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Impact of the Academic–Social Context on American Indian/Alaska Native Students' Academic Performance

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Impact of the Academic-Social Context on American Indian/Alaska Native Students' Academic Performance

Abstract
American Indian/Alaska Native (AI/AN) students have the highest dropout rates of any racial or ethnic group. This study posits that a poor academic–social context (ASC) contributes to a low grade point average, which in turn negatively affects AI/AN students' persistence to graduation. The present study compares the self-reported academic performance of AI/AN undergraduate students with that of students from other ethnic backgrounds to evaluate whether variation in students' ASC and any identified medical conditions differentially affect AI/AN students' academic performance. Findings suggest that AI/AN students enter college with poorer ASC and have lower grade point averages. This study points to the importance of further investigations into the effects of social contexts on AI/AN students' academic achievement and retention in college.

Key words: *academic performance, academic–social context (ASC), Alaska Native, American Indian, college, grade point average (GPA).*

Background

According to the U.S. Census Bureau (2010), in that year, minorities comprised approximately 28% of the population. Whites make up approximately 60% of new college student enrollment in the United States, with African Americans representing about 14%, Hispanics making up about 13%, and American Indian/Alaska Natives (AI/ANs) consisting of only about 0.8% (O'Brien, 1992). Of the approximate 19 million college students in the United States, AI/AN students are the minority within the minority (U.S. Department of Education, 2009).

Unfortunately, AI/ANs enter college at very low rates, and—even more unfortunately—their college completion rates are also extremely low. The gap between underrepresented minorities, specifically AI/AN students (Braxton, Brier, & Steele, 2008; National Center for Education Statistics, 2004; Patterson, 2012; Patterson, Ahuna, Tinnesz, & Van Zile-Tamsen, 2014; Tinto, 1975, 1993), and other student populations is staggering. According to Brown and Robinson-Kurpius (1997), 75%–93% of AI/AN students drop out of college prior to degree completion. The fact is, AI/AN students who get a high school diploma and begin attending college have the highest rate of dropping out of college compared to any other student demographic.

Previous efforts have sought to explain AI/AN student dropout from a systems perspective. For instance, several studies have examined the educational system's designs (Goodlad, 1984; Sherman & Sherman, 1990; Weis, Farrar, & Petrie, 1989), instructor attitudes (Deyhle, 1989; Platero, Brandt, Witherspoon, & Wong, 1986; Reyhner, 1990), and ineffective curriculum and instruction techniques (Freeman & Freeman, 1988; Reyhner, 1992; Swisher & Deyhle, 1989). These studies have revealed that the educational structure is partly to blame for high dropout rates for AI/ANs.

There have also been other efforts to study and search for individual issues of students who drop out from college. For instance, Brayboy, Fann, Castagno, and Solyom (2012) identified poor preparatory education and lack of community role models as factors that contribute to poor performance in higher education.

This article takes the position that a successful academic–social context (ASC) is one that best serves the student in relation to academic performance. The boundaries of academic and social activities create a context that promotes success in college. The most powerful factor associated with college completion is being successful while *in college*. There is a distinct and reliable relationship between academic performance and college completion (Adelman, 1998, 1999; DesJardins, Ahlburg, & McCall, 1999; DesJardins, McCall, Ahlburg, & Moye, 2002). The established literature indicates that full-time attendance is another factor that increases the likelihood that students will continue to graduation (Bradburn, 2002; Horn, 1998; King, 2003; Metzner & Bean, 1987; Starkey, 1994). Persistence to degree completion is also related to relationship status. Students who are in a relationship living together or who become parents are more likely to drop out of college (Adelman, 1999; Stratton, O'Toole, & Wetzel, 2007).

Students who commute to class are less likely than those who live on campus to socialize as student learners, engage regularly with faculty, and have friends who are students (Bean & Metzner 1985; Chickering, 1969, 1974). Historically, the literature indicates that employment and hours worked per week are associated with college success (Alfred, 1973; Lenning, Beal, & Sauer, 1980; Peng & Fetters, 1978); the more time students dedicate to scholarly efforts, the more beneficial it is to academic success. Having additional responsibilities related to employment places a burden on academic endeavors. Conversely, students who do have time to volunteer benefit personally and academically from those experiences. Many youths are eager to volunteer their time and make meaningful contributions to society (Youniss & Yates, 1999). Having the opportunity to connect with and put into practice his or her own values improves a student's prospects both personally and academically (Fiske & Taylor, 1991).

Finally, the overall health of the student is an important part of ASC. A student's health and wellness have been clearly linked to academic success (Buddington, 2002; Case, Fertig, & Paxson, 2005; Conley & Bennett, 2000; Pritchard & Wilson, 2003). Students who suffer from medical issues also suffer academically. The factors that make up a successful ASC (i.e., full-time enrollment status, not being in a relationship, living on campus, not employed, involved in some academic-related volunteer work, having good health) are all important and have been studied separately. However, it is also important to evaluate a student's success in the context of being enveloped into all of the aforementioned components.

The purpose of this article is to compare the self-reported academic performance of AI/AN undergraduate students with that of students from other ethnic backgrounds. Furthermore, this article studies the effects of variables that describe a student's ASC on performance. The overall goal is to evaluate factors making up an ASC that could obstruct academic performance and success.

Methods

Data set

The present study used data with permission from the American College Health Association (ACHA). These data were collected via four administrations of the National College Health Assessment (NCHA; fall 2008, spring 2009, fall 2009, and fall 2010), a biannual survey the ACHA has administered since 2000. A sample survey (ACHA, n.d.-a), information about participation history (ACHA, n.d.-b), and information concerning the reliability, validity, and generalizability of survey results (ACHA, n.d.-c) are available from ACHA's website (http://www.acha-ncha.org/overview.html).

The present study uses data from the fall 2008 (N = 26,685 students, 40 institutions), spring 2009 (N = 87,105, 117 institutions), fall 2009 (N = 34,208, 57 institutions), and fall 2010 (N = 30,093, 139 institutions) NCHA administrations. All students completed the same item set.

Sample

The sample for this study consisted of the subset of students who (a) described themselves as either male or female (vs. transgender); (b) were undergraduates and were within 3 years of the normal age progression for a full-time undergraduate student (i.e., aged 18 to 21 years for a first-year undergraduate); (c) were attending a U.S. institution; (d) did not describe themselves as "international" students; and (e) reported a valid cumulative grade point average (GPA) (i.e., A through D/F). Against the total sample size of 178,091, 273 students failed criterion a, 44,538 students failed criterion b, 20,948 students failed criterion c, 20,948 failed criterion d, and 11,693 failed criterion e. Removing students failing retention criteria resulted in a final sample of 117,430 students. Table 1 reports the demographics for each subsample and for the total sample. Although the relationship between each demographic variable and the survey subsample was significant at $p <$ .001, the rho effect sizes were uniformly small, ranging from .014 and .015 for the biracial/multiracial and other race–ethnicity categories, respectively, to .090 for the White race–ethnicity category. The mean age for the total sample was 19.86 (SD = 1.51) years, but age differed across the four survey subsamples: $F(3, 117{,}426) = 943.03$, $p < .001$, $\eta = .153$. The means and standard deviations for the four subsamples were as follows: fall 2008, M = 19.62, SD = 1.45; spring 2009, M = 20.08, SD = 1.47; fall 2009, M = 19.76, SD = 1.60; fall 2010, M = 19.53, SD = 1.48. The association between cumulative GPA, hereafter referred to as GPA, and sample was examined by means of a chi-square test and by a univariate analysis of variance (ANOVA). Although both statistical tests were significant—$\chi^2(9, N = 117{,}430) = 180.72$, $p < .001$; $F(3, 117{,}426) = 36.83$, $p < .001$—the rho for the cross-tabulation was .023 and the eta for the ANOVA was .031.

Grade variables

We assessed the grades by a single item on the survey that asked for the respondent's approximate cumulative GPA with responses of A, B, C, D/F, or N/A. A response of N/A was treated as an invalid response per inclusion criterion (e). The data were recoded so that D/F = 1 and A = 4.

Table 1. Demographic Characteristics by Subsample and Total

Characteristic	Fall 2008[a]	Spring 2009[b]	Fall 2009[c]	Fall 2010[d]	Total[e]	Effect size[f]
Female	69.82	65.42	65.76	65.68	66.21	.033
Undergraduate year						.051
First year	33.93	28.07	33.65	36.27	31.38	
Second year	20.18	24.65	21.72	22.88	23.13	
Third year	23.10	23.19	20.67	21.84	22.50	
Fourth year	18.20	18.91	17.38	14.33	17.75	
Fifth year or more	4.59	5.17	6.58	4.67	5.25	
Race and ethnicity						
White, non-Hispanic	79.22	79.28	76.73	68.97	77.05	.090
Black, non-Hispanic	6.63	5.06	6.38	7.82	6.01	.044
Hispanic/Latino	8.60	6.36	6.54	10.48	7.43	.060
Asian or Pacific Islander	9.30	8.77	9.82	13.18	9.80	.053
AI/AN	1.71	1.24	2.25	2.24	1.66	.036
Biracial or multiracial	4.25	3.61	3.36	3.80	3.69	.014
Other	2.88	2.26	2.10	2.34	2.34	.015
Cumulative GPA						
A	36.04	33.67	32.96	34.78	34.10	
B	52.40	51.45	53.26	51.36	51.91	
C	10.97	14.00	13.27	12.98	13.22	
D or F	0.59	0.88	0.51	0.88	0.77	
N	18,375	58,091	21,023	19,941	117,430	

Note. GPA = grade point average. Multiple racial and ethnic category selections allowed. All cross-tabulations are significant at $p < .001$.
[a]N = 18,375. [b]N = 58,091. [c]N = 21,023. [d]N = 19,941. [e]N = 117,430. [f]$\varrho = .023$. $\eta = .031$.

Ethnicity variables

Respondents could choose between seven "select as many as apply" options for race–ethnicity, as shown in Table 1. Inspection of the endorsement patterns revealed that all combinations of options were marked, including none marked and all marked. We elected to treat the Asian, Black, Hispanic, AI/AN, and White options as primary categories and biracial/multiracial and other as secondary categories. We found that 491 students marked AI/AN with no other primary categories, and 935 students marked both AI/AN and White with no other primary categories. Some of the 491 AI/AN and 935 AI/AN–White students marked one or both of the biracial/multiple or other categories as well. Across the four samples, the percentages of AI/AN students ranged from 0.233% to 0.812%, and the percentages of AI/AN–White students ranged from 0.689% to 1.075%. The remaining 115,566 students were defined as the reference group. Among the reference group were students who had marked AI/AN as well as one other primary category; however, their numbers were fewer than 100 in each case and thus were judged to be too small to be analytically meaningful. In addition, 438 respondents marked no ethnicity options and were scored as missing.

Academic–social context variables

We selected five dimensions of students' ASC from the slightly larger set of questions in the ACHA survey. We examined frequencies for each variable and cross-tabulations with ethnicity to guide the

collapsing of response categories with small frequencies so as to yield analyzable cell frequencies. Respondents reported whether (a) they were attending full-time (n = 113,806; 97.29%) or part-time/other (n = 3,169; 2.71%); (b) they were not involved in a relationship (n = 62,896; 53.67%), in a relationship but not living together (n = 46,292; 39.50%), or living together (n = 8,008; 6.83%); (c) they lived in school-sanctioned housing (e.g., residence halls, sororities, fraternities; n = 64,550; 55.07%), with parents (n = 16,916; 14.43%), or in off-campus housing (n = 35,751; 30.50%); (d) they did not work for pay (n = 54,746; 46.80%), worked 1–9 hours per week (n = 22,571; 19.30%), worked 10–19 hours per week (n = 22,783; 19.48%), or worked 20 or more hours per week (n = 16,870; 14.42%); and finally, (e) they did no volunteer work (n = 73,339; 62.93%), volunteered 1–9 hours per week (n = 38,486; 33.03%), or volunteered 10 or more hours per week (n = 4,707; 4.04%).

Disabilities and medical conditions variables

Respondents indicated whether they had any of eight disabilities or medical conditions: attention deficit–hyperactivity disorder (ADHD), chronic illness, deafness/hearing problems, learning disability, mobility/dexterity disability, partially sighted/blind, psychiatric condition, and speech/language disorder. The prevalence of the conditions ranged from 0.54% (mobility/dexterity disability) to 5.39% (ADHD). The four most prevalent conditions were retained for analysis: ADHD (n = 6,290; 5.39%), chronic illness (n = 3,652; 3.13%), learning disability (n = 4,110; 3.52%), and psychiatric condition (n = 4,209; 3.61%). Variables were coded for 1 = yes.

Results

Ethnicity and gender

Table 2 presents the descriptive statistics for the ANOVA of GPA by race–ethnicity and gender. We used multiple regressions to examine the independent effects of race–ethnicity, gender, and their interaction, while controlling for sample effects. The all else race–ethnic group and male were the reference categories for race–ethnicity and gender, respectively. The equation with sample contrasts only was significant: $F(3, 116988) = 36.11$, $p < .001$; $R = .0304$; $R^2 = .0093$. Adding race–ethnicity contrasts yielded a significant increase in R^2, $F(2, 116{,}986) = 29.92$, $p < .001$; $\Delta R^2 = .0005$; b(AI/AN) = -0.240 ± 0.031; b(AI/AN–White) = -0.030 ± 0.022. Adding the gender contrast (female) yielded an additional significant increase in R^2, $F(1, 116{,}985) = 556.98$, $p < .001$; $\Delta R^2 = .0047$; b = -0.099 ± 0.004. However, the Race–Ethnicity × Gender interaction was not significant, $F(2, 116{,}983) = 1.71$, $p > .05$; $\Delta R^2 = .00003$. The results of the final regression equation show that, compared to the all else reference group, AI/AN students average 0.183 ± 0.056 grade points lower, which is significant at $p < .001$, but that AI/AN–White students average 0.016 ± 0.040 grade points higher, which is not significant. Women average 0.100 ± 0.004 grade points higher, which is significant at $p < .001$.

To further explore the differences among the three ethnicity groups with respect to GPA, we cross-tabulated race–ethnicity against GPA. About two-thirds as many AI/AN students report As compared to either AI/AN–White or all other students (20.6% vs. 32.5% and 34.2%, respectively). Larger percentages of AI/AN students report Bs than either AI/AN–White or all other students (56.6% vs. 52.6% and 51.9%, respectively). The same is true for Cs (21.0% vs. 14.0% and 13.2%, respectively). Although a larger percentage of AI/AN students report Ds or Fs, the percentage is based on nine students. Thus, the GPA distribution for AI/AN students seems to be shifted downward at each GPA level rather than showing a deficit at a particular letter grade category.

Table 2. Cumulative GPA by Ethnicity Category and Gender (N = 116,992)

Student	AI/AN	AI/AN–White	All others	Total
Male				
N	147	298	39,063	39,508
Mean GPA	2.95	3.14	3.13	3.13
SD	0.719	0.722	0.699	0.699
Female				
N	344	637	76,503	77,484
Mean GPA	2.97	3.18	3.23	3.23
SD	0.691	0.670	0.672	0.672
Total				
N	491	935	115,566	116,992
Mean GPA	2.96	3.17	3.19	3.19
SD	0.699	0.687	0.683	0.683

Note. GPA = grade point average. AI/AN = American Indian/Alaska Native. Students listed as AI/AN–White used both categories to identify their race and ethnicity.

Academic–social context

To explore the ASC of AI/AN students compared to that of other students, we cross-tabulated five dimension variables against race–ethnicity (Table 3). Four of the five variables had significant chi-square values: enrollment status, relationship involvement, current residence, and paid work participation. However, the effect sizes (rho) of the relationships were uniformly small, ranging from .011 (enrollment status) to .025 (relationship involvement). Overall, about 97.3% of students declared a full-time enrollment. Full-time enrollment was about 1.6 percentage points lower for AI/AN students. With respect to relationship involvement, higher percentages of both AI/AN and AI/AN–White students reported being in a relationship compared to all other students (about 56.2% and 52.2% vs. 46.3%, respectively). In addition, larger percentages of both AI/AN and AI/AN–White students reported living together (about 19.4% and 10.1% vs. 6.8%, respectively). Of the 8,008 students who reported living together, the majority (66.2%) reported their marital status as "single," and only 27.2% reported being "married or partnered." A much larger percentage of AI/AN students reported residing in off-campus and nonparental settings (about 43.1%) than either AI/AN–White or all other students (about 33.7% and 30.4%, respectively). Compared to all other students (53.2%), a higher percentage of AI/AN–White students worked (57.6%), but a slightly lower percentage of AI/AN students (51.2%) worked.

When either AI/AN–White students or AI/AN students, in particular, worked, they worked more hours than all other students. Twenty-two percent of AI/AN students and 18% of AI/AN–White students worked 20 or more hours per week, whereas only 14% of all other students did so.

Table 4 displays how GPA varied with the ASC dimensions examined in this study. All analyses were significant; eta values ranged from .026 (relationship involvement) to .115 (volunteer work). Comparisons of the means revealed the following points: (a) part-time students reported a lower mean GPA than full-time students; (b) students living together in a relationship reported a lower mean GPA than students either in a relationship but not living together or not in a relationship; (c) students living with parents reported the lowest mean GPA, whereas students living on campus reported the highest mean GPA; (d) students working 20 or more hours per week reported the lowest mean GPA, whereas students working fewer than 10 hours per week reported the highest GPA; and last, (e) students doing no volunteer work reported a lower mean GPA than students who participated in volunteer work.

Table 3. Academic–Social Context by Ethnicity Category Cross-Tabulations

Context	All else (%)[a]	AI/AN (%)[b]	AI/AN–White (%)[c]	Total (%)[d]	Effect size (Rho)
Full-time enrollment**	97.30	94.65	97.21	97.29	.011
Relationship involvement***					.025
Not in a relationship	53.74	43.76	47.81	53.65	
In relationship, not living together	39.52	36.81	42.14	39.53	
In relationship, living together	6.75	19.43	10.05	6.83	
Current residence***					.014
On campus	55.14	42.04	52.36	55.06	
Parents	14.44	14.90	13.92	14.44	
Other	30.42	43.06	33.73	30.50	
Paid work***					.015
None	46.84	48.78	42.43	46.81	
1–9 hours	19.33	11.84	17.40	19.29	
10–19 hours	19.45	17.14	22.34	19.47	
20 or more hours	14.37	22.24	17.83	14.44	
Volunteer work					.006
None	62.96	63.19	60.99	62.95	
1–9 hours	33.02	31.29	33.73	33.02	
10 or more hours	4.02	5.52	5.28	4.03	

Note. AI/AN = American Indian/Alaska Native. Students listed as AI/AN–White used both categories to identify their race and ethnicity.
[a]N = 114,692–115,362. [b]N = 486–490. [c]N = 928–935. [d]N = 116,539–116,786.
**$p < .01$. ***$p < .001$.

Table 4. GPA by Academic–Social Context

Variable	*N*	Mean	SD	Eta
Enrollment status				0.063
Full time	113,806	3.20	0.680	
Part time/other	3,169	2.93	0.743	
Relationship involvement				0.026
Not in a relationship	62,896	3.19	0.688	
In relationship, not living together	46,292	3.21	0.673	
In relationship, living together	8,008	3.14	0.697	
Current residence				0.096
On campus	64,550	3.25	0.671	
Parents	16,916	3.09	0.711	
Other	35,751	3.14	0.681	
Paid work				0.104
None	54,746	3.20	0.683	
1–9 hours	22,571	3.29	0.660	
10–19 hours	22,783	3.20	0.676	
20 or more hours	16,870	3.05	0.697	
Volunteer work				0.115
None	73,339	3.13	0.691	
1–9 hours	38,486	3.30	0.654	
10 or more hours	4,707	3.25	0.679	

Note. GPA = grade point average. All analyses of variance produced estimates that were significant at the level $p < .001$.

Next, we examined separate equations on how each of the ASC variables related to GPA and whether each interacted with ethnicity. The final demographic model was the first analyzed, and it included the study contrasts, ethnicity contrasts, and females, which had a multiple *R* of .0787. In overview, each of the ASC variables had a significant main effect. Except for paid work, none of the variables had a significant interaction with race–ethnicity variables.

The results are as follows: (a) adding part-time yielded a significant increase in R^2, $F(1, 116{,}535) = 457.81$, $p < .001$; $\Delta R^2 = .0038$; $b = -0.262 \pm 0.012$; (b) adding the relationship contrasts (reference was no involvement) yielded a significant increase in R^2, $F(2, 116{,}756) = 41.87$, $p < .001$; $\Delta R^2 = .0007$; b(not living together) $= 0.011 \pm 0.004$; b(living together) $= -0.064 \pm 0.008$; (c) adding the residence contrasts (reference was on campus) yielded a significant increase in R^2, $F(2, 116{,}777) = 524.96$, $p < .001$; $\Delta R^2 = .0089$; b(Parents) $= -0.160 \pm 0.006$; b(off-campus) $= -0.110 \pm 0.004$; (d) adding the paid work contrasts (reference was no paid work) yielded a significant increase in R^2, $F(3, 116{,}529) = 411.43$, $p < .001$; $\Delta R^2 = .0104$; and (e) adding the volunteer work contrasts (reference was no volunteer work) yielded a significant increase in R^2, $F(2, 116{,}100) = 707.95$, $p < .001$; $\Delta R^2 = .0120$; b(1–9 hours) $= 0.159 \pm 0.004$; b(10 or more hours) $= 0.113 \pm 0.010$.

In addition, the Paid Work × Race–Ethnicity interaction also yielded a significant increase in R^2, $F(6, 116{,}524) = 2.25$, $p = .036$; $\Delta R^2 = .0001$.Of the six interaction terms, only the interaction term between Native and working 1–9 hours per week was significant ($b = -0.229 \pm 0.099$). Combining the main and interaction effects of Native and 1–9 hours of paid work yielded an effect of $b = -0.378 \pm 0.089$.

Last, we tested the complete model with all main effects and the Race–Ethnicity × Paid Work interaction. Table 5 shows the results for the analysis with all main effects and the interaction included and reveals that AI/AN, but not AI/AN–White, students retain a decrease in reported GPA after controlling for ASC. Of the significant ASC variables, some are associated with an increase in GPA, whereas others are associated with a decrease in GPA. Part-time enrollment, living with parents, and living off-campus all showed decreases in GPA.

Conversely, any volunteer work, regardless of the hours spent, was associated with an increase in reported GPA for all students. The picture was more complex for paid work. Fewer than 10 hours of paid work showed an increase in GPA for all other students; for AI/AN students, that same amount of paid work showed a decrease. Ten to 19 hours showed essentially no effect on GPA for all other students but showed an increase in GPA for AI/AN students.

On the other hand, 20 or more hours of paid work for all other students showed a decrease in GPA but showed a slight increase for AI/AN students. For any level of work less than 20 hours, AI/AN–White students showed a small increase but a decrease for 20 or more hours of work.

Medical conditions

Table 6 reports the prevalence of the four studied medical conditions (ADHD, chronic illness, learning disability, and psychiatric condition) by ethnic group. Although the association between race–ethnicity and each of the conditions except ADHD was significant, the effect sizes (rho) of the associations were small, ranging from .006 for ADHD to .016 for chronic illness.

Table 5. Results of Regression of GPA on Demographic and Academic–Social Context Variables

Variable	B	SE	Beta
Constant	3.152	0.007	
Study Wave 2	-0.045	0.006	-.033***
Study Wave 3	-0.029	0.007	-.016***
Study Wave 4	-0.028	0.007	-.015***
AI/AN	-0.231	0.044	-.022***
AI/AN–White	-0.019	0.034	-.002
Female	0.084	0.004	.058***
Enrolled part-time	-0.180	0.012	-.043***
Not living together	0.023	0.004	.017***
Living together	0.016	0.009	.006
Live with parents	-0.117	0.006	-.060***
Live off-campus	-0.080	0.005	-.054***
Works 1–9 hours	0.080	0.005	.046***
Works 10–19 hours	0.004	0.005	.002
Works 20+ hours	-0.102	0.006	-.053***
Volunteers 1–9 hours	0.149	0.004	.102***
Volunteer 10+ hours	0.122	0.010	.035***
AI/AN, works 1–9 hours	-0.235	0.100	-.008*
AI/AN, works 10–19 hours	0.092	0.086	.004
AI/AN, works 20+ hours	0.125	0.079	.005
AI/AN–White, works 1–9 hours	-0.029	0.063	-.002
AI/AN–White, works 10–19 hours	0.031	0.058	.002
AI/AN–White, works 20+ hours	-0.055	0.063	-.003

Note. GPA = grade point average; AI/AN = American Indian/Alaska Native. N = 115,017. Students listed as AI/AN–White used both categories to identify their race and ethnicity.
*p < .05. ***p < .001.

Both AI/AN and AI/AN–White students reported numerically higher prevalence for all four conditions, but a series of logistic regressions found that only the AI/AN–White contrast was significant for chronic illness (b = 0.730 ± 0.137, OR = 2.08), learning disability (b = 0.486 ± 0.144, OR = 1.63), and psychiatric condition (b = 0.541 ± 0.139, OR = 1.72). Also, each of the conditions was significantly related to GPA beyond the .001 level, and students with the condition reported a lower mean GPA, except for chronic illness, which was not significantly related. The eta effect sizes of the relationships were .088 for ADHD, .083 for learning disability, and .017 for psychiatric condition.

Next, we examined separate equations regarding how each of the medical condition variables, except for chronic illness, was related to GPA and whether each interacted with race–ethnicity. As with the ASC analyses, analysis began with the final demographic model, and the following results were found. First, adding ADHD yielded a significant increase in R^2, $F(1, 116{,}316) = 120.00$, $p < .001$; $\Delta R^2 = .0062$; b = -0.256 ± 0.009. Although the Race–Ethnicity × ADHD interaction contrasts were significant as a group, $F(2, 116{,}313) = 3.19$, $p = .041$; $\Delta R^2 = .0001$, neither of the contrasts was significant, and we elected not to retain the interaction group. Second, adding the learning disability yielded a significant increase in R^2, $F(1, 116{,}362) = 785.62$, $p < .001$; $\Delta R^2 = .0007$; b = -0.303 ± 0.011. Finally, adding psychiatric condition yielded a significant increase in R^2, $F(1, 116{,}314) = 49.03$, $p < .001$; $\Delta R^2 = .0004$; b = -0.075 ± 0.011.

Table 6. Prevalence of Medical Condition by Ethnicity

Condition	All else (%)	AI/AN (%)	AI/AN–White (%)	Total (%)	Effect size (Rho)
ADHD	5.37	6.94	6.43	5.39	.006
Chronic illness***	3.10	3.27	6.22	3.12	.016
Learning disability**	3.49	4.29	5.56	3.51	.010
Psychiatric condition***	3.58	3.90	6.00	3.61	.012

Note. ADHD = attention deficit/hyperactivity disorder; AI/AN = American Indian/Alaska Native. Students listed as AI/AN–White used both categories to identify their race and ethnicity.
[a]N = 114,900–115,009. [b]N = 489–490. [c]N = 933–935. [d]N = 116,323–116,431.
**p < .01. ***p < .001.

Combined effects

We estimated a final model (Table 7), which added the significant medical condition variables to the ASC analysis reported in Table 5. The model had a multiple R^2 of .0441 (multiple R = .0778). Of this quantity, an R^2 of .0061 was attributable to demographics, an R^2 of .0278 was attributable to ASC variables, and an R^2 of .0103 was attributable to medical conditions. Of the three medical condition variables added, only ADHD and learning disability remained significant.

Table 7. Results of Regression of GPA on Demographic, Academic–Social Context Variables, and Medical Conditions

Variable	B	SE	Beta
(Constant)	3.177	0.007	
Study Wave 2	-0.044	0.006	-.032***
Study Wave 3	-0.029	0.007	-.016***
Study Wave 4	-0.026	0.007	-.014***
AI/AN	-0.222	0.044	-.021***
AI/AN–White	-0.014	0.034	-.002
Female	0.078	0.004	.054***
Part time	-0.168	0.012	-.040***
Not living together	0.021	0.004	.015***
Living together	0.018	0.009	.007
Live with parents	-0.119	0.006	-.061***
Live off-campus	-0.079	0.005	-.053***
Work 1–9 hours	0.077	0.005	.045***
Work 10–19 hours	-0.001	0.005	.000
Work 20 or more hours	-0.105	0.006	-.054***
Volunteers 1–9 hours	0.148	0.004	.102***
Volunteers 10 or more hours	0.126	0.010	.036***
AI/AN, works 1–9 hours	-0.227	0.099	-.007*
AI/AN, works 10–19 hours	0.096	0.086	.004
AI/AN, works 20 or more hours	0.109	0.079	.005
AI/AN–White, works 1–9 hours	-0.017	0.063	-.001
AI/AN–White, works 10–19 hours	0.035	0.058	.002
AI/AN–White, works 20 or more hours	-0.048	0.063	-.003
ADHD	-0.186	0.009	-.061***
Learning disability	-0.234	0.011	-.063***
Psychiatric condition	-0.014	0.011	-.004

Note. GPA = grade point average; AI/AN = American Indian/Alaska Native; ADHD = attention deficit/hyperactivity disorder. N = 113,810.
*p < .05. ***p < .001.

The effect for ADHD showed that students who reported ADHD had an average GPA decrease of 0.19 grade points, and the effect for learning disability showed a decrement of 0.23 grade points. All other main effects and interactions identified as significant in prior analyses remained significant.

Discussion

The purpose of this article was to compare the self-reported academic performance of AI/AN undergraduate students with that of students from other ethnic backgrounds and to evaluate whether variation in students' ASC and any identified medical conditions differentially affected AI/AN students' academic performance. We examined these questions in a secondary analysis of four waves of data from a self-selected sample of U.S.-based colleges and universities. Two analytically usable but numerically small groups of AI/AN students were identified, based on students' responses to a multiple-response race–ethnicity question. One group identified as AI/AN but not White, Hispanic, Asian, or Black, and the other group identified as both AI/AN and White. We discovered that AI/AN students, but not AI/AN–White students, had a decrease in GPA relative to other students. Although female students reported higher GPAs, gender showed no interaction with race–ethnicity, and with the exception of one variable, working 1 to 9 hours per week, there was no interaction between race–ethnicity and any of the examined variables.

One group of variables concerned students' ASC, and we found differences between AI/AN and all other students and, to a lesser extent, between AI/AN and AI/AN–White students. However, the differences were small in terms of effect size. Nearly 95% of students were enrolled full-time, but full-time enrollment was lower for AI/AN students. A larger percentage of AI/AN students were in a relationship, living with their partners, and living off-campus. A larger percentage of both AI/AN and AI/AN–White students worked at least 20 hours per week compared with other students. Relationship involvement, residence, and paid work were negatively associated with GPA, but volunteer work, which had roughly equal participation among all three student groups, was positively associated with GPA. The second group of variables concerned medical conditions. AI/AN–White students reported higher prevalence of chronic illness, learning disability, and psychiatric conditions, but not ADHD; and although learning disability, psychiatric condition, and ADHD were related to GPA, there was no evidence that these conditions had a more adverse impact on AI/AN or AI/AN–White students.

To what extent do the examined variables account for the decrease in GPA for AI/AN students? Comparing the unstandardized coefficient for AI/AN students across the three regression analyses shows that the two sets of variables reduced the coefficient by about 7.5%, from -0.240 in the first analysis to -0.222 in the final analysis. Clearly other, more salient variables remain to be identified.

The ideal behind the ASC is important for students' GPA scores. The boundaries of academic and social activities create a context that promotes success in college. As stated earlier, this article takes the position that a successful ASC is one that best serves the student in relation to academic performance. The factors making up a successful ASC are all important separately and occur simultaneously. Students with positive ASC factors (e.g., enrolled full-time, living on or close to campus, working less than 20 hours, single without children, volunteer) have higher GPAs compared to students with a lower ASC. Unfortunately, some students enter college without any control over their current ASC. Some students have to work full- or part-time. They have an existing

family and all of the accompanying responsibilities. Some students are unable to attend college full-time. These factors (i.e., a poor ASC) place the student at a disadvantage and affect GPA.

The ASC conditions varied among different students in this sample. Students who identified as being solely AI/ANs had a poorer ASC, which is reflected in their lower GPAs. For reasons unknown, AI/AN students are entering college within a context that lowers their ability to focus exclusively on being a student. However, although an AI/AN student's ASC factor is important, it does not account for all of the differences in GPAs. An important factor, or number of factors, remains unaccounted for in these findings.

A factor that is not captured in these data but that has been shown to affect GPA and retention rate is the feeling of belongingness. Students who feel like they belong in college usually remain and have higher GPAs (Walton & Cohen, 2011). The cyclical effects of having a higher GPA, resulting from getting higher course grades, would in turn boost academic self-esteem. Given the ample evidence that minority students feel like they do not belong in academic settings (Steele, Spencer, & Aronson, 2002), the benefits of doing well and feeling connected are undoubtedly significant.

It is crucial to continue investigating the factors related to the low academic success rate for AI/ANs and other underrepresented minorities. This study suggests that a student's ASC affects his or her GPA and overall success rate. However, there are factors that remain excluded from the context that do not fully illuminate the method and model of academic success. For AI/AN students, an important factor that should be included is a measure of college belongingness. Other important factors were not collected or included in this data set but might account for GPA differences. What can be indicated is that a good ASC is associated with higher GPA, which in turn leads to other positive academic outcomes. Having a high ASC is not a guarantee of academic success. However, students who enter college with a poor ASC are disadvantaged.

References

Adelman, C. (1998). More than 13 ways of looking at degree attainment. *National Cross-Talk, 6*(4), 11–12.

Adelman, C. (1999). *Answers in the tool box*: *Academic intensity*, *attendance patterns*, *and bachelor's degree attainment*. Jessup, MD: U.S. Department of Education.

Alfred, R. L. (Ed.). (1973). *Student attrition: Strategies for action.* Kansas City, MO: Metropolitan Junior College District.

American College Health Association. (n.d.-a). *Sample survey*. Retrieved from http://www.acha-ncha.org/sample_survey.html

American College Health Association. (n.d.-b). *Participation history.* Retrieved from http://www.acha-ncha.org/partic_history.html

American College Health Association. (n.d.-c). *Generalizability, reliability, and validity analysis*. Retrieved from http://www.acha-ncha.org/grvanalysis.html

Bean, J. P., & Metzner, B. S. (1985). A conceptual model of nontraditional undergraduate student attrition. *Review of Educational Research, 55*(4), 485–540. doi:10.3102/00346543055004485

Bradburn, E. M. (2002). *Short-term enrollment in postsecondary education: Student background and institutional differences in reasons for early departure, 1996–98* (NCES Report No. 2003-153). Washington, DC: U. S. Department of Education.

Braxton, J. M., Brier, E. M., & Steele, S. L. (2008). Shaping retention from research to practice. *Journal of College Student Retention*, *9*(3), 377–399. doi:10.2190/CS.9.3.g

Brayboy, B. M. J., Fann, A. J., Castagno, A. E., & Solyom, J. A. (2012). Postsecondary education for American Indian and Alaska Natives: Higher education for nation-building and self-determination [Monograph]. *ASHE Higher Education Report, 37*(5). doi:10.1002/aehe.3705

Brown, L. L., & Robinson-Kurpius, S. E. (1997). Psychosocial factors influencing academic persistence of American Indian college students. *Journal of College Student Development, 38*(1), 3–12.

Buddington, S. A. (2002). Acculturation, psychological adjustment (stress, depression, self-esteem) and the academic achievement of Jamaican immigrant college students. *International Social Work, 45*(4), 447–464. doi:10.1177/00208728020450040401

Case, A., Fertig, A., & Paxson, C. (2005). The lasting impact of childhood health and circumstance. *Journal of Health Economics, 24*(2), 365–389. doi:10.1016/j.jhealeco.2004.09.008

Chickering, A. W. (1969). *Education and identity*. San Francisco, CA: Jossey-Bass.

Chickering, A. W. (1974). *Commuting versus resident students*. San Francisco, CA: Jossey-Bass.

Conley, D., & Bennett, N. G. (2000). Is biology destiny? Birth weight and life chances. *American Sociological Review, 65*(3), 458–467. doi:10.2307/2657467

DesJardins, S. L., Ahlburg, D. A., & McCall, B. P. (1999). An event history model of student departure. *Economics of Education Review, 18*(3), 375–390. doi:10.1016/S0272-7757(98)00049-1

DesJardins, S. L., McCall, B. P., Ahlburg, D. A., & Moye, M. J. (2002). Adding a timing light to the "tool box." *Research in Higher Education*, *43*(1), 83–114. doi:10.1023/A:1013022201296

Deyhle, D. (1989). Pushouts and pullouts: Navajo and Ute school leavers. *Journal of Navajo Education*, *6*(2), 36–51.

Fiske, S. T., & Taylor, S. E. (1991). *Social cognition* (2nd ed.). New York, NY: McGraw-Hill.

Freeman, D., & Freeman, Y. (1988). *Bilingual learners: How our assumptions limit their world.* (Occasional Papers No. 18). Tucson, AZ: University of Arizona, College of Education, Program in Language and Literacy.

Goodlad, J. I. (1984). *A place called school*: *Prospects for the future*. New York, NY: McGraw-Hill.

Horn, L. (1998). *Stopouts or stayouts*? *Undergraduates who leave college in their first year* (NCES Report No. 1999-087). Washington, DC: U.S. Department of Education.

King, J. E. (2003). Nontraditional attendance and persistence: The cost of students' choices. *New Directions for Higher Education*, *121*, 69–84. doi:10.1002/he.102

Lenning, O. T., Beal, P. E., & Sauer, K. (1980). *Retention and attrition*: *Evidence for action and research*. Boulder, CO: National Center for Higher Education Management Systems.

Metzner, B. S., & Bean, J. P. (1987). The estimation of a conceptual model of nontraditional undergraduate student attrition. *Research on Higher Education, 27*(1), 15–38. doi:10.1007/BF00992303

National Center for Education Statistics. (2004). *Postsecondary institutions in the United States: Fall 2002 and degrees and other awards conferred: 2001–02* (NCES Report No. 2004-154). Washington, DC: U.S. Department of Education.

O'Brien, E. M. (1992). American Indians in higher education. *Research Briefs* (American Council on Education, Division of Policy Analysis and Research)*, 3*(3).

Patterson, D. A. (2012). Three strategies to address the Native American college dropout rate. *Recruitment & Retention in Higher Education, 6*(10), 5–6.

Patterson, D. A., Ahuna, K. H., Tinnesz, C. G., & Van Zile-Tamsen, C. (2014–2015). Using self-regulated learning methods to increase Native American college retention. *Journal of College Student Retention*: *Research*, *Theory & Practice*, *16*(2), 219–237. doi:10.2190/CS.16.2.d

Peng, S. S., & Fetters, W. B. (1978). Variables involved in withdrawal during the first two years of college: Preliminary findings from the National Longitudinal Study of the High School Class of 1972. *American Educational Research Journal, 15*(3), 361–372. doi:10.3102/00028312015003361

Platero, P. R., Brandt, E. A., Witherspoon, G., & Wong, P. (1986, December). *Navajo students at risk*: *Final report for the Navajo Area Student Dropout Study*. Window Rock, AZ: Navajo Division of Education, Navajo Tribe.

Pritchard, M. E., & Wilson, G. S. (2003). Using emotional and social factors to predict student success. *Journal of College Student Development, 44*, 18–28. doi:10.1353/csd.2003.0008

Reyhner, J. (1990). A description of the Rock Point Community School bilingual education program. In J. Reyhner (Ed.), *Effective language education practices and native language survival* (pp. 95–106). Choctaw, OK: Native American Language Issues.

Reyhner, J. (1992). Adapting curriculum to culture. In J. Reyhner (Ed.), *Teaching American Indian students* (pp. 96–103). Norman: University of Oklahoma Press.

Sherman, R. Z., & Sherman, J. D. (1990, October). *Dropout prevention strategies for the 1990s* (Report to the U.S. Department of Education, Office of Planning, Budget, and Evaluation). Washington, DC: Pelavin Associates, Inc.

Starkey, J. B. (1994). *The influence of prices and price subsidies on the within-year persistence by part-time undergraduate students*: *A sequential analysis* (Unpublished doctoral dissertation). University of New Orleans.

Steele, C. M., Spencer, S. J., & Aronson, J. (2002). Contending with group image: The psychology of stereotype and social identity threat. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 34, pp. 379–440). San Diego, CA: Academic Press. doi:10.1016/S0065-2601(02)80009-0

Stratton, L. S., O'Toole, D. M., & Wetzel, J. N. (2007). Are the factors affecting dropout behavior related to initial enrollment intensity for college undergraduates? *Research in Higher Education, 48*(4), 453–485. doi:10.1007/s11162-006-9033-4

Swisher, K., & Deyhle, D. (1989, August). The styles of learning are different, but the teaching is just the same: Suggestions for teachers of American Indian youth. *Journal of American Indian Education*, *114*. Retrieved from http://jaie.asu.edu/sp/SPstyl.html

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*(1), 89–125. doi:10.3102/00346543045001089

Tinto, V. (1993). *Leaving college*: *Rethinking the causes and cures of student attrition* (2nd ed.). Chicago: University of Chicago Press.

U.S. Census Bureau. (2010). *The White Population: 2010*. Retrieved from http://www.census.gov/prod/cen2010/briefs/c2010br-05.pdf

U.S. Department of Education. (2009, August 24). Degrees conferred by racial and ethnic group, 2006–7. *Chronicle of Higher Education*. Retrieved from http://chronicle.com/article/Degrees-Conferred-by-Racial/48039/

Walton, G. M., & Cohen, G. L. (2011, March 18). A brief social-belonging intervention improves academic and health outcomes of minority students. *Science, 331*(6023), 1447–1451. doi:10.1126/science.1198364

Weis, L., Farrar, E., & Petrie, H. G. (Eds.). (1989). *Dropouts from school*: *Issues*, *dilemmas*, *and solutions*. Albany, NY: State University of New York Press.

Youniss, J., & Yates, M. (1999). Youth service and moral-civic identity: A case for everyday morality. *Educational Psychology Review, 11*(4), 361–376. doi:10.1023/A:1022009400250

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