

American Indian Students' Difficulties in Introduction to Psychology

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Earning passing grades in first year, introductory college courses is one key to academic success in higher education. Using archival and survey data from one Southwestern university, in Study 1, we found that ethnic differences in failing versus passing were greater in Introduction to Psychology than in Early American History, World Religions, and Introduction to Sociology. In Study 2, we showed that the gap between overall university grade point average and Introduction to Psychology course grade was greater for American Indian students than for European American, Asian American, and Hispanic students. In Study 3, this disparity was reduced but not eliminated when controlling for several academic and demographic variables. In Study 4, an exploratory survey revealed that, relative to European American students, American Indian students were more likely to report that Introduction to Psychology was difficult due to large class sizes, issues related to multiple-choice testing, and the amount (but not the difficulty) of information covered. American Indian students also were much less likely to articulate strategies for success such as memorization techniques, class attendance, or daily studying, but recommended supplemental instruction obtained in small study groups. Implications for enhancing the academic success of all students in this challenging first-year course are discussed.

Keywords: American Indian, college students, academic achievement, multicultural education

Although enrollment rates are up, disparities in retention and graduation rates between ethnic groups still exist in higher education, with American Indians often the least likely to persist. For example, although 33% of Whites and Asians complete the requirements for a bachelor's degree within 4 years, 24% of Blacks, 15% of Hispanics, but only 11% of American Indians complete similar programs within the same time frame (Freeman & Fox, 2005). Retention rates for first-year full-time American Indian college students are estimated to be as low as 45% to 62% compared with European American retention rates at similar institutions of about 77% to

80% (Brown, Lee, Hunter, & Donlan, 2006; Wells, 1997).

The benefits of postsecondary education are well documented and the failure to persist or attain a college degree is associated with significantly lower income and lower health status later in life (Ashenfelter & Rouse, 2000; Mirowsky & Ross, 2003; U.S. Census Bureau, Housing & Household Economic Status Division, 2005). Not surprisingly, the most academically at-risk group (American Indians) is also the most impoverished (Freeman & Fox, 2005) and has a lower life expectancy than the U.S. population (Indian Health Service, n.d.).

Reduced income levels and health disparities are not the only consequences of academic inequalities. There is also a continuing need for American Indian business leaders, educators, and behavioral health care and social workers, working both within their own communities and bringing their perspectives to a more globally focused, multicultural, postcolonial public space. Scientists and policymakers in the dominant culture are now pursuing ethnic minority representation in establishing standards of conduct, defining research topics and areas of con-

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cern, and in leadership and decision-making roles in professional organizations (Holliday & Holmes, 2003). Thus, the attrition of American Indian college students is inexcusably costly as it translates into increased risks of poverty, shortages of business and humanitarian leaders in the American Indian community, and underrepresentation in higher status positions in the United States.

Academic Persistence and Grades in Higher Education

There are multiple and often interrelated factors that contribute to poor retention and low graduation rates among ethnic minority students, including the lack of academic and/or social integration, the effects of separation from previous communities, underpreparedness for the demands of higher education, and the transition to college life that students of all ethnicities face (Tinto, 1988, 1993). Many American Indian students may face additional challenges including greater commitments to extended family members (including tribal community members) as well as financial obligations to family and dependents (Brown et al., 2006).

Regardless of ethnicity, social, or academic engagement, students are especially at risk if, at the end of the semester, they receive poor grades. Indeed, college grades have been shown to significantly influence persistence rates (Okun & Finch, 1998) and academic self-esteem (Marsh & O'Mara, 2008). Cibik and Chambers (1991) also found that poor grades, in combination with other factors, were an important obstacle in degree completion for American Indians.

Grades are especially important in the first year of college (e.g., Krause & Coates, 2008). Earning good grades in the first year has positive effects such as increasing the sense of academic self-efficacy, indicating that knowledge has been applied to real-world settings, and often reflecting the deep learning that characterizes academic engagement (Astin, 1985; Horstmanshof & Zimitat, 2007). Moreover, in the first year of college, students are often exposed to a variety of introductory courses, affording opportunities to develop new interests.

One course that many students of all ethnic groups take in that important first year is Introduction to Psychology. Students from diverse

academic majors enroll in Introduction to Psychology, often to fulfill a general studies requirement. In some colleges and universities, over half of the students enrolled in the course are nonmajors (e.g., Gaultney & Cann, 2001). However, Introduction to Psychology is unsuspectingly difficult for nearly all students. In a widely disseminated essay written for the benefit of his students (approximately 18% of whom were American Indian), Cabe (2003) identified four sources of difficulty: (1) the course covers a very broad range of topics across a number of different subfields within psychology, (2) the vocabulary that must be learned rivals that of a foreign language course, (3) many students have no preexisting cognitive structure within which to embed knowledge of psychology, and (4) students may need a crash course in effective study habits to match the demands of college work in this first-year course. Cabe advised that a daily routine of studying, reading the book, and attending class is imperative.

Not only is the material in this first-year course difficult, but Introduction to Psychology is often taught in large lecture halls that may necessitate assessment of learning through multiple-choice exams requiring the rote memorization of vocabulary, definitions, and facts. However, there may be particular individuals or ethnic groups, with a variety of learning styles, who find the large, impersonal lecture format and multiple-choice exams to be especially difficult. For example, Sternberg and his colleagues (Sternberg, Grigorenko, & Zhang, 2008, Sternberg & The Rainbow Project Collaborators, 2006) showed that there are different styles of learning and thinking: analytical, creative, and practical—with associated differences in preferred measures of learning assessment.

Many American Indian students do share other kinds of preferences with regard to learning that may adversely affect their grade in Introduction to Psychology (Aragon, 2002; Pewewardy, 2002). First, they may be more adept at learning from visual rather than auditory presentations. Second, they may prefer collaborative learning and sharing over lectures and competing for individual success. Finally, they prize interaction with elders, group leaders, and teachers and these kinds of social support simply may not be available in the large lecture

format. Thus, in addition to the difficulties of Introduction to Psychology experienced by all groups, there may be an especially poor match between American Indians' learning preferences and the way that Introduction to Psychology is taught.

Our concern was that, although academic and social integration are also important, American Indian students may be particularly at risk, relative to their European American peers, with respect to obtaining poor grades in Introduction to Psychology. For example, Lunneborg and Lunneborg (1986) found that American Indian students had significantly lower college grade point averages (GPAs) than their White and Asian American college peers, although their college GPAs were higher than Black students and comparable to Chicano students. Mayo, Murguía, and Padilla (1995) found that American Indian students had significantly lower GPAs than Whites and Mexican American students, but comparable college GPAs to Black students.

We acknowledge that American Indians are a heterogeneous group consisting of over 500 nations differing in language, geographical location, customs, values, and degree of assimilation (Whitbeck, Hoyt, Stubben, & LaFromboise, 2001). Furthermore, within each nation, individual differences are substantial. As among any ethnic group, the academic difficulties faced by some certainly do not apply to all. Nevertheless, ethnic differences in persistence rates suggest that American Indian students, broadly speaking, are an understudied, at-risk group, which poses unique, educational challenges (Demmert, Grissmer, & Towner, 2006).

Assessing Difficulties in Introduction to Psychology

One first-year course that has the reputation of being difficult for all students is Introduction to Psychology; but is the course even more difficult for members of certain ethnic groups? To date, there is a dearth of research investigating the academic performance of ethnic groups, including American Indian, Hispanic, African American, Asian, and European American students, in Introduction to Psychology and in other introductory courses. Furthermore, no studies have contrasted ethnic grade disparities in Introduction to Psychology with disparities in

overall university GPA. To address these gaps in the literature, we carried out four studies. In Study 1, we addressed three research questions. First, what is the failure rate in Introduction to Psychology and in three other introductory courses (history, religion, and sociology)? Second, are there ethnic differences in the failure rate for each course? Third, is the magnitude of ethnic differences in the failure rate greater for Introduction to Psychology relative to the other introductory courses? In Study 2, we investigated differences between American Indians and other ethnic groups (European Americans, African Americans, Hispanics, and Asians) in the magnitude of the discrepancy between university GPA and grade in Introduction to Psychology. We expected to find that, relative to their European American peers, American Indian students would have a larger discrepancy between their university GPA and their grade in Introduction to Psychology. In Study 3, we examined whether differences in Introduction to Psychology grades between American Indian students and students of other ethnicities/races remained when we controlled for university GPA, high school GPA, standardized test scores, and several sociodemographic variables. In Study 4, we gathered exploratory data from students regarding their own perceptions of the difficulties in Introduction to Psychology.

Overview of Method

We conducted our four studies using archival data and survey data from a single Research 1 university. The university is located in the Southwestern region of the United States with an ethnically diverse undergraduate population. Sixty-eight percent of the undergraduates are White, 14% are Hispanic, 5% are Asian American, 4% are Black, 2% are American Indian, and 7% are either international students or declined to report their ethnicity. Although many American Indian nations are represented within the student body, the majority are Navajo. Appropriate approvals had been obtained from the university's Institutional Review Board and the University's Director of American Indian Studies. The first study used archival data from four introductory courses (Introduction to Psychology, Early American History, World Religions, and Introduction to Sociology). Studies 2 and 3 used archival data from Introduction to Psy-

chology whereas Study 4 used survey data gathered via the Internet from students enrolled in Introduction to Psychology.

Study 1

Method

We extracted data from institutional records regarding the grades of students enrolled in Introduction to Psychology, Early American History, World Religions, and Introduction to Sociology at the university from the fall of 2000 through the spring of 2007. The data consisted of counts of the number of students who passed and failed by course and by ethnicity (see Table 1). We were not able to determine from this database how many students may have been enrolled in multiple courses and, therefore, may have contributed multiple grades to this analysis.

Course grade was coded as a dichotomous variable, "F" (failing) versus "A," "B," "C," or "D" (passing). Our sample consisted of 69,747 grades. Forty-three percent of the grades were from Introduction to Psychology, 29% were from Introduction to Sociology, 20% were from religious studies, and the remaining 8% were from the course in Early American History. The percentage of the grades associated with each ethnic group was: American Indians (2%), African Americans (4%), Asians (6%), Hispanics (13%), and European Americans (75%).

Results

Our first research question pertained to the failure rates in each course. Table 1 presents the frequencies for passing and failing for each

course and ethnic group. The percentage of failing grades was highest in Introduction to Psychology course (13.4%), followed by the religion course (11.6%), history (10.9%), and sociology (7.5%).

Our second research question concerned whether there were ethnic differences in the proportion of failures within each course. A chi-square test revealed that there were significant ethnic differences in the proportion failing in each course: history, $\chi^2(4, N = 5,879) = 39.07, p < .001$, Cramer's $V = .082$; religion, $\chi^2(4, N = 13,605) = 150.42, p < .001$, Cramer's $V = .105$; sociology, $\chi^2(4, N = 20,146) = 168.18, p < .001$, Cramer's $V = .091$; and psychology, $\chi^2(4, N = 29,847) = 537.51, p < .001$, Cramer's $V = .134$. For Early American History, the proportion who failed ranged from .10 (European Americans) to .22 (Native Americans). In World Religions, the proportion who failed ranged from .08 (Asians) to .23 (Native Americans). For Introduction to Sociology, the proportion who failed ranged from .06 (Asians) to .20 (Native Americans). Finally, in Introduction to Psychology, the proportion who failed ranged from .11 (European Americans) to .33 (Native Americans).

Our third research question was related to whether the magnitude of the association between ethnicity and earning a failing versus passing grade varied with course. To address this question, we used an approach developed for meta-analysis. First, we converted the association between ethnic group and the proportion failing the course to an effect size. Because our data consisted of cross-tabulations of frequencies, we computed odds ratios as our measure of effect sizes. The odds ratios assessed the magnitude of the differences between Native Amer-

Table 1
Frequencies for Passing and Failing by Course and Ethnicity

Course	Ethnic group									
	European American		Hispanic		Black		Asian		Native American	
	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail
History	3,988	432	670	100	213	41	218	28	148	41
Religion	8,907	1,011	1,615	314	413	102	850	76	243	74
Sociology	14,235	1,011	2,326	274	746	108	1,268	75	300	73
Psychology	20,114	2,574	2,929	708	806	272	1,569	232	432	211

Note. $N = 69,747$.

ican students and students from all other ethnicities regarding the odds of failing versus the odds of passing the course. The odds ratios were 2.34 (history), 2.39 (religion), 3.08 (sociology), and 3.28 (psychology). The odds ratio for psychology indicates that Native American students were 3.28 times more likely than non-Native American students to fail Introduction to Psychology.

Next, we used a test of effect size homogeneity (Shadish & Haddock, 1994) to determine whether the effect sizes can be considered as sample estimates that are representative of the population effect size. This test statistic can be evaluated for statistical significance using the chi-square distribution with degrees of freedom equal to the number of effect sizes minus one. First, we carried out an omnibus test using the odds ratios from all four courses. This test indicated that the four effect sizes were heterogeneous, $\chi^2(3, N = 69,747) = 10,730.82, p < .001$. Therefore, we followed up this analysis with tests of homogeneity in which the odds ratio for psychology was compared separately with the odds ratios for history, religion, and sociology. All three tests were statistically significant ($p < .001$), indicating that the pair of effect sizes were heterogeneous: (a) psychology versus history, $\chi^2(1, N = 35,726) = 4,897.32$; (b) psychology versus religion studies, $\chi^2(1, N = 43,452) = 7,402.35$; and (c) psychology versus sociology, $\chi^2(1, N = 50,263) = 484.93$. These tests indicate that the odds ratio for failing Introduction to Psychology was larger than the odds ratios for similar courses in history, religion, and sociology.

Discussion

Consistent with the reputation that Introduction to Psychology is a difficult course, we observed that the failure rate for this course (13.4%) was higher than the failure rate for other similar introductory courses. To our knowledge the current study is the first to show that in comparison to other ethnic groups, Native American students were most disadvantaged in terms of earning a passing grade in Introduction to Psychology. This finding, coupled with the popularity of Introduction to Psychology, which accounted for 43% of all grades included in our analyses, highlights the need to examine further ethnic differences in the grades in the course.

Study 2

Having established that the risk of failure for Native American students relative to other ethnic groups is greater in Introduction to Psychology as compared to three other introductory courses, we used archival data to investigate ethnic differences in the discrepancy between university GPA and grade in Introduction to Psychology.

Sample

We extracted data from the institutional records of students enrolled in sections of Introduction to Psychology at the university from the fall of 2000 through the spring of 2007. We excluded data from the analysis if the student withdrew from the course, had an incomplete, or had previously taken the course. Our sample consisted of 14,442 students, 64% of whom were women. The ethnic composition of our sample was: American Indians ($n = 289$ or 2.0%), African Americans ($n = 492$ or 3.4%), Hispanics ($n = 1,769$ or 12.2%), Asians ($n = 915$ or 6.3%), and European Americans ($n = 10,977$ or 76.0%).

Measures of Grades

Introduction to Psychology grade and university GPA were culled from institutional records. Introduction to Psychology course grade was coded on a 5-point scale as follows: "F" = 0, "D" = 1, "C" = 2, "B" = 3, and "A" = 4. The university GPA was extracted for each student at the end of the semester that he or she completed Introduction to Psychology. Scores on this variable ranged from 0 to 4.0, with 0 indicating that a student earned grades of "F" in all of their courses and 4.0 indicating that a student earned grades of "A" in all of their courses.

Results

Table 2 presents means and standard deviations for each ethnic group. For every ethnic group, the mean course grade in Introduction to Psychology was lower than the mean university GPA. However, those differences were more pronounced for American Indian students.

We carried out a 5×2 mixed analysis of variance (ANOVA). The between-subjects fac-

Table 2
Descriptive Statistics for Introduction to Psychology Grade and University GPA by Ethnic Group

Ethnic group	Introduction to Psychology Grade		University GPA		Difference score	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
American Indians	1.68	1.40	2.57	0.90	0.89	1.18
African Americans	1.77	1.32	2.52	0.79	0.75	1.16
Hispanics	2.14	1.34	2.75	0.85	0.61	1.20
Asians	2.43	1.31	2.84	0.84	0.41	1.13
European Americans	2.50	1.25	2.90	0.80	0.40	1.09
Total	2.41	1.29	2.86	0.81	0.45	1.11

Note. $N = 14,442$. The difference score is the university GPA minus the Introduction to Psychology grade. GPA = grade point average.

tor was ethnicity (American Indian, African American, Hispanic, Asian, or European American) and the within-subjects factor was type of grade (university GPA vs. Introduction to Psychology). The main effects due to ethnicity, $F(4, 14437) = 91.27$, and to type of grade, $F(1, 14437) = 1,046.39$, were significant ($p < .001$). Moreover, these main effects were qualified by a significant ($p < .001$) Ethnicity \times Type of Grade interaction effect, $F(4, 14437) = 35.08$. To further probe the interaction effect, we formed difference scores by subtracting each student's grade in the course from his or her university GPA. The effect of ethnicity on the difference scores was significant, $F(4, 14437) = 43.16$, $p < .001$. Next, with American Indian students serving as the comparison group, we conducted Dunnett's post hoc test on the difference scores. Relative to European American ($M = 0.40$), Asian ($M = 0.41$), and Hispanic ($M = 0.61$) students, American Indian students, ($M = 0.89$) had significantly ($p < .05$) larger difference scores.

Discussion

Previous research has shown that American Indian students have lower college GPAs than European American students (e.g., Lunneborg & Lunneborg, 1986). To our knowledge, the current study was the first to show that the gap between university GPA and course grade in Introduction to Psychology was greater for American Indian students than for European American, Asian, and Hispanic students (although not significantly different from African Americans). This finding reinforces the notion that Introduction to Psychology is a difficult

course for students in general and for Native American students in particular.

Study 3

Having established that the difference between university GPA and Introduction to Psychology grades was larger among American Indian than among European American, Asian, and Hispanic students, we next examined whether ethnic differences in Introduction to Psychology grades remained when we controlled for several variables including university GPA.

Measures

Using the same data set, the archival variables assessed were Introduction to Psychology grade, university GPA, ethnicity, sex, whether the student was a first-year student, cohort (year of entry at the university), whether the student lived on campus, whether the student was a psychology major, standardized test scores, and high school GPA. Students who were in high school the spring before they enrolled at the university and who were 19 years old or younger were considered to be "first-year" students. In contrast, students who were sophomores, juniors, and seniors, as well as first-year students who had taken time off from their education following high school were not considered to be first-year students. Cohort membership was based on the academic year that students enrolled in a section of Introduction to Psychology. For students who completed the

SAT, total SAT scores were used. For students who completed only the ACT, total ACT scores were converted to SAT total scores. High school GPA scores ranged from 0 to 4.0, with 0 indicating that a student earned grades of “F” in all of their courses and 4 indicating that a student earned grades of “A” in all of their courses.

The average class size for Introductory Psychology at this university is greater than 100 students and classes may have up to as many as 450 students. The beneficial effects of lower class size in higher education decline precipitously at between 20 and 30 students—especially in classes promoting critical thinking skills (Kokkelenberg, Dillon, & Christy, 2008). Thus, although class size data were available, we did not analyze academic performance by class size.

Results

We assessed the bivariate associations between ethnicity and the other predictors and grade in Introduction to Psychology. We used the Pearson r when the predictor was continuous, the point-biserial correlation coefficient when the predictor was dichotomous, and the multiple r when the predictor was polychotomous. The strongest correlates of Introduction to Psychology grades were university GPA ($r = .51$), high school GPA, ($r = .40$), and standard-

ized test score ($r = .38$). Among the sociodemographic variables, ethnicity exhibited the strongest association with Introduction to Psychology grades (multiple $r = .16$).

Next, we regressed Introduction to Psychology grade on the predictor variables in a simultaneous multiple-regression model. In concert, the predictors explained 36.4% of the variance in course grade, $F(17, 14424) = 488.93$, $p < .001$. Table 3 provides information from the regression analysis on the contribution of each variable to predicting course grades.

Grades in Introduction to Psychology were higher as university GPA, standardized test scores, and high school GPA increased. Among the sociodemographic variables, the strongest predictor of Introduction to Psychology grades was being a European American student (as compared to being an American Indian student). In the multivariate model, Hispanic, Asian, and African American students also had higher Introduction to Psychology grades than American Indian students. Finally, students who lived in a dorm, were female, were not first-year students, were psychology majors, and were members of the Fall 2000/Spring 2001 cohort (relative to members of most subsequent cohorts) had higher Introduction to Psychology grades.

To estimate the magnitude of the unique effect of ethnicity on Introduction to Psychology

Table 3
Summary of Regression Model Predicting Grade in Introduction to Psychology

Predictor	b	SE	β	p
University GPA	.59	.01	.38	<.001
High school GPA	.50	.02	.17	<.001
Standardized test score	.00	.00	.21	<.001
Sex	.11	.02	.04	<.001
Young first year	-.14	.02	-.06	<.001
2001–2002 cohort	-.08	.03	-.02	<.050
2002–2003 cohort	-.25	.03	-.07	<.001
2003–2004 cohort	-.31	.03	-.08	<.001
2004–2005 cohort	.02	.03	.01	.492
2005–2006 cohort	-.37	.03	-.10	<.001
2006–2007 cohort	-.17	.03	-.05	<.001
Psychology major	.21	.06	.02	<.002
Living in a dorm	.09	.02	.03	<.001
European American	.45	.06	.15	<.001
Hispanic	.34	.06	.09	<.001
Asian	.44	.07	.08	<.001
African American	.23	.08	.03	<.010

Note. $N = 14,442$. GPA = grade point average.

grades, we computed the increment in R^2 associated with entering the four dummy variables comprising ethnicity into the regression model after all of the other predictors had been entered. The increment in R^2 was .004, conditional $F(4, 14424) = 19.99, p < .001$. Thus, when we controlled for all of the other variables in the model, the variance in Introduction to Psychology grades explained by ethnicity was reduced by .022 (from .026 to .004).

Discussion

When we controlled for college GPA, high school GPA, standardized test scores, and several demographic variables, ethnicity remained a significant ($p < .001$) predictor of grades in Introduction to Psychology. On the one hand, the difference between the gross R^2 and the net R^2 associated with ethnicity was substantial (.026 vs. .004), suggesting that the other predictors largely account for the association between ethnicity and grades in Introduction to Psychology. On the other hand, it is striking that, controlling for all of these predictors, all four dummy variables representing contrasts between American Indian students and the other ethnic groups were significant (highest $p < .004$). Although Introduction to Psychology is a very difficult class for all ethnic groups at this university, American Indians are the least likely to do well.

Study 4

What makes Introduction to Psychology so difficult for many American Indian students? One hypothesis may be a lack of fit between Native American learning styles and the lecture approach typically used in teaching this course. We reasoned that the plethora of textual versus diagrammatic information, testing that emphasizes rote memorization, and large impersonal classes may be especially problematic for American Indians. In addition, there may be perspectives taken in psychology that conflict with certain Native American worldviews. Thus, we administered an exploratory online survey, near the end of the semester, to students who were currently enrolled in or had recently completed the course.

Participants

Over 800 students from seven different sections of Introduction to Psychology, and several students who had previously taken the course, participated in an anonymous survey for extra class credit. Participants were mostly European American ($n = 536$) with 37 African Americans, 116 Hispanics, 49 Asians, 24 Middle Easterners, and 21 American Indians. Twenty-six participants reported a multiethnic background and seven students did not provide ethnicity information. Fifty-five percent of the participants were women.

Method

Participants were asked to tell us, in their own words, what makes the course so difficult. The students were also asked: (1) questions about getting academic assistance, (2) strategies for success in the course, (3) preferred methods of instruction, (4) preferred types of test questions, and (5) whether the course material was contrary to their cultural or religious beliefs. Students were assured that their responses would be anonymous in the expectation that we might obtain honest responses. Information regarding the students' academic performance in the course was not collected for three reasons: (1) the semester was still in progress for these student participants and the final grade had not been earned, (2) the students were guaranteed anonymity and the grades could not be matched to participants at the end of the semester, and (3) we had little confidence that students could or would accurately self-report their actual final course grade.

Whenever possible, answers to open-ended questions were coded in mutually exclusive categories. Thus, when students provided multiple explanations for why Introduction to Psychology was difficult, their answer was coded according to their first answer or the most extensive answer. For each question, we report percentages *combining* the American Indian and European American participants and then use chi-square tests to *compare* the percentages for American Indian and European American students (the dominant cultural group at this university and in this exploratory survey).

Results

As can be seen in Table 4, 32% of the students reported that it was simply the lack of motivation on the part of the students (either themselves or others) that accounts for the poor academic performance in Introduction to Psychology. The difficulty of the material (21%) was the next most frequently given response, followed in descending order by: too much information (14%), too large class sizes—which typically was linked to poor attendance (13%), issues with the exams (11%), and “other,” which often was associated with a lack of homework to offset poor exam grades (10%). A chi-square test showed that the responses of American Indians and European Americans were

significantly different across the six categories, $\chi^2(5, N = 557) = 11.84, p < .05$, Cramer's $V = .146$. American Indians were more likely than European Americans to attribute course difficulties to too much information, test issues, and overly large class sizes. In contrast, European Americans were more likely to attribute course difficulties to the lack of motivation and the difficulty of the material.

Next, we asked students, in an open-ended response format, about getting additional help with the course material. As a whole, a majority of students responded that they either sought out a friend (37%) or read the book (32%). A chi-square test showed that the responses of American Indian and European American students were significantly different across the seven

Table 4

Comparison of American Indian and European American Responses (in Percentages) on the Exploratory Survey of Students' Perceptions of Introduction to Psychology

Variable	Total (<i>N</i> = 557)	American Indians (<i>n</i> = 21)	European Americans (<i>n</i> = 536)
Source of course difficulties			
Too much information	13.6	23.8	13.2
Test issues	11.1	23.8	10.7
Material is too difficult	21.0	4.8	21.6
Class sizes are too large	12.6	23.8	12.1
Students are not motivated	31.8	14.3	32.5
Other	9.9	9.5	9.9
Total	100.0	100.0	100.0
Getting help with the course			
Nothing	4.6	4.8	4.6
Internet	4.9	14.3	4.6
Textbook ^a	31.5	19.0	32.0
Friends	37.2	28.6	37.5
Supplemental instruction	8.8	28.6	8.0
Re-read class notes	5.5	0.0	5.7
Other	7.5	4.8	7.6
Total	100.0	100.0	100.0
Strategies for success			
None	24.4	23.8	24.4
Flashcards	24.2	38.1	23.7
Book	7.0	19.0	6.5
Re-read class notes	10.6	9.5	10.6
Other	33.8	9.6	34.8
Total	100.0	100.0	100.0
Most difficult type of test			
Memorized facts and vocabulary	35.7	52.4	35.0
Theories ^b	40.4	38.1	40.5
Practical applications	24.0	9.5	24.5
Total	100.1	100.0	100.0

Note. *N* = 557.

^a *n* = 21 for American Indians and 525 for European Americans. ^b *n* = 21 for American Indians and 534 for European Americans.

most common response categories, $\chi^2(6, N = 546) = 16.50, p < .05$, Cramer's $V = .174$. Relative to European Americans, American Indians relied much less on the book (19% American Indian vs. 32% European American). In contrast, as compared to European Americans, American Indians were more likely to search the Internet (14% American Indian vs. 5% European American) or attend a supplemental small group session (29% American Indian vs. 8% European American). Supplemental instruction sessions are university-sanctioned, small group discussion and review sessions led by peer mentors.

When asked to provide strategies for success in Introduction to Psychology, regrettably 24% of the students said they had no strategy at all. Twenty-four percent of the students recommended flashcards and 35% noted "other" strategies. A chi-square test showed that the responses of American Indian and European American students were significantly different across the five most frequent coded response categories, $\chi^2(4, N = 557) = 10.07, p < .05$, Cramer's $V = .130$. On the one hand, American Indian students were more likely than European American students to mention flashcards as a strategy for success. On the other hand, European American students were more likely than American Indian students to mention "other"

strategies for success related to studying daily and attending classes. In addition, in the open-ended format, 16% of the European American respondents were able to articulate specific mnemonic strategies for success in memorizing course information (e.g., crossword puzzles, word associations, jingles, or acronyms). In contrast, none of the American Indian respondents provided this kind of information, $\chi^2(1, N = 557) = 4.20, p < .05$, Cramer's $V = .087$.

When asked which type of test was the most difficult, 40% of all respondents said that tests on theories were the worst, followed by memorization (36%), and then practical applications (24%). Although over half of the American Indian students reported that tests of memorized information were the most difficult, a chi-square test showed that differences between American Indians and European Americans did not meet conventional tests of significance across the three categories, $\chi^2(2, N = 555) = 3.63, p = .16$, Cramer's $V = .081$.

Participants were asked about their preferred learning styles and were allowed to choose from a list of potential responses (see Table 5). Overall, 71% of respondents said that learning from pictures, models, and diagrams was the preferred method, followed by stories/narratives (59%). Because responses to this question were not mutually exclusive, chi-square tests were

Table 5
Comparison of American Indian and European American Learning Style Preferences (in Percentages)

Learning style ^a	Total (<i>N</i> = 557)	American Indians (<i>n</i> = 21)	European Americans (<i>n</i> = 536)
Pictures, models, and diagrams			
Yes	70.7	85.7	70.1
No	29.3	14.3	29.9
Total	100.0	100.0	100.0
Stories/narratives			
Yes	58.7	66.7	58.4
No	41.3	33.3	41.6
Total	100.0	100.0	100.0
Learning from a mentor			
Yes	51.9	47.6	52.1
No	48.1	52.4	47.9
Total	100.0	100.0	100.0
Lecture			
Yes	54.0	33.3	54.9
No	46.0	66.7	45.1
Total	100.0	100.0	100.0

^a Because multiple responses were permitted for the preferred learning style question, we have categorized responses here as yes (preferred) or no (not preferred) for each type of learning style.

carried out separately on each variable. For preference for lectures, there was a marginally significant difference between American Indian (33% yes) and European American (55% yes) students, $\chi^2(1, N = 557) = 3.77, p = .052$, Cramer's $V = .082$, such that American Indians were less likely to prefer learning from lectures.

Although variability in study strategies and learning preferences partially explain ethnic disparities in Introduction to Psychology, there may be difficulties that arise more directly from differences between American Indian and European American worldviews. Therefore, we asked all participants whether the concepts and theories taught in the course were contrary to, or difficult to reconcile with, the beliefs of the participant's cultural group. Approximately 10% of all students replied in the affirmative, including five of the 21 American Indians. These Native students indicated that: (1) psychologists incorrectly think their worldview is superior, (2) course content stirs up deep personal issues, (3) the concepts in psychology conflict with origin narratives, and (4) psychology often seems prejudiced against certain cultural groups. The fifth American Indian student reflected on the psychology of dreams,

Dreams in my culture are usually, when they are bad, thought of as warnings or because someone is trying to harm you. I learned that it may just be a way for our brains to make some sense of knowledge and things in our environment.

Discussion

Our goal in Study 4 was to ask the students in Introduction to Psychology directly why they find the course so difficult. We found that American Indian students differed in several ways from European American students. First, for American Indian students, the most frequently mentioned sources of difficulty were (a) too much information, (b) test issues, and (c) classes being too large. In contrast, for European American students, the difficulty of the material and lack of motivation were the most frequently stated sources of trouble. Indeed, the large class size at this university (between 100 and 450 students) may be particularly problematic for American Indian students for two reasons. First, large classes do not afford opportunities to develop the mentor relationships with authority figures valued by many American In-

dian students (Aragon, 2002; Jackson & Smith, 2001; Pewewardy, 2002). Second, students of both ethnicities in this exploratory survey reported that large class sizes make it easy to "disappear" in the crowd, thereby fostering absenteeism (e.g., Feigenbaum & Friend, 1992). This potential problem is exacerbated in the case of American Indians inasmuch as many American Indians feel obligated to attend to family matters—often necessitating travel to the reservation and missed classes (Cibik & Chambers, 1991).

Both American Indian and European American students sought help with the course from friends and family. However, in the absence of knowledgeable (or otherwise) friends, European American students are more likely to turn to the textbook whereas American Indian students were more likely to use peer-led, small group, supplemental instruction. This preference for collaborative and group learning is supported by previous research (e.g., Lundberg, 2007; Pewewardy, 2002).

Whereas American Indian students did focus on flashcards as a strategy for success more than European American students, the European American students were able to articulate a wide range of precise memorization techniques, an emphasis on daily studying, and regular attendance as strategies for success. These findings are in accord with other research indicating that American Indian students, in particular, may benefit from additional training in study strategies (e.g., Cibik & Chambers, 1991).

Finally, both ethnic groups indicated a preference for learning via pictures, models, and diagrams. Only one third of American Indian students, and about 50% of European American students, felt they learned better via lectures despite the fact that such courses typically are presented in a large lecture hall environment.

General Discussion

Concern has grown regarding the underrepresentation of ethnic minorities in higher education in general, and in psychology, in particular. Consequently, during the past decade, there has been a focus in psychology on recruiting and training college students from ethnic minority populations, including American Indians. For example, following the recommendation of American Psychological Association's (APA)

Commission on Ethnic Minority Recruitment, Retention, and Training in Psychology (Trimble, Stevenson, & Worell, 2003), federally funded programs were established at a number of universities (e.g., University of North Dakota, University of Montana, Oklahoma State University, and Utah State University). Since the implementation of such programs, the number of ethnic minority psychology degrees conferred has increased for all ethnic groups, with an increase in degrees conferred for American Indians as well (Holliday & Holmes, 2003; Maton, Kohout, Wicherski, Leary, & Vinokurov, 2006).

However, although recruitment programs sponsored by the APA, Indian Health Service, and various colleges and universities have been successful, we were concerned that many ethnic minority students are unable to continue toward a degree because they perform poorly in certain introductory courses. In the present study, we focused on the academic performance of ethnic minority students, in general, and American Indian students in particular, in Introduction to Psychology at a single Research 1 university.

As expected, we found that Introduction to Psychology is a particularly difficult course for all ethnic groups. Moreover, the association between ethnicity and earning a passing versus a failing grade was strongest in Introduction to Psychology. Consistent with these findings, every ethnic group had a lower mean course grade in Introduction to Psychology than their group's overall college GPA, and the gap was significantly larger for American Indian students relative to most other groups including European Americans, the dominant cultural group at this institution.

We next examined whether an available set of academic, social, and demographic variables could account for ethnic differences in grades in Introduction to Psychology. A regression model demonstrated that grades in Introduction to Psychology were higher as college GPA, high school GPA, and standardized test scores increased. Furthermore, we also observed significant and unique, but relatively small effects for cohort, sex, age relative to class standing, being a psychology major, and residence in a dormitory. The mean grade in Introduction to Psychology also decreased from the earliest cohort to the most recent cohort, a result that may reflect changes in the composition of students enrolled in this course. Living in a dorm (as

compared to living off-campus) was also associated with better grades in Introduction to Psychology. This is consistent with previous research showing that social integration within the academic community is a positive predictor of academic learning (e.g., Kuh, Kinzie, Schuh, & Whitt, 2005; Mayo, Murguia, & Padilla, 1995; Tinto, 1993). Psychology majors may have outperformed nonpsychology majors in Introduction to Psychology because they are more motivated to do well in their first psychology course. Consistent with studies of sex differences in college GPA (e.g., Ruban & McCoach, 2005), we also found that women earned better grades than men in Introduction to Psychology. Finally, older students beyond the first year of college did better in the course than younger, first-year students; perhaps, because they have developed a set of academic skills for coping with course work in college.

American Indians and Introduction to Psychology

In light of our findings, an important question remained as to why Introduction to Psychology is such a difficult course for American Indian students. To begin to understand this phenomenon, we conducted a web-based survey to obtain students' perceptions of why Introduction to Psychology is so difficult. In many ways, American Indian students did not differ substantially from students in the dominant culture. However, they mentioned more frequently than their peers that too much (vs. too difficult) material was presented in class. Research regarding variation in learning styles may be informative here, suggesting that reflective, deep processing is preferred by many American Indian learners (Pewewardy, 2002).

Our findings also suggest that American Indians may be especially disadvantaged when it comes to learning and assessment by rote memorization. Tests in Introduction to Psychology at this university are typically given in a multiple-choice format and require the recall of isolated terms and facts. Many American Indians have a learning style that centers on "process over product, legends, and stories as traditional teaching paradigms, knowledge obtained from self, and cognitive development through problem-solving techniques" (Pewewardy, 2002,

p. 35). We suggest that many American Indians college students are not deficient, but different, and that they may do much better on assessments that encourage the application of important information in novel or practical ways (e.g., Sternberg et al., 2008).

Despite the relatively low number of American Indian respondents in this exploratory survey ($n = 21$), we believe the literature on learning styles and academic engagement supports our finding that the lecture mode of delivery and multiple-choice exams characteristic of Introduction to Psychology do not correspond with the typical American Indian student's approach to learning. This mismatch may be compounded by the fact that nearly all sections of Introduction to Psychology at this university are taught in large sections with over 100, and sometimes as many as 450, students, making it difficult to make up for nonattendance and to develop valued mentor relationships with faculty instructors.

Implications of the Difficulties in Introduction to Psychology

The failure to achieve academic success in Introduction to Psychology has broad implications even beyond issues of retention. Although Native American behavioral health care professionals are effective, the number of American Indians currently pursuing careers in psychology is inadequate to meet the needs of the Native American Indian community (Holliday & Holmes, 2003; Westberg, 2000). Specifically, there is a lack of culturally informed helping professionals who are capable of integrating American Indian worldviews with non-Indian psychological theories and practices. This shortage has been officially recognized by the APA (2007), the National Institute of Mental Health (The National Advisory Mental Health Council Workgroup on Racial/Ethnic Diversity in Research Training & Health Disparities Research, 2001), and the National Science Foundation (National Science Foundation, 2008). Although our concern has been the academic success of American Indian college students, there may be other kinds of at-risk culture groups that would benefit from focused attention such as certain age groups, religious groups, or students with lower socioeconomic status (Cohen, 2009).

Limitations

Our study is limited in at least four ways. First, the history of the education of American Indians in the United States is marked by periods of either forced assimilation or movements toward Indian self-determination that have resulted in a system of tribal colleges whose purpose is to provide a culturally relevant postsecondary education for American Indians (McClellan, Tippeconnic Fox, & Lowe, 2005). Our study was conducted at a single institution with a predominantly European American faculty and student body. Therefore, we recognize that our findings from data collected at a large, research-oriented, urban, public university may not generalize to the tribal college setting or to other types and other geographical locations of European American institutions of higher education. Second, we were unable to isolate the extent to which variables such as course content, types of testing, instructional strategies, and class size contribute to ethnic differences in the gap between overall academic performance and grades in Introduction to Psychology. For example, by studying a variety of introductory level courses across the curriculum, it might be possible to identify which course attributes are related to ethnic difference in course grades. Third, because we relied on archival data, we were unable to include in our regression model predictors such as academic self-regulation strategies that may account for ethnic differences in academic performance (Bembenuddy, 2007). Fourth, the qualitative data collected in Study 4 should be expanded in future studies with special attention to how grades in Introduction to Psychology are linked to individual differences in perceptions of course difficulty.

Enhancing the Success of Native American College Students in Introduction to Psychology

Our study provides some direction for advisors and administrators in higher education. First, being made aware of potential difficulties in Introduction to Psychology, advisors may wish to recommend this course in semesters with a lighter course load. Second, many of our students suggested that the course should only be taken in a student's second year, when students may be more motivated, and may have

developed the required studies habits, skills, and academic experience. For example, the material in Introduction to Psychology may simply be easier to learn with more related knowledge available (Thompson & Zamboanga, 2003). Ethnic minorities, in general, and American Indians, in particular, may be especially disadvantaged in their first year. Low family income or residency in rural areas, may afford fewer encounters with the concepts, concerns, and terminology presented in Introduction to Psychology (e.g., Demmert et al., 2006). Third, advisors should be sure that students are forewarned about the difficulty of Introduction to Psychology and that attendance is a necessary but not sufficient condition for success in this course (Cabe, 2003).

The participants in our study stated that they benefited from supplemental instruction sessions conducted in a smaller, more personal, setting. Thus, another possible strategy for enhancing the academic performance of all students may be to provide academic support from a staff member or faculty member with whom they can identify and interact (Brown & Robinson Kurpius, 1997; Mayo et al., 1995). Perhaps, a similar benefit would be derived by pairing them with undergraduate teaching assistants who had previously taken Introduction to Psychology and who did well in the course (Kuh et al., 2005; Shotton, Oosahwe, & Cinton, 2007). In addition, culturally knowledgeable peers or student mentors could facilitate discussions of the strategies that they have been found to be successful in coping with the academic demands of the course (e.g., Gilbert, 2000).

The instructors who teach Introduction to Psychology may have the greatest opportunity to improve the success of an ethnically diverse student population. One strategy would be for course instructors to present information on learning and memory in the first weeks of the course, perhaps giving students of every group additional cognitive tools for success at the outset (e.g., Credé & Kuncel, 2008). Instructors also could be sure to include at least some theoretical and practical application questions on exams. Although we did not find significant differences across ethnic groups regarding course content, another possibility would be to include more perspectives and applications in the curriculum relevant to a diverse student

population (Trimble, Stevenson, & Worell, 2003), thereby providing cognitive connections so important for learning. Finally, the results of this study suggest that students of all ethnicities may benefit from opportunities to learn from hands-on models, diagrams, or video clips to supplement lectures. We realize that the demands placed on instructors are great. If the suggestions offered here are not feasible, students should, at the very least, be made aware of the possible discrepancy between their learning preferences and the instructional approach that is typically employed in first-year survey courses such as Introduction to Psychology.

The German novelist, Johann Wolfgang von Goethe is often attributed with the quotation, "Whatever you can do, or dream you can do, begin it. Boldness has genius, power, and magic in it" (Murray, 1951, p. 7). That advice can be extended to psychology instructors, academic professionals, and administrators seeking to recruit and retain ethnic minorities in higher education. Keep in mind, however, that the dream of educating an ethnically diverse population may be disrupted in the first year of college if one out of five ethnic minority students fail Introduction to Psychology.

References

- American Psychological Association, Council of Representatives, August 16 & 19, 2007. (2007, August 19). *XIII. Ethnic Minority Affairs*. Retrieved June 15, 2009, from <http://www.apa.org/about/governance/council/07aug-crminutes.aspx>
- Aragon, S. R. (2002). An investigation of factors influencing classroom motivation for postsecondary American Indian/Alaska Native students. *Journal of American Indian Education, 41*, 1–18.
- Ashenfelter, O., & Rouse, C. (2000). Schooling, intelligence, and income in America: Cracks in the bell curve. In K. Arrow, S. Bowles, & S. Durlauf (Eds.), *Meritocracy and economic inequality*. Princeton, NJ: Princeton University Press.
- Astin, A. (1985). *Achieving educational excellence: A critical assessment of priorities and practices in higher education*. San Francisco, CA: Jossey-Bass.
- Bembenutty, H. (2007). Self-regulation of learning and academic delay of gratification: Gender and ethnic differences among college students. *Journal of Advanced Academics, 18*, 586–616.
- Brown, E. F., Lee, J., Hunter, P., & Donlan, W. (2006, July). *A report on increasing the retention rate of American Indian undergraduates at Ari-*

- zona State University. Phoenix: Arizona State University.
- Brown, L. L., & Robinson Kurpius, S. E. (1997). Psychosocial factors influencing academic persistence of American Indian college students. *Journal of College Student Development, 38*, 3–12.
- Cabe, P. A. (2003, November 12). Re: Why psychology is so hard [Electronic mailing list message]. Retrieved from <http://www.mail-archive.com/tips@acsun.frostburg.edu/msg23448.html>
- Cibik, M. A., & Chambers, S. L. (1991). Similarities and differences among Native Americans, Hispanics, Blacks, and Anglos. *NASPA Journal, 28*, 129–139.
- Cohen, A. B. (2009). Many forms of culture. *American Psychologist, 64*, 194–204.
- Credé, M., & Kuncel, N. R. (2008). Study habits, skills, and attitudes: The third pillar supporting collegiate academic performance. *Perspectives on Psychological Science, 3*, 425–453.
- Demmert, W. G., Grissmer, D., & Towner, J. (2006). A review and analysis of the research on Native American students. *Journal of American Indian Education, 45*, 5–23.
- Feigenbaum, E., & Friend, R. (1992). A comparison of freshmen and upper division students' preferences for small and large psychology classes. *Teaching of Psychology, 19*, 12–16.
- Freeman, C., & Fox, M. (2005). *Status and trends in the education of American Indians and Alaska Natives* (NCES 2005–108). Washington, DC: U.S. Government Printing Office, U.S. Department of Education, National Center for Education Statistics.
- Gaultney, J. F., & Cann, A. (2001). Grade expectations. *Teaching of Psychology, 28*, 84–87.
- Gilbert, W. S. (2000). Bridging the gap between high school and college. *Journal of American Indian Education, 39*.
- Holliday, B. G., & Holmes, A. L. (2003). A tale of challenge and change: A history and chronology of ethnic minorities in psychology in the United States. In G. Bernal, J. E. Trimble, A. K. Burlew, & F. T. Leong (Eds.), *Handbook of racial and ethnic minority psychology* (pp. 15–64). Thousand Oaks, CA: Sage.
- Horstmanshof, L., & Zimitat, C. (2007). Future time orientation predicts academic engagement among first-year university students. *British Journal of Educational Psychology, 77*, 703–718.
- Indian Health Service. (n.d.). *IHS fact sheets: Indian health disparities*. Retrieved from <http://info.ihs.gov/Disparities.asp>
- Jackson, A. P., & Smith, S. A. (2001). Postsecondary transitions among Navajo Indians. *Journal of American Indian Education, 40*, 28–47.
- Kokkelenberg, E., Dillon, M., & Christy, S. M. (2008). The effects of class size on student grades at a public university. *Economics of Education Review, 27*, 221–233.
- Krause, K.-L., & Coates, H. (2008). Students' engagement in first-year university. *Assessment & Evaluation in Higher Education, 33*, 493–505.
- Kuh, G., Kinzie, J., Schuh, J. H., & Whitt, E. J. (2005). *Student success in college: Creating conditions that matter*. San Francisco, CA: Jossey-Bass.
- Lundberg, C. A. (2007, July/August). Student involvement and institutional commitment to diversity as predictors of Native American student learning. *Journal of College Student Development, 48*, 405–417.
- Lunneborg, C. E., & Lunneborg, P. W. (1986). Beyond prediction: The challenge of minority achievement in higher education. *Journal of Multicultural Counseling and Development, 14*, 77–84.
- Marsh, H., & O'Mara, A. (2008). Reciprocal effects between academic self-concept, self-esteem, achievement, and attainment over seven adolescent years: Unidimensional and multidimensional perspectives of self-concept. *Personality and Social Psychology Bulletin, 34*, 542–552.
- Maton, K. I., Kohout, J. L., Wicherski, M., Leary, G. E., & Vinokurov, A. (2006). Minority students of color and the psychology graduate pipeline: Disquieting and encouraging trends, 1989–2003. *American Psychologist, 61*, 117–131.
- Mayo, J., Murguía, E., & Padilla, R. V. (1995). Social integration and academic performance among minority university students. *Journal of College Student Development, 36*, 542–552.
- McClellan, G. S., Tippeconnic Fox, M. J., & Lowe, S. C. (2005). Where we have been: A history of Native American higher education. *New Directions for Student Services, 109*, 7–15.
- Mirowsky, J., & Ross, C. (2003). *Education, social status, and health*. New York: Aldine de Gruyter.
- Murray, W. H. (1951). *The Scottish Himalayan expedition*. London: Dent.
- National Advisory Mental Health Council Workgroup on Racial/Ethnic Diversity in Research Training and Health Disparities Research. (2001). *An investment in America's future: Racial/ethnic diversity in mental health research centers*. Washington, DC: National Institute of Mental Health.
- National Science Foundation. (2008, August). *Broadening participation at the National Science Foundation: A framework for action*. Retrieved from http://www.nsf.gov/od/broadeningparticipation/nsf_frameworkforaction_0808.pdf
- Okun, M., & Finch, J. F. (1998). The big five personality dimensions and the process of institutional departure. *Contemporary Educational Psychology, 23*, 233–256.

- Pewewardy, C. (2002). Learning styles of American Indian/Alaska Native students: A review of the literature and implications for practice. *Journal of American Indian Education, 41*, 22–56.
- Ruban, L. M., & McCoach, D. B. (2005). Gender differences in explaining grades using structural equation modeling. *Review of Higher Education, 28*, 475–502.
- Shadish, W. R., & Haddock, C. K. (1994). Combining estimates of effect size. In H. Cooper & L. V. Hedges (Eds.), *The handbook of research synthesis* (pp. 261–281) (1st ed.). New York: Russell Sage Foundation.
- Shotton, H. J., Oosahwe, S. L., & Cintron, R. (2007). Stories of success: Experiences of American Indian students in a peer-mentoring retention program. *The Review of Higher Education, 31*(1), 81–107.
- Sternberg, R. J., Grigorenko, E. L., & Zhang, L. (2008). Styles of learning and thinking matter in instruction and assessment. *Perspectives on Psychological Science, 3*, 486–508.
- Sternberg, R. J., & The Rainbow Project Collaborators. (2006). The Rainbow Project: Enhancing the SAT through assessments of analytical, practical and creative skills. *Intelligence, 34*, 321–350.
- Thompson, R. A., & Zamboanga, B. L. (2003). Prior knowledge and its relevance to student achievement in introduction to psychology. *Teaching of Psychology, 30*, 96–101.
- Tinto, V. (1988). Stages of student departure: Reflections on the longitudinal character of student leaving. *Journal of Higher Education, 59*, 438–455.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). Chicago, IL: University of Chicago Press.
- Trimble, J. E., Stevenson, M. R., & Worell, J. P. (2003). *Toward an inclusive psychology: Infusing the introductory psychology textbook with diversity content*. Washington, DC: American Psychological Association.
- U.S. Census Bureau, Housing and Household Economic Status Division. (2005, May 13). *Income: Earnings by Occupation and Education*. Retrieved October 16, 2008, from U.S. Census Bureau: www.census.gov/hhes/www/income/earnings/call1usboth.html
- Wells, R. N. (1997). *The Native American experience in higher education: Turning around the cycle of failure II*. (ERIC Document Reproduction Service No. 414 108). Washington, DC: U.S. Department of Education.
- Westberg, J. (2000, Fall). Native Americans in the health professions: Psychology. *Winds of Change*. Retrieved from <http://www.wocmag.org/2000/fall/cont.html>
- Whitbeck, L. B., Hoyt, D. R., Stubben, J. D., & LaFromboise, T. (2001). Traditional culture and academic success among American Indian children in the upper midwest. *Journal of American Indian Education, 40*, 48–60.

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