2] Unfortunately, many students in the American educational system are not mastering the types of skills they and their communities need. A major aspect of this problem is school dropout, and nowhere is this a bigger issue than among Native American (American Indian) groups. Native American youth

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have historically had the highest elementary, secondary, and college dropout rates of any major racial group, and this continues to be true today,[3] although these rates vary across tribes.[4] Native females may also now be dropping out before graduating from high school at higher rates than Indian males.[5] Although more native females than native males graduate from college, they are less likely than native males to receive training in the highest status and best paying types of skills.[6] Clearly, improved educational success is needed to ensure the survival, the economic and social opportunity, and the success of native individuals and tribes.

The current dropout rate among Native Americans prior to high school graduation is between 36 percent and 50 percent.[7] At 15 to 17 percent, the dropout rate for whites is substantially lower. Interestingly, so, too, is that for African Americans (about 22 percent to 24 percent).[8] Obviously, then, research on the causes of the high rate of Indian dropout is important, as is research on poor school achievement by many Indian students. The two are related, of course, since poor achievement can promote dropping out.

Until now, however, research on these issues has been limited in quantity and scope and often of poor methodological quality.[9] The majority of the existing research has been qualitative, employing only descriptive statistics, if any.[10] While qualitative approaches have their value, they need to be matched with sound quantitative studies if we are to achieve a good understanding of the forces behind academic outcomes for Indians. Bowker,[11] for instance, presents interesting qualitative longitudinal results of studying 991 Indian females. Yet she ends up concluding that several factors (e.g., coming from a traditional family) sometimes have negative implications for school success and sometimes do not. Under what circumstances (individual or environmental) these factors have negative implications and under what circumstances they do not is not specified, however, and probably never could be from purely qualitative data.

Another major problem with the existing studies is the frequent failure to include appropriate nondropout, particularly successful, Indian and non-Indian student comparison groups. This makes it difficult to clarify which factors are associated with poor academic performance or leaving school and which factors are common among, and which have different effects across, racial groups. Similarly, as noted above, there are some indications of

differences in educational outcomes for female and male Native American and non-Indian students. Yet gender differences have rarely been examined in studies of Indian education. Failure to include gender as a variable obscures possible gender by race differences on predisposing factors for academic problems.

The research reported here attempts to address these gaps in our knowledge. It is a quantitative comparative study among Indian and non-Indian males and females on the influence of various factors on academic achievement in high school, and on dropping out of school. We examine whether different factors predict good versus poor achievement and dropping out, across the four race by gender (Anglo female, Anglo male, Indian female, Indian male) groups, in the hope of understanding similarities and differences in the school paths of these groups. The factors examined were ones for which there are some (although generally poorly substantiated) indications of differential effects across racial groups or gender on school performance and school leaving.

Of the many reasons that have been advanced for individuals' academic struggles and leaving school, there are indications that some factors have unique effects on Indian youth, in general, or interactive race by gender effects. These are language skills and tendencies, cultural identity, and biased treatment in mainstream educational systems.[12] We examine these further, one by one, below. Language and cultural identity (as well as race and gender) are variables whose effects may be at least partially mediated by bias. Thus we discuss language and cultural identity first, before proceeding to a discussion of bias in schools.

## LANGUAGE

The extent to which a language other than English is typically the first language for native children varies widely. For example, in the 1990 U.S. census, 71.2 percent of Navajo people reported that English was not their main language at home; but among the Wisconsin Oneida, the figure was only 1.4 percent.[13] Despite such differences in language use, it seems generally more likely that Indian children will have English as a second language than will white children, with all of the potential problems this implies for academic achievement in mainstream schools. Even among Indian youth who do not speak the language of their tribe, there are

often vestigial survivals of tribal grammar and style that can limit apparent English fluency.[14] Language difficulties have been directly shown to inhibit academic achievement among Indian youth.[15] Language differences from teachers and peers may also help promote stereotyping and bias.[16] Moreover, since use of traditional language is associated with academic struggles, experiences of bias, and cultural traditionalism, having a language other than English as one's first language but being placed in a monolingual English school may promote negative feelings toward school or self.[17] Historically, both Bureau of Indian Affairs schools and public schools (as well as other institutions of mainstream society) used coercion and punishment to enforce prohibitions against using tribal languages. Those families that maintained traditional language in the face of this treatment are likely to be distant from and skeptical about mainstream society[18] and are likely to communicate and model this attitude to their children. For these reasons, language skills and language use patterns are likely to predict dropout among native children in English language schools.[19]

## CULTURAL IDENTITY

Culturally based values may also create problems for native individuals and females in dealing with Euro-American and male-oriented educational and organization training systems.[20] Public education in most parts of the U.S. is based largely on individualism, interpersonal competition, and other Western norms and values. These approaches can be antithetical to the values of native people[21] and may be especially negative for native women.[22] Thus, it has been suggested that group-based and cooperative forms of education may be more effective for them than the more common individualistic/competitive approaches.

Educational methods based on Euro-American values can be difficult for Native Americans for reasons other than individualism. King and Sanders argue that incompatibility between Indian norms and cultural values and those held by white teachers or classmates (for example, in relation to appropriate nonverbal communication patterns) leads to conflict between white teachers or peers and native students, as well as bias against, and feelings of stress for, the latter.[23] The authors assert that these are major causes of academic failure among native students.[24]

In addition to culturally based value conflicts, perceptions that science, technology, and history are biased against one's group or are the source of historic damage to that group's culture and well-being are a potential source of negative attitudes toward educational and other mainstream institutions.[25] It is well known that, from at least the late 1800s through at least the 1950s, federal policy was aimed at promoting the full assimilation of native groups and individuals into mainstream U.S. society. Efforts were made consistently to break down traditional cultures and social patterns through, among other things, forced "education" aimed at inculcating the values and norms of mainstream American society.[26] In essence, the policy in Bureau of Indian Affairs boarding schools, in mission schools, and in other types of schools was to eliminate native ways.[27] Education in the sense of imparting knowledge and skills typically took second place, at best. While a few parents agreed or even desired to place their children in these facilities, many were coerced into sending them. Although the most extreme version of this approach has gone out of fashion, many of its elements persist today.[28] An association of education with culture loss and outgroup dominance was established that continues to some extent today.[29] The role of cultural conflicts and cultural identity in dropout among Indian students is still controversial,[30] but several studies[31] do support that role.

Given all of this, we believed it was reasonable to expect that stronger cultural identification with Indian heritage and culture, which clearly should be more common among Indian youth, might promote poor academic performance and dropping out. On the other hand, stronger identification with Euro-American society and culture might promote success in school. That is, in mainstream schools organized and operated in accordance with mainstream norms and values, greater adherence to mainstream culture should promote success. Euro-American cultural identity should be generally more likely among white youth but also exists to some extent among many native adolescents.[32] It seems reasonable that Indian students with relatively high Euro-American cultural identity should succeed better in, and be less likely to leave, mainstream schools than those with relatively low Euro-American cultural identity.

Interestingly, though, and contrary to part of the argument made above, Oetting and Beauvais[33] found that identification with either Indian or mainstream (i.e., Euro-American) culture promoted successful adjustment to mainstream schools among a

group of seventh- to twelfth-grade Indian students; only those with weak identification with both cultures showed poor adjustment. Moreover, this pattern was strongest for Indian males. That is, Indian males with low identification with both cultures exhibited poor school adjustment, but this was less true among Indian females. Thus, we have two alternate possibilities from past research: that higher levels of Indian cultural identity will have a negative relationship to school success, while higher levels of non-Indian cultural identity will have a positive relationship to it; or that both types of cultural identity will have positive relationships to school success and that relatively strong cultural identity is most important among Indian males.

## Bias Experiences in School

As noted above, cultural conflicts and language differences/difficulties can promote bias. Minority children generally seem to receive less positive feedback (e.g., verbal praise, smiling) and more negative feedback (e.g., interruptions, nonverbal signs of disdain) from teachers than do nonminority children.[34] Brandt found that relationship problems with teachers were cited as a reason by 25 percent of Indian students who were considering dropping out of school.[35] This biased treatment seems to be based on beliefs (often unconscious) held by teachers about the ability and deservingness of minority children.[36] In particular, stereotypes still indicate that native children are less capable than Euro-American children. They also promote the idea that Indian children are more inclined toward and apt at arts and crafts than intellectual pursuits. Whether clearly negative or condescendingly positive, such stereotypes can lead to a lack of intellectual challenge and stimulation that helps mitigate against intellectual interest.[37]

Native children also typically score less well on standardized tests of intelligence and skill than their Euro-American counterparts. There is substantial evidence that such tests underestimate the true abilities of native children because of language difficulties, value and normative influences, and inhibiting social and physical conditions in the home and in schools.[38] Despite their questionable accuracy with native children, standardized test scores can lead to a negative perception of native children on the part of teachers that reinforces stereotypes and leads to subtle and

not-so-subtle derogatory messages. These patterns can set up self-fulfilling prophecies wherein teachers' negative expectations and negative messages help trigger relatively poor performance and predispose Indian students to drop out both because they are struggling academically and because they are being socially slighted.[39]

Girls also typically receive less encouragement and support from teachers than boys, especially in stereotypically "masculine" subjects like mathematics.[40] Thus, minority females may experience the most school bias, because they are subject to both racial and gender stereotypes.[41] Congruent with this, Harbold and James found that native females had the most negative attitudes toward mathematics and science education of either gender in any of the five major U.S. racial groups.[42] These negative attitudes were associated with self-selection away from math and science in Harbold's and James' sample. These results seem consistent with the possibility that native females experience even more bias in school than native males.

On the other hand, it has been reported that the stereotypes of Indian females held by outsiders are sometimes more "positive" (at least in the minds of the outsiders who hold them), if condescendingly so, than those of Indian males. That is, Indian females are sometimes seen as "exotic," "princesses," or "acquiescent," while Indian males are sometimes seen as physical, surly, and aggressive.[43] This implies that Indian males may tend to be subjected to a more intense type of teacher bias than Indian females.

Based on the foregoing, it was expected that perceived bias by teachers will be higher toward native than nonnative youth. Two possibilities were generated for how students' gender would affect the relation of teacher bias to school outcomes: first, that it would tend to predict academic problems most strongly among native females because of negative teacher expectations about academic potential associated with both gender and racial stereotypes; or, second, that it would predict most strongly for Indian males because of broader and more intensely negative stereotypes about them.

Table 1 summarizes how predictors of school success were expected to differ across race and gender groups and how predictors were expected to relate to school status (i.e., in school and successful, versus in school but struggling, versus having dropped out).

## METHODS

### Subjects

The subjects were 1,607 Indian and Anglo dropouts and currently enrolled middle and high school students from seven school districts in the central and southwestern U.S. The Anglo subjects came from a small midwestern city and part of the surrounding county with a population of about 100,000, a more rural Oklahoma district serving a population of about 30,000, and a district covering a metropolitan area of about 500,000 people. The latter two districts also had relatively (compared, that is, to national averages) high percentages of Indian students, and parts of the Indian sample was recruited from them. The remaining Indian participants were from four school districts that encompassed tribal reservations. Even in the reservation schools, the teachers were mainly non-Indian. English was the primary language of instruction in all schools. Racial group memberships (as well as gender) were self-identifications. Racial memberships were largely objectively verifiable, though, because a large percentage of Indian participants were enrolled tribal members residing on reservations. There were 134 successful Anglo females, 128 successful Anglo males, 135 successful Indian females, and 113 successful Indian males[44] in the total sample; at-risk Anglo females numbered 116, at-risk Anglo males 121, at-risk Indian females 137, and at-risk Indian males 122; there were 161 Anglo female dropouts, 175 Anglo male dropouts, 160 Indian female dropouts, and 105 Indian male dropouts.

Dropouts were defined as students who had, according to school records, had been absent without excuse from classes for at least one month. Because all individuals whose data were used had direct contact with members of the research team, we were able to insure that the "dropout" category of subjects included only individuals who truly had left school, as opposed, for example, to individuals who had transferred to a new school without notifying their old one. It is still possible, though, that some of our "dropouts" had actually been "pushed out" by the schools rather than making the choice to leave themselves.

For each dropout, two comparison subjects were then identified. A successful in-school comparison student was selected at random from those students still enrolled at the dropout's last school who were at the grade level that the dropout should normatively have achieved, and who matched the dropout in age, sex, and race.

An at-risk but in-school comparison student was also selected. This individual matched the dropout on the characteristics just listed and also had a GPA close to that of the dropout during her/his last full grade period in school. Matching on GPAs was used in an effort to control for academic difficulty as a reason for leaving school.

All participants were volunteers. Dropouts, who completed the surveys at home in the presence of a field research assistant, were paid twenty dollars for participating. The two student groups, who completed the surveys at school in the presence of a research assistant, were paid ten dollars each. Different levels of payment were used because inducing dropouts to participate was more difficult than garnering participation from the in-school subjects.

## Variables

Cultural identification was operationalized using the six-item American Indian identity and the six-item Anglo/White identity subscales of the Oetting-Beauvais Cultural Identity Inventory.[45] Oetting and Beauvais[46] present a great deal of evidence for the reliability and validity of this inventory. A sample item is, "Some families have special activities or traditions that take place every year at particular times. . . . How many of these special activities or traditions does your family have that are based on American-Indian culture?" Each item was rated for applicability to the respondent on a four-point scale anchored by "none at all" or "not at all" and "a lot." Each subject received two cultural identity scores, one for strength of Indian cultural identity and one for strength of Anglo cultural identity. The internal consistency (Cronbach's Alpha) of the Indian cultural identity items in the current sample was .94. For the Anglo cultural identity items, it was .89.

Language aptitudes and tendencies were operationalized using five different sets of self-report items. First were five-item subscales for English proficiency and for tribal language proficiency from the Oetting-Beauvais Cultural Identity Inventory (none of the items here were part of the Indian and Anglo Identity subscales described above). A sample item asked, "How well do you read in (an Indian language)?" Each subject received separate scores for English proficiency and for tribal language proficiency. In this sample, the internal consistency of the English proficiency items was .71; for the tribal language proficiency scale, it was .88. The third language score was for breadth of use of English rather

than pure proficiency. This came from a seven-item subscale of the Oetting-Beauvais Cultural Identity Inventory. This subscale asked, "How much time do you speak English in each of the following places?" Subjects provided separate ratings for each of the following situations: in class; at school between classes; with parents; with siblings; with close friends; with age-mates who were not close friends; and with adults who were not friends or family members. The internal consistency of these items was .90.

Two other language scores were obtained to examine early-life language history. There were separate two-item scales for English use in childhood and for use of a tribal language in childhood. One item for each language asked how much the individual had spoken the language before starting school; the second asked how much time the individual had spoken the language between ages five and ten. Subjects responded using a five-point scale that ranged from "never" to "all or nearly all the time." The result was separate early-life use scores for English and tribal language for each subject. Both the childhood English use items and the childhood tribal language use items had internal consistencies of .88.

Experienced bias was assessed with three scales of three items each and an additional one-item measure. Three items asked for rating of perceptions of how much teachers had cared about the participant individually, first in grade school, then in the seventh grade, and then in the individual's most recent year of school. These items had an internal consistency of .66. Three items asked for rating of perceptions of how much teachers liked white students at each of the same three grade levels. The internal consistency for these items was .90. Another three items asked for ratings of perceptions of how much teachers liked Indian students at the same three grade levels. Internal consistency for these items was .89. A final item asked whether the individual had been able to get help in school when it was needed. All of these items were rated on four-point scales that ranged from "none at all" or "not at all," to "a lot."

## RESULTS

### Tests for Race and Gender Differences on Predictors

A repeated-measures ANOVA with race and sex as the grouping variables yielded only a significant language-type by race interaction on the two childhood language use scores, $F(1, 1457)=20.15$,

$p<.001$. Indian subjects reported substantially higher childhood use of a tribal language than Anglos, while Anglos reported slightly higher childhood use of English than did the Indian participants.

Scores for breadth of current use of English also differed significantly across Anglos and Indians, $F(1,1647)=47.80$, $p<.001$. As would be expected, Indian adolescents reported less use of English than did white adolescents. Neither the main effect of gender nor the interaction of sex and race was significant. A repeated-measures ANOVA on the two current language-proficiency scores yielded two-way interactions between sex and race, $F(1, 1064)=5.10$, $p<.05$, and between language type and race, $F(1, 1064)=195.74$, $p<.001$; and a three-way interaction of language type, sex, and race, $F(1,1064)=12.52$, $p<.001$. The main effect of race was attributable to the outcome of the language by race interaction. Indian youth reported substantially better proficiency with a tribal language than did Anglos; but the two groups were much closer in their scores on reported English proficiency (5.43 for Indians, 4.57 for Anglos). Scores for the cells formed by the significant three-way interaction of race, sex and language showed that Anglo females reported somewhat better English proficiency but somewhat less tribal-language proficiency than Anglo males. On the other hand, Indian females reported greater proficiency on both types of language than did Indian males.

### *Cultural Identity*

A repeated-measures ANOVA was performed on the scores for Anglo cultural identity and for Indian cultural identity. Among the main effects, only that for race reached significance, $F(1, 1310)=35.35$, $p<.001$, and it seems attributable to a higher-order (interaction) effect between cultural identity type and race that was also significant, $F(1,1310)=1662.24$, $p<.001$. As one would expect, Indian cultural identity was stronger for Indian participants than for white participants; but white participants had stronger Anglo cultural identity than did Indian participants.

### *Perceptions of Teacher Behavior*

A repeated measures ANOVA was performed on the three scores (of Anglos, of Indians, and of self) for perceived teacher liking of students. This yielded only a significant main effect of gender,

$F(1,1647)=20.37, p<.001$, such that females reported greater teacher liking across all three variables than did males. There was also a trend ($p<.15$) toward an interaction of race and type of liking score such that Indians and Anglos differed little in perceived teacher liking of Anglos or of self, but Indians saw teachers as liking Indians less than did Anglos. Another ANOVA on the score for perceived availability of help yielded no significant effects, although there was again a trend ($p<.15$) toward Indians reporting help as being less available than Anglos.

### Discriminant Function Analyses Predicting School Status[47]

The last set of analyses performed were a series of discriminant function analyses in which the language, cultural identity, perceived teacher bias/attitudes, and availability of help scores were used as predictors of students' school status. In the first, on the full sample, gender, racial group membership, and a computed variable for the interaction of gender and race were also used as predictors. In table 2, which shows the bivariate correlations among the variables, we see that many of the predictors were significantly correlated with each other. Based on our literature review and hypotheses, it seemed likely that race, sex and the race-by-sex interaction might influence levels of many of the other predictors. Thus, we forced the race and sex variables into the full sample discriminant analysis in a first step and the race-by-sex interaction variable in a second step before all other variables. Entering the interaction term after the main effects is a conservative test of interaction effects that is advocated by many methodological experts.[48] In all of the discriminant analyses, the order of entry of the remaining predictors was not specified; they were allowed to enter based on magnitude of relationship with school status. This was done because there was no theoretical or statistical basis for determining in advance how to assign overlapping variance (multicollinearity) among predictors and the outcome variable. The results of the first (full sample) discriminant function analysis is shown in column 1 of table 3.

We see in table 3 that perceived availability of help, tribal language use in childhood, perceived teacher liking of the individual, perceived teacher liking of Indian students, race, Anglo cultural identity, Indian cultural identity, perceived teacher lik-

ing of Anglo students, and the interaction of race and sex were the significant predictors of school status for the full sample. These variables allowed for correct classification of 45 percent of the sample, 52 percent of the dropouts, 26 percent of the at-risk students, and 55 percent of the successful students. Classification function weights were such that perceived availability of help, teacher liking for the individual, and Anglo cultural identity were more strongly positively associated with being a successful student than with being a dropout or an at-risk student, while higher levels of tribal language use and higher levels of Indian cultural identity were more strongly and positively associated with being a dropout or at risk than with being a successful student. These results were as predicted. Surprisingly, however, greater reported teacher liking of both Indian and Anglo students was associated with dropout status, and low perceived teacher liking of Anglos, but not of Indians, was most strongly associated with being an at-risk student, next most strongly with being a successful student, and least strongly with being a dropout. The race coding and function weights were such that being Anglo was more strongly associated with being a dropout or an at-risk student than was being Indian. This is an artifact of the sample, reflecting the fact that we were able to recruit a few more Anglo than Indian dropouts and at-risk students. The race-by-sex interaction reflected the fact that there were more dropout and at-risk males among Anglos but more dropout and at-risk females among Indians.

Next, we did the same type of discriminant function analysis separately for each group formed by the combination of race and sex (i.e., Anglo females, Anglo males, Indian females, Indian males). This was done first because it fit with one of the main purposes of the study—that of examining whether the predictors of school outcomes were similar or different across sex by race groups. In addition, the number of significant sex and race main effects and interactions in the ANOVA's on the language, cultural identity, perceived teacher liking, and help variables, along with the significant effect of the sex by race variable in the full-sample discriminant analysis, made it seem important to examine each sex-by-race group separately.

The discriminant analyses for the four race-by-sex subsamples are also shown in table 3, in columns 2 through 5. For Anglo females (column 2), we see that perceived availability of help, Indian cultural identity, breadth of English use, perceived teacher

liking of Anglo students, and childhood English use entered as the significant predictors. Fifty percent of the Anglo female sample could be successfully classified using these predictors, 53 percent of the dropouts, 40 percent of the at-risk students, and 55 percent of the successful students. Function weights for perceived availability of help were such that dropouts saw it as less available than did either other group, while at-risk students saw it as somewhat less available than did successful students. Dropout Anglo females also had stronger Indian cultural identity than did at-risk students, who had stronger Indian identity than did successful students. Low breadth of English use and lower perceived teacher liking of female Anglo students predicted at-risk status more strongly than they did either dropout or successful school performance. Dropping out among Anglo females was predicted by lower childhood English use. At-risk students tended to have scores midway between those of dropouts and successful females on this variable.

For Anglo males (table 3, column 3), five predictors were significant: perceived availability of help, Indian cultural identity, Anglo cultural identity, perceived teacher liking of Indian students, and perceived teacher liking of the individual. Forty-seven percent of the Anglo male group could be successfully classified based on these predictors, 51 percent of the dropouts, 27 percent of the at-risk students, and 57 percent of the successful students. The pattern for perceived availability of help was similar to that for Anglo females: Lack of perceived availability of help in school predicted dropout status more so than either other school-status group and discriminated at-risk students somewhat from successful students. The pattern for Indian cultural identity was also similar to that for the female Anglo subsample: Higher Indian identity was associated with being either a dropout or an at-risk student more so than with being successful in school. The opposite held for Anglo identity: Higher levels of it were associated with being a successful student more so than with being either a dropout or at risk. High perceived teacher liking of Indian students was associated with being a dropout in this subsample; low perceived teacher liking of Indians with being an at-risk student; the successful student group fell in between. Finally, perceived teacher dislike of the individual student was strongest among dropouts, next strongest among at-risk students, and lowest among successful students.

The Discriminant Analysis for Indian females (table 3, column 4) yielded only four significant predictors: childhood use of a tribal language, Anglo cultural identity, perceived teacher liking of the individual, and perceived availability of help in school. These predictors successfully classified 41 percent of this sample, 34 percent of dropouts, 36 percent of at-risk students, and 55 percent of successful students. Dropouts were distinguished by being most likely to have used a tribal language as a child, with at-risk students next most likely, and successful students least likely. Similarly, dropouts tended to have the weakest Anglo identity, at-risk students somewhat more, and successful students the most. Interestingly, at-risk students saw teachers as liking them as individuals most and dropouts the least, though only somewhat less than successful students. Similarly, at-risk students perceived help in school to be least available, dropouts perceived it as somewhat more available, and successful Indian female students perceive it as most available.

Seven predictors were significant for Indian males (table 3, column 5): perceived teacher liking of the individual, proficiency at a tribal language, perceived teacher liking of Anglo students, Anglo cultural identity, perceived availability of help, childhood use of a tribal language, and breadth of English use. Fifty percent of Indian male participants could be successfully classified based on these predictors, 58 percent of dropouts, 39 percent of at-risk students, and 56 percent of successful students. Dropouts tended to see teachers as liking them as individuals much less than either at-risk or successful students. Dropouts also tended to have the most proficiency with a tribal language, at-risk students the next most, and successful students the least. Congruent with this, successful students tended to have the strongest Anglo identity, at-risk students the next strongest, and dropouts the least. Dropouts tended to perceive teacher liking of Anglos to be greatest, successful students were next, and at-risk students had the lowest scores on this variable. Successful Indian male students tended to believe that help was more available to them than dropouts or at-risk students, who reported very similar levels of availability of help. At-risk students, however, had higher reported childhood use of a tribal language, dropouts the next highest, and successful students the least. Unexpectedly, though, breadth of English use predicted dropout status most strongly, success next best, and at-risk status least well.

## DISCUSSION

Several of the predictions were supported, but not all of them. There were indications that language difficulties and problems with teachers promote academic troubles and dropping out; and there was clear evidence that Indian students who have stronger Anglo cultural identity and better English use are more successful in mainstream schools. However, Indian cultural identity scores did not predict school difficulties or school leaving in either the Indian female or the Indian male discriminant function analysis. However, Indian cultural identity correlated in the Indian subsample positively (and substantially) with the tribal language scores and significantly negatively (though of limited magnitude) with Anglo cultural identity (see table 2). Since these variables were significant predictors in both discriminant analyses involving Indian participants, the lack of significance of Indian identity in those analyses may be a function of its correlation with them (i.e., multicollinearity of predictors). In addition, while mean Indian identity was higher among Indians, the standard deviation of Indian identity scores was lower for them by about two full points than for Anglos. Thus, some of the lack of effect of the Indian identity scores in the discriminant analyses with only Indian subjects may have been due to restricted range associated with consistently relatively high Indian identity among Indian subjects.

The ANOVA results did, in fact, indicate that successful Indian students had significantly higher combined (i.e., across the Indian and Anglo identity types) cultural identity scores than either struggling Indian students or Indian dropouts. Indian dropouts had the lowest combined cultural identity scores among Indian participants. These results provide some confirmation of Oetting and Beauvais's data, indicating the value of strong cultural identity of either sort in promoting school success among Indian students.[49] Since the gender variable did not come into play in this result, however, their finding that cultural identity has more effect among Indian males than females was not replicated in this study.

Interestingly, Indian cultural identity scores did predict school status in the discriminant analyses for both Anglo females and Anglo males. One obvious possibility for why this might be so is that relatively high self-reports of Indian cultural identity by Anglo students could reflect disaffection with mainstream society

(i.e., the students' own racial group) more than genuine Indian cultural involvement. Congruent with this is the fact that the tribal language scores were not significantly correlated with Indian cultural identity among Anglos, while they were significantly and substantial correlated with it for the Indian students. On the other hand, Indian identity scores had positive, if relatively small, correlations among both Anglo males and Anglo females with perceived teacher liking of self, of Anglo students, and of Indian students. This seems to contradict the idea that higher levels of Indian identity among Anglos reflects social disaffection. Perhaps the Indian identity effect on academic outcomes among Anglos here reflects both some genuine involvement with a tribal culture—which would be more of a possibility for the Anglo students in this study, many of whom live close to tribal communities, than for their peers in other parts of the U.S.—in addition to some degree of social disaffection. It is also possible that this outcome partially reflects racial misclassification. Given relatively high proportions of Anglo-Indian or Anglo-Hispanic mixed-blood individuals in the areas where our data were collected, some individuals who self-identified as Anglo may actually be part of a family with some non-Anglo cultural heritage. Another possibility is that this effect reflects some degree of "New Age" orientation among many of the Anglo students and their recognition of the many elements that movement has borrowed (albeit often in a distorted way) from tribal cultures. All of these potential explanations should be investigated in future research.

Contrary to our expectation, Anglo identity had only small positive correlations with Indians' perceptions of the availability of help at school and with perceptions of teachers' liking of self; and none with perceptions of teacher liking of Anglo or Indian student groups (see table 2). Indian identity scores for Indians had small, significant, positive correlations with perceived teacher liking of self and of both Anglo and Indian students, in general, but no relationship to perceived availability of help. Clearly these correlation patterns do not support our proposal that cultural identity effects on school outcomes for Indian students would be partially mediated by impacts on teachers' reactions and behaviors.

Perceived teacher liking of Indians did not enter as a significant predictor in the discriminant analyses for either Indian males or females. It was the case, though, that perceived teacher liking of

self was correlated substantially (.59) with perceived teacher liking of Indians in the native subsample. Perceived liking of self was, in turn, a significant predictor of school status for both sexes of Indian students. Thus, the failure of perceived liking of Indians to reach significance in the discriminant analyses may be because of its intercorrelation with that other predictor. Given that Indian identity was generally high in the native sample, it makes sense that perceptions of others' liking of their group, and perceptions of others' liking of themselves as individuals, would be highly related. Those who thought teachers liked them relatively little were more likely to be dropouts. Perceived teacher liking of Anglos was also a significant predictor for Indian males, such that those with higher scores on this variable were more likely to be dropouts. Both of these patterns may be congruent with our proposition that perceptions of teacher bias against Indians would be associated with dropping out. Of course, our measures assessed only perceived teacher liking and behavior toward students and were taken only at one time period (although scores included retrospective reports about teachers' reactions during earlier grades). Clearly, more objective measures of teacher behavior and other components of school climate, such as third-party observations, and longitudinal assessment would be desirable additions to some future studies.

The significant language variable effects among Indian students also fit with our hypotheses. Among both males and females, those who reported relatively high levels of tribal language use in childhood were more likely to be dropouts. Among males only, those who reported higher current tribal language proficiency were also more likely to be dropouts. Two language scores were significant for males, and the language-use-in-childhood variable predicted more strongly for Indian males than females. This would seem to indicate that language tendencies are more crucial to the school success of male than to female Indians. Interestingly, this reversed somewhat among Anglos, among whom Anglo female, but not male, dropouts were distinguished by lower levels of childhood English use than subjects still in school. This may support the misclassification explanation for the significant Indian cultural identity effect among whites described above and indicate that misclassification was more common among Anglo females than among Anglo males.

Some may be tempted to conclude, based on the positive relationship of Anglo identity to school success among Indians as well as the negative effects of tribal language use on it observed here, that assimilationist policies and strategies are what is needed for Indian students. As noted in the introduction, however, although Anglo identity and English-only language use may predict success in schools organized according to the norms and values of Anglo culture and employing only English in instruction, this does not necessarily mean that individuals' identities or tribal cultures and languages need to be changed. As Bopp et al., James et al., the tribal representatives in Morley and Gilliam, Reyhner and others have argued, educational systems and policies can and must be put under community control and made congruent with native traditions and values if they are to be generally effective for Indian students and communities.[50]

We can change school systems to make them fit better with tribal cultures and offer instruction in tribal languages to better meet Indian students' identities and needs. This has, in fact, been done in places and does seem to promote staying in school and academic achievement by Indian students.[51] For example, tribal community colleges seem to be substantially more successful at retaining students to graduation than mainstream colleges or universities.[52] Indian-centered urban schools and reservation elementary and secondary schools that are heavily infused with traditional culture and that at least partially employ tribal languages seem to have the same effect.[53] Native-centered schools that incorporate tribal culture into all aspects of education have shown, in fact, some promise both on reservations and in urban areas.[54]

Although several predictors were significant in each discriminant analysis, the percentage of students who could be correctly classified by these predictors was mediocre, ranging from 41 percent (Indian female only analysis) to 50 percent (both the Anglo female and the Indian male analyses). Even allowing for attenuation of predictive power due to measurement error, it seems clear that the variables we employed did not capture the full range of factors that impact on school status. Other factors that should be included in future research along with the ones we examined include students' attitudes and beliefs about education (e.g., self-efficacy and perceived utility of education), in general, and about specific key subject areas; community, family, and

individual student employment patterns; poverty; social (community, family, and peer) norms and values about education; personal and familial substance abuse; and teen parenthood. Since Indian females were least well predicted of any of the sex-by-race combinations, efforts to further explore influences on their school achievement would be especially valuable. Theory and research on Indian (and non-Indian) school achievement and attrition have never attended sufficiently to gender differences; it is time to rectify this.

Across all of the discriminant analyses, the at-risk group was generally classified least well by the predictors. This makes some sense, since this group has poor achievement and poor school adjustment in common with the dropouts but is similar to successful students in having remained in school despite personal academic difficulties. Yet it is troubling that predictive power for at-risk status was relatively poor. We do not have a good understanding of those "marginal" students who perform poorly academically but continue to remain in school. Better prediction of this group would clearly be highly informative about what distinguishes school leavers from those who remain in school, and poor from good achievers among those who are in school. Additional research might focus profitably on determining the factors that promote this type of school status relative to the other two types.

Individual growth, community success, and cultural survival intertwine. Cultural assaults and community breakdowns hinder individual achievement. Individual failure to master the skills needed to thrive, provide, and contribute to their communities, to comprehend a complex world, and otherwise to maximize their potential restrict the possibility of community and cultural health and vitality. The specific issues of academic achievement and school leaving are important components of the larger network of individual/community relations. To address the former, we must consider the latter; to enhearten communities and culture, we must promote individual attainment and health.

**Table 1**
**Hypothesized Relations of Predictors to Race, Sex, School Achievement, and Dropping Out**

| Predictor | Race | Sex | School Status |
|---|---|---|---|
| Language | | | |
| Childhood English | Higher among Anglos. | No predictions. | Positive relation to achievement<br>Negative relation to drop out |
| Childhood Tribal | Higher among Indians. | No predictions. | Negative relation to achievement<br>Positive relation to drop out |
| English Proficiency | Higher among Anglos | No predictions. | Positive relation to achievement<br>Negative relation to drop out |
| English Use Breadth | Higher among Anglos | No predictions. | Positive relation to achievement<br>Negative relation to drop out |
| Cultural Identity | | | |
| Anglo Identity | Higher among Anglos. | More important to Indian males than females? | Positive relation to achievement<br>Negative relation to drop out |
| Indian Identity | Higher among Indians. | More important to Indian males than females? | Negative relation to achievement<br>Positive relation to drop out |
| Teacher Behavior | | | |
| Liking of Anglos | Seen as higher by Indians? | | Higher levels of all of these variables positively associated with achievement, and negatively associated with dropping out. |
| Liking of Indians | Seen as lower by Indians? | Indian female < Indian males? | |
| Liking of Self | Seen as lower by Indians? | Indian female < Indian males? | |
| Willing to Help | Seen as less so by Indians. | | |

**Table 2**
**Correlations among Predictors Separately for Anglo and Indian Participants**

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. English Proficiency | – | .14 | .04 | .05 | .05 | .11 | .11 | .03 | .05 | -.03 | .03 |
| 2. Tribal Proficiency | -.11 | – | .02 | .01 | .29 | .51 | .03 | -.02 | -.04 | -.09 | .01 |
| 3. English Breadth | .38 | -.24 | – | .13 | .01 | .07 | .08 | -.07 | -.07 | -.04 | .00 |
| 4. Childhood English | .33 | -.32 | .32 | – | -.01 | .01 | .12 | .07 | .02 | .03 | .04 |
| 5. Childhood Tribal Language Use | -.09 | .72 | -.17 | -.29 | – | .33 | -.04 | .04 | .02 | .03 | .01 |
| 6. Anglo Identity | .22 | -.08 | .18 | .13 | -.07 | – | .03 | .11 | .18 | .09 | .08 |
| 7. Indian Identity | -.04 | .56 | -.08 | -.11 | .41 | -.13 | – | .11 | .18 | .09 | -.02 |
| 8. Teacher Liking of Individual | .13 | .09 | .09 | .08 | .04 | .07 | .12 | – | .44 | .36 | .40 |
| 9. Teacher Liking of Anglo Students | .16 | -.02 | .16 | .16 | .03 | .06 | .19 | .40 | – | .56 | .22 |
| 10. Teacher Liking of Indians | .11 | .03 | .10 | .06 | .04 | .06 | .08 | .59 | .34 | – | .23 |
| 11. Availability of Help | .08 | .04 | -.01 | .02 | .05 | .12 | .00 | .37 | .15 | .27 | – |

**Note:** Scores above the diagonal are for Anglo participants; those below the diagonal are for Indians. Values of .07 or greater are significant at the .05 level (one tailed).

**Table 3**
**Predictor F-Values in Discriminant Function Analyses among School-Status Groups, Full Sample, and Race by Sex Subgroups**

| Predictor | Full Sample | Anglo Females | Anglo Males | Indian Females | Indian Males |
|---|---|---|---|---|---|
| Anglo Identity | 6.63* | 0.44 | 2.72* | 4.31** | 3.41* |
| Availability of Help | 31.78** | 17.29** | 15.12** | 2.22* | 3.48* |
| Breadth of English Use | 1.25 | 4.17* | 0.22 | 0.43 | 1.87* |
| Childhood Use of English | 0.53 | 1.93* | 0.53 | 1.14 | 1.18 |
| Childhood Tribal Language | 6.93* | 0.49 | 0.28 | 4.30* | 2.75* |
| English Proficiency | 0.03 | 0.24 | 0.40 | 0.75 | 1.05 |
| Race | 3.67* | N/A | N/A | N/A | N/A |
| Indian Identity | 6.68* | 4.43* | 4.11* | 0.13 | 0.65 |
| Race by Sex | 1.67* | N/A | N/A | N/A | N/A |
| Subject Sex | 0.45 | N/A | N/A | N/A | N/A |
| Teachers Like Anglos | 2.89* | 3.10* | 1.18 | 0.06 | 3.85* |
| Teachers Like Indians | 5.16* | 1.20 | 2.28* | 0.61 | 0.21 |
| Teachers Like Individual | 6.82* | 1.07 | 2.92* | 1.70* | 6.82* |
| Tribal Language Proficiency | 0.49 | 0.65 | 0.51 | 0.19 | 4.23* |

## NOTES

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2. Commission on the Skills of the American Workforce, *America's Choice: High Skills or Low Wages* (Rochester, NT: National Center on Education and the Economy, 1990); Quality Education for Minorities Project, *Education That Works: An Action Plan for the Education of Minorities* (Cambridge, MA: Massachusetts Institute of Technology, 1990).

3. Ibid; Indian Nations at Risk Task Force, *Indian Nations at Risk: An Educational Strategy for Action* (Washington, DC: U.S. Department of Education, 1991).

4. See, for example, J.C. Hill, "Confidence, Self-Image Seen Indians' Need," *The London* (Ontario) *Free Press*, 25 February 1970, for a description of educational successes on one Canadian tribal reserve.

5. A. Bowker, "The American Indian Female Dropout," *Journal of American Indian Education* 32 (May 1992): 3–20; Quality Education for Minorities Project, *Education That Works.*

6. K. James, G. Khoo and D. Harbold, "Minority Women and Technology," *Technology Studies*, in press; K. James et al., *Barriers to Native American Advancement in the Workplace* (Washington, DC: U.S. Department of Labor•Glass Ceiling Commission Monograph Series, 1995).

7. Bowker, "The American Indian Female Dropout"; Quality Education for Minorities Project, *Education That Works*.

8. Ibid.

9. James et al., *Barriers to Native American Advancement;* Indian Nations at Risk Task Force, *Indian Nations at Risk;* Quality Education for Minorities Project, *Education That Works;* K. Swisher and M. Hoisch, "Dropping out among American Indians and Alaska Natives: A Review of Studies," *Journal of American Indian Education* 32 (January 1992): 3–23.

10. See Swisher and Hoisch, "Dropping out," for a literature review.

11. Bowker, "The American Indian Female Dropout."

12. James et al., *Barriers to Native American Advancement.*

13. Ibid.

14. J.A. Reyhner, "American Indian Cultures and School Success," *Journal of American Indian Education* 32 (October 1992): 30–39; idem, ed., *Teaching American Indian Students* (Norman, OK: University of Oklahoma, 1992).

15. Ibid; E.A. Brandt, "The Navajo Area Student Dropout Study: Findings and Implications," *Journal of American Indian Education* 32 (January 1992): 48–65.

16. James et al., *Barriers to Native American Advancement.*

17. Reyhner, "American Indian Cultures and School Success."

18. James et al.,*Barriers to Native American Advancement;* M. Schoepfle, M. Burton, and K. Begishe,"Navajo Attitudes toward Development and Change: A Unified Ethnographic and Survey Approach to an Understanding of Their Future," *American Anthropologist* 86 (1984): 885–904.

19. All of the Indian participants in this study attended schools in which English was the dominant language of instruction.

20. A. Pacey, *The Culture of Technology* (Cambridge, MA: MIT Press, 1983); D. Sanders, "Cultural Conflicts: An Important Factor in the Academic Failure of American Indian Students," *Journal of Multicultural Counseling and Development* 15 (1987): 81–90; J.M. Schneider, *Review of Research on Minority Performance in Education and Training Programs* (Arlington, VA: Office of Naval Research, U.S Department of the Navy, Report No. N00014-80-C-0438, 1984).

21. Ibid; E. Badwound and W.G. Tierney, "Leadership and American Indian Values: The Tribal College Dilemma," *Journal of American Indian Education* 28 (1988): 9–15; L. Little Soldier, "Language Learning of Native American Students," *Educational Leadership* 46(October 1989): 74–75.

22. James, Khoo, and Harbold, "Minority Women and Technology."

23. Sanders, "Cultural Conflicts"; A.R. King, *The School at Mopass: A Problem of Identity* (New York: Holt, Rinehart & Winston, 1967).

24. See also Indian Nations at Risk Task Force, *Indian Nations at Risk;* and Reyhner, "American Indian Cultures and School Success," and idem, *Teaching American Indian Students* .

25. J.U. Ogbu, "Variability in Minority School Performance: A Problem in Search of an Explanation," *Anthropology & Education Quarterly* 18 (1987): 312–34; W. Rybczynski, *Taming the Tiger: The Struggle for Control of Technology* (New York: Viking, 1983); J.M. Staudenmaier, *Technology's Storytellers* (Cambridge, MA: MIT Press, 1985); B. Wright, B. and W.G. Tierney, "American Indians in Higher Education: A History of Cultural Conflict," *Change* 101 (1991): 11–18.

26. See, e.g., K.T. Lomawaima, "Oral histories from Chilocco Indian Agricultural School 1920–1940," *American Indian Quarterly* 11 (1987): 241–54.

27. H.C. Ellis, "From the Battle in the Classroom to the Battle for the Classroom," *American Indian Quarterly* 11 (1987): 255–64.

28. See G. I. Latham, "Thirteen Most Common Needs of American Indian Education in BIA Schools," *Journal of American Indian Education* 29 (1989): 1–11; and Reyhner's response in "American Indian Cultures and School Success."

29. Ellis, "From the Battle in the Classroom"; Indian Nations at Risk Task Force, *Indian Nations at Risk.*

30. See S. Ledlow, "Is Cultural Discontinuity an Adequate Explanation for Dropping out," *Journal of American Indian Education* 32 (May 1992): 21–35.

31. See, e.g., Brandt, "The Navajo Area Student Dropout Study"; D. Dehyle, "Constructing Failure and Maintaining Cultural Identity: Navajo and Ute School Leavers," *Journal of American Indian Education* 32 (January 1992): 24–47; Reyhner, *Teaching American Indian Students;* Little Soldier, "Language Learning of Native American Students"; and Sanders, "Cultural Conflicts."

32. E.R. Oetting and F. Beauvais, "Orthogonal Cultural Identification Theory: The Cultural Identification of Minority Adolescents," *The International Journal of Addictions* 25 (1990): 657–87.

33. Ibid.

34. L. Jussim, "Self-Fulfilling Prophecies: A Theoretical and Integrative Review," *Psychological Review* 93 (1986): 429–45; C.M. Steele, "Protecting the Self: Implications for Social Psychological Theory and Minority Achievement" (Paper presented at the meeting of the American Psychological Association, Boston, August 1990).

35. Brandt, "The Navajo Area Student Dropout Study."

36. J.E. Trimble, "Stereotypical Images, American Indians, and Prejudice," in *Eliminating Racism: Profiles in Controversy,* ed. P.A. Katz and D.A. Taylor (New York: Plenum, 1987).

37. Indian Nations at Risk Task Force, *Indian Nations at Risk;* James et al., "Minority Women and Technology"; King, *The School at Mopass.*

38. S.A. Boloz and R. Varrati, "Apologize or Analyze: Measuring Academic Achievement in the Reservation School," *Journal of American Indian Education* 23 (1987): 23–28; W. Brescia and J.C. Fortune, "Standardized Testing of American Indian Students," *College Student Journal* 23 (1989): 98–104; S.P. Mishra, "Relationship of WISC-R Factor Scores to Academic Achievement and Classroom Behaviors of Native American Navajos," *Measurement and Evaluation in Guidance* 14 (1981): 26–30.

39. Brandt, "The Navajo Area Student Dropout Study"; King, *The School at Mopass.*

40. Jussim, "Self-Fulfilling Prophecies"; Pacey, *The Culture of Technology*.

41. James, Khoo, and Harbold, "Minority Women and Technology."

42. D. Harbold, and K. James, "The Influence of Culture on Attitudes toward Technology" (Unpublished manuscript, Colorado State University, 1991).

43. James et al., *Barriers to Native American Advancement*.

44. Ns vary somewhat across analyses because of missing values on items for some participants.

45. Oetting and Beauvais, "Orthogonal Cultural Identification Theory."

46. Ibid.

47. An additional series of analyses of variance with school status, race, and sex as the grouping variables were performed on the predictors to help clarify the pattern of discriminant function analyses results. At the suggestion of two reviewers, the details of these are not shown here because of their volume and complexity, but full results of those ANOVAs are available from the first author on request.

48. See, for example, E.E. Ghiselli, J.P. Campbell, and S. Zedeck, *Measurement Theory for the Behavioral Sciences* (San Francisco: Freeman, 1981); and E.F. Stone, "Research Methods in Industrial and Organizational Psychology: Selected Issues and Trends," in *International Review of Industrial and Organizational Psychology*, ed. C.L. Cooper and I. Roberston (New York: Wiley, 1986), 305–15.

49. Oetting and Beauvais, "Orthogonal Cultural Identification Theory."

50. M. Bopp et al., "How We Used to Work," *The Four Worlds Exchange* 1 (1989): 18–20; James et al., *Barriers to Native American Advancement;* S.A. Morley and O. Gilliam, eds., *Respect for Life: Traditional Upbringing and Education of American Indian Children* (New York: Myrin Foundation, 1974); Reyhner, "American Indian Cultures and School Success"; idem, *Teaching American Indian Students*.

51. I. Bull, "The Cree Immersion Project" (Presentation at the Council of Energy Resource Tribes/Colorado State University Tribal Human Resource Development Summit, Fort Collins, Colorado, October 1994); J. Lipka and T.L. McCarty, "Changing the Culture of Schooling: Navajo and Yup'ik Cases," *Anthropology & Education Quarterly* 25 (1994): 266–84; Minnesota Advisory Committee to the U.S. Commission on Civil Rights, *Bridging the Gap: A Reassessment* (Washington, DC: U.S. Commission on Civil Rights, 1978); P. Murphy, "A Working Model: Educational Revolution on the Reservation," *Winds of Change* 8 (1993): 12–19.

52. N.T. Oppelt, "The Tribally Controlled Colleges in the 1980's: Higher Education's Best Kept Secret," *American Indian Culture and Research Journal* 8 (1984): 27–45.

53. Bull, "The Cree Immersion Project"; Lipka and McCarty, "Changing the Culture of Schooling."

54. Minnesota Advisory Committee, *Bridging the Gap;* Murphy, "A Working Model."