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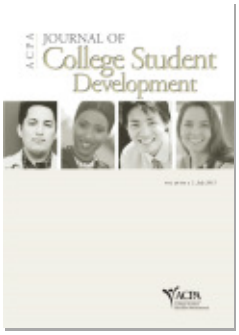

The Effects of Fraternity and Sorority Membership in the Fourth Year of College: A Detrimental or Value-Added Component of Undergraduate Education?

Michael S. Hevel Georgianna L. Martin Dustin D. Weeden Ernest T. Pascarella

We use a longitudinal national dataset to explore the direct and conditional effects of fraternity/sorority membership on students' educational outcomes in the 4th year of college. Controlling for a variety of potentially confounding variables, including pretest measures of the outcomes, we find no direct effect of fraternity/sorority membership on educational outcomes; however, we identify 5 conditional effects related to students' entering academic abilities and their racial/ethnic identities. We conclude by discussing implications for practice and research.

One of the paradoxes of American higher education involves fraternities and sororities. Critics of these organizations argue that their anti-intellectual nature is one reason why they should be banished from campus (e.g., Maisel, 1990; Strange, 1986), while at the same time, members and supporters of these organizations purport that one of their primary values is scholarship (e.g., Singer & Hughey, 2003; Jelke & Kuh, 2003; McKee, 1987). Despite this paradox and the long-standing controversial presence of fraternities and sororities on campus (e.g., Rudolph, 1962; Syrett, 2009), relatively little scholarship has explored the educational outcomes of fraternity and sorority members. More significantly, much of the existing research neither employs standardized measures of outcomes nor distinguishes between whether fraternal membership or the entering characteristics of students who join these organizations (a selection effect) is responsible for any differences. This article helps address this paradox by exploring the direct effect of fraternity/sorority membership on four liberal arts educational outcomes after 4 years of college: critical thinking, moral reasoning, inclination to inquire and lifelong learning, and psychological well-being. As a follow-up to a study that explored these outcomes in the first year of college (Martin, Hevel, Asel, & Pascarella, 2011), this study also explores the conditional effects of fraternal membership, finding that not all students are influenced in the same way. Indeed, our results suggest that the effects of fraternal membership on educational outcomes are more nuanced than either their critics or their supporters appreciate.

LITERATURE REVIEW

The literature on fraternal membership's influence on students' educational outcomes

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is largely limited, inconsistent, dated, and often fails to account for selection effects. In summarizing the research on fraternities and sororities in student affairs journals over the previous decade, Molasso (2005) found that scholars had focused on alcohol use, sexual assault, and hazing, largely overlooking the organizations' influences on student development. Our earlier study, based on the same data set employed in this article, helped address this oversight. Using a pretest/posttest design and controlling for a variety of potentially confounding variables, we found no differences—positive or negative—on educational outcomes attributable to fraternity membership in the first year of college (Martin et al., 2011). A review of the related literature demonstrates the need to expand this inquiry to the later college years.

Research on the direct effect of fraternal membership on students' cognitive development using standardized measures is sparse. Two earlier studies, which in many ways served as a model for our studies, used the critical thinking module of the Collegiate Assessment of Academic Proficiency to explore the effects of fraternal membership on students at 18 institutions (Pascarella et al., 1996; Pascarella, Flowers, & Whitt, 2001). Employing a pretest and a variety of statistical controls, the first study found that fraternity membership was responsible for lower-than-expected critical thinking skills compared to unaffiliated men at the end of the first year of college (Pascarella et al., 1996). While first-year sorority members also had lower critical thinking scores than unaffiliated women, the difference did not reach statistical significance. By the end of the third year of college, the gap reduced and remained insignificant between sorority members and unaffiliated women, and the statistical difference between fraternity members and unaffiliated men disappeared (Pascarella et al., 2001).

While using less precise measures of academic growth, more studies have explored the differences between fraternity/sorority members and their unaffiliated peers in regards to their grades, self-reported learning gains, and retention. In summarizing early studies on the effect of fraternal membership on GPA, Feldman and Newcomb (1969) noted an inconsistency related to fraternity membership—whether or not fraternity men earned higher, the same, or lower grades than independent men varied among studies—but that sorority women either earned higher grades or the same grades (but never lower grades) than unaffiliated women. Subsequent studies continued to present an inconsistent portrait of fraternal membership's influence on students' grades, with some finding it attributable to lower GPAs (Astin, 1993; Grubb, 2006), some finding it having no effect (Nelson, Halperin, Wasserman, Smith, & Graham, 2006; Pugh & Chamberlain, 1977), and one large, multi-institutional study finding it contributing to higher GPAs (DeBard & Sacks, 2011).

Pike and Askew (1990) demonstrated the potential complexity of fraternity/sorority membership on academic measures in a multiyear, single-institution study. They found that in the senior year of college fraternity men's GPAs were significantly lower than unaffiliated men's, but found no difference between sorority women and unaffiliated women. In addition, senior fraternity/sorority members demonstrated more academic effort, more involvement in departmental clubs and professional organizations, and higher ability to function in groups; unaffiliated students participated in more cultural activities on campus, interacted more with faculty, and scored higher on the College Outcome Measures Project Objective Test. Baier and Whipple (1990) found no difference between fraternity/sorority members and

unaffiliated students in terms of study habits and motivation for grades at a Southern public university. A decade later, Pike (2000) found fraternal membership associated with higher levels of self-reported engagement and gains in learning across 15 public research universities, results that were magnified by the senior year. Another large study found fraternity and sorority members to be on par with or higher than their unaffiliated peers regarding engagement in a variety of educationally purposeful activities (Hayek, Carini, O'Day, & Kuh, 2002). Moreover, there is a long history of studies finding fraternity and sorority members having higher levels of retention and persistence in college than their independent peers (e.g., Astin, 1977; DeBard & Sacks, 2011; Nelson et al., 2006; Willingham, 1962).

The research on fraternity/sorority membership and moral development is mostly dated and somewhat inconsistent. In addition to our previous study, three studies have found no difference in moral reasoning attributable to fraternity or sorority membership over the first year of college (Cohen, 1982; Marlow & Auvenshine, 1982; Sanders, 1990). Yet sometimes students who joined these organizations had lower entering levels of moral reasoning (Sanders, 1990). One longitudinal, single-institution study found no statistical differences between entering students who joined fraternal organizations and those who remained independent, but, after 2 years of college, sorority women demonstrated significantly lower levels of moral reasoning than did unaffiliated women (Kilgannon & Erwin, 1992). Connected to both cognitive and moral development, fraternity and sorority members have often self-reported higher levels of academic dishonesty than their unaffiliated peers (e.g., Feldman & Newcomb, 1969; Kirkvliet, 1994; McCabe & Bowers, 1996; McCabe & Trevino, 1997; Storch & Storch, 2002; Williams & Janosik, 2007), although these studies generally do not account for potential selection bias.

While only our earlier study directly explored fraternal membership influence on inclination to inquire and lifelong learning and psychological well-being, several studies have explored related concepts. Two studies in the 1990s found that membership in fraternities and sororities made students more focused on the extrinsic value of education (e.g., career success, high earnings) rather than the intrinsic value of education (e.g., learning for learning's sake; Astin, 1993; Wilder, McKeegan, Midkiff, Skelton, & Dunkerly, 1997). This suggests that fraternity and sorority members may be less likely to pursue learning opportunities, at least those not directly related to career advancement, after completing college. Regarding psychological well-being, in one study first-year women who participated in sorority recruitment had higher levels of self-esteem than those who did not participate (Atlas & Morier, 1994). In another study fraternity men had higher levels of self-esteem than unaffiliated men at a private, urban university in the Midwest (Brand & Dodd, 1998). A study that explored how the level of involvement in fraternities and sororities influenced a variety of psychosocial outcomes found overwhelmingly (but not exclusively) positive results from higher levels of involvement in these organizations (Hunt & Rentz, 1994).

As this review of the research reveals, an updated understanding of the influence of fraternity/sorority membership on educational outcomes in the 4th year of college is much needed in the early 21st Century.

METHODS

We used data from the Wabash National Study of Liberal Arts Education (WNS) to estimate the effects of fraternity/sorority membership

on educational outcomes in the fourth year of college. The WNS is a multi-institutional, longitudinal investigation of the effects of liberal arts experiences on outcomes associated with a liberal arts education. The WNS was guided by King, Kendall Brown, Lindsay, and VanHecke's (2007) comprehensive model of liberal arts educational outcomes, which embraced seven dimensions: effective reasoning and problem solving (critical thinking), moral character, inclination to inquire and lifelong learning, intercultural effectiveness, leadership, integration of learning, and psychological well-being. This study focuses on estimating the effects of fraternity/sorority membership on four dimensions of the King et al. model: critical thinking, moral character, inclination to inquire and lifelong learning, and psychological well-being.

Sample

Institutional Sample. Our sample consisted of incoming first-year students at 17 4-year colleges and universities from the Northeast/Middle-Atlantic, Southeast, Midwest, and Pacific Coast regions in the United States selected to participate in the WNS. The institutions varied in terms of institutional type and control, size, selectivity, location, and patterns of student residence. Using the 2007 Carnegie Classification of Institutions, 3 of the participating institutions were research-extensive universities, 3 were comprehensive regional universities that did not grant the doctorate, and 11 were baccalaureate liberal arts colleges.

Student Sample. The individuals in the sample were first-year, full-time, undergraduate students at one of the 17 institutions participating in the WNS in the Fall of 2006. This sample was selected in one of three ways. First, at the largest participating institution in the study, the sample was selected randomly from the incoming class in the College of Arts and Sciences. Second, for the remaining larger institutions, the sample was selected randomly from the incoming first-year class. Third, at the liberal arts colleges, the sample consisted of the entire incoming first-year class. Students were invited to participate in a national longitudinal study examining how a college education affects students with the goal of improving the undergraduate experience.

Data Collection

The initial data collection occurred in Fall 2006, with 4,193 students from the 17 institutions. This first data collection lasted between 90–100 minutes and students were paid a stipend of $50 each for their participation. Data collected included a WNS precollege survey that sought information on student demographic characteristics, high school experiences, life/career plans, and family background. Students also completed a series of instruments that measured liberal arts educational outcomes (King et al., 2007).

Two follow-up data collections occurred, once in Spring 2007 (approximately at the end of the first year of college) and once in Spring 2010 (approximately at the end of the fourth year of college). Each of these data collections took about 2 hours, and participating students were paid an additional stipend of $50 each time. Both follow-up collections included gathering two types of data: (a) information on students' college experiences using the National Survey of Student Engagement (NSSE) and the WNS Student Experiences Survey, and (b) posttest data using the series of instruments measuring aspects of students' intellectual and personal development. The entire data collection was administered and conducted by ACT, Inc. (formerly the American College Testing Program). The data from the first follow-up provided the results for our earlier findings regarding the effect of fraternity membership on educational

outcomes in the first year of college (Martin et al., 2011), while the data provided in the second follow-up provide the results for this article. A small number of participants in the 2010 data collection did not participate in the 2007 follow-up. A control for this, in the form of a dummy variable indicating participation/nonparticipation in the 2007 data collection, was built into all analyses.

Of the original sample of 4,193 students who participated in the initial Fall 2006 data collection, 2,212 participated in the Spring 2010 follow-up, for a response rate of 52.8%. These students represented approximately 10% of the total population of incoming first-year students at the 17 participating institutions. Because of the time involved in completing each instrument, only half of the sample completed the Defining Issues Test, version 2 (DIT2), the instrument used to measure moral reasoning. This resulted in useable data for 1,001 students. The other half of the sample completed the Critical Thinking Test (CTT) from the Collegiate Assessment of Academic Proficiency (CAAP), resulting in useable data for 981 students. We developed a weighting algorithm to provide some adjustment for potential response bias by sex, race, academic ability, and institution in the samples analyzed. Using information provided by each institution, 2010 follow-up participants were weighted up to each institution's fourth-year undergraduate population by sex, race (Student of Color/White), and ACT (or equivalent) quartile.

Dependent Variables

To assess effective reasoning and problem solving, we used the Critical Thinking Test (CTT) from the Collegiate Assessment of Academic Proficiency (CAAP), developed by ACT. The CTT is a 40-minute, 32-item instrument designed to measure a student's ability to clarify, analyze, evaluate, and extend arguments. The internal consistency reliabilities for the CTT range between .81 and .82 (American College Testing Program, 1991), and the CTT correlates .75 with the multiple-choice Watson-Glaser Critical Thinking Appraisal (Pascarella, Bohr, Nora, & Terenzini, 1995).

We measured moral reasoning using the composite N2-score of the DIT2 (Rest, Narvaez, Thoma, & Bebeau, 1999), a revised version of Rest's original Defining Issues Test (DIT). The DIT2 presents several moral dilemmas about social issues. Following each is a series of 12 items representing a variety of issues that might be raised by that dilemma. A substantial body of evidence supports the validity of the DIT for predicting principled moral behavior (for a summary, see Pascarella & Terenzini, 1991, 2005). Higher N2 scores reflect an individual's increased capacity for reasoning about moral reasoning based on a system of fairness that serves the public good, while lower N2 scores reflect moral reasoning based on a self-serving understanding of fairness (Bebeau & Thoma, 2003). Reliability measures for the N2 score ranges from .77 to .81 (Rest et al., 1999; University of Minnesota, n.d.).

We used two instruments to measure inclination to inquire and lifelong learning: the Need for Cognition Scale (NCS) and the Positive Attitude Toward Literacy Scale (PATLS). The NCS is an 18-item scale measuring an individual's "tendency to engage in and enjoy effortful cognitive activity" (Cacioppo, Petty, Feinstein, & Jarvis, 1996, p. 197). Individuals with a high need for cognition "tend to seek, acquire, think about, and reflect back on information to make sense of stimuli, relationships, and events in their world" (p. 198). The reliability of the NCS ranges from .83 to .91 in samples of undergraduate students (Cacioppo et al., 1996). The Positive Attitude Toward Literacy

Scale (PATLS), the second instrument used to measure one's inclination to inquire and lifelong learning, consists of six items measuring students' enjoyment of literacy activities such as reading poetry and literature, reading scientific and historical material, and expressing ideas in writing, and it has an internal consistency reliability of .71.

We used the Ryff Scales of Psychological Well-Being (RPWB) to assess well-being in the first year of college (Ryff, 1989; Ryff & Keys, 1995). The RPWB is a 54-item instrument that measures six dimensions of psychological well-being: (a) positive evaluations of oneself, (b) sense of continued growth and development as a person, (c) belief in a purposeful and meaningful life, (d) quality of relations with others, (e) capacity to effectively manage one's life and surrounding world, and (f) sense of self-determination (Keyes, Shmotkin, & Ryff, 2002; Ryff, 1989; Ryff & Keyes, 1995). We combined the six scales to obtain a total psychological well-being score. Internal consistency reliabilities for the total psychological well-being score in this study ranged from .87 to .89.

Independent Variable

The independent variable of interest was fraternity or sorority affiliation. We collected information on this variable using the National Survey of Student Engagement (NSSE) that all participants completed in Spring 2010. This item asked if students were a member of a social fraternity or sorority (coded as 1 = yes, 0 = no). Approximately 20.6% of students (n = 420) in the study sample reported membership in a fraternity (n = 164) or sorority (n = 256); of these, 17.1% identified as Students of Color (n = 72) and 82.9% identified as White students (n = 348).

Control Variables

A methodological strength of the WNS is its longitudinal nature. This enabled us to introduce a wide range of statistical controls for students' precollege traits and experiences and for other experiences during college. This study employed 14 control variables: (a) a parallel precollege measure for each liberal arts outcome measure; (b) tested precollege academic preparation (ACT score or SAT equivalent score); (c) sex; (d) race (coded as 1 = Students of Color, 0 = White students); (e) parent has a graduate degree; (f) high school involvement; (g) precollege academic motivation; (h) precollege political views; (i) hours worked per week during college both on and off campus; (j) cocurricular involvement; (k) took 2007 assessment; (l) institution has a fraternity/sorority community; (m) institutional type; (n) academic major (coded as 1 = humanities, fine arts, or social science major, 0 = other; and coded as 1 = science, technology, engineering or mathematics [STEM] major, 0 = other). Due to space limitations, we do not provide details here for the coding procedures for most of the control variables; many of these are described in our earlier study (Martin et al., 2011). Of these control variables, probably the most import is the parallel precollege measure because, according to Pascarella (2006), one of the most powerful ways to account for selection bias is through a longitudinal design employing pretests. A table with operational definitions of all the variables (dependent, independent, and control) in this study is available from the contact author upon request.

ANALYSES

The analyses were conducted in two stages using ordinary least squares regression. In the first stage, the five end-of-fourth-year dependent measures were regressed on the dummy variable representing fraternity/sorority affiliation versus not being affiliated with a fraternity/sorority and the other

control variables, or covariates, specified above. This provided estimates of the general effects of fraternity/sorority affiliation on the outcome measures. In the second stage of the analyses we entered a set of three cross-product terms representing the conditional effects of fraternity/sorority affiliation by sex, race, and precollege level of each fourth-year outcome. If the set of three cross-product terms was associated with a statistically significant increase in explained variance, we then examined individually significant cross-product terms to determine the nature of the conditional effect. We did this by reestimating the general effects equation for different sample subgroups and comparing the regression coefficients for fraternity/sorority affiliation across subgroups (Cronbach & Snow, 1977).

We used ordinary least squares regression, rather than propensity score matching, to estimate the causal effects of fraternity/sorority affiliation for two reasons. First, there is a growing body of evidence suggesting that propensity score matching and covariate adjustment by ordinary least squares regression provide essentially the same net causal effect estimates when a pretest of the dependent measure is taken into account (Padget, Salisbury, An, & Pascarella, 2011; Pascarella, Salisbury, & Blaich, 2013; Shadish, Clark, & Steiner, 2008). Second, ordinary least squares regression permitted us greater flexibility to test for the presence of conditional effects.

The individuals in our study were not drawn from a single random sample, but rather from a sampling procedure in which the institution they attended was the primary sampling unit. Because students clustered within a school are more similar than across schools, the error terms from the prediction model are correlated, which violates one of the assumptions of ordinary least squares regression and results in underestimated standard errors (Ethington, 1997; Raudenbush & Bryk, 2001); however, since we had a larger number of predictors in our regression models than we did sampling units (n = 17), we could not employ statistical procedures to control for the clustering effect (Groves et al., 2004). Consequently, in analyses of the aggregate samples we used a more stringent alpha level ($p < .01$, rather than $p < .05$) to avoid a Type I error. When we disaggregated the sample into smaller subgroups to examine the nature of any significant conditional effects we employed an alpha level of .025, rather than .050, to determine statistical significance.

The analyses we report are based on weighted sample estimates, adjusted to the actual sample size for accurate tests of significance. All five fourth-year dependent measures were standardized; thus, the coefficients for fraternity/sorority affiliation can be considered effect sizes, or that fraction of a standard deviation which fraternity/sorority–affiliated students are advantaged or disadvantaged (depending on the sign) relative to other students.

RESULTS

The results of our regression models estimating the net general effects of fraternity/sorority affiliation on the five end-of-fourth-year outcomes are summarized in Table 1. As Table 1 indicates, when other confounding influences were taken into account, fraternity/sorority affiliation had no statistically significant general effects on any of the outcomes; however, the general effect models summarized in Table 2 masked the presence of statistically significant conditional effects for fraternity/sorority affiliation on three of the five outcomes. When the set of three cross-product terms (Fraternity/Sorority Affiliation × Sex, Race, and Precollege Outcome Level) was added to the general effects equations, the associated increases in explained variance were quite modest (less than

1%), but statistically significant at $p < .01$ for moral reasoning, critical thinking, and need for cognition. According to our a priori decision rule, this permitted us to investigate the nature of individually significant (at $p < .01$) conditional effects involving fraternity/sorority affiliation for these three outcomes. (The corresponding explained variance increases for positive attitude toward literacy activities and psychological well-being failed to reach statistical significance.) Of the nine possible conditional effects considered, four were statistically significant when the influence of all general effects and all other conditional effects was taken into account; these were: fraternity/sorority affiliation by race for fourth-year moral reasoning; fraternity/sorority affiliation by race and fraternity/sorority affiliation by precollege critical thinking level for fourth-year critical thinking level; and fraternity/sorority

TABLE 1.

Estimated General Effects of Fraternity/Sorority Affiliation Over 4 Years of College[a]

	Fourth-Year (2010) Outcomes				
Predictor	**Critical Thinking**	**Moral Reasoning**	**Need for Cognition**	**Positive Attitude Toward Literacy Activities**	**Psychological Well-Being**
Precollege (2006) Outcome Score	0.526**	0.536**	0.538**	0.593**	0.587**
Male	0.029	–0.178**	0.196**	–0.048	–0.060
Student of Color	0.031	–0.210**	–0.128*	0.090	–0.126*
Parent Has a Graduate Degree	–0.050	–0.002	–0.053	0.019	–0.034
Precollege Academic Motivation	–0.035	–0.043	–0.010	–0.15	–0.126**
Secondary School Involvement	0.005	0.061	0.074**	0.026	0.116**
Precollege ACT (or Equivalent) Score	0.344**	0.141**	0.174**	0.111**	–0.032
Precollege Conservative Political Views	0.019	–0.010	–0.050*	–0.043	0.020
Attended a Research Institution	0.017	–0.032	–0.203**	–0.124*	–0.080
Attended a Regional Institution	–0.104	–0.033	–0.084	0.009	–0.109
On-Campus and Off-Campus Work Hrs/Wk	0.016	–0.016	0.020	–0.014	0.027
Cocurricular Involvement	–0.081**	–0.004	0.013	–0.012	0.093**
Arts, Humanities, and Social Sciences Major	0.031	0.017	0.096	0.317**	–0.054
Science, Technology, Engineering, and Mathematics Major	0.095	–0.0004	0.024	0.121	–0.059
Took 2007 (Time 2) Assessment	0.013	0.274**	–0.009	0.034	0.0004
Institution Attended Has Fraternity/Sorority Community	0.159*	0.038	0.069	–0.048	0.023
Fraternity/Sorority Affiliation	–0.119	0.069	–0.016	0.017	–0.012
Total Variance Explained	0.627**	0.418**	0.389**	0.409**	0.353**

[a] Number is the regression coefficient. Sample sizes were: Moral Reasoning = 1,001, Critical Thinking = 981, Need for Cognition = 2,042, Positive Attitude toward Literacy Activities = 2,045, Psychological Well-Being = 2,027.

*$p < 0.01$. **$p < 0.001$.

TABLE 2.

Conditional Effects of Fraternity/Sorority Affiliation on Moral Reasoning, Critical Thinking, and Need for Cognition

Dependent Variable/Conditional Effect	Coefficient
End-of-Fourth-Year Critical Thinking	
Fraternity/Sorority Affiliation × Race	
Fraternity/Sorority Affiliation for Students of Color	0.186
R^2	0.677**
Fraternity/Sorority Affiliation for White Students	–0.208**
R^2	0.595**
Fraternity/Sorority Affiliation × Precollege Critical Thinking Level	
Fraternity/Sorority Affiliation for Top One Third of Precollege Critical Thinking Distribution	0.073
R^2	0.331**
Fraternity/Sorority Affiliation for Lower Two Thirds of Precollege Critical Thinking Distribution	–0.178*
R^2	0.491**
End-of-Fourth-Year Moral Reasoning	
Fraternity/Sorority Affiliation × Race	
Fraternity/Sorority Affiliation for Students of Color	–0.377*
R^2	0.514**
Fraternity/Sorority Affiliation for White Students	0.170*
R^2	0.369**
End-of-Fourth-Year Need for Cognition	
Fraternity/Sorority Affiliation × Precollege Need for Cognition	
Fraternity/Sorority Affiliation for Top One Third of Precollege Need for Cognition Distribution	0.228**
R^2	0.164**
Fraternity/Sorority Affiliation for Lower Two Thirds of Precollege Need for Cognition Distribution	–0.089
R^2	0.244**

*$p < .025$. **$p < .01$.

affiliation by precollege level of need for cognition for fourth-year need for cognition. To determine the nature of the conditional effects, we disaggregated the sample into appropriate subsamples, recomputed the general effects equations (shown in Table 1) for each subsample, and compared the regression coefficients for fraternity/sorority affiliation across respective subsamples (Cronbach & Snow, 1977). These results are summarized in Table 2. The small variance increases associated with the cross-products indicated differences in the effects of fraternity/sorority affiliation for different student subgroups.

An individual's race moderated the effect of fraternity/sorority affiliation on 4-year growth in the use of postconventional moral reasoning. For White students, fraternity/sorority affiliation was linked to a statistically significant net advantage in moral reasoning

growth of about .17 of a standard deviation, while for Students of Color, fraternity/sorority affiliation led to a significant disadvantage in moral reasoning growth of .38 of a standard deviation. Conversely, race shaped the impact of fraternity/sorority affiliation on 4-year growth in critical thinking skills in essentially the opposite direction. For White students, fraternity/sorority affiliation was linked to a statistically significant net disadvantage in end-of-fourth-year critical thinking of .21 of a standard deviation; however, for Students of Color, the impact of fraternity/sorority affiliation was positive, though not statistically significant.

The level of development in critical thinking skills and need for cognition at which students entered college also significantly shaped the impact of fraternity/sorority affiliation in the fourth year of college. Once again, the moderating effect was complex. For students entering college in the lower two thirds of the distribution of precollege critical thinking skills, fraternity/sorority affiliation was linked to a statistically significant disadvantage in 4-year growth in critical thinking skills of about .18 of a standard deviation; however, for students entering college in the highest one third of critical thinking skills, critical thinking was essentially unaffected by fraternity/sorority affiliation. Conversely, for students who entered college in the lower two thirds of the need for cognition distribution, fraternity/sorority affiliation had no significant impact on need for cognition, while for students who entered college in the highest one third of the need for cognition distribution, fraternity/sorority affiliation was associated with a significant advantage in 4-year growth in need for cognition of .23 of a standard deviation.

LIMITATIONS

Despite the strengths of this study—most notably its longitudinal design, use of standardized measures, and geographical diversity and overall size of the sample—our results should be interpreted in light of at least three limitations.

First, not all students who participated in the first data collection participated in the final Spring 2010 follow-up data collection. The 52.8% 4-year return rate in the WNS is consistent with other multi-institutional longitudinal studies requiring a substantial amount of time and intellectual effort (e.g., the National Study of Student Learning; Pascarella, Edison, Nora, Hagedorn, & Terenzini, 1998); as such, all analyses we report are based on weighted sample estimates. Applying weights in this manner makes the samples we analyzed more representative of the institutional populations from which they were drawn, but this cannot adjust completely for nonresponse bias.

A second limitation is how we were able to operationalize fraternity/sorority membership in our data set. The WNS used a single item from NSSE that asked students if they were a member of a social fraternity or sorority. Because of this, we are unable to know whether participants belonged to traditionally White (e.g., Binder, 2003; Singer & Hughey, 2003), historically Black (e.g., Kimbrough, 2003), or other emerging multicultural organizations (e.g., Johnson & Larabee, 2003).

A final limitation, in some ways related to the prior one, is the limited way in which we were able to examine the influence of fraternal membership and students' race/ethnicity on educational outcomes. The WNS provided five racial categories to which students could identify, but, in order for our analyses to have adequate statistical power, we grouped responses from four of these categories into a single category: Students of Color. Although our analyses found significant differences in how fraternal membership affects White

students and Students of Color, there may be differences between the racial/ethnic groups who comprise our Students of Color category that our analyses do not reveal.

DISCUSSION

Summary

We found that fraternity/sorority membership had no direct effect on students' critical thinking skills, moral reasoning, inclination to inquire and lifelong learning, and psychological well-being in the fourth year of college. Although there were no direct effects, this study revealed conditional effects of fraternity/sorority membership and student demographics. There were two conditional effects based on students' entering academic abilities and two conditional effects based on students' racial/ethnic identities. Students who entered college in the lower two thirds of the sample in terms of critical thinking skills and then joined a fraternity or sorority demonstrated significantly lower-than-expected levels of critical thinking. Yet, for students who entered college with the highest levels of need for cognition, fraternity/sorority membership contributed positively to growth in this outcome. Turning to the conditional effects related to race and ethnicity, fraternity/sorority membership had a significant negative influence on White students' critical thinking, but no effect on Students of Color. Fraternity/sorority membership was correlated with significantly lower levels of moral reasoning for Students of Color, but significantly higher levels for White students.

Implications for Research and Practice

Our findings replicate those of our earlier study (Martin et al., 2011). Fraternity and sorority membership did not directly influence students along these educational outcomes either as they approached the end of their first year in college or later as they approached the end of their undergraduate experience. These findings run counter to the rhetoric of both the critics and the supporters of fraternities and sororities. Contrary to critics, fraternal membership does not negatively influence students' educational outcomes. At the same time, these results challenge supporters who vaunt scholarship as an espoused value of these organizations, because fraternities and sororities are not, at least not along the four outcomes studied here, enhancing the education of their members. This is especially disconcerting given the resources directed to these organizations. Students pay dues to belong to these organizations and often incur additional costs over the course of their membership (e.g., participating in more social activities); institutions employ campus professionals to directly work with the fraternity/sorority community, and campus professionals working in other functional areas (e.g., health promotions, career services) often target their services to these students; and national fraternal staff members visit chapters on campus and provide programming to their members. As we questioned in the discussion of our earlier study: Might we expect a positive return on this large of an investment?

Perhaps the more important finding of this study is that fraternal membership has different influences on specific groups of students. Although only reaching significance on two of the measures, our results indicate that fraternal membership can amplify the educational outcomes of students in the direction of their entering academic ability. The competing stereotypes of fraternities and sororities may help explain this finding. Students who enter college with high levels of academic ability may be partially attracted to fraternities and sororities, or at least to certain chapters on campus, because of the academic reputation

of a chapter, scholarships offered to members, and the career success of alumni. For them, fraternities and sororities may be effective environments that increase academic ability because of a press toward competition and success. Students who enter with lower levels of academic ability may be more attracted to the social aspects of college generally and fraternities and sororities specifically. By living and associating with likeminded peers, these students may deemphasize academics and focus on nonacademic pursuits. These results suggest that fraternal staff members and undergraduate chapter members might want to enhance efforts to recruit high-ability students, perhaps most easily using high school GPA as an indicator of academic ability, and that both fraternal and campus professionals might want to focus academic initiatives on students who enter with lower levels of academic ability. In doing so, they would help maximize the positive effects of fraternal membership while working to mitigate the negative.

Interpreting the conditional effects of fraternity membership and race/ethnicity is more complicated. Our study is not the first to find a conditional effect related to fraternal membership and critical thinking skills. An earlier and similarly designed study found that fraternity membership (but not sorority membership) was correlated with lower levels of critical thinking in the first year of college (Pascarella et al., 1996), a difference that disappeared by the end of the third year of college (Pascarella et al., 2001). If we assume that most of the White students in this study belong to traditionally White organizations, then we can conclude that this population would be well served by enhanced efforts to promote critical thinking. This would entail programmatic initiatives beyond "mandatory study tables" that are often popular in these organizations, such as more rigorous scholarship programs, visiting speakers on academic topics, and faculty advisors invested in the academic success of members. This finding may also reveal that the tendency of many White fraternity and sorority members to take classes with their fellow members, use materials by members who took the course previously, and rely on test banks may detrimentally influence their academic abilities.

Our results are also not the first to find as association between fraternal membership and lower levels of moral reasoning, although earlier it was with sorority women rather than Students of Color (Kilgannon & Erwin, 1992). The practical implications of this finding are constrained because we do not know if these students belonged to traditionally White organizations, historically Black organizations, or other emerging organizations (e.g., Latino fraternity, Asian American sorority). However, because White fraternity and sorority members demonstrated significantly higher levels of moral reasoning, campus professionals should consider which aspects of these organizations might be effectively promoting moral reasoning and consider the extent to which Students of Color who belong to fraternities and sorority are exposed to them. For example, participating in leadership and service programs offered by the national organizations of traditionally White organizations may help foster moral reasoning. If similar programs are not provided by historically Black or emerging fraternal organizations, which likely have fewer resources at the national level, campus professionals might consider how to implement similar programs locally. Another potential explanation is that Students of Color at the predominately White institutions in this study may experience campus climates that require their developmental energies be centered on racial and ethnic identity development, leaving their White counterparts with more energy to devote to moral reasoning. Yet due to the limitations of this study, we

believe our findings call for further research rather than provide final conclusions into the conditional effects of fraternal membership and race/ethnicity on educational outcomes.

The studies from the WNS have provided an important and timely update to the influence of fraternity/sorority membership on educational outcomes over the course of the college experience, but by no means do they provide an exhaustive understanding of the phenomenon. Future scholars may identify other educational outcomes that deserve to be studied in relation to fraternities and sororities, some of which may emerge from qualitative investigations. Because this study provides evidence that not all students experience fraternity or sorority membership in the same way, future scholars would well serve the field by conducting rigorously designed studies that provide insights into the influence of specific types of fraternal organizations (e.g., historically Black fraternities and sororities, Latino/a fraternities and sororities) on educational outcomes and the related conditional effects (e.g., the effect of fraternal membership on Asian American students who join traditionally White organizations). In fact, investigations such as these may be the most important to further our understandings of the educational influences of fraternities and sororities, especially as our campuses become increasingly diverse, host increasingly diverse types of fraternal organizations, and more diverse members join historically segregated organizations.

In exploring the influence of fraternal membership on students' educational outcomes, these studies have also complicated the debates regarding fraternities and sororities. There may be valid criticisms of these organizations, but a direct detrimental impact on educational outcomes does not hold up to scrutiny, at least for the thousands of students in our sample across the multiple empirical measures in our study. At the same time, these findings provide little for fraternity and sorority advocates to boast about. Despite all the resources directed to these fraternities and sororities, the best that can be said is that these organizations have no direct effect on educational outcomes. We believe that the proponents of fraternities and sororities would like to see membership have an educationally positive effect on students; we hope that our findings motivate campus professionals and national fraternity/sorority staff members to develop or bolster programs and practices that enhance the educational outcomes of fraternity and sorority members. If these organizations are to remain a feature of American higher education, as they have for almost three centuries, they should be a value-added component of undergraduate education that their members and supporters already purport them to be.

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