Academic Fit:

Is the *Right* School the Best School or is the *Best* School the Right School?

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When applying to college, many students use college search engines, such as The College Board's College Search, the U.S. Department of Education's College.gov, and Unigo, to locate institutions that meet their criteria in terms of location, size, control (i.e., public, private), and other college characteristics. Based on the criteria that students select, the search engine produces a list of institutions that meet those criteria. Additionally, many of these search engines provide information on the likelihood of being accepted to an institution based on admission requirements or the academic standing of the admitted class as compared to the student's credentials. In layman terms, these institutions are often categorized as "reach" schools, indicating that the student has a very low probability of being accepted; "target" schools, where the student has a reasonable probability of being accepted; or "safety" schools, institutions where students have a very high probability of acceptance (LeClaire, 2008; Sanoff, 2007). Target schools are presumed to be indicative of a good academic match for the student. Safety schools, although not always guaranteed, are often thought of as a student's back-up plan in case he or she does not get accepted anywhere else.

The purpose of the current study was to examine the academic consequences of attending an institution that is not considered an *academic fit* for a student. The results from the current study show that more able students perform better in college in terms of first-year GPA and retention to their second year regardless of the institution they attend. Additionally, after controlling for ability, students attending more selective institutions perform better in college. However, the results do not support an academic fit effect above and beyond individual and school effects. The results have implications for higher education admission policies. Specifically, institutions that want to maximize the percentage of admitted students that are successful and return for their second year should not minimize the academic qualifications of the applicants. They should not be worried about selecting "overqualified" applicants, who they believe may be bored or not challenged enough at their institution, as these students earn higher college first-year GPAs and are more likely to return for their second year. On the other hand, students who are not academically qualified are more likely to earn lower grades and leave the institution.

summary

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This categorization scheme provides useful information with regard to the likelihood of admission to specific schools; however, several questions remain. Should students use this information to determine which institutions to apply to and ultimately which school to attend? In addition to the low probability of being accepted to reach schools, are there other risks related to attending such a school? Are students who attend reach schools not as academically prepared in relation to the rest of the student body? Are they therefore more likely to earn lower grades and/or fail or leave an institution? Or, are there academic benefits to attending a more rigorous institution that is comprised of students who have performed at higher levels in high school? Additionally, are there negative consequences associated with attending a safety school? For example, are students attending a safety school more likely to feel less challenged by the coursework? Do they therefore earn lower grades and/or transfer, or are they more likely to shine and outperform their classmates because they are more academically prepared?

Research has consistently found that more academically prepared students (e.g., those with higher SAT scores and high school grade point average [HSGPA]) perform better in college across a variety of indicators: first-year grade point average (FYGPA; e.g., Bridgeman, McCamley-Jenkins, & Ervin, 2000; Hezlett et al., 2001; Kobrin, Patterson, Shaw, Mattern, & Barbuti, 2008), retention (e.g., Allen, 1999; Astin, 1997; Murtaugh, Burns, & Schuster, 1999), and cumulative grades (Bridgeman, Pollack, & Burton, 2008; Hezlett et al., 2001). Furthermore, students attending more rigorous or selective institutions, even after controlling for academic ability, perform better in college (Bowen & Bok, 1998). However, does the academic match between the student and the institution also relate to college performance above student and institutional factors? The purpose of the current study is to test the viability of an academic fit effect.

Literature on Academic Fit

Educational researchers have posited a matching or congruence model to explain retention in higher education (Bean, 2005; Tinto, 1993). Specifically, applying Fishbein and Ajzen's (1975) theory of reasoned action to college retention, Bean (2005) discussed how the best indicator of whether or not a student will leave an institution is his or her intention to leave, where intentions are influenced by: (a) attitudes toward leaving, (b) subjective norms about leaving, and (c) past behavior (e.g., dropped out of prior institution). Bean (2005) identified institutional fit, or fitting in with other students at a college, as one dimension affecting a student's attitudes toward leaving. He described institutional fit as "being similar to other members of a group and having a sense of belongingness to that group" (Bean, 2005, p. 219).

Based on this rationale, students who are not like their peers are less likely to believe that they belong, are more likely to be less satisfied, and are more likely to leave an institution. It should also be pointed out that lower satisfaction has been positively linked to lower college performance (Okun & Weir, 1990). Therefore, these students are not only more likely to leave, but are also more likely to perform poorly in college (e.g., earn a lower first-year GPA). Furthermore, perceived institutional quality also influences institutional fit and ultimately retention (Bean, 2005). Specifically, if students believe that they are investing in a low-quality education, as might be the case for students who have significantly higher SAT scores as compared to the average student at the institution, they may be more likely to leave.

Ferris, Finster, and McDonald (2004) investigated the academic fit of student-athletes by examining athlete graduation rates against entire student body graduation rates within Division 1-A institutions to assess the graduation rate gap at institutions of varying selectivity. They noted that there was a strong relationship between more academically selective universities and athletes graduating at rates below the student cohorts. Related to this finding, institutions that had the largest graduation rate gaps favoring athletes between athletes and the student cohort

(athletes were more likely to graduate than nonathletes) were found in the less selective institutions. Ferris et al. commented that athletes at institutions with average academic selection criteria may have better "academic fit" as opposed to athletes attending institutions with more selective criteria, particularly because there appear to be higher associated graduation rates relative to the student cohort at more academically average institutions, likely due to athletic participation and the resulting academic support services (p. 569).

This notion of academic fit has been integrated into models of student retention (Berger & Milem, 2000), and subsequently has been empirically tested by Light and Strayer (2000). Light and Strayer examined whether academic fit influenced college graduation rates using a sample from the National Longitudinal Survey of Youth, which included 2,635 college students across 780 four-year colleges and universities. Based on the mean SAT scores for the entering freshman classes for those 780 institutions, institutions were categorized into quartiles. Similarly, students were categorized into their respective quartiles based on their national percentile score on the Armed Forces Qualifying Test (AFQT).

The results revealed that for students in the highest quartile of the AFQT, mean graduation rates increased as a function of school quality level, from 29.0% for the lowest institutional quartile to 48.3% for the highest institutional quartile. Additionally, students in the lowest quartile of the AFQT and attending an institution in the lowest quartile had the highest graduation rates (23.7%) as compared to similar academically able students at higher quality institutions (with graduation rates ranging from 13.6% to 21.6%), providing support for the academic fit hypothesis. However, monotonically increasing graduation rates for students in the highest AFQT quartile by school quality can also be explained by a main effect for institutional selectivity. Additionally, the sample size for students in the lowest AFQT quartile was small (8.1% of the total sample) and should be interpreted with caution.

Similarly, Cragg (2009) examined the match between students' performance on the SAT and the institutional mean SAT score and its relationship with 6-year graduation rates with a sample of 6,670 students across 440 four-year institutions. The study also examined the influence of a financial match based on students' financial resources and the institution's cost of attendance. After controlling for student variables, logistic regression analysis revealed a nonsignificant effect for SAT match but a significant effect for financial match, where students who had an excess of funding had a lower likelihood of graduating. Additionally, students were classified into four groups based on whether they were at or above versus below the institutional average in terms of SAT performance and financial resources. Specifically, the four groups were:

1. *High SAT/High Finances Group:* Students' SAT scores were at or above the institution's average SAT score and student's total family and financial aid was at or above the institution's cost of attendance.
2. *Low SAT/High Finances Group:* Student's SAT scores were below the institution's average SAT score and students' total family and financial aid was at or above the institution's cost of attendance.
3. *High SAT/Low Finances Group:* Students' SAT scores were at or above the institution's average SAT score and students' total family and financial aid was below the institution's cost of attendance.
4. *Low SAT/Low Finances Group:* Students' SAT scores were below the institution's average SAT score and students' total family and financial aid was below the institution's cost of attendance.

For the two groups of students with lower SAT scores than their attending institution, the probability of graduation increased by 5.9 percentage points and 8.5 percentage points for high and low finances, respectively, for every 100-point difference in SAT scores. Contrary to what the institutional fit theory would predict, students who performed significantly worse on the SAT as compared to

their peers had higher graduation rates. There was partial support for the institutional fit theory in that for students in the High SAT/Low Finances Group, the likelihood of graduating decreased by 5.6 percentage points with every 100-point increase. The results were not significant for the High SAT/Low Finances Group. In sum, the results from Cragg (2009) provide minimal support of an effect for SAT match as it relates to the institutional fit theory.

The current study examined the influence of *academic fit* on college performance by expanding on previous research in three primary ways. Previous empirical examinations of the influence of academic fit on college success have focused on graduation rate, which is a very distal outcome variable and perhaps one reason for the lack of strong support found by Cragg (2009). As Bean (2005) pointed out, most students leave college between their first and second year; therefore, the current study examined retention to second year, which may be more strongly associated with academic fit. Second, an academic performance indicator of college success (FYGPA) was examined to more directly test the validity of an academic fit/college performance link, which expands the research to include more academically focused college outcomes in addition to outcomes with a stronger motivational component (i.e., retention and graduation). Third, this study examined whether certain student subgroups (i.e., groups based on gender, ethnicity, and best language spoken) were more likely to have an academic fit with the institution they attend. For example, are women or minority students more likely to attend an institution with a substantially higher or lower mean SAT score?

Method

Sample

As part of a larger research endeavor conducted by The College Board, colleges and universities across the United States were contacted and asked to provide first-year data on their 2006 entering cohort. After the 2006⊠2007 academic school year concluded, par-

ticipating institutions provided a data file that included students' coursework and grades in the first year (FYGPA) and whether or not they returned for the second year. These data were matched to College Board databases that included SAT scores, self-reported high school grade point average (HSGPA), and demographic information. The original sample consisted of individual level data on 196,364 students from 110 colleges and universities from across the United States. After cleaning the data and removing students in the sample who did not have scores on the revised SAT (introduced with the Writing section in March 2005), HSGPA, retention information, or a valid FYGPA, the final sample included 143,624 students from 106 institutions. Four institutions were dropped because they failed to provide any retention data. The sample is diverse with regard to region, selectivity, size, and control (i.e., private, public) of the participating colleges.

Measures

SAT scores. Official SAT scores obtained from the 2006 College-Bound Senior Cohort database were used in the analyses. This database is comprised of the students who have taken the SAT and SAT Subject Tests and reported to graduate from high school in 2006. Each student's most recent score was used in the analyses. The SAT is comprised of three sections, Critical Reading, Math, and Writing, and the score scale range for each section is 200 to 800.

SAT questionnaire responses. Self-reported gender, race/ethnicity, and parental income, as well as HSGPA, were obtained from the SAT Questionnaire that students completed during registration for the SAT.

First-year GPA. Each participating institution supplied FYGPA values for their 2006 first-year, first-time students. The range of FYGPA across institutions was 0.00 to 4.27.

Retention. Participating institutions supplied retention data with a value of "1" indicating that a student did return for a second year of college and a value of "0" indicating that a student did not return for a second year[1].
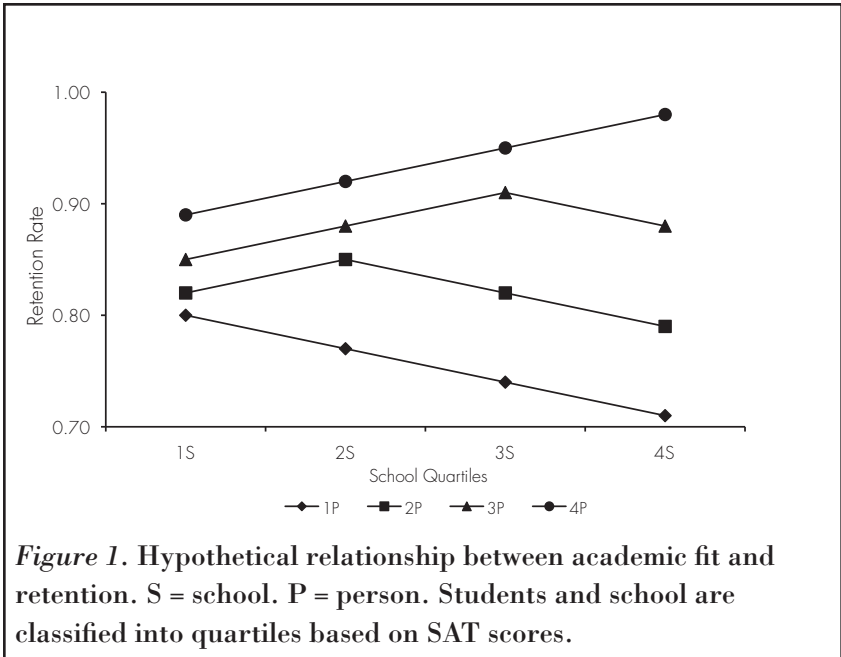
Table 1

Number of Students for Each School by Person Quartile

Person Quartiles	School Quartiles				
	1S	2S	3S	4S	Total
1P	12,648	13,204	8,486	1,712	36,050
2P	5,683	12,477	14,859	4,161	37,180
3P	2,453	7,234	16,270	8,833	34,790
4P	748	2,914	11,732	20,210	35,604
Total	21,532 (k = 26)	35,829 (k = 27)	51,347 (k = 27)	34,916 (k = 26)	143,624

Note. S = school. P = person. Students and school are classified into quartiles based on SAT scores. 1S4S = first school quartilefour th school quartile. 1P4P = first person quartile fourth person quartile. *k* = number of institutions.
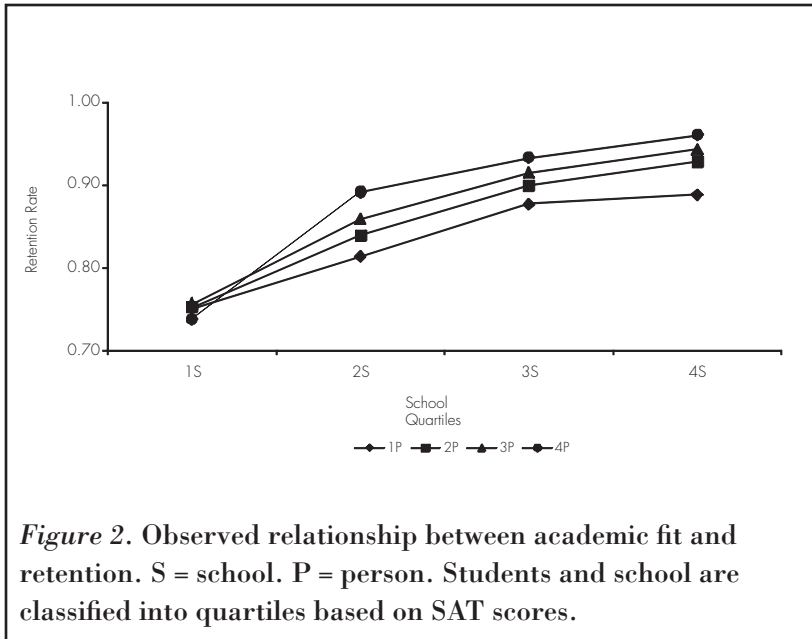
Analyses and Results

Similar to Light and Strayer (2000), institutions and students were classified into quartiles based on SAT performance. Specifically, the mean SAT score for each institution was calculated. Institutions were then divided into quartiles based on their average SAT score (Q1 = lowest through 1528; Q2 = 1528 through 1635, Q3 = 1635 through 1771, and Q4 = 1771 through highest[2]) with 26 to 27 institutions falling into each quartile. Similarly, students were categorized into quartiles based on national SAT performance (Q1 = lowest through 1500; Q2 =1510 through 1680, Q3 = 1690 through 1860, and Q4 = 1870 through highest[3]). Based on this classification, mean performance on the two college outcomes, FYGPA and retention to second year, for each person by school quartile were computed. Table 1 presents the number of students that fall into each of the person by school quartiles. The main diagonal indicates cases of academic fit between student and institution. Perhaps, not surprisingly, the sample size is among the highest for those cells on the diagonal suggesting that a large percentage (43%) of students attended an institution that was academically aligned with their ability. This is largely a function of the institutional admissions policies; that is, students that do not meet the admission requirements are usually not admitted. However,

Figure 1. **Hypothetical relationship between academic fit and retention. S = school. P = person. Students and school are classified into quartiles based on SAT scores.**
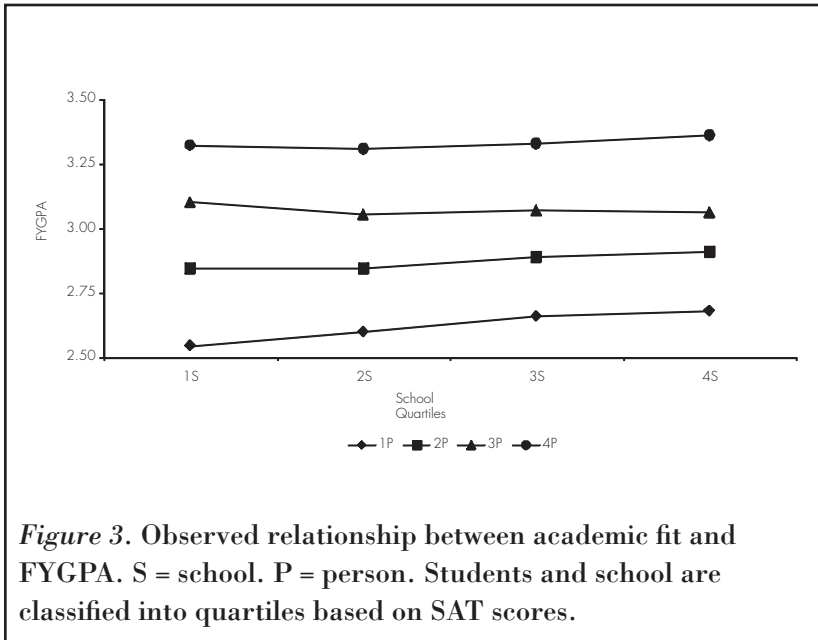
the large percentage of students that potentially may have been able to attend a more selective institution given their SAT scores is somewhat surprising.

If there is an academic fit effect for college outcomes, the pattern of results shown in Figure 1 would be expected using retention rates as an example of one college outcome. Notice that when the person academic preparedness matches the institution (e.g., 2P = 2S), the retention rate is highest. Therefore, for students in the lowest quartile (1P), there is a monotonically decreasing relationship between school quality and retention rate. Conversely, for students in the highest quartile (4P), there is a monotonically increasing relationship between school quality and retention rate. As for students in the middle two quartiles, the retention rate peaks when there is an academic fit. Figure 1 also displays a person effect where the predicted retention rates increase as student academic preparedness increases, holding constant school selectivity. On the other hand, there is not a monotonic school effect. That is, holding constant student ability, predicted retention rates do not increase as school selectivity increases, except for the highest quartile students.

Figure 2. **Observed relationship between academic fit and retention. S = school. P = person. Students and school are classified into quartiles based on SAT scores.**

The data from the current study do not support a fit hypothesis. Figures 2 and 3 provide a graphic display of the mean retention rates and FYGPAs for each school by person quartile (refer to Tables 2 and 3 for the information in tabular form). The results reveal that there is both a school and person main effect with higher retention rates and FYGPAs for higher performing students and more selective schools. Paired-contrasts revealed that all mean differences among groups were significant (all ts ≥ 16.130, all ps < .01). In conflict with the fit hypothesis, within each person quartile, retention rates and FYGPAs increased as school selectivity increased. A similar pattern holds within school quartiles with the exception of quartile one for retention rates. Specifically, for the lowest school quartile (S1), the highest performing students (4P) had the lowest second-year retention rate; however, it was only slightly lower (0.74) as compared to the other three quartiles (retention rates for 1P⊠3P ranged from 0.75 to 0.76). Comparing the expected patterns of results in Figure 1 to the observed results in Figure 2 and 3, support for the academic fit hypothesis is unfound. Alternatively, students who are more

Figure 3. **Observed relationship between academic fit and FYGPA. S = school. P = person. Students and school are classified into quartiles based on SAT scores.**

academically prepared perform better in college, regardless of the institution they attend.

Absolute SAT

As another way to measure the degree to which students fit academically with their attending institutions with regard to SAT performance, a new variable was created that represents the absolute difference between the student's SAT score and the school's mean SAT score:

$$\text{Absolute SAT fit} = |SAT_{person} - SAT_{school\ (mean)}|$$

where larger values indicate more misfit and a value of zero indicates a perfect match between the student's SAT score and the institution's mean SAT score. The *absolute* difference rather than simply the difference between SAT_{person} and $SAT_{school\ (mean)}$ was used in the analyses for two primary reasons. First, creating an SAT fit variable by taking the difference between the SAT_{person} and $SAT_{school\ (mean)}$ would result in a variable that was

Table 2

Mean Retention Rates (SD) *for Each
School by Person Quartile*

Person Quartiles	School Quartiles				
	1S	2S	3S	4S	Total
1P	0.75 (.43)	0.81 (.39)	0.88 (.33)	0.89 (.31)	0.81 (.39)
2P	0.75 (.43)	0.84 (.37)	0.90 (.30)	0.93 (.26)	0.86 (.35)
3P	0.76 (.43)	0.86 (.35)	0.91 (.28)	0.94 (.23)	0.90 (.30)
4P	0.74 (.44)	0.89 (.31)	0.93 (.25)	0.96 (.20)	0.94 (.24)
Total	0.75 (.43)	0.84 (.37)	0.91 (.29)	0.95 (.22)	0.88 (.33)

Table 3

Mean FYGPA (SD) *for Each School by Person Quartile*

Person Quartiles	School Quartiles				
	1S	2S	3S	4S	Total
1P	2.54 (.78)	2.60 (.74)	2.66 (.64)	2.68 (.60)	2.60 (.73)
2P	2.84 (.81)	2.85 (.73)	2.89 (.62)	2.91 (.56)	2.87 (.68)
3P	3.10 (.79)	3.05 (.74)	3.07 (.62)	3.06 (.54)	3.07 (.64)
4P	3.32 (.75)	3.31 (.72)	3.33 (.59)	3.36 (.48)	3.35 (.55)
Total	2.71 (.82)	2.83 (.77)	3.01 (.66)	3.20 (.55)	2.97 (.71)

highly dependent on student ability with a very strong correlation with SAT total scores ($r = 0.79$) whereas the absolute difference had a near-zero correlation with SAT total scores ($r = -0.03$). The strong correlation between SAT fit and SAT scores is problematic because results may suggest a relationship between SAT fit and college outcomes that is, in reality, a function of the shared variance between SAT fit and SAT scores and not a true relationship. The second reason is because the concept of academic fit, which states that students who do not fit academically with their institution, including both students who are academically *less* prepared and academically *more* prepared than their peers, will be less likely to succeed, suggests that the magnitude and not the direction of the misfit is of most importance. Using the absolute value of SAT fit, large values would indicate more misfit and should be related

to less positive outcomes. The absolute SAT fit variable had a mean of 158.98 with a standard deviation of 124.72.

Descriptive statistics. Means and standard deviations of absolute SAT fit, SAT scores, HSGPAs, FYGPAs, and retention rates by student characteristics are provided in Table 4. Additionally, t tests of mean differences for all of the study variables by student subgroups (i.e., gender, race/ethnicity, parental income) are also provided. On average, absolute SAT fit did not vary significantly by gender with a mean of 158.62 for women and 159.40 for men. Women scored lower on the SAT but had higher HSGPAs and FYGPAs than men. Retentions rates did not vary by gender. Asian, Black, and Hispanic students had more SAT misfit than White students. Additionally, American Indian, Black, and Hispanic students tended to perform lower on all academic indicators as compared to White students. Students from families with lower parental income levels, on average, attended an institution that was more of an academic misfit. As compared to students from families with an income of $100,000 or more, students from all other income groups had lower performance on academic indicators under study with the exception of HSGPA for some income groups.

Predictive validity. The correlations between absolute SAT fit and academic outcomes were computed. The Pearson product-moment correlation coefficient of the absolute SAT fit with FYGPA was 0.01 ($p < .001$). The point biserial correlation coefficient of the absolute SAT fit with retention was -0.00 ($p = .199$), providing no support for an academic fit effect.

To estimate the effect of the person and institution along with academic match on both FYGPA and retention, linear and logistic regression models were estimated with student's SAT total score, institutional average SAT score, and absolute SAT fit value included as predictors along with student characteristics of gender, ethnicity, and income and their interaction with absolute SAT fit to test whether academic fit is more important for specific subgroups of students. Results are provided in Table 5 for FYGPA and Table 6 for retention. Multicollinearity statistics are provided and all VIF values were well below 10, suggesting that all variables could be included in the model.

Table 4

Descriptive Statistics and Test of Mean Differences of Study Variables by Student Characteristics

Variable	n	Absolute SAT fit			SAT			HSGPA			FYGPA			Retention		
		M	SD	t	M	SD	t	M	SD	t	M	SD	t	M	SD	t
Gender																
Men	65,720	159.40	125.55		1707.80	253.70		3.54	0.52		2.87	0.74		87.7	32.9	
Women	77,904	158.62	124.01	-1.18	1666.82	253.65	-30.51*	3.65	0.48	40.52*	3.05	0.67	45.76*	87.7	32.8	0.46
Race/Ethnicity																
White	99,604	150.52	116.97		1704.68	242.92		3.61	0.50		3.01	0.69		87.9	32.6	
American Indian	774	160.00	119.51	2.25	1626.60	233.93	-8.91*	3.52	0.54	-5.01*	2.77	0.77	-9.80*	81.0	39.2	-5.86*
Asian	12,979	173.33	136.38	20.47*	1736.74	270.52	13.95*	3.65	0.47	9.18*	3.04	0.67	4.18*	90.6	29.2	9.02*
Black	9,536	197.49	151.72	36.39*	1501.40	231.97	-78.36*	3.39	0.56	-41.81*	2.63	0.75	-51.25*	85.6	35.1	-6.63*
Hispanic	10,153	181.67	138.38	25.11*	1576.18	246.37	-50.71*	3.59	0.51	-4.74*	2.73	0.78	-38.94*	83.9	36.7	-11.57*
Other	4,223	163.34	128.83	6.94*	1674.87	263.87	-7.78*	3.57	0.51	-5.89*	2.94	0.72	-6.49*	87.3	33.3	-1.13
No Response	6,355	165.21	128.65	9.65*	1747.05	270.94	13.38*	3.62	0.50	1.59	3.04	0.69	3.26*	88.7	31.7	1.80
Parental Income																
> $100,000	33,147	149.45	116.27		1750.60	244.23		3.61	0.50		3.04	0.67		89.3	30.9	
$70,000–$100,000	24,702	155.33	120.94	5.91*	1677.12	241.11	-35.99*	3.61	0.50	0.65	2.97	0.71	-13.02*	87.6	33.0	-6.70*
$50,000–$70,000	15,704	155.88	120.84	5.64*	1646.24	237.22	-44.51*	3.60	0.51	-0.58	2.91	0.73	-19.02*	85.9	34.8	-11.13*
$30,000–$50,000	13,763	167.64	131.25	14.84*	1613.27	242.88	-55.54*	3.60	0.51	-1.95	2.87	0.74	-24.89*	85.2	35.5	-12.52*
< $30,000	10,720	193.48	148.55	31.72*	1553.03	254.80	-72.03*	3.56	0.53	-7.57*	2.77	0.78	-35.36*	84.3	36.4	-13.97*
No Response	45,588	158.22	124.30	10.04*	1709.41	258.44	-22.59*	3.59	0.50	-3.66*	3.01	0.69	-6.43*	88.8	31.6	-2.60*
Total	143,624	158.98	124.72		1685.57	254.49		3.60	0.50		2.97	0.71		87.7	32.8	

Note. Retention means are reported as percentages. For the *t* test analyses, the reference group for gender is males; for ethnicity, it is White students; and for income, it is students whose parental income is more than $100,000.

* *p* < .01.

Table 5

Results of Linear Regression Analyses Predicting FYGPA

Variable	B	SE	β	t	Sig.	Tolerance	VIF	R²
Intercept	3.078	0.003		990.795	<.001			0.191
SAT Total Score	0.001	0.000	0.385	94.914	<.001	0.530	1.888	
Institutional Average SAT Score	0.000	0.000	0.013	3.381	0.001	0.595	1.681	
Absolute SAT Fit	0.000	0.000	0.018	4.067	<.001	0.440	2.273	
Gender (1 = Males, 0 = Females)	-0.229	0.004	-0.159	-53.439	<.001	0.989	1.011	
Gender X Absolute SAT Fit	0.000	0.000	0.017	4.159	<.001	0.521	1.921	
Income	0.009	0.002	0.016	5.201	<.001	0.882	1.134	
Income X Absolute SAT Fit	0.000	0.000	-0.011	-3.526	<.001	0.821	1.217	
Ethnicity (Underrepresented Minority = 1, Nonminority = 0)	-0.164	0.006	-0.084	-26.769	<.001	0.878	1.139	
Ethnicity X Absolute SAT Fit	0.000	0.000	0.005	1.300	0.193	0.622	1.609	

Note. N = 92,804. Underrepresented minority students include American Indian, African American, and Hispanic students. Nonminority students include White and Asian students. SAT total score, institutional average SAT score, absolute SAT fit, and income were grand mean centered.

Table 6

Results of Logistic Regression Analyses Predicting Retention to the Second Year

Variable	B	SE	Exp(B)	Sig.	VIF	Pseudo R_{CS}^2	Pseudo R_N^2
Intercept	2.127	0.016	8.388	<.001		0.041	0.076
SAT Total Score	0.001	0.000	1.001	<.001	1.888		
Institutional Average SAT score	0.004	0.000	1.004	<.001	1.681		
Absolute SAT Fit	0.000	0.000	1.000	.089	2.273		
Gender (1 = Males, 0 = Females)	-0.081	0.020	0.922	<.001	1.011		
Gender X Absolute SAT Fit	0.000	0.000	1.000	.043	1.921		
Income	0.026	0.008	1.026	.001	1.134		
Income X Absolute SAT Fit	0.000	0.000	1.000	.079	1.217		
Ethnicity (Underrepresented Minority = 1, Nonminority = 0)	-0.076	0.027	0.927	.005	1.139		
Ethnicity X Absolute SAT Fit	-0.001	0.000	0.999	.010	1.609		

Note. N = 92,804. *B* = log odds; Exp(B) = odds ratio; Pseudo R_{CS}^2= Cox and Snell *R²*; Pseudo R_N^2: = Nigelkerke *R²*. SAT total score, institutional average SAT score, absolute SAT fit, and income were grand mean centered. Underrepresented minority students include American Indian, African American, and Hispanic students. Nonminority students include White and Asian students.

For the linear regression results for FYGPA, a student's SAT total score was the best predictor ($\beta = 0.385$, $p < .01$) whereas both the institutional average SAT score ($\beta = 0.013$, $p < .01$) and absolute SAT fit ($\beta = 0.018$, $p < .01$) were only marginally related. It should also be pointed out that the effect for absolute SAT fit was in the wrong direction where more misfit was related to higher FYGPAs. Additionally, gender ($\beta = -0.159$, $p < .01$) and ethnicity ($\beta = -0.084$, $p < .01$) had a moderate effect on college grades with women and nonminority (White and Asian) students earning higher FYGPAs, on average. In addition to the minimal main effect for absolute SAT fit, the magnitude of the standardized coefficients for all of the interaction terms with absolute SAT fit were small (all βs ≤ 0.017), thereby not supporting an academic fit effect for FYGPA overall or for student subgroups.

As for the logistic regression results for retention, none of the predictors were particularly strong correlates of retention. The odds ratio for student SAT total score, institutional average SAT score, and absolute SAT fit were 1.001 ($p < .01$), 1.004 ($p < .01$), and 1.000 ($p = .089$), respectively. In general, most students (88%) returned for their second year; therefore, a lack of variability in the outcome variable may be one explanation for the modest results. That being said, student and institutional SAT scores were positively related to retention. Specifically, among students with an average absolute fit value attending an institution with an average SAT score, students who had an SAT score one standard deviation above the mean ($M = 1538$, $SD = 254$) had a retention rate 2 percentage points higher than students with an average SAT score. As for students who had an average SAT score and average absolute SAT fit value, students who attended an institution that is one standard deviation above the mean ($M = 1538$, $SD = 155$) had a retention rate 4 percentage points higher than students at an institution with an average SAT score. Absolute SAT fit along with its interaction with gender, income, and ethnicity were practically unrelated to retention (Bs ranging from -.001 to <.001), again not supporting an academic fit effect overall or for student subgroups.

In sum, whereas students' performance on the SAT was more indicative of college grades than institutional average SAT score, the reverse was true for retention. Furthermore, absolute fit was only marginally related to grades and unrelated to retention. This was true for gender, ethnic, and income subgroups. The results corroborate what was visually presented in Figures 2 and 3.

Discussion

The current study failed to find support for an academic fit effect on college outcomes, specifically FYGPA and retention to second year. What are the implications for students? When selecting which college to attend, it appears that the right school is not the school that academically fits the student best but rather it is the school that is most academically selective (as indexed by mean SAT scores). Specifically, in terms of higher FYGPAs and retention rates, students at more selective institutions outperform their academic peers attending less selective institutions. This is in keeping with a finding by Kane (1998) who showed that the effect of attending a more selective institution on graduation rates is positive (approximately 3% higher) for students with similar test scores.

With that said, attending a more selective institution does not guarantee success. Rather, academic preparedness also largely contributes to a student's performance in college with more able students outperforming less able students, regardless of institutional selectivity, especially in terms of college grades. In sum, it seems that students desiring to maximize their probability of success in college should prepare themselves academically and then also attend the most academically selective institution to which they are accepted (as compared to an institution that is an academic fit).

Students should keep in mind that academic fit does provide useful information about colleges to which they are likely to be admitted. Students with limited resources may decide that applying to a college that is unlikely to accept them has higher costs than benefits and therefore may wish to direct their time, energy,

and financial resources toward applying to schools that match their academic qualifications. Although there may be some risk in applying to an institution that seems more academically competitive than those where a student believes he or she would best fit, the results of this study suggest otherwise. Students should not be deterred from applying to and attending more selective institutions due to lack of academic fit, as there appear to be real academic benefits for students attending these institutions.

What are the implications for colleges and universities? Institutions that want to maximize the percentage of admitted students that are successful and return for their second year should not minimize the academic qualifications of the applicants. Based on the data used in the current analyses, institutions should not be worried about selecting "overqualified" applicants, who they believe may be bored or not challenged enough at their institution, as these students earn higher FYGPAs and are more likely to return for their second year. On the other hand, students that are not qualified are more likely to earn lower grades and leave the institution. Institutions admitting less qualified students should be aware of the consequences and may want to provide additional resources (e.g., tutoring, counseling) for these students to offset their lower academic standing.

Limitations

There are two potential limitations of the study that should be mentioned. First, SAT performance was used as a proxy for the academic achievement of both the student and the college to create an academic fit variable. Even though other research on academic fit has also used SAT scores (e.g., Cragg, 2009), it would be interesting to examine whether other academic indicators, such as high school grades or rank, are more important in terms of academic fit and subsequent college outcomes. Another limitation was that college success was limited to the student's first year of college. Given the lack of research in terms of academic fit and first-year grades and retention to second year, this

study expands upon this body of research; however, it would be interesting to examine more distal college outcomes such as cumulative grades and graduation. Given that research has found that first-year college performance is a strong indicator of how students will perform in subsequent years (Wilson, 1983), similar null results would be expected for more distal outcomes; however, empirical research should be conducted in order to explicitly test this research question. Such research could determine whether academic fit is unrelated to all indicators of college success or just the ones examined in the current study.

Future Research

In addition to the research questions suggested above, future research in this area should examine some of the possible reasons that academic fit may not be as important as once thought. For example, it may be useful to study whether academically challenging oneself in high school builds resiliency, which prepares students to succeed in college despite the difficult adjustment and course load at any type of institution. Or, related to better overall performance at more selective institutions, perhaps as suggested by Ferris et al. (2004), students who are conscious of the value of a degree from a highly selective institution are more vested in succeeding at that institution. Furthermore, Kane (1998) has suggested that having better prepared classmates or better professors makes attending a more selective institution more interesting or engaging to students. Kane also suggested that selective institutions may have established social norms that favor staying in college. It would be useful to test such hypotheses among students of differing academic ability at institutions of differing selectivity, as there may be other institutional factors mediating the effect of the academic selectivity of the institution on student outcomes.

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Endnotes

1   This measure does not differentiate between students who transfer to another school from students who drop out. However, given that the focus of the study is to examine the extent to which students fit academically with their attending institution and whether students who do not fit academically are more likely leave their institution, the current definition of retention is not problematic for the proposed research questions.

2   Although it appears that the quartiles overlap, they do not because they differ to 10 decimal places. Specifically, institutions with mean SAT scores of: 1528.1914470000 or lower were placed into Quartile 1; 1528.1914470001 through 1635.8198785000 were placed into Quartile 2; 1635.8198785001

through 1771.4240237500 were placed into Quartiles 3; and 1771.4240237501 or higher were placed into Quartile 4.

3   Because the sample was more academically prepared than the nation, students were not equally distributed across the quartiles. The lowest quartiles included 15% of the sample, followed by 25%, 36%, and 24% for quartiles 2 through 4, respectively.