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AFFILIATION

New Evidence on the Effects of Fraternity and Sorority Affiliation:
It's More Complicated Than You Might Think*

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Abstract

This study explored the effects of fraternity and sorority membership on first-year students' development across a wide range of liberal arts outcomes at 11 institutions. Although many educators perceive fraternities and sororities as anti-intellectual organizations, most effects of membership on educational outcomes in this study were positive. Fraternity members demonstrated significantly higher scores on three components of the leadership assessment than unaffiliated men, but lower levels of critical thinking. Sorority members demonstrated significantly higher levels of moral reasoning, psychological well-being, and two components of the leadership assessment than unaffiliated women; sorority members never demonstrated significantly lower scores than unaffiliated women. Implications for practice are discussed.

New Evidence on the Effects of Fraternity and Sorority Affiliation:

It's More Complicated Than You Might Think

Despite a presence on American college and university campuses that has spanned almost two centuries, fraternities and sororities have been a controversial feature of campus life since their inception (Rudolph, 1962; Horowitz, 1987). Today, debate continues over whether sororities and fraternities foster student development across measures considered desirable college outcomes. Educators familiar with fraternities and sororities usually divide into two groups, each with strong views: supporters and detractors. Supporters of fraternities and sororities point to the leadership, philanthropic, and community service experiences these organizations provide students, and that many political and corporate leaders joined these organizations as undergraduates (e.g., Gregory, 2003; Binder, 2003). Detractors argue these organizations allow students to self-segregate into same-sex groups whose members share similar racial, religious, and socioeconomic characteristics, and that fraternities and sororities shift students' focus from academic to social pursuits incompatible with the educational goals of the academy (e.g., Strange, 1986; Maisel, 1990). Somewhat surprisingly, given their controversial presence on campuses, relatively little inquiry has explored the effects of fraternity and sorority membership on educational outcomes. Researchers have found that fraternity and sorority members differ significantly from their unaffiliated peers along a number of dimensions (e.g., Wilder, Hoyt, Doren, Hauck, & Zettle, 1978; Wilder, Hoyt, Surbeck, Wilder, & Carney, 1986; Baier & Whipple, 1990; Lottes & Kuriloff, 1994; Pascarella, Edison, Nora, Hagedorn, & Terenzini, 1996; Pascarella, Edison, Whitt, Nora, Hagedorn, & Terenzini, 1996; Pascarella, Flowers, & Whitt, 2001). However, the limited research on the impact of fraternity and sorority membership is dated, with much of the data being collected over a decade and a half ago (e.g.,

Pascarella, Edison, Nora, et al., 1996; Pascarella, Edison, Whitt, et al., 1996), and suggests little consistency and a lack of replicated findings. Membership in a fraternity or sorority appears to be beneficial to students in some ways and potentially detrimental in others. Given the often contradictory character of the research evidence, we turn our attention to a review of more specific findings related to the impact of fraternity and sorority affiliation on the wide range of learning outcomes, based on a conceptual model of the outcomes of liberal arts education (King, Kendall Brown, Lindsay, & VanHecke, 2007), considered in the present study. These include: moral reasoning, cognitive development, intercultural effectiveness, inclination to inquire and lifelong learning, psychological well-being, and leadership.

Moral Reasoning

The research on fraternity and sorority affiliation and moral reasoning is inconsistent. Kilgannon and Erwin (1992) did find that sorority women scored lower on a measure of principled moral reasoning after two years of college than did unaffiliated women. There was no difference in moral reasoning, however, between fraternity men and their unaffiliated peers. However, neither Marlowe & Auvenshine (1982) nor Cohen (1982) found any moral development differences between fraternity and sorority members and unaffiliated students during the first year of college. Distinguishing moral reasoning from moral behavior, there is a small body of research suggesting that compared to their unaffiliated peers, fraternity and sorority affiliated students may engage in higher levels of unethical behavior, including academic dishonesty (Kirkvliet, 1994; McCabe & Bowers, 1996; McCabe & Trevino, 1997; Storch, 2002). However, the general designs of these studies make it difficult to clearly determine if this is an actual effect of fraternity and sorority affiliation or merely the result of the kinds of student fraternities and sororities recruit.

Cognitive Development

We uncovered only two studies that estimated the impact of fraternity or sorority affiliation on standardized measures of cognitive development, and those studies are based on the same sample of data collected nearly 15 years ago. In one study, fraternity men scored significantly lower on measures of reading comprehension, mathematics, critical thinking, and composite achievement during the first year of college than did unaffiliated men (Pascarella, Edison, Whitt, et al., 1996). A different study employing the same student sample two years later revealed that the negative effect of fraternity membership on critical thinking became smaller and non-significant during the third year of college, but the negative effect of fraternity membership on reading comprehension persisted in the second and third years of college (Pascarella et al., 2001). In the same study, fraternity membership had a significantly negative effect and sorority membership had a significantly positive effect on students' self-reported cognitive growth (Pascarella et al., 2001). As far as we know, however, these findings have yet to be replicated.

Intercultural Effectiveness

The evidence on the impact of fraternity and sorority affiliation on intercultural effectiveness is consistent, but is based on only two studies using different measures of intercultural effectiveness. Pascarella, Edison, Nora, et al. (1996) reported that fraternity and sorority affiliated students scored lower on a scale measuring openness to diversity than their unaffiliated peers, even in the presence of a control for pre-college openness to diversity. Similarly, Antonio (2001) found that students affiliated with a fraternity or sorority scored lower than unaffiliated peers on scales measuring interracial interactions and promotion of racial understanding. However, the design of the study makes it somewhat difficult to determine if the

effect observed is actually attributable to fraternity and sorority affiliation due to the absence of a pre-test for interracial interactions and promotion of racial understanding.

Leadership

The literature on the effects of fraternity and sorority affiliation on leadership skills is sparse, inconsistent, and somewhat disjointed. Hughes & Winston (1987) assessed the importance students place on leadership in relationships with others and found that new members attributed greater importance to leadership than unaffiliated students. However, they found no differences in the importance students placed on leadership between new members and active initiated members of fraternities and sororities or between active initiated members and unaffiliated students. Harms, Wood, Roberts, Bureau, & Green (2006) examined the connection between personality traits and leadership in fraternities and sororities and found significant relationships between holding an executive office and the traits of extraversion, agreeableness, conscientiousness, emotional stability, and intellect. Another line of work studied the effect of serving as a fraternity president on students' self-perceived leadership development ten years later and on their careers. The researcher found service as fraternity president had a positive effect on students' self-perceived leadership skills but was not a guarantee of success in the student's post-collegiate career (Kelley, 2008). We uncovered only one study that explored socially responsible leadership employing the same framework the present study uses to operationally define leadership (Dugan, 2008). This study compared a cross-section of fraternity members to sorority members and found sorority members scored significantly higher than fraternity members on seven out of eight socially responsible leadership measures. More germane to our research interest, the Dugan (2008) study did not examine the role of fraternity and sorority affiliation on these measures.

Inclination to Inquire/Lifelong Learning and Psychological Well-being

Apart from a study by Pike and Askew (1990) that found fraternity and sorority members exerted greater academic effort than unaffiliated students, we found no research that directly addresses the impact of fraternity and sorority affiliation on students' inclination to inquire and lifelong learning. Similarly the literature appears virtually silent with respect to the effects of fraternity and sorority affiliation on psychological well-being.

According to Molasso's (2005) recent summary, the research on fraternity and sorority membership, has primarily focused on alcohol, sexual assault, and hazing; often considered to be the three largest problem areas among fraternity and sorority communities. Overall, the body of research fails to adequately consider important educational outcomes of college with respect to fraternity and sorority membership. According to Molasso (2005), "While exploring alcohol and other drug abuse prevention is important, research on this topic should not preclude research on other issues relevant to fraternity/sorority membership. Psychosocial, cognitive and identity development issues are as important for this community as they are for the broader campus student body" (p. 7). The present study sought to address these issues in the existing body of research by investigating the net impact of fraternity and sorority affiliation on a comprehensive set of first year cognitive, psychosocial, and personal outcomes typically associated with a liberal arts education.

Conceptual Framework for Liberal Arts Outcomes

By and large, research on liberal arts education is both limited and fragmented. In a recent study on the effects of liberal arts colleges and liberal education, Pascarella, Wolniak, Seifert, Cruce, and Blaich (2005) noted this fragmentation by acknowledging that much of the research on liberal arts education lacked an integrated and holistic perspective. Through an

extensive review of the literature on liberal arts education and building on the work of Jones and McEwen (2000), King et al., (2007) created a comprehensive model of liberal arts educational outcomes. This model includes seven broad outcome dimensions: effective reasoning and problem solving, well-being, intercultural effectiveness, moral character, inclination to inquire and lifelong learning, leadership, and integration of learning. Outcomes such as these and others are central to the mission and purpose of many American colleges and universities (see, for example, the taxonomy organizing college impact outcomes employed by Pascarella & Terenzini, 1991, 2005). What separates the outcomes of liberal education from other learning outcomes is their holistic nature and the connection between outcomes spanning cognitive, interpersonal, and intrapersonal aspects of development. Because of the interdependent nature of these outcomes, King et al. (2007) argue that educators who focus on only one aspect of student development “risk providing students with unidimensional experiences and measuring learning outcomes in unidimensional ways” (p. 7). They further challenge educators to integrate these learning outcomes in every aspect of professional work in higher education. The present study employs dependent measures representing six of these seven liberal arts outcomes. Unlike previous studies that have examined learning outcomes in isolation, a strength of the present study is its holistic inclusion of these outcomes associated with liberal education.

Method

Sample

The individuals who comprised the sample in this study consisted of first-year undergraduate students attending 11 four-year institutions participating in the Wabash National Study of Liberal Arts Education (WNSLAE). The WNSLAE is a longitudinal, multi-institutional exploration of the effects of liberal arts colleges and experiences on educational outcomes associated with a liberal arts education. Although 19 institutions participated in the WNSLAE,

we selected these 11 institutions because each had at least five students who reported affiliation with a fraternity or sorority, suggesting the presence of a fraternity or sorority community on campus. Using the 2007 Carnegie Classification of Institutions, 2 out of the 11 selected were research universities, 3 were regional universities that did not grant the doctorate, and 6 were liberal arts colleges. Seven out of the 11 institutions had multicultural fraternities and sororities on campus. However, due to the low number of students of color in our sample, it is likely that most of the participants in this study are affiliated with either a sorority in the National Panhellenic Conference or a fraternity in the North-American Interfraternity Conference.

The individuals in the sample consisted of first-year undergraduate students participating in the WNSLAE at each of the 11 institutions. We gathered the initial student sample in one of two ways. We randomly selected students at larger institutions from the incoming first-year class. The one exception to this was at the largest institution participating in the study, where we selected students from the entering first-year class in the College of Arts and Sciences. At the smaller, liberal arts institutions, we sampled the entire first-year class.

Data Collection

The initial data collection occurred in the fall of 2006 with 4,501 students from the 19 institutions and lasted approximately 90 minutes. Each student received a \$50 stipend for participating. Collected data included a pre-college survey that gathered information on student demographic and background characteristics as well as a series of instruments that measured aspects of cognitive and psychosocial development along such dimensions as moral reasoning, critical thinking, intercultural effectiveness, motivation toward lifelong learning, psychological well-being, leadership, and others.

The follow-up data collection was conducted in the spring of 2007 and lasted about two hours. Participants received an additional \$50 stipend. Two types of data were collected during the follow-up: data on students' college experiences using the National Survey of Student Engagement (NSSE) (Kuh, 2001) and the WNSLAE Student Experiences Survey (WSES), and post-test data using the series of instruments measuring aspects of students' intellectual and personal development. The American College Testing Program (ACT) administered both data collections.

Out of the original sample of 4,501 students participating in the fall 2006 data collection, 3,081 students participated in the follow-up data collection in spring of 2007, for a response rate of 68.5%. For the present study, we used student responses from 11 of the original 19 institutions, resulting in usable data for 1,786 students. Of these 1,786 students, 62.8% indicated they were female (n=1,122) and 37.2% indicated they were male (n=664). Approximately 19.4% (n=347) of the sample identified as students of color and 80.6% (n=1,439) identified as white students. Because of the time involved in completing each instrument, only half of the sample completed the Defining Issues Test, version 2 (DIT2). This resulted in useable data for 819 students. The other half of the sample completed the critical thinking module from the Collegiate Assessment of Academic Proficiency (CAAP), resulting in useable data for 889 students. We created a weighting algorithm to provide some adjustment for potential response bias by sex, race, academic ability, and institution in the student sample. We used information supplied by the institution on sex, race, and ACT score (or SAT score equivalent) to weight students who participated in the spring follow-up up to the first year student undergraduate population of each institution by sex (female or male), race (Caucasian, African American/Black, Hispanic/Latino, Asian/Pacific Islander, or other), and ACT (or equivalent assessment) quartile. While using this

weighting procedure has the effect of making the total sample more similar to the population from which it was taken, we recognize that it cannot adjust for nonresponse bias.

Dependent Variables

Dependent variables in this study included post-test scores on the following liberal arts outcome measures specified by the King, et al. (2007) conceptual model: moral reasoning (representing one dimension of moral character), critical thinking (representing one dimension of effective reasoning and problem solving), intercultural effectiveness, inclination to inquire and lifelong learning, psychological well-being, and leadership.

Moral reasoning. We assessed moral reasoning using the P-score of the Defining Issues Test, version 2 (DIT2). The DIT2 is a revised version of James Rest's original DIT measuring the moral reasoning component of moral development (Rest, Narvaez, Thoma, & Bebeau, 1999). The DIT2 presents several moral dilemmas about social issues. Following each is a series of 12 items representing a myriad of issues that might be raised by that dilemma. The P-score of the DIT2 measures the extent to which an individual uses higher order post-conventional moral reasoning in resolving the dilemmas presented in each scenario. Reliability measures for the P-score range from .74 to .77 (Rest, et al., 1999; University of Minnesota, n.d.). An extensive body of evidence supports the validity of the DIT2 P-score in predicting principled ethical behavior in a number of areas. These include: resistance to cheating, peer pressure, and unlawful or oppressive authority; whistle blowing on corruption; the keeping of contractual promises; helping behavior; community involvement; ethical behavior in several professions; clinical performance in nursing students; and social/political activism (see Pascarella & Terenzini, 1991, 2005, for a synthesis of this evidence, including citations to original studies).

Critical thinking. The critical thinking module of the Collegiate Assessment of Academic Proficiency (CAAP), developed by the ACT, is a 32-item instrument. It measures one's ability to clarify, analyze, evaluate, and formulate arguments. The assessment consists of four passages, each containing a series of arguments supporting a general conclusion, followed by multiple-choice test items. The internal consistency reliabilities for the critical thinking module of the CAAP range from .81 to .82 (ACT, 1991). Prior research found that the CAAP critical thinking test correlates .75 with the Watson-Glaser Critical Thinking Appraisal (Pascarella, Bohr, Nora, & Terenzini, 1995).

Intercultural effectiveness. We measured this dependent variable with two scales: the Miville-Guzman Universality-Diversity Scale (M-GUDS) and the Openness to Diversity/Challenge (ODC) scale. The M-GUDS consisted of 15 items measuring one's universal-diverse orientation. This orientation is characterized by an attitude of awareness and acceptance of differences among people (Miville, Gelso, Pannu, Liu, Touradji, Holloway, & Fuertes, 1999). The reliability measure for the M-GUDS total scale score was .85 in the present study. In addition, the precollege M-GUDS total scale score correlated .47 with a measure of students' experiences and interactions with diverse others and ideas in the first year of college. The second measure used to assess intercultural effectiveness was the ODC scale. The ODC scale is a seven-item measure assessing an individual's openness to racial and cultural diversity and the degree to which an individual enjoys being challenged by a variety of perspectives, ideas, and values (Pascarella, Edison, Nora, et al., 1996). Reliabilities for the ODC in the present study ranged from .83 to .87. Prior research has shown that precollege ODC scores have been significant predictors of one's likelihood of participating in a racial/cultural workshop during the first year of college (Whitt, Edison, Pascarella, Terenzini, & Nora, 2001).

Inclination to Inquire and Lifelong Learning. We used two scales to measure inclination to inquire and lifelong learning: Need for Cognition Scale (NCS) and Positive Attitude Toward Literacy Scale (PATL). The NCS consists of 18-items measuring an individual's "tendency to engage in and enjoy effortful cognitive activity" (Cacioppo, Petty, Feinstein, & Jarvis, 1996, p. 197). People with a high need for cognition "tend to seek, acquire, think about, reflect back on information to make sense of stimuli, relationships, and events in their world" (p. 198). In contrast, those with a low need for cognition are more likely to rely on others, cognitive heuristics, or social comparison processes to make sense of their world. The reliability of the NCS ranges from .83 to .91 in samples of undergraduate students (Cacioppo et al.). Also with samples of college students, the NCS has been positively associated with the tendency to generate complex attributions for human behavior, high levels of verbal ability, engagement in evaluative responding, one's desire to maximize information gained rather than maintain one's perceived reality (Cacioppo et al.) and college grades (Elias & Loomis, 2002). The NCS is negatively linked with authoritarianism, need for closure, personal need for structure, the tendency to respond to information reception tasks with anxiety, and chronic concern regarding self-presentation (Cacioppo et al.).

The PATL consists of 6-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. The PATL score at entrance to college correlated .36 with three-year cumulative scores during college on a measure of library use, .48 with the cumulative number of unassigned books read during three years of college, and .26 with a measure of reading comprehension administered after three years of college (Bray, Pascarella, & Pierson, 2004).

Psychological Well-Being. 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: positive evaluations of oneself (Self-Acceptance), sense of continued growth and development as a person (Personal Growth), belief in a purposeful and meaningful life (Purpose in Life), quality relations with others (Positive Relations with Others), capacity to effectively manage one's life and surrounding world (Environmental Mastery), and sense of self-determination (Autonomy) (Ryff & Keyes, 1995; Ryff, 1989; Keyes, Shmotkin, & Ryff, 2002). The six 9-item scales have internal consistency reliabilities ranging from .83 to .91 (C. Ryff, personal communication, August 2004). The six RPWB scales tend to have significant, positive associations with frequently used measures of happiness and satisfaction, and negative associations with depression (Ryff & Keyes, 1995). Due to recent concerns about the construct validity and interpretation of the six subscales (Springer & Hauser, 2006; Springer, Hauser, & Freese, 2006), the present study 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.

Leadership. We assessed this outcome with the 68-item, revised version II of the Socially Responsible Leadership Scale (SRLS). The SRLS measures the eight dimensions of Astin's Social Change Model of leadership development (Astin et al., 1996). The Social Change Model conceptualizes leadership as a collaborative process directed toward promoting positive social change in an organization or community (Tyree, 1998). A person who demonstrates strong socially responsible leadership capabilities is self-aware, acts in accordance with personal values and beliefs, invests time and energy in activities that he or she believes are important, works with

diverse others to accomplish common goals, has a sense of civic and social responsibility, and has desires to make the world a better place. The SRLS was developed to measure leadership in college students. The instrument has eight scales that correspond to the eight dimensions of leadership specified in Astin's model (Astin et al., 1996; Dugan, 2006). The eight scales are: Consciousness of Self (being aware of the values, emotions, attitudes, and beliefs that motivate one to take action); Congruence (thinking, feeling, and behaving with consistency, genuineness, authenticity, and honesty toward others); Commitment (intensity and duration in relation to a person, idea, or activity—the energy and passion that propels one to act); Collaboration (working with others in a common effort); Common Purpose (working with others within a shared set of aims and values); Controversy with Civility (recognizing two fundamental realities of any group effort, that (a) differences of viewpoint are inevitable and valuable, and (b) such differences must be aired openly and with respect and courtesy); Citizenship (believing in a process whereby a person or group is responsibly connected to the environment and the community); and Change (adapting to continuously evolving environments and situations, while maintaining the primary functions of the group). The internal consistency reliabilities for the eight subscales of the SRLS in the present study ranged from .77 in the pretest to .88 in the posttest. The various scales of the SRLS have been shown to discriminate between involved and non-involved undergraduate students in community service, student organizational membership, formal leadership programs, and positional leadership roles (Dugan, 2006). Additional research by Rubin (2000) has demonstrated that undergraduates identified as “emerging student leaders” tend to score significantly higher on the SRLS Congruency, Collaboration, Common Purpose, Citizenship, and Change scales than a control group of students not identified as “emerging leaders”.

Independent Variable

The independent variable was fraternity or sorority affiliation. We collected information on this variable using the National Survey of Student Engagement (NSSE) that all students completed in the Spring of 2007. Approximately 20.7% of students (n=369) in the study sample reported membership in a fraternity (n=160) or sorority (n=209). Of the 369 students reporting membership in a fraternity or sorority, 10.8% identified as students of color (n=40) and 89.2% identified as white students (n=329).

Good Practice Measures

A major part of the WNSLAE design was conceptually guided by a body of literature and evidence that identifies specific “good practices” in undergraduate education that are empirically linked to various measures of personal and intellectual growth during college (Astin, 1993; Chickering & Reisser, 1993; Kuh, Schuh, Whitt, & Associates, 1991; Kuh, Kinzie, Schuh, Whitt, & Associates, 2005; Pascarella & Terenzini, 1991, 2005). To measure these “good practices”, WNSLAE selected and adopted empirically-vetted scales and items from the National Study of Student Learning (Cruce, Wolniak, Seifert, & Pascarella, 2006; Pascarella et al., 2005) and the National Survey of Student Engagement (Pascarella et al., 2006). We selected six good practice scales from the WNSLAE data that we anticipated would influence first-year liberal arts outcomes and mediate or account for any positive or negative impacts of fraternity or sorority affiliation on these outcomes. These six good practice scales were titled “cooperative learning,” “academic challenge and high expectations,” “diversity experiences,” “good teaching and high quality interactions with faculty,” “interaction with faculty/staff,” and “influential interactions with peers.” The internal consistency reliabilities of the six scales ranged from .70 to .92. Complete descriptions of the six good practice scales, including all specific items and response

options, can be found at http://www.education.iowa.edu/CRUE/publications/documents/RESEARCH_METHODS_Draft_March2008.pdf

Control Variables

A particular methodological strength of the WNSLAE is that it is longitudinal in nature. This permitted us to introduce a wide range of statistical controls; not only for student background and pre-college traits and experiences, but also for other experiences during the first year of college. Our control variables used for various analyses in the present study included the following:

- A parallel pre-college measure for each liberal arts outcome measure. According to Pascarella (2006), one of the most powerful ways to account for selection bias is through a longitudinal design employing pre-tests.
- Tested pre-college academic preparation. This was the student's ACT score or SAT equivalent score. The score was provided by each participating institution.
- Race (codes as 1 = White, 0 = Other).
- Average parental education. This was computed as the average of the respondent's parents' education provided that the student gave a response for at least one parent. The item asked "What is the highest level of education each of your parents/guardians completed?" The response options are: 1 = Did not finish high school, 2 = High school graduate/GED, 3 = Attended college but no degree, 4 = Vocational/technical certificate or diploma, 5 = Associate or other 2-year degree, 6 = Bachelors or other 4-year degree, 7 = Masters, 8 = Law, 9 = Doctorate).
- High school involvement. This was a seven-item scale with an internal consistency reliability of .58 that measured involvement during high school. Examples of constituent

items include: “During your last year in high school, how often did you study with a friend?” “During your last year in high school, how often did you talk with teachers outside of class?” “During your last year in high school, how often did you participate in extracurricular activities?” Response options were “very often,” “often,” “occasionally,” “rarely,” or “never.” Scores on the scale were obtained during the initial data collection in fall 2006.

- Pre-college academic motivation. This was an eight-item, Likert-type scale in which respondents were asked to indicate the extent to which they agree or disagree (“strongly agree,” “agree,” “not sure,” “disagree,” “strongly disagree”) with statements about their academic motivation. These statements included: a willingness to work hard to learn material even if it doesn’t lead to a higher grade, the importance of getting good grades, reading more for a class than required, enjoyment of academic challenge, and the importance of academic experiences in college. The internal consistency reliability for the scale is .69, and scores on the scale were obtained during the initial data collection in fall 2006.
- Hours per week during the first year of college one worked both on- and off- campus. These were eight response options from “zero” to “more than 30 hours.”
- Lived in campus housing (coded 1) versus elsewhere (coded 0) during the first year of college.
- Participated in an intercollegiate sport (coded 1) versus did not participate in an intercollegiate sport (coded 0) during the first year of college.
- The liberal arts emphasis on one’s first year coursework. [Operationalized as the total number of courses during the first year of college taken in traditional liberal arts areas:

“Fine Arts, Humanities, and Languages” (e.g., art, music, philosophy, religion, history); “Mathematics/Statistics/Computer Science”; “Natural Sciences” (e.g., chemistry, physics); and “Social Science” (e.g., anthropology, economics, psychology, political science, sociology)].

- Institutional type. This was operationally defined as three dummy variables representing attendance at a research university or a regional university (each coded 1) with attendance at a liberal arts college always coded 0.

Information on place of residence, intercollegiate athletic participation, hours worked on- and off- campus, and first year coursework was obtained during the follow-up data collection conducted in spring 2007.

Analyses

We conducted the analyses in two stages using ordinary least squares regression procedures. In the first stage we estimated the total effect of fraternity or sorority affiliation on each first year liberal arts outcome using reduced form equations (Alwin & Hauser, 1975). Each liberal arts outcome measure was regressed on the dichotomous variable representing fraternity or sorority affiliation versus non-affiliation plus institutional type and all the control variables previously described (i.e., the parallel pretest, tested academic preparation, personal and family demographics, high school involvement, academic motivation, place of residence and work responsibilities, and the liberal arts emphasis of one’s first year course work). In stage two we estimated the direct (unmediated) effects of fraternity or sorority affiliation on each outcome by adding the six “good practice” scales previously described to the total effects equations. We anticipated that with the good practice scales in the equations any significant total effects of fraternity/sorority affiliation would be reduced to non-significance, indicating that the influence of fraternity/sorority affiliation would be mediated through (or accounted for) by experience of

good practices in undergraduate education. Because some prior findings have suggested gender differences in the effects of fraternity or sorority affiliation (Pascarella, Edison, Whitt, et al., 1996; Pascarella, et al., 2001), we conducted separate analyses by sex. Because of this we conducted tests for the significance of the difference in fraternity/sorority affiliation regression coefficients between the male and female sample.

For each significant net effect of fraternity or sorority affiliation we computed an effect size by dividing the metric regression coefficient by the pooled standard deviation of the liberal arts outcome measure. Thus, each effect size represents the estimated standard deviation advantage or disadvantage on the outcome (depending on the sign) of fraternity/sorority affiliated students relative to their non-affiliated peers. Only effect sizes associated with significant metric regression coefficients for fraternity or sorority affiliation were computed. All others are considered zero.

All analyses we report are based on the weighted sample estimates adjusted to the actual sample size to obtain correct standard errors.

Results

Table 1 summarizes by sex the estimated total and direct effects of fraternity or sorority affiliation on each first-year liberal arts outcome. The first thing that becomes apparent from the table is that for both men and women, fraternity or sorority affiliation does appear to have a number of significant, if modest, effects on liberal arts outcomes as early as the first year of college. We present the results for each individual liberal arts outcome.

[Table 1 about here]

Moral Character

Net of other influences, being a member of a fraternity had only small and non-significant total and direct effects on the P-Score of the Defining Issues Test. However, this was not the case for sorority members. Controlling for influences, women who were members of a sorority during the first year of college demonstrated a significant total effect advantage in principled moral reasoning over their non-affiliated counterparts of .23 of a standard deviation. [Since all our analyses have a pretest of each outcome this is the same as saying that sorority members made greater gains in principled moral reasoning during the first year of college than did non-affiliated women (Pascarella, Wolniak, & Pierson, 2003).] Interestingly, the positive effect of sorority membership persisted even when the six good practice scales were added to obtain the direct effect estimate. This suggests that the effect of sorority membership on moral reasoning was only partially mediated through differential exposure to, or experience of, good practices. We also found evidence to indicate that the impact of fraternity and sorority affiliation on moral reasoning was marginally more significant ($p < .10$) for sorority women than for fraternity men.

Intercultural Effectiveness and Inclination to Inquire & Life Long Learning

When confounding influences were controlled statistically we found no evidence to suggest that either fraternity or sorority members differed from their non-affiliated counterparts in more than chance ways on the two outcomes measuring first-year intercultural effectiveness (the Openness to Diversity/Challenge Scale and the Miville-Guzman Universality-Diversity Scale) or on the two first-year outcomes measuring inclination to inquire and lifelong learning (the Need for Cognition Scale and the Positive Attitude Toward Literacy Scale).

Effective Reasoning and Problem Solving

In the presence of statistical controls for a battery of confounding influences, men who joined a fraternity in the first year of college demonstrated a disadvantage in critical thinking skills (CAAP Critical Thinking Test) of about .21 of a standard deviation to non-affiliated men. However, when six good practice scales were entered into the direct effect equation the negative impact of fraternity membership was reduced by about 50 percent and became non-significant. Apparently differences in students' engagement in, and exposure to, good practices accounted for a substantial part of the negative total effect of fraternity membership on critical thinking. We found no evidence to suggest that sorority women differed in more than chance ways from non-sorority women in first year critical thinking skills.

Psychological Well-Being

We found no evidence to suggest that fraternity men had significantly different levels of overall psychological well-being (as measured by the global score on the Ryff Scales of Psychological Well-Being) than did their non-affiliated peers. For women, however, sorority members reported a statistically significant, though modest, total effect advantage in psychological well-being of slightly more than .15 of a standard deviation. This effect was reduced by about 75 percent and became non-significant when the six good practice scales were introduced in the direct effect equation. In this case, this suggests that differences in exposure to good practices accounted for a substantial part of the positive effect of sorority membership on first-year psychological well-being.

Leadership

We found significant net differences between fraternity or sorority affiliated and non-affiliated students on all but three of the eight Socially Responsible Leadership Scales: Controversy with Civility, Consciousness of Self, and Change. Consequently, the results for

these three SRLS scales are not summarized in Table 1. On the remaining five leadership dimensions fraternity/sorority affiliated students demonstrated significantly greater net first-year gains than did their non-affiliated peers. Net of other influences fraternity members had a significant total effect advantage over their non-affiliated counterparts of .16 of a standard deviation on the Congruence Scale, .17 of a standard deviation on the Commitment Scale, and .19 of a standard deviation on the Collaboration Scale. On all three scales the significant positive effect of fraternity affiliation become non-significant when the six good practice scales were entered in the direct effects equations. We also found the effect of fraternity/sorority affiliation on the SRLS Congruence Scale was significantly more positive for men than for women.

For women, joining a sorority yielded significant total effects advantages of .18 and .16 of a standard deviation respectively on the SRLS Common Purpose and Citizenship Scales. On the Common Purpose Scale the addition of the six good practice scales reduced the direct effect estimate to non-significance, while on the Citizenship scale the addition of the good practice scales had almost no impact on the positive effect of sorority membership.

Discussion

Summary

This study analyzed student data from 11 four-year colleges and universities to estimate the net effects of fraternity and sorority membership during the first year of college on a comprehensive range of measures representing a conceptual model of liberal arts outcomes (King et al., 2007). Analyses were conducted by sex so that fraternity members were compared to unaffiliated men and sorority members with unaffiliated women. The longitudinal nature of the data permitted us to introduce statistical controls for a wide range of potentially confounding influences. These included a parallel pre-college measure of each outcome, pre-college tested

academic preparation and academic motivation, student demographic characteristics and family background, high school experiences, institutional type, and other experiences during the first year of college such as place of residence, work responsibilities, the nature of one's course work, and athletic participation.

Overall, we found that students in fraternities and sororities had a parity with their unaffiliated peers on seven of the fifteen liberal arts outcomes measures. Net of confounding influences, there were only chance differences between fraternity and sorority member and their unaffiliated peers on both measures of intercultural effectiveness (the Openness to Diversity Scale and the Miville-Guzman Universality-Diversity Scale), both measures of inclination to inquire and lifelong learning (the Need for Cognition Scale and the Positive Attitude Toward Literacy Scale), and the Controversy with Civility, Consciousness of Self, and Change scales of Leadership. On the eight remaining liberal arts outcomes measures either fraternity or sorority membership had a significant net effect, and only one of these effects was negative. Fraternity membership had a significant negative total effect on first-year critical thinking, which became non-significant when difference in the experience of good practices was taken into account. Net of other influences fraternity membership was linked to greater first-year gains in the Congruence, Commitment, and Collaboration dimensions of the Socially Responsible Leadership Scale, and these greater gains also appeared to be explained by differences in the experience of good practices. Sorority membership had significant positive net impacts on first-year gains in moral reasoning, psychological well-being, and the Common Purpose and Citizenship scores of the leadership measure. On psychological well-being and the Citizenship subscale of leadership, these positive effects become non-significant when differences in the experience of good practices were taken into account. However, differences in the experience of

good practices did not reduce (or explain) the positive influence of sorority membership on moral reasoning or the Common Purpose scale of the leadership measure.

Discussion and Implications

Despite the tendency for educators to either praise or denigrate fraternities and sororities, this research describes a complicated and nuanced set of impacts on fraternity and sorority membership during students' first year of college. The results of this study suggest that membership in a fraternity or sorority does, indeed, have a significant influence on students as early as the first year of college. The largest effect sizes in the study were both the total and direct effects (.23 and .22 of a standard deviation respectively) of sorority members' level of moral reasoning, significantly higher than unaffiliated women. Fraternity members did not differ significantly from unaffiliated men in moral reasoning. The lack of difference between fraternity men and unaffiliated men supports previous research that found fraternity and sorority membership did not affect moral reasoning (Marlowe & Auvenshine, 1982; Cohen, 1982). However, our findings regarding sorority membership's positive effect on moral reasoning are inconsistent with the findings of Kilgannon and Erwin (1992), who demonstrated with the same measurement (DIT) that sorority women had lower levels of moral reasoning than unaffiliated women. Because our findings focused on moral reasoning in the first year of college while Kilgannon and Erwin's analysis occurred on students after their second year of college, future research should explore any changes in the effect of sorority membership on moral reasoning throughout the college experience. If the positive effect of sorority membership on moral development found in our study continues to persist as students mature, the experiences sororities provide members may prove to be a valuable learning tool for faculty members and student affairs professionals in designing appropriate opportunities to develop moral reasoning

skills for other students. Future research should explore the aspects of sorority members' experiences that are valuable in developing moral reasoning.

Although sorority membership did not have a significant effect on critical thinking skills, fraternity members scored significantly lower than nonaffiliated men on this measure (-.21 of a standard deviation). These results replicate a previous study conducted over 15 years ago that found fraternity membership had a negative impact on members' critical thinking skills in the first year of college but that sorority members demonstrated no differences in critical thinking skills from nonaffiliated women (Pascarella, Edison, Whitt, et al., 1996). Pascarella (2006) emphasized the importance of replication studies, noting "academic administrators and student affairs professionals would be provided a significantly greater margin of comfort in developing interventions or policies that are informed by replicated findings than by single sample results" (p. 510). Particularly because this research duplicates previous findings, faculty members and student affairs professionals might consider educational interventions for fraternity men to improve critical thinking skills.

Fraternity and sorority members demonstrated a parity with their unaffiliated peers on both the Openness to Diversity/Challenge scale and the Miville-Guzman Universality-Diversity Scale, the two measures used to assess intercultural effectiveness. This finding contradicts prior research that found fraternity and sorority membership had a negative impact on students' openness to diversity and challenge in the first year of college (Pascarella, Edison, Nora, et al., 1996), and challenges assumptions that fraternities and sororities inhibit efforts to promote diversity experiences on campus. Several reasons might explain this finding. First, although fraternities and sororities are often perceived as comprised of members with homogeneous identity characteristics, they may be developing into more diverse organizations, albeit still

primarily single-sex, in which people of different races, religious views, and sexual orientations feel welcome. Second, if fraternities and sororities are not becoming more diverse organizations, fraternal membership does not prevent students from exposure to other initiatives designed to enhance intercultural effectiveness. Third, it is possible that few students, regardless of whether they are members of a fraternity or sorority or unaffiliated students, are developing a desirable level of intercultural effectiveness. Or, fourth, Pascarella, Edison, Nora, et al.'s (1996) study was conducted 15 years ago, and it is possible that sororities and fraternities have evolved in intercultural effectiveness during that time.

Members in a fraternity or sorority did not differ significantly from their unaffiliated peers on either the Need for Cognition Scale or the Positive Attitude Toward Literacy Scale used to measure the inclination to inquire and lifelong learning outcome. These findings counter the perception that fraternity and sorority members recruit students who are not academically motivated, who then as a collective reinforce anti-intellectual values. These findings may surprise individuals expecting less enthusiasm for learning and intellectual endeavors amongst fraternity and sorority members. Conversely, fraternities and sororities purport to value and support scholarship, yet fraternity and sorority members failed to demonstrate higher levels on either scale measuring the inclination to inquire and lifelong learning outcome than unaffiliated students.

Sorority members demonstrated a significantly higher level of psychological well-being than unaffiliated women, but fraternity members did not differ from unaffiliated men along this measure at a significant level. Also, the positive effect of sorority affiliation on psychological well-being became nonsignificant when measures of good practice were added to the model. This may suggest a need for practitioners to encourage greater engagement in and exposure to

good practices especially for unaffiliated women in the first year of college. For the purposes of this study, psychological well-being included measures of self-acceptance, personal growth, purpose in life, positive relationships, effectively managing one's environment, and autonomy. Because the first year of college can be an emotionally challenging time for students, sorority members may be best positioned to deal with this experience.

Either fraternity or sorority members scored significantly higher than unaffiliated peers on five of the eight scales that measure leadership. Fraternity members scored significantly higher on the congruence, commitment, and collaboration scales, while sorority members scored significantly higher on the common purpose and citizenship scales. The scales on which fraternity members scored significantly higher suggest that they behave consistently and honestly towards others, are motivated towards the collective good, and work towards common goals. The scales on which sorority members scored significantly higher suggest they share similar goals and values when working with others and become connected to the greater community through their activities. Because fraternity and sorority members demonstrated significantly higher levels on different scales, each organization may provide insight for the other on how to foster the measures of leadership for which they do not enjoy significantly higher levels. Likewise, the activities of fraternities and sororities may provide guidance for educators designing opportunities for unaffiliated students to develop leadership skills. In particular, fraternities and sororities may provide more leadership opportunities within their organization than other similarly-sized campus organizations even in the first year of college. In addition, all but one of the significant findings on the leadership subscales were reduced to non-significance when the good practices were added to the model. This finding may suggest the need for practitioners to

encourage greater engagement in these traditional good practices for students who do not elect to join a fraternity or sorority.

Every review of the impact of college literature highlights the first year as a vital time in the lives of students (Feldman & Newcomb, 1969; Pascarella & Terenzini, 1991, 2005). Because this is also the time that many students choose to join fraternities and sororities, it is important to understand the effect of membership on educational outcomes during the first year. Replicated findings enhance both the internal validity and generalizability of college impact research (Pascarella, 2006), therefore researchers should continue to explore moral reasoning, critical thinking skills, intercultural effectiveness, inclination to inquire and lifelong learning, psychological well-being, and leadership development in relation to fraternity and sorority membership in the first year of college. Future research should also explore the degree that the differences between fraternity members and unaffiliated men and sorority members and unaffiliated women change over the course of the college experience, determining whether these differences disappear, reverse, or become more pronounced. Beyond the scope of this paper but important considerations are the well-documented effects of membership on problematic drinking behaviors and the legal challenges these organizations and their host campuses face (Elkins, Helms, & Pierson, 2003). Hopefully this and future studies will help fraternities and sororities develop into the organizations their supporters perceive them to be while reducing the criticisms of detractors.

References

- Alwin, D., & Hauser, R. (1975). The decomposition of effects in path analysis. *American Sociological Review, 40*, 37-47.
- American College Testing Program (ACT). (1991). *CAAP technical handbook*. Iowa City, IA: Author.
- Antonio, A. (2001). Diversity and the influence of friendship groups in college. *Review of Higher Education, 25*, 63-89.
- Astin, A. W. (1993). *What matters most in college? Four critical years revisited*. San Francisco: Jossey-Bass.
- Astin, A., Astin, H., Boatsman, K., Bonous-Hammarth, M., Chambers, T., Goldberg, S., et al. (1996). *A social change model of leadership development: Guidebook (Version III)*. Los Angeles: University of California at Los Angeles, Higher Education Research Institute.
- Baier, J.L., & Whipple, E.G. (1990). Greek values and attitudes: A comparison with independents. *NASPA Journal, 28*(1), 43-53.
- Binder, R. (2003). Historically white men's fraternal organizations. In Dennis E. Gregory and Associates (Eds.) *The administration of fraternal organizations on North American campuses: A pattern for the new millennium* (pp. 29-53). Asheville, NC: College Administration Publications.
- Bray, G., Pascarella, E., & Pierson, C. (2004). Postsecondary education and some dimensions of literacy development: An exploration of longitudinal evidence. *Reading Research Quarterly, 39*, 306-330.

- Cacioppo, J., Petty, R., Feinstein, J., & Jarvis, W. (1996). Dispositional differences in cognitive motivation: The life and times of individuals varying in need for cognition. *Psychological Bulletin, 119*, 197-253.
- Chickering, A., & Reisser, L. (1993). *Education and identity*. San Francisco: Jossey-Bass.
- Cohen, E. (1982). Using the Defining Issues Test to assess the state of moral development among sorority and fraternity members. *Journal of College Student Personnel, 23*, 324-328.
- Cruce, T., Wolniak, G., Seifert, T., & Pascarella, E. (2006). Impacts of good practices on cognitive development, learning orientations, and graduate degree plans during the first year of college. *Journal of College Student Development, 47*, 365-383.
- Dugan, J. P. (2006). Explorations using the social change model: Leadership development among college men and women. *Journal of College Student Development, 47*, 217-225.
- Dugan, J. P. (2008). Exploring relationships between fraternity and sorority membership and socially responsible leadership. *Oracle: The Research Journal of the Association of Fraternity Advisors, 3*(2), 16-25.
- Elias, S., & Loomis, R. (2002). Utilizing need for cognition and perceived self-efficacy to predict academic performance. *Journal of Applied Social Psychology, 32*, 1687-1717.
- Elkins, B., Helms, L. B., & Pierson, C. T. (2003). Greek-letter organizations, alcohol, and the courts: A risky mix? *Journal of College Student Development, 44*, 67-80.
- Feldman, D., & Newcomb, T. (1969). *The impact of college on students*. San Francisco: Jossey-Bass.
- Gregory, D. (2003). The dilemma facing fraternal organizations at the millennium. In Dennis E. Gregory and Associates (Eds.) *The administration of fraternal organizations on North*

- American campuses: A pattern for the new millennium* (pp. 3-25). Asheville, NC: College Administration Publications.
- Harms, P.D., Woods, D., Roberts, B., Bureau, D., & Green, A.M. (2006). Perceptions of leadership in undergraduate fraternal organizations. *Oracle: The Research Journal of the Association of Fraternity Advisors*, 2(2), 81-94.
- Horowitz, H. L. (1987). *Campus life. Undergraduate cultures from the end of the eighteenth century to the present*. Chicago: University of Chicago Press.
- Hughes, M.J. & Winston, Jr., R.B. (1987). Effects of fraternity membership on interpersonal values. *Journal of College Student Development*, 28(5), 405-411.
- Jones, S., & McEwen, M. (2000). A conceptual model of multiple dimensions of identity. *Journal of College Student Development*, 41, 405-414.
- Kelley, D.R. (2008). Leadership development through the fraternity experience and the relationship to career success after graduation. *Oracle: The Research Journal of the Association of Fraternity Advisors*, 3(1), 1-12.
- Keyes, C., Shmotkin, D., & Ryff, C. (2002). Optimizing well-being: The empirical encounter of two traditions. *Journal of Personality and Social Psychology*, 82, 1007-1022.
- Kilgannon, S., & Erwin, T. (1992). Longitudinal study about the identity and moral development of Greek students. *Journal of College Student Development*, 33, 253-259.
- King, P., Kendall Brown, M., Lindsay, N., & VanHecke, J. (2007). Liberal arts student learning outcomes: An integrated approach. *About Campus*, 12(4), 2-9.
- Kirkvliet, J. (1994). Cheating by economics' students: A comparison of survey results. *Journal of Economic Education*, 25, 121-133.

- Kuh, G. (2001). Assessing what really matters to student learning: Inside the National Survey of Student Engagement. *Change*, 33(3), 10-17, 66.
- Kuh, G., Kinzie, J., Schuh, J., Whitt, E., & Associates. (2005). *Student success in college: Creating conditions that matter*. San Francisco: Jossey-Bass.
- Kuh, G., Schuh, J., Whitt, E., & Associates. (1991). *Involving colleges: Successful approaches to fostering student learning and development outside the classroom*. San Francisco: Jossey-Bass.
- Lottes, I., & Kuriloff, P. (1994). The impact of college experience on political and social attitudes. *Sex Roles*, 31, 31-54.
- Maisel, J. M. (1990). Social fraternities and sororities are not conducive to the educational process. *NASPA Journal*, 28, 8-12.
- Marlowe, A.F. & Auvenshine, C.D. (1982). Greek membership: Its impact on the moral development of college freshmen. *Journal of College Student Personnel*, 40, 53-57.
- McCabe, D., & Bowers, W. (1996). The relationship between student cheating and college fraternity or sorority membership. *NASPA Journal*, 33, 280-291.
- McCabe, D., & Trevino, L. (1997). Individual and contextual influences on academic dishonesty: A multicampus investigation. *Research in Higher Education*, 38, 379-396.
- Miville, M., Gelso, C., Pannu, R., Liu, W., Touradji, P., Holloway, P., Fuertes, J. (1999). Appreciating similarities and valuing differences: The Miville-Guzman Universality-Diversity Scale. *Journal of Counseling Psychology*, 46 (3), 291-307.
- Molasso, W.R. (2005). A content analysis of a decade of fraternity/sorority scholarship in student affairs research journals. *Oracle*, 1(1), 1-9.

- Pascarella, E. (2006). How college affects students: Ten directions for future research. *Journal of College Student Development, 47*, 508-520.
- Pascarella, E., Bohr, L., Nora, A., & Terenzini, P. (1995). Cognitive effects of 2-year and 4-year colleges: New evidence. *Educational Evaluation and Policy Analysis, 17*, 83-96.
- Pascarella, E., Cruce, T., Umbach, P., Wolniak, G., Kuh, G., Carini, R., Hayek, J., Gonyea, R., & Zhao, C. (2006). Institutional selectivity and good practices in undergraduate education: How strong is the link? *Journal of Higher Education, 77*, 251-285.
- Pascarella, E., Edison, M., Nora, A., Hagedorn, L., & Terenzini, P. (1996). Influences on students' openness to diversity and challenge in the first year of college. *Journal of Higher Education, 67*, 174-195.
- Pascarella, E., Edison, M., Whitt, E., Nora, A., Hagedorn, L., & Terenzini, P. (1996). Cognitive effects of Greek affiliation during the first year of college. *NASPA Journal, 33*, 242-259.
- Pascarella, E., Flowers, L., & Whitt, E.J. (2001). Cognitive effects of Greek affiliation in college: Additional evidence. *NASPA Journal, 38*(3), 280-301.
- Pascarella, E., & Terenzini, P. (1991). *How college affects students*. San Francisco: Jossey-Bass.
- Pascarella, E., & Terenzini, P. (2005). *How college affects students: Vol. 2 A third decade of research*. San Francisco: Jossey-Bass.
- Pascarella, E., Wolniak, G. C., Pierson, C. T. (2003). Explaining student growth in college when you don't think you are. *Journal of College Student Development, 44*(1), 122-126.
- Pascarella, E., Wolniak, G. C., Seifert, T. A., Cruce, T. M., & Blauch, C. F. (2005). Liberal arts colleges and liberal arts education: New evidence on impacts. *ASHE Higher Education Report, 31*(3).

- Pike, G., & Askew, J. (1990). The impact of fraternity or sorority membership on academic involvement and learning outcomes. *NASPA Journal*, 28, 13-19.
- Rest, J., Narvaez, D., Thoma, S., & Bebeau, M. (1999). DIT2: Devising and testing a revised instrument of moral judgment. *Journal of Educational Psychology*, 91, 644-659.
- Rubin, J. (2000). *The emerging leaders: An evaluation of the social change model of leadership*. Unpublished doctoral dissertation, The Union Institute.
- Rudolph, F. (1962). *The American college and university: A history*. New York: Alfred Knopf.
- Ryff, C. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57, 1069-1081.
- Ryff, C., & Keyes, C. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, 69, 719-727.
- Springer, K.W., Hauser, R.M., 2006. An assessment of the construct validity of Ryff's scales of psychological well-being: method, mode, and measurement effects. *Social Science Research*, 35(4), 1079-1101.
- Springer, K., Hauser, R., & Freese, J. (2006). Bad news indeed for Ryff's six-factor model of well-being. *Social science research*, 35(4), 1120-1131.
- Storch, E. (2002). Fraternities, sororities, and academic dishonesty. *College Student Journal*, 36, 247-252.
- Strange, C. C. (1986). Greek affiliation and goals of the academy: A commentary. *Journal of College Student Personnel*, 27, 519-523.
- Tyree, T. (1998). *Designing an instrument to measure socially responsible leadership using the social change model of leadership development*. Unpublished doctoral dissertation, University of Maryland-College Park.

University of Minnesota, Center for the Study of Ethical Development (n.d.). *New index (N2)*.

Retrieved January 14, 2008 from

<http://www.centerforthestudyofethicaldevelopment.net/New%20Index.htm>

Whitt, E., Edison, M., Pascarella, E., Terenzini, P., & Nora, A. (2001). Influences on students' openness to diversity in the second and third years of college. *Journal of Higher Education, 72*, 172-204.

Wilder, D.H., Hoyt, A.E., Doren, D.M., Hauck, W.E., & Zettle, R.D. (1978). The impact of fraternity or sorority membership on values and attitudes. *Journal of College Student Personnel, 19*(5), 445-449.

Wilder, D.H., Hoyt, A.E., Surbeck, B.S., Wilder, J.C., & Carney, P.I. (1986). Greek affiliation and attitude change in college students. *Journal of College Student Personnel, 27*(6), 510-519.

**Table 1 – Estimated Net Effects of Fraternity and Sorority Affiliation (Coded 1)
Versus Non-Affiliation (Coded 0) on First-Year Liberal Arts Outcomes^a**

	Moral Character (DIT2 P-Score)	Intercultural Effectiveness (ODC)	Intercultural Effectiveness (M-GUDS)	Effective Reasoning and Problem Solving (CAAP-Critical Thinking)	Inclination to Inquire and Life Long Learning (NFC)	Inclination to Inquire and Life Long Learning (PALS)	Psychological Well-being (RYFF)
Part A: Men							
Total Effect ^b	-.479 ^d	-.048	-.016	-1.163** (-.206)	-.029	.001	.008
Direct Effect ^c	-.208 ^d	-.009	-.016	-.617	.021	.000	-.064
R ² for Direct Effects Model	.488**	.555**	.595**	.740**	.599**	.592**	.589**
Part B: Women							
Total Effect ^b	3.285* ^d (.227)	-.011	-.013	-.428	-.033	-.069	.088** (.154)
Direct Effect ^c	3.227* ^d (.223)	-.032	-.010	-.296	-.019	-.064	.022
R ² for Direct Effects Model	.430**	.400**	.583**	.708**	.568**	.614**	.618**

**Table 1 Continued – Estimated Net Effects of Fraternity and Sorority Affiliation (Coded 1)
Versus Non-Affiliation (Coded 0) on First-Year Liberal Arts Outcomes^a**

	Leadership (SRLS-R2 Congruence Scale)	Leadership (SRLS-R2 Commitment Scale)	Leadership (SRLS-R2 Collaboration Scale)	Leadership (SRLS-R2 Common Purpose Scale)	Leadership (SRLS-R2 Citizenship Scale)
Part A: Men					
Total Effect ^b	.097* ^e	.099*	.095**	.044	.058
	(.161)	(.174)	(.185)		
Direct Effect ^c	.064	.056	.017	-.005	.045
R ² for Direct Effects Model	.361**	.314**	.369**	.363**	.420**
Part B: Women					
Total Effect ^b	-.023 ^e	.019	.049	.077*	.085*
				(.179)	(.158)
Direct Effect ^c	-.015	.021	.021	.057	.085*
					(.158)
R ² for Direct Effects Model	.451**	.392**	.443**	.407**	.497**

^aThe top number is the metric regression coefficient. The metric regression coefficient represents the average statistically-adjusted difference between fraternity/sorority affiliated students and non-fraternity/sorority affiliated students on each dependent variable outcome. The number in parentheses is the effect size, or the metric regression coefficient divided by the pooled standard deviation of the dependent variable outcome. Thus, the effect size indicates that fraction of a standard deviation that fraternity/sorority affiliated students are advantaged or disadvantaged (depending on the sign) relative to non-fraternity/sorority affiliated students. Only effect sizes associated with statistically significant metric regression coefficients are reported. All others are considered zero.

^b Regression equations also include controls for: race/ethnicity (African American, Asian/Pacific Islander, Latino, and other vs. Caucasian), parents' education level, tested academic preparation, academic motivation, high school involvement, place of residence during college (on- or off-campus), hours of on- and off-campus employment per week, participation in athletics, number of liberal arts courses (i.e., fine arts, humanities, languages, natural sciences, social sciences, and mathematics) taken during the first year of college, institutional type (e.g., liberal arts college, research university, and regional institution), and a parallel pre-test measure on each liberal arts outcome.

^c Regression equations also include controls for all variables listed in superscript "a" above, plus the following good practice scales: cooperative learning, academic challenge and high expectations, diversity experiences, good teaching and high quality interactions with faculty, interaction with faculty/staff, and influential interaction with peers.

^d Coefficients are significantly different in magnitude between men and women at $p < .10$.

^e Coefficients are significantly different in magnitude between men and women at $p < .05$.

* $p < .05$. ** $p < .01$.