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LIVING–LEARNING PROGRAMS AND FIRST-GENERATION COLLEGE STUDENTS' ACADEMIC AND SOCIAL TRANSITION TO COLLEGE★

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This study examines the role of living–learning (L/L) programs in facilitating first-generation students' perceived academic and social transition to college. Using a sample of 1,335 first-generation students from 33 4-year institutions who participated in the National Study of Living–Learning Programs during Spring 2004, the results of the study show that first-generation students in L/L programs reported a more successful academic and social transition to college than their first-generation counterparts living in a traditional residence hall setting. In addition, interactions with faculty members and using residence hall resources facilitated an easier academic transition for first-generation students in L/L programs, and supportive residence hall climates were related to an easier social transition. A preliminary interpretation of this study's results is that structured activities, such as faculty interaction and residence hall programming, are more influential for this population than informal peer groups.

KEY WORDS: first-generation students; living–learning programs; transition to college.

INTRODUCTION

Prior research demonstrates unequivocally that college enrollment and retention rates vary significantly based on parents' educational level (Billson and Terry, 1982; Ishitani, 2003; Richardson and Skinner, 1992; Terenzini, Springer, Yaeger, Pascarella, and Nora, 1996). According to the National Center for Education Statistics (Choy, 2001), 82% of

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students whose parents had earned a bachelor's degree or higher had enrolled in college immediately after completing high school in 1999. In comparison, only 54% of students whose parents had completed high school but not college, and just 36% of students whose parents had less than a high school diploma matriculated directly to college. Choy also reported that the disadvantage of a family background without a postsecondary history is so pervasive that it persists in its negative relationship to college success even after controlling for family income, educational expectations, academic preparation, and support from parents and educators in planning and preparing for college.

First-generation college students are "educational pioneers" (London, 1996, p. 11); they are the first, or one of the first, in their families to pursue postsecondary education (Billson and Terry, 1982; Mitchell, 1997). Some scholars depict them simply as students whose parents did not go to college (e.g., Billson and Terry). Other researchers have broadened the definition in their work to include students whose parents may have attended college, but did not earn a degree (Ishitani, 2003), and others have narrowed the definition in their research to include only students who were first in their families to go to college (London, 1989). Finally, some researchers have studied empirical differences among students whose parents have only a high school degree or less versus students whose parents attended some college but did not receive a degree, and students whose parents have earned bachelor's degrees or beyond and found significant variations among the groups (Pascarella, Pierson, Wolniak, and Terenzini, 2004; Sherlin, 2002). This study defines first-generation college students as those for whom both parents or guardians have a high school education or less and did not begin a postsecondary degree. This definition appears to be most consistent with contemporary research.

Although the definition of a first-generation college student may vary, and few institutions track their first-generation college students, there is general agreement that their numbers are increasing on U.S. college campuses (Mitchell, 1997; Padron, 1992; Terenzini et al., 1996). Prior literature has also consistently depicted the transition to college to be especially difficult for first-generation students (London, 1989; Terenzini et al., 1996). Terenzini et al. (1994) described the process through which first-generation students adapt to college as a "disjunction," or a breaking of family tradition. Because the college experience was not in their family's backgrounds, first-generation students must adjust to a new culture—the academic and social culture of college life.

Contemporary college impact research posits a relationship between successful transitions to college and students' meaningful involvement with, and greater connection to, their college community (Astin, 1984;

Pascarella and Terenzini, 2005; Tinto, 1993). In turn, academic and student affairs practitioners have implemented several programmatic approaches to increase student involvement and enhance students' connection to their institutions in an attempt to ease the transition to college. One such comprehensive intervention designed to address many transition issues, primarily for first year students attending large residential research universities, is the living–learning (L/L) program.

Living–learning programs are residential communities with a shared academic or thematic focus (Shapiro and Levine, 1999). Research at several campuses has shown the benefits of L/L program participation on students' academic and social transition to college (Inkelas and Weisman, 2003; Pike, 1999; Pike, Schroeder, and Berry, 1997; Stassen, 2003). Taken as a whole, these single institution studies suggest the potential of L/L programs to consistently support all students in their college transition, regardless of their background characteristics. Although not usually designed with a first-generation population as the target audience, most L/L programs are committed to the academic and social integration of their residents and may consequently be particularly beneficial to first-generation college students. Accordingly, the purpose of this study is to examine the role of living–learning programs in facilitating the success of first-generation students in their academic and social transition to college.

First-Generation College Students

First-generation college students can differ from other students in many ways. For example, Terenzini et al. (1996) found that first-generation and traditional college students differed on 14 of 37 pre-college characteristics. The greatest differences were in total family income and race/ethnicity, with first-generation college students more likely to have a lower family income and to be from racial/ethnic minority backgrounds. First-generation college students were also more likely to be women, be older, have children, and have lower degree aspirations. Additionally, they reported having less encouragement from their family to attend college and expected to need additional time to complete their degrees. In a more recent multi-institutional study, Pascarella et al. (2004) reported that, compared with students whose parents completed at least a bachelor's degree, first-generation college students enrolled in and earned fewer credit hours, worked more hours, lived off campus, participated less in out of class activities, had fewer non-academic peer interactions, and earned lower grades.

First-generation college students tend to be less academically prepared, have lower reading, math, and critical thinking skills, and be more likely to attend high schools with less rigorous curricula than

students who have college attendance in their backgrounds (Choy, 2001; Richardson and Skinner, 1992; Terenzini et al., 1996). Furthermore, prior research suggests that first-generation students are less likely to take college entrance exams (such as the SAT and ACT), calculus, and advanced placement tests (Choy). Those who do take college entrance exams are more likely to score in the lowest quartile (Choy).

A critically discouraging finding from Choy (2001) was that first-generation college students were more than twice as likely (23 vs. 10%) to leave a 4-year institution before their second year than students whose parents had a bachelor's degree. Even after controlling for factors such as race/ethnicity, gender, and socio-economic status, first-generation status was a statistically significant indicator of leaving college before the second year. Moreover, first-generation college students (45%) were more likely than others (29%) to leave college without earning a degree. It is also important to note that, according to Horn (as cited in Choy, p. 23), once first-generation college students leave a 4-year institution, they are also less likely to return.

The Transition to College

Based on the impediments to completing an education for first-generation college students cited above, the transition to college is crucial in the retention and success of these students. Retention theorists, such as Tinto (1993), contend that students are more likely to persist in college when they successfully separate from their home context and become academically and socially integrated into the college setting. Although the degree of separation and integration needed to successfully complete a college degree is debatable given the cultural norms and morès of some racial and ethnic groups that value family and who seek to preserve their racial identity (Tierney, 1993), the need to negotiate a transition of some sort is widely acknowledged (Pascarella and Terenzini, 2005). Successful transitions, then, bridge the student's home environment with the collegiate environment and are critical, primarily in the student's first year of study.

Astin's (1984) student involvement theory provides a lens through which to view issues relevant to a student's transition to college. This theory links student behavior, specifically the amount of time and energy a student spends on the collegiate experience, to persistence. Astin's research comparing students who stayed in college with those who left suggested that successful transitions were enhanced by various types of college involvements, including: on campus living, participation in social fraternities and sororities, working part-time on campus, and generally making connections with one's new environment.

However, prior research shows that first-generation college students typically have a difficult time adapting to the college environment and often are not connected to their institutions (Billson and Terry, 1982; Terenzini et al., 1994). In terms of the academic environment, first-generation college students tend to be dissatisfied with large lecture classes, not having the opportunity to participate in class, and not interacting with faculty (Richardson and Skinner, 1992). In terms of social environments, Pascarella et al. (2004) found that first-generation college students benefited more from extracurricular activities and engagement with peers, but were less likely to participate in these beneficial activities than were those students who were not first-generation. Terenzini et al. (1994) similarly noted that first-generation students tended to delay involvement in extracurricular activities and informal peer groups during the initial transition period, and were often likely to have friends who lived off-campus or who were not enrolled in college.

On campus peer relationships can be influential in facilitating successful transitions for the general college student population. For example, prior research has found that a peer culture that emphasizes academic pursuits and peers as study partners can assist in a successful academic transition (Kuh et al., 1991; Pascarella and Terenzini, 2005), as do connections with faculty and other academic support services (Pascarella and Terenzini, 2005; Terenzini et al., 1994). More specifically, Terenzini et al. (1994) noted that peers can serve as a source of support and encouragement for first-generation students who might need more affirmation about their legitimacy in college due to their newness to the collegiate setting. Because the transition to college is difficult for most students, it is common for campuses to offer first year transition programs to assist students in the adjustment process (Braxton and McClendon, 2002). As mentioned previously, L/L programs are one type of intervention that higher education institutions have created to facilitate greater academic and social integration, although they are not necessarily targeted for first-generation students.

Living–Learning Programs

Many L/L programs were developed to strengthen undergraduate students' learning by helping them to connect the potentially disparate knowledge gained from the academic, co-curricular, and residential arenas (Lenning and Ebbers, 1999). At their best, L/L programs are designed to create a sense of community that allows for greater faculty and peer interaction, increased opportunities for co-ordinated activities, and a socially and academically supportive residential living environment (Shapiro and Levine, 1999). Due to the proliferation of L/L programs on

college campuses across the country, there are a myriad of different L/L programs with varying themes and objectives, yet they share many common characteristics. L/L communities are characterized by programs in which students live together in the same on campus residence location, share academic experiences, have access to resources provided directly to them within the residence hall, and engage in residence hall activities that reinforce their L/L program's theme (Inkelas and Associates, 2004). As with any type of learning community, L/L programs may vary in level of student collaboration, faculty involvement, curricular co-ordination, shared setting, and interactive pedagogy as well as the degree to which these five areas are integrated (Love and Tokuno, 1999). It is important to note, however, that L/L programs are conceptually distinct from other types of learning communities (such as cluster courses, team-taught classes, and freshman interest groups), which do not include a residential component (Lenning and Ebbers, 1999; Shapiro and Levine, 1999). Although the research literature has shown that learning communities—which may or not may not include a residential element—have been associated with positive student outcomes (see Zhao and Kuh, 2004 for a summary of the extant literature), this study focuses on the residential L/L program for which empirical evidence of effectiveness is sparse.

The limited published literature on L/L programs, though primarily focused on single-institution studies, has demonstrated that students in L/L programs were more likely to persist, have higher academic achievement, be involved in campus activities, and interact with faculty and peers (Inkelas and Weisman, 2003; Pike, 1999; Pike et al., 1997; Stassen, 2003). Participation in a L/L program, in comparison to living in traditional residence halls, increased students' incorporation into college as indicated by measures of academic and social integration (Inkelas and Weisman; Pike; Pike et al.; Stassen).

Inkelas and Weisman (2003) found that students who participated in L/L programs at a selective public research university in the Midwest enjoyed a smoother academic transition to college during their first year than a comparison group of students residing in traditional residence halls. Inkelas and Weisman's analyses revealed that key L/L activities, such as discussing academic issues with faculty, studying in groups, and perceiving residence halls as academically and socially supportive, were significant positive predictors of a smooth academic transition. First-generation college students were not identified in the Inkelas and Weisman single-institution study. Accordingly, this study examined transition issues for first-generation college students using a multi-institutional sample. The use of a multi-institutional sample also extends current understanding of the role of L/L programs in student outcomes research, since previous inquiry on

these programs has been in the form of single-institution studies or have been conducted at the 2-year college level (Zhao and Kuh, 2004).

METHOD

Sample

The NSLLP collected data at 34 postsecondary institutions in 24 states and the District of Columbia. However, only 33 campuses had first-generation respondents. For the NSLLP, two samples of students were drawn from each participating institution: a full or random sample of the institution's L/L program participants and an equal-sized comparison sample, consisting of students who lived in the institution's residence halls but did not participate in a L/L program. The comparison sample was matched as best as possible to the L/L program sample by gender, race/ethnicity, and academic class standing. The overall NSLLP data collection yielded a 33.3% response rate. The sub-sample of first-generation college students (i.e., students for whom both parents had a high school education or less) for this study included 651 L/L program and 684 comparison sample students. The comparison sample in this study is referred to as first-generation students who lived in a traditional residence hall (TRH) setting.

It is important to note that the students in this study all lived on campus, were predominantly first year (61%) or sophomore (21%) students, and were generally of traditional-age (17–22). These characteristics are artifacts of the types of institutions that participated in the NSLLP and the sampling strategy employed. NSLLP participants were from primarily public research and flagship universities, which typically enroll traditional-age students. As the NSLLP was principally concerned with studying the impact of L/L programs, all students, including those in the comparison sample, lived in residence halls and were usually in their first or second year, common characteristics descriptive of L/L program participants.

As such, the characteristics of the first-generation college students in this study may not mirror the national profile of first-generation college students, which includes older and commuter students (Pascarella et al., 2004; Terenzini et al., 1996). However, the parameters of the study's sample provided an interesting insight into a distinct kind of first-generation college student—one who started college closely after graduating from high school and began her or his postsecondary education at a moderately-to-highly competitive 4-year university in a traditional, on campus setting. Given that first-generation college students are significantly less likely to persist at this type of 4-year institution (Choy, 2001), the odds of being successful at this high collegiate level may be even more

unlikely, making the contributions of interventions such as L/L programs potentially even more beneficial.

Data Collection and Instrumentation

The data were collected at the 34 institutions between late-January and mid-March 2004 using an Internet survey consisting of 258 items in 40 item sets. Participants were sent an email inviting them to respond to the survey; non-respondents to the survey after the first email contact were subsequently sent up to two follow-up emails requesting their participation. Constructs measured by the survey instrument included a range of student background characteristics, involvements in several types of college environments, and multiple self-reported student outcomes. The survey included items assessing the transition to college, perceived intellectual abilities and self-confidence, alcohol use and behaviors, sense of civic engagement, diversity appreciation, and satisfaction.

The survey instrument was created from 2 years of review and pilot testing. Fifteen L/L program administrators and two experts in survey instrumentation reviewed the questionnaire for face validity, and two waves of student respondents (one at a single-institution in 2002 and another in a four-campus pilot test in 2003) completed the questionnaire, which resulted in revisions to the instrument for content and clarity. Composite measures representing the NSLLP's key constructs were created through exploratory factor analysis and tests of internal consistency (Cronbach α). The α scores of the composite scales in the NSLLP ranged from .62 to .92. Finally, construct validity of the composite measures was examined through tests of internal consistency of the scales across the pilot study samples and inter-correlations among conceptually related sub-scales. For more information about the reliability and validity of the NSLLP survey instrument, please refer to Inkelas, Vogt, Longerbeam, Owen, and Johnson (2006).

Variables in the Conceptual Framework

There were two outcomes for this study: first-generation students' (a) perceived ease with their academic transition to college, and (b) perceived ease with their social transition to college. These two constructs were composite measures, created through principal components factor analysis with orthogonal rotation and Cronbach α reliability tests. α reliability was re-tested using the first-generation student-only sample. The measure for "ease with academic transition to college" ($\alpha = .66$) was composed of the following individual items: (a) perceived ease with communicating with instructors outside of class; (b) perceived ease with finding academic

personal help when needed; and (c) perceived ease with forming study groups. The measure for "ease with social transition to college" ($\alpha = .65$) was composed of the following items: (a) perceived ease with getting to know other people in the residence hall; (b) perceived ease with making new friends; and (c) perceived ease with getting along with roommate(s). The Cronbach α estimates for both scales did not suggest a strong internal consistency for either construct, but were considered to be moderately acceptable (Pallant, 2001). For more information on the outcome scales and other composite measures, see Appendix A.

To understand the role of L/L program participation on first-generation college students' academic and social transition to college, this study used a conceptual framework based on the aforementioned literature and a model of academic transition developed by Inkelas and Weisman (2003). The Inkelas and Weisman model, based on Astin's (1993) Input–Environment–Outcome college impact model, was designed to examine how L/L program environments influenced students' transition to college.

The inputs of this study's framework, (gender, race/ethnicity, high school GPA, and SAT score), were based on the Inkelas and Weisman (2003) model. Generation status in the U.S., annual family income, and types of financial aid received were added to the framework based on the literature describing greater proportions of students from immigrant and lower socio-economic status among first-generation college students (Choy, 2001; Larsen, 2004). The final inputs in the conceptual framework included retrospective estimates of pre-college confidence (in their perceived ability to handle the challenge of college level work and in their feeling of belonging on campus), which were used as proxies for pre-test measures for the academic and social transition to college. The NSLLP used a cross-sectional data collection; thus, it was not possible to use a true pre-test through a pre-test/post-test design. However, Pascarella (2001) has argued that researchers can use measures that assess students' openness to and expectations of the college experience as an alternative for pre-tests studying college impact. Therefore, this study's pre-test represents an alternative consistent with Pascarella's recommendation.

Several academic and social environmental measures were included in this study's conceptual framework based on Inkelas and Weisman's (2003) transition to college model. These included students' academic class standing, participation in work-study or work off-campus, involvement in co-curricular activities, course-related faculty interaction, frequency of faculty mentorship, discussion of academic and career issues or socio-cultural issues with peers, and perceptions of academically and socially supportive residence hall climates. Several additional environmental measures were added to the conceptual framework to account

for those academic contexts found to be associated with first-generation college students' success: initial college GPA, time spent attending classes, and time spent doing homework (Choy, 2001; Pascarella et al., 2004; Richardson and Skinner, 1992; Terenzini et al., 1996).

Involvement in co-curricular activities, such as fraternities/sororities, religious clubs/activities, ethnic/cross-cultural activities and community service were integrated into the model because of their inclusion in the Inkelas and Weisman (2003) conceptual framework, and because they were the most frequently reported types of extra or co-curricular involvements cited by first-generation college students in the NSLLP. Finally, students' use of co-curricular residence hall resources and two racial climate measures (reports of positive diverse peer interactions, and perceptions of a positive racial climate) were added to the conceptual framework because prior literature has found that the retention of students of color is correlated with these factors (Hurtado, Milem, Clayton-Pederson, and Allen, 1999). Although this literature is not related specifically to first-generation college students, because a significant proportion of first-generation college students come from racial/ethnic minority backgrounds, the inclusion of these constructs in the study can help to test the utility of the Hurtado et al. racial climate theoretical framework in studying first-generation college students. The means, standard deviations, and descriptions of all the variables in this study's conceptual framework are presented in Appendix B.

Data Analyses

Chi-square distributions of demographic data among first-generation students in L/L programs and in a traditional residence hall (TRH) setting were compared to examine possible differences in the background characteristics in the two first-generation sub-samples. Next, ANCOVA analyses were conducted to test if first-generation college students in L/L programs were more likely to perceive an easier academic and social transition to college than first-generation college students in a TRH setting. The covariate for the ANCOVA examining differences in ease with the academic transition to college was an individual item assessing first-generation students' pre-college anticipated confidence in their ability to handle college-level work. The covariate for the ease with social transition to college ANCOVA was an individual item measuring first-generation students' anticipated confidence in feeling a sense of belonging on campus. Effect sizes calculating the magnitude of the differences between the means were evaluated using an η^2 value (Cohen, 1988; Pallant, 2001).[1]

Finally, using the study's conceptual framework, predictors of students' perceived ease with their academic and social transition to college were examined among first-generation students in L/L programs and first-generation students in a TRH setting. These analyses were conducted via four hierarchical ordinary least squares regressions, one for each sub-sample where the dependent variable was "perceived ease with the academic transition to college," and another for each sub-sample where the dependent variable was "perceived ease with the social transition to college." The separate multiple regression analyses were conducted in order to identify which aspects of students' college experiences were associated with a smooth academic and social transition to college among first-generation L/L and TRH students. Before the regression analyses were examined, the independent variables were tested for possible multicollinearity. Collinearity diagnostics revealed that the tolerance levels among the independent variables in this study ranged between .95 and .36. Moreover, variance inflation factors (VIF) for the independent variables ranged from 1.05 to 2.79. These levels fall well below the acceptable limits set by Cohen, Cohen, West and Aiken (2003), who state that tolerance levels of .10 or less or VIF values of 10.00 or higher pose serious risks for multicollinearity.

For all four regression analyses, the independent variables were entered in seven discrete blocks:

- Block one (student background characteristics): gender, race/ethnicity (dummy coded), generation status in the U.S., family annual income, high school grades, and SAT score;
- Block two (pre-tests): pre-college confidence in handling the challenge of college level work, and pre-college confidence in feeling a sense of belonging on campus;
- Block three (financial information): on loans, scholarship, work-study, and work off-campus;
- Block four (academic and curricular environments): academic class standing, college GPA, time spent attending classes, and time spent studying/doing homework;
- Block five (social and co-curricular environments): involvement in fraternity/sorority, involvement in religious clubs/activities, involvement in ethnic/cross-cultural activities, involvement in community service, and use of co-curricular residence hall resources;
- Block six (faculty and peer interactions): course related faculty interaction, faculty mentorship, discussed academic and career issues with peers, discussed socio-cultural issues with peers, and positive peer diversity interactions;

- Block seven (perceptions of the campus and residence hall climate): positive diversity climate, residence hall climate is academically supportive, and residence hall climate is socially supportive.

The order of the blocks conforms both to the conceptual framework developed by Inkelas and Weisman (2003), as well as to Astin's (1993) recommendations for developing Input–Environment–Outcome models. Student inputs (background characteristics) and pre-test measures are entered into the regression equation in the first two blocks. Inputs are followed by what Astin refers to as "bridge variables," or those that can be considered both characteristics of entering students (inputs) and characteristics of the student's college experience (environments). For example, a student's work situation or financial aid package can be determined by pre-college factors, but they have a clear impact on how the student experiences college. These measures are placed in block three, after the inputs but before the college environments. The next three blocks encompass the college environmental measures. Academic and social college environmental measures are entered in blocks four and five so that their variance can be captured in the regression equation before the environmental measures considered to be key facets of the L/L experience (faculty and peer interactions) are entered in block six. Finally, students' perceptions of their campus and residence hall climates are entered into the regression in the last block because they can be considered "intermediate outcomes," or attitudes or behaviors formed as a result of the initial college experience that may have an effect on subsequent outcomes. Students' perceptions of the level of support provided in their residence halls and broader campus surroundings are most likely influenced by their personal backgrounds and involvements with their college environments, but their perceptions of the institutional support available to them may also help shape their ultimate ease with the transition to college.

RESULTS

Preliminary analyses were conducted to analyze differences in the demographic characteristics among the first-generation L/L and TRH sub-samples in order to consider the possibility that any statistical differences found in their transitions to college would be biased by differences in pre-college factors. Using chi-square analysis, statistically significant differences among first-generation L/L and TRH students were not found by gender, race/ethnicity, generation status in the U.S., or family annual income ($p \leq .05$) (Table 1).

TABLE 1. Demographic Characteristics of the First-Generation Sub-Samples (in percentages)

	First-Generation		
	L/L	TRH	Chi-Square
Gender			$\chi^2 = 0.04$; $df = 1$; $p = .85$; $N = 1{,}331$
Male	33.2	32.7	
Female	66.8	67.3	
Race/ethnicity			$\chi^2 = 5.75$; $df = 3$; $p = .13$; $N = 1{,}277$
Black/African American	7.1	7.3	
Asian Pacific American	17.3	14.4	
Latino/Hispanic	10.0	7.3	
White/Caucasian	65.6	71.0	
Generation status in U.S.			$\chi^2 = 4.19$; $df = 3$; $p = .21$; $N = 1{,}288$
Not a U.S. Citizen	8.5	6.3	
Foreign-born citizen	4.8	5.4	
First-generation U.S.	17.9	15.4	
Second or more generation U.S.	68.8	72.9	
Family annual income			$\chi^2 = 1.40$; $df = 3$; $p = .71$; $N = 1{,}331$
$25,000 or less	25.2	24.4	
$25,000–39,999	21.5	24.1	
$40,000–74,999	37.2	35.1	
$75,000 or more	16.1	16.5	

Note: $p \leq .05$ was used for all statistical tests in this table.

The ANCOVA analyses, presented in Table 2, showed that first-generation college students in L/L programs were more likely to perceive an easier academic and social transition to college than first-generation college students who were living in a traditional residence hall setting. After controlling for pre-college estimates of confidence in future college experiences, first-generation L/L program students had a statistically significant higher mean score on perceptions of ease with their academic transition to college. The η^2 value for differences in mean values for academic transition was .03, suggesting a small effect size (Cohen, 1988). Similarly, after controlling for pre-college estimates of confidence, first-generation L/L program students had a statistically significant higher mean score on perceptions of ease with their social transition to college. The η^2 value for social transition was .07, suggesting a moderate effect size (Cohen). Thus, it appears that participation in a L/L program has a limited, but statistically significant, effect on first-generation students' academic and social transition to college.

Predictors of Perceived Ease with Academic Transition

Table 3 presents the results of the regression analyses after all of the variables were entered in the equation for first-generation L/L and TRH students' perceived ease with their academic transition to college. The measures in the conceptual framework were more beneficial in explaining factors related to the academic transition of first-generation students in a L/L program (21% of the variance explained) than first-generation students in a TRH setting (16% of the variance explained). Other than the pre-tests, for the first-generation students in a L/L program, the blocks that contributed most significantly in predicting ease with the academic transition were students' background characteristics, college social/co-curricular environments, and students' perceptions of their campus and residence hall climates. For the first-generation students in a TRH setting, the blocks that contributed most significantly in predicting academic transition were academic and curricular environments, faculty and peer interactions, and students' perceptions of their campus and residence hall climates. The block containing financial aid measures was not a significant addition to the model for first-generation students in either a L/L program or a TRH.

In terms of individual variables in the model, for those first-generation college students who were living in a TRH, conventional indicators of academic success, such as college grades and course related faculty interaction, were significantly related to their perceived ease with their academic transition. However, for first-generation college students in

TABLE 2. Differences in Transition Outcomes for First-Generation College Students

Outcome	Covariate	First-Gen L/L M	First-Gen L/L SD	First-Gen TRH M	First-Gen TRH SD	F	η^2
Ease with academic transition to college	Pre-college confidence in handling challenge of college-level work	10.85	2.96	10.56	2.90	$F = 16.61$; $df = 2$; $p \leq .001$	.03
Ease with social transition to college	Pre-college confidence in feeling a sense of belonging on campus	12.57	3.62	12.49	3.52	$F = 52.01$; $df = 2$; $p \leq .001$	.07

Note: $p \leq .05$ was used for all statistical tests in this table.

TABLE 3. Predictors of Perceived Ease with Academic Transition to College for First-Generation Students

	First-Generation Students			
	L/L		TRH	
	Final Block		Final Block	
	B	β Sig	*B*	β Sig
1. Student background characteristics				
Gender (female)	.28	.04	− .29	− .05
Black/African American	− .78	− .07	.04	.00
Asian Pacific American	.25	.03	− .47	− .05
Latino/Hispanic	.35	.03	− .62	− .06
Generation status in U.S.	.61	.18**	.31	.09
Family annual income	.02	.02	.02	.02
High school grades	− .08	− .02	− .17	− .06
SAT score	.00	.02	.00	− .06
R^2 after Block 1		.05		.02
F Change		2.41*		.97
2. Pre-test				
Anticipated confidence in handling college level work	.49	.14*	− .21	− .06
Anticipated confidence in sense of belonging on campus	.55	.15**	.33	.09
R^2 after Block 2		.11		.03
F Change		14.94***		2.77*
3. Financial information				
On loans	.22	.04	.02	.00
On scholarship	.10	.02	.39	.09
On work-study	− .10	− .01	.39	.06
Work off-campus	− .06	− .02	− .08	− .03
R^2 after Block 3		.11		.05
F Change		.26		1.73
4. Academic and curricular environments				
Academic class standing	.11	.03	− .21	− .06
College GPA	.24	.09	.37	.15**
Time spent attending classes	.33	.09	− .11	− .03
Time spent studying/doing homework	− .07	− .03	.17	.07
R^2 after Block 4		.13		.08
F Change		1.53		3.64**

TABLE 3. (*Continued*)

	First-Generation Students			
	L/L		TRH	
	Final Block		Final Block	
	B	β Sig	*B*	β Sig
5. Social and co-curricular environments				
Involved in fraternity/sorority	−.08	−.01	−.09	−.02
Involved in religious clubs/activities	−.30	−.08	.04	.01
Involved in ethnic/cross-cultural activities	.11	.03	−.07	−.02
Involved in community service	.00	.00	−.24	−.11*
Use of co-curricular residence hall resources	.13	.12*	−.04	−.04
R^2 after Block 5		.17		.09
F Change		3.66**		1.18
6. Faculty and peer interactions				
Course-related faculty interaction	.24	.20***	.19	.16**
Faculty mentorship	−.08	−.07	.09	.08
Discussed academic and career issues with peers	.02	.01	.06	.05
Discussed socio-cultural issues with peers	−.01	−.01	−.03	−.04
Positive peer diversity interactions	−.02	−.05	.03	.07
R^2 after Block 6		.19		.14
F Change		2.27*		4.85***
7. Perceptions of the campus and residence hall climate				
Positive diversity climate	−.06	.07	.08	.10
Residence hall climate is academically supportive	.10	.12	.05	.05
Residence hall climate is socially supportive	.01	.01	.04	.06
R^2 after Block 7		.21		.16
F Change		3.47*		2.91*
Adjusted R^2 after final block		.17		.12
F after final block		3.31***		2.49***

*$p \leq .05$; **$p \leq .01$; *** $p \leq .001$.

L/L programs, perceived ease with their academic transition was not only related to course related faculty interaction, by also to usage of co-curricular residence hall resources (such as hall workshops, peer counselors, and social activities). Prior academic achievement such as

high school grades and SAT scores were not significantly related to L/L or TRH first-generation students' academic transition to college. However, for first-generation students in a L/L program, pre-college estimates of their confidence in handling college level work were associated with perceptions of a successful academic transition.

Predictors of Perceived Ease with Social Transition

The conceptual framework was more successful in predicting first-generation students' perceived ease with the social transition to college. The results of the regression analyses shown in Table 4 revealed that 35% of the variance was explained for the first-generation L/L sample, and 29% of the variance for the first-generation TRH sample. Other than the pre-tests, the blocks in the conceptual framework for first-generation students in either a L/L program or a TRH setting that contributed the most significantly to the model were college social/co-curricular environments, faculty and peer interactions, and perceptions of the campus and residence hall climates. Again, the block containing financial aid measures was not a significant addition to the model for either first-generation student sample.

As can be seen in Table 4, first-generation L/L students' perceptions that their residence hall was both socially and academically supportive were significantly related to a smooth social transition, as was using residence hall resources. In addition, first-generation L/L program students from a higher socio-economic status (using family income as a proxy) tended to perceive an easier social transition to college than first-generation L/L college students from lower socio-economic status backgrounds. One final result was that first-generation L/L program students with greater faculty mentor interactions were significantly less likely to indicate that they had an easier social transition to college. Faculty mentor interactions included working with faculty on research or independent projects, attending social/cultural events with faculty, and discussing personal or career issues with faculty.

For first-generation college students not in a L/L program, the significant predictors of ease with the social transition to college included generation status in the U.S., academic class standing, and perceptions that their residence hall was socially supportive. Thus, first-generation TRH students who were born in the U.S., were first year students, and who felt that their residence hall was socially supportive were significantly more likely to indicate an easier social transition to college. For both first-generation L/L and TRH students, retrospective estimates of their

TABLE 4. Predictors of Perceived Ease with Social Transition to College for First-Generation Students

	First-Generation Students			
	L/L		TRH	
	Final Block		Final Block	
	B	β Sig	*B*	β Sig
1. Student background characteristics				
Gender (female)	−.38	−.05	−.40	−.05
Black/African American	.02	.00	.98	.07
Asian Pacific American	−.13	−.01	.40	.04
Latino/Hispanic	.80	.06	.04	.00
Generation status in U.S.	.30	.07	.72	.16*
Family annual income	.17	.14**	−.05	−.04
High school grades	−.06	−.02	.01	.00
SAT score	.00	−.03	.00	−.02
R^2 after Block 1		.06		.04
F Change		3.26***		2.14*
2. Pre-test				
Anticipated confidence in handling college level work	−.29	−.06	−.16	−.03
Anticipated confidence in sense of belonging on campus	1.26	.29***	1.03	.23***
R^2 after Block 2		.18		.11
F Change		29.27***		18.05***
3. Financial information				
On loans	.07	.01	−.28	−.04
On scholarship	.12	.02	−.02	.00
On work-study	−.01	.00	.24	.03
Work off-campus	.06	.02	−.10	−.03
R^2 after Block 3		.18		.12
F Change		.12		.44
4. Academic and curricular environments				
Academic class standing	−.19	−.05	−.39	−.09*
College GPA	−.16	−.05	−.23	−.07
Time spent attending classes	−.01	.00	−.19	−.04
Time spent studying/doing homework	.04	.01	.10	.03
R^2 after Block 4		.19		.14
F Change		1.62		2.39*

TABLE 4. (*Continued*)

	First-Generation Students			
	L/L		TRH	
	Final Block		Final Block	
	B	β Sig	*B*	β Sig
5. Social and co-curricular environments				
Involved in fraternity/sorority	−.13	−.02	.38	.07
Involved in religious clubs/activities	.01	.00	.08	.02
Involved in ethnic/cross-cultural activities	−.01	.00	−.02	.00
Involved in community service	.01	.01	−.02	−.01
Use of co-curricular residence hall resources	.19	.15**	.08	.07
R^2 after Block 5		.24		17
F Change		5.00***		3.83**
6. Faculty and peer interactions				
Course-related faculty interaction	−.02	−.01	.01	.01
Faculty mentorship	−.19	−.13*	−.10	−.07
Discussed academic and career issues with peers	.02	.01	.12	.09
Discussed socio-cultural issues with peers	.07	.08	.05	.06
Positive peer diversity interactions	.03	.06	.02	.03
R^2 after Block 6		.29		.21
F Change		4.52***		3.84**
7. Perceptions of the campus and residence hall climate				
Positive diversity climate	.08	.08	.00	.00
Residence hall climate is academically supportive	.13	.12*	−.09	−.08
Residence hall climate is socially supportive	.13	.16*	.30	.37***
R^2 after Block 7		.35		.29
F Change		13.04***		14.68***
Adjusted R^2 after final block		.30		.24
F after final block		6.67***		5.32***

*$p \leq .05$; **$p \leq .01$; ***$p \leq .001$.

pre-college levels of confidence that they would feel a sense of belonging on campus were strongly associated with their perceived ease with the social transition to college.

DISCUSSION AND DIRECTIONS FOR FUTURE RESEARCH AND PRACTICE

The findings from this study provide preliminary evidence that L/L program participation is beneficial for first-generation college students. After controlling for individual levels of self-confidence, first-generation college students in L/L programs had statistically significantly higher estimates of ease with academic and social transitions to college compared to first-generation college students who were not participants in a L/L program. However, based on the effect sizes for the first-generation L/L and TRH samples, the impact of L/L participation on the academic and social transition to college was low to moderate. This modest result may be related to the fact that students participating in the study were responding to questions about their transitions while they were still active participants in their L/L programs. It may be that the impact of L/L participation is not well understood until after students have had some time to reflect upon their L/L experiences. Or, the differences between the first-generation L/L and TRH samples may suggest that the influence of L/L programs is related to what Feldman and Newcomb (1969) described as accentuation effects. Feldman and Newcomb asserted in their classic text, *The Impact of College on Students*, that changes in students as a result of college attendance may be less associated with the ''impact'' of college, but instead with how involvement in certain aspects of college life may only accentuate students' initial attributes which lead to successful outcomes. Living–learning programs may act as the conduit through which the innate interests and abilities of first-generation students are valued and cultivated in ways that contribute to their ultimately successful transition to college. Nevertheless, given the importance of identifying any factors that may lead to the success of at-risk populations such as first-generation students, the modest influence of L/L programs is worth additional investigation and discussion.

The finding that L/L programs appear to support positive transitions for first-generation students leads to several practical implications. For example, academic and student affairs practitioners should consider ways to encourage the participation of first-generation students in L/L programs. Recruitment for L/L programs could target this population of students. Additionally, L/L program administrators may consider opening these programs to students who do not reside in residence halls, since the literature reports that most first-generation college students live off-campus. Although traditionally, L/L participation has been associated with students from high achieving academic backgrounds,

opening L/L programs to first-generation students may facilitate their transitions and subsequent success.

The results from the regression analyses also lend themselves to implications for practice and future research. Several findings from this study were surprising in that they were inconsistent with prior research. For example, one might expect that first-generation students with strong high school grades and standardized test scores would have an easier academic transition than those who were more academically at-risk. However, while perceptions of self-confidence were significantly associated with a smooth academic transition to college for first-generation L/L students, the more "objective" measures of high school grades and standardized test scores bore no relationship to their academic transitions. Thus, for some first-generation students, while high school achievement may have helped them gain admission to a 4-year institution, it did not significantly facilitate their successful transition to college. Instead, the findings from this study suggest that individuals' sense of self-confidence is more important in initial adjustment. These results mirror the conclusions of Terenzini et al. (1994), who stated that first-generation students required more validation of their experiences, or "confirming signals that they can be successful in college and are worthy of a place there" (p. 66). Repeated support for their progress can assist first-generation students in maintaining the self-confidence that they can succeed and persist in college. Future studies of the transitions of first-generation students should consider including measures of prior levels of self-confidence in addition to high school academic performance and aptitude scores.

Another surprising finding was that faculty mentoring relationships were found to negatively influence first-generation L/L students' social transition to college. This negative influence calls for additional investigation, but the finding may suggest that a close relationship with faculty mentors may provide first-generation college students with less time or energy to develop a sense of social belonging with their college-age peers. Alternatively, students who are having difficulty connecting with their peers may tend to seek out close relationships with faculty, thereby suggesting a negative relationship between faculty mentoring and students' ease with their social transition to college. The negative relationship of faculty mentorship on first-generation L/L students' social transitions may suggest that, in some cases, a successful academic transition may be at the cost of a successful social transition. Future research should examine whether academic and social transitions for first-generation students, and the facets that influence them, serve to complement or contrast one another.

The results from this study also suggest that informal peer interactions and co-curricular involvements were not significantly related to ease with the academic or social transition for first-generation college students. Moreover, interactions with students from racially or ethnically diverse backgrounds or positive perceptions of the campus racial climate also were not associated with successful transitions for first-generation students. However, peer interactions have been shown in prior research to be significantly associated with a smooth transition to college for non-first-generation students (Astin, 1993; Inkelas and Weisman, 2003; Newcomb, 1962).

The above findings may suggest that the relationship between peer contact and successful transitions are not as strong for first-generation students. This may be because, as Terenzini et al. (1996) reported, first-generation college students tend to focus their college experiences more exclusively on academics than on social interactions. Similarly, Pascarella et al. (2004) reported that first-generation college students had fewer non-academic peer interactions and participated in fewer out-of-class activities. With this academic focus, first-generation college students may consider informal peer contact and co-curricular activities superfluous to a college education. However, for first-generation students in L/L programs, use of residence hall resources were significantly associated with a smooth academic and social transition. The residence hall resources construct included individual items such as using peer counselors in the residence hall, studying in groups in the residence hall, and attending residence hall social events. Thus, first-generation L/L students do appear to be benefiting by peer contact that was structured through their residence hall experiences.

Therefore, faculty and staff designing programming for first-generation students, including L/L programs, should bear in mind that this population of students may be more reliant upon structured and formal interactions in their college environments—such as meeting with professors and having resources available in their residence halls—than informal and unstructured discussions with peers. Additionally, first-generation students may be more dependent upon university faculty and staff to *create* opportunities for them to interact with their peers; therefore, programming created for first-generation students should intentionally build peer interaction into its activities. Indeed, perhaps through encouragement from the faculty, staff and/or peers conducting the structured activities, first-generation students may choose to interact more frequently with their peers on an informal basis.

Yet, it is important to note that, while frequent peer interaction was not directly related to first-generation students' perceptions of a smooth

transition, successful social transitions for first-generation college students were related to positive perceptions of their residence hall climates. Thus, while actual peer interactions do not appear to influence first-generation college students' transition to college, perceptions of peer supportive environments—particularly in the residence halls—appear to be important. Again, affirmation of their experiences may be most vital in the continued success of first-generation students, even if the validation is only perceived as part of their residential climate. These two sets of findings suggest that future research on first-generation college students should examine both behaviors associated with peer interaction and perceptions associated with peer support, as well as the complexities that influence both types of peer measures within this population. Because peer influence has been found to be one of the most beneficial college environments for positive student outcomes (Astin, 1993), it is important to learn if or how peer interactions may directly or indirectly influence first-generation college students' experiences in the long-term.

In addition to the above recommendations for future research on the role of L/L programs on first-generation students' transitions to college, the results of the regression analyses in this study suggest that the Inkelas and Weisman (2003) model may be in need of further refinement when used in conjunction with inquiries involving first-generation students. For example, the Inkelas and Weisman model was more predictive of first-generation students' social transitions than their academic transitions. This may be because their model is more inclusive of constructs representing students' co-curricular involvements and faculty and peer interactions than those representing academic or curricular environments. Given Terenzini et al.'s (1996) and Pascarella et al.'s (2004) findings that first-generation students tend to focus more exclusively on their coursework at the expense of extra-curricular and peer influences, future conceptual frameworks investigating first-generation students' academic transitions might incorporate more constructs related to academic and curricular factors such as courses taken and students' self-concepts related to their coursework. Finally, future research should re-investigate the role of financial aid configurations in first-generation students' transitions to college. Although prior literature emphasizes the importance of family income and financial aid on first-generation students' chances for collegiate success (Choy, 2001; Larsen, 2004), the results from this study appear to suggest that considerations such as loans, scholarships, and work-related roles do not contribute significantly to first-generation students' transitions to college.

Finally, there are two important limitations of this study. First, the first-generation sample for this investigation does not generalize to the majority of first-generation college students in American higher education. Future research should study the potential benefits and limitations of participation in L/L programs for other types of first-generation students, including older, more diverse, and even commuting students. Second, the study of students' transitions to college entails a process that evolves over time. However, this study's research design is cross-sectional and not longitudinal; thus, it cannot capture how students' pre-college characteristics and expectations shape their college experiences, and in turn, how such college experiences ultimately influence perceptions of successful transitions over multiple time points. Instead, the reliance of the conceptual framework on retrospective recollections of pre-college perceptions of confidence gathered from respondents at the same time as the other survey data—while advocated by Pascarella (2001) as a better alternative than the absence of any pre-tests in a college impact model—cannot be considered a true representation of a causal model. Therefore, the results of this study should be treated as exploratory, and future research on this topic should incorporate a longitudinal design in order to more fully examine the preliminary evidence from this study that L/L programs may serve to facilitate a successful transition for first-generation college students.

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ENDNOTE

1. η^2 values were calculated using the following formula (Pallant, 2001): sum of squares between-groups/total sum of squares. Readers more familiar with effect sizes using *f*-values may consult the following conversions from Cohen (1988): for small effect size, $f = .10$ or $\eta^2 = .01$; for medium effect size, $f = .25$ or $\eta^2 = .06$; and for large effect size, $f = .40$ or $\eta^2 = .14$.

APPENDIX A. Composite Scales for the Study

	Factor Loading	Cronbach α
Ease with academic transition to college		.658
Perceived ease with communicating with instructors outside class	.748	
Perceived ease with seeking academic personal help when needed	.710	
Perceived ease with forming study groups	.499	
Ease with social transition to college		.654
Perceived ease with getting to know other people in residence hall	.785	
Perceived ease with making new friends	.746	
Perceived ease with getting along with roommate(s)	.573	
Use co-curricular residence hall resources		.718
Attended career workshops	.688	
Participated in community service projects	.610	
Used peer counselors in residence hall	.561	
Studied with peer study groups	.542	
Attended residence hall social activities	.435	
Course-related faculty interaction		.767
Visited informally with instructor before/after class	.692	
Made appointment to meet instructor in his/her office	.673	
Asked instructor for information related to course	.620	
Communicated with instructor via email	.591	
Faculty mentorship		.746
Worked with instructor on independent project	.724	
Worked with instructor involving his/her research	.592	
Discussed personal problems or concerns with instructor	.534	
Visited informally with instructor on social occasion	.532	

Went to a cultural event with instructor or class	.531	
Discussed career plans and ambitions with instructor	.478	
Discussed academic and career issues with peers		.737
Discussed something learned in class	.743	
Shared concerns about classes and assignments	.725	
Talked about current news events	.672	
Talked about future plans and career ambitions	.497	
Discussed socio-cultural issues with peers		.864
Discussed social issues such as peace, human rights, justice	.760	
Discussions with students whose personal values different	.726	
Discussed views about multiculturalism and diversity	.721	
Held discussions with those with different religious beliefs	.703	
Talked about different lifestyles and customs	.702	
Discussions with students whose political opinions differ from own	.697	
Positive peer diversity interactions (with person from different racial/ethnic group)		.898
Attended social events together	.857	
Shared meal	.847	
Had intellectual discussions outside of class	.832	
Shared personal feelings and problems	.819	
Studied together	.766	
Discussed race relations outside class	.694	
Involved in extracurricular activities together	.685	
Roomed together	.531	
Dated	.495	
Perceptions of positive diversity climate		.812
Perceives frequent transracial student interaction	.738	

APPENDIX A. *(Continued)*

	Factor Loading	Cronbach α
Perceives support for transracial friendship	.723	
Perceives support for transracial trust and respect	.674	
Feels campus is committed to success of students of color	.628	
Perceives frequent amount of transracial dating	.585	
Perceives that professors respect students of color	.523	
Residence hall climate is academically supportive		.808
Perceives residence hall climate supports academic achievement	.706	
Perceives that most students in residence hall study a lot	.612	
Perceives that most students in residence hall value academic success	.555	
Perceives relative ease in forming study groups in residence hall	.529	
Perceives adequate study space in residence hall	.513	
Perceives that residence hall staff is helpful with academics	.501	
Residence hall climate is socially supportive		.868
Perceives that students in residence hall appreciate different races/ethnicities	.747	
Perceives that students in residence hall appreciate different religions	.705	
Perceives that students in residence hall help and support one another	.699	
Would recommend this residence hall	.584	
Perceives residence hall to be intellectually stimulating environment	.548	
Perceives that diverse students interact with each other in residence hall	.545	
Perceives that students in residence hall appreciate different sexual orientations	.544	
Perceives atmosphere of peer academic support in residence hall	.481	

APPENDIX B. Means and Standard Deviations of the Measures in the Study's Conceptual Framework

Measure	Mean	SD	Description
Student background characteristics			
Gender (female)	1.66	0.48	Coded 1 = male; 2 = female
Black/African American	0.05	0.23	Coded 0 = no; 1 = yes
Asian Pacific American	0.11	0.31	Coded 0 = no; 1 = yes
Latino/Hispanic	0.03	0.17	Coded 0 = no; 1 = yes
White/Caucasian	0.65	0.48	Coded 0 = no; 1 = yes
Generation status in U.S.	3.66	0.75	Coded 1 = not a U.S. citizen; 2 = foreign-born citizen; 3 = 1st generation U.S.; 4 = 2nd or more generation U.S.
Family annual income	9.91	2.85	Coded from 1 = less than $6,000–14 = $200,000 or more
High school grades	5.22	0.85	Coded from 1 = D or lower to 6 = A or A+
SAT score	1245.85	148.81	Continuous math + verbal measure from 620 to 1,600
Pre-test			
Anticipated confidence in handling college level work	2.90	0.76	Coded from 1 = not at all confident to 4 = very confident
Anticipated confidence in sense of belonging on campus	2.69	0.81	Coded from 1 = not at all confident to 4 = very confident
Financial information			
On loans	0.31	0.46	Coded 0 = no; 1 = yes
On scholarship	0.47	0.63	Composite of need-based, non-need-based, and athletic scholarship; Individual items coded 0 = no; 1 = yes
On work-study	0.10	0.30	Coded 0 = no; 1 = yes
Work off-campus	1.43	0.86	Coded 1 = not at all involved to 4 = very involved
Academic and curricular environments			
Academic class standing	1.64	0.91	Coded 1 = first year; 2 = sophomore; 3 = junior; 4 = senior
College GPA	4.00	1.06	Coded 1 = 1.99 or less; 2 = 2.00–2.49; 3 = 2.50–2.99; 4 = 3.00–3.49; 5 = 3.50–4.00

APPENDIX B. *(Continued)*

Measure	Mean	SD	Description
Time spent attending classes	4.48	0.83	Coded 1 = None; 2 = 1–5 h; 3 = 6–10 h; 4 = 11–15 h; 5 = 16–20 h; 6 = 21+ h
Time spent studying/doing homework	3.45	1.20	Coded 1 = None; 2 = 1–5 h; 3 = 6–10 h; 4 = 11–15 h; 5 = 16–20 h; 6 = 21+ h
Social and co-curricular environments			
Involved in fraternity/sorority	1.30	0.78	Coded 1 = not at all involved to 4 = very involved
Involved in religious clubs/activities	1.53	0.90	Coded 1 = not at all involved to 4 = very involved
Involved in ethnic/cross-cultural activities	1.27	0.65	Coded 1 = not at all involved to 4 = very involved
Involved in community service	3.06	1.42	Composite of one-time and ongoing community service; Individual items coded 1 = not at all involved to 4 = very involved
Use of co-curricular residence hall resources	8.17	2.72	Scale index from 5 to 20, high value indicating frequent use
Faculty and peer interactions			
Course-related faculty interaction	8.66	2.27	Scale index from 4 to 16, high value indicating frequent contact
Faculty mentorship	7.92	2.22	Scale index from 6 to 24, high value indicating frequent contact
Discussed academic and career issues with peers	12.98	2.24	Scale index from 4 to 16, high value indicating frequent contact
Discussed socio-cultural issues with peers	15.10	4.16	Scale index from 6 to 24, high value indicating frequent contact
Positive peer diversity interactions	19.87	6.66	Scale index from 9 to 36, high value indicating frequent positive interactions
Perceptions of the campus and residence hall climate			
Positive diversity climate	17.32	3.47	Scale index from 6 to 24, high value indicating strong agreement
Residence hall climate is academically supportive	16.57	2.92	Scale index from 6 to 24, high value indicating strong agreement
Residence hall climate is socially supportive	22.86	3.75	Scale index from 8 to 32, high value indicating strong agreement
Dependent measures			
Ease with academic transition to college	10.88	2.81	Scale index from 3 to 18, high value indicating very easy
Ease with social transition to college	12.79	3.37	Scale index from 3 to 18, high value indicating very easy

REFERENCES

Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel* 25: 297–308.

Astin, A. W. (1993). *What Matters in College? Four Critical Years Revisited*, Jossey-Bass, San Francisco.

Billson, J. M., and Terry, M. B. (1982). In search of the silken purse: Factors in attrition among first generation students. *College and University* 58: 57–75.

Braxton, J. M., and McClendon, S. A. (2002). The fostering of social integration and retention through institutional practice. *Journal of College Student Retention* 3: 57–71.

Choy, S. (2001). *Students Whose Parents did not go to College: Postsecondary Access, Persistence, and Attainment* (No. NCES 2001–126), U.S. Department of Education, National Center for Education Statistics, Washington, DC.

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*, Erlbaum, Hillsdale, NJ.

Cohen, J., Cohen, P., West, S. G., and Aiken, L.S. (2003). *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences*, (3rd Ed.), Lawrence Erlbaum Associates, Mahwah, NJ.

Feldman, K. A., and Newcomb, T. M. (1969). *The Impact of College on Students*, Jossey-Bass, San Francisco.

Hurtado, S., Milem, J., Clayton-Pederson, A., and Allen, W. (1999). *Enacting Diverse Learning Environments: Improving the Climate for Racial/Ethnic Diversity in Higher Education* (ASHE-ERIC Higher Education Report Vol. 26, No. 8), The George Washington University, Graduate School of Education and Human Development, Washington, DC.

Inkelas, K. K., and Weisman, J. (2003). Different by design: An examination of outcomes associated with three types of living–learning programs. *Journal of College Student Development* 44: 335–368.

Inkelas, K. K., and Associates. (2004). *National Study of Living–Learning Programs: 2004 report of findings*. Retrieved March 30, 2006, from National Study of Living–Learning Programs Web site: http://www.livelearnstudy.net/images/NSLLP_2004_Final_Report.pdf.

Inkelas, K. K., Vogt, K., Longerbeam, S., Owen, J., and Johnson, D. (2006). Measuring outcomes of living–learning programs: Examining college environments and student learning and development. *Journal of General Education* 54(4): 294–328.

Ishitani, T. T. (2003). A longitudinal approach to assessing attrition behavior among first-generation college students: Time-varying effects of pre-college characteristics [Electronic version]. *Research in Higher Education* 44: 433–449.

Kuh, G. D., Schuh, J. S., Whitt, E. J., Andreas, R. E., Lyons, J. W., and Strange, C. C. et al., (1991). *Involving Colleges: Successful Approaches to Fostering Student Learning and Personal Development Outside the Classroom*, Jossey-Bass, San Francisco.

Larsen, L. J. (2004). *The Foreign-Born Population in the United States: 2003*. Current Population Reports, P20-551, U.S. Census Bureau, Washington, DC. Retrieved October 6, 2005: http://www.census.gov/prod/2004pubs/p20-551.pdf.

Lenning, O. T., and Ebbers, L. H. (1999). *The Powerful Potential of Learning Communities: Improving Education for the Future* (ASHE-ERIC Higher Education Report Vol. 26, No. 6), The George Washington University, Graduate School of Education and Human Development, Washington, DC.

London, H. B. (1989). Breaking away: A study of first-generation college students and their families. *American Journal of Education* 97: 144–170.

London, H. B. (1996 November/December). How college affects first-generation college students. *About Campus* 23: 9–13.

Love, A. G., and Tokuno, K. A. (1999). Learning community models. In: Levine J. H. (ed.), *Learning Communities: New Structures, New Partnerships for Learning* (Monograph No. 26),

Center for the Study of the Freshman Experience, The University of South Carolina, Columbia, pp. 9–18.
Mitchell, K. (1997). *Making the Grade: Help and Hope for the First-generation College Student* (No. ED 413886), Educational Resources Information Center.
Newcomb, T. M. (1962). Student peer-group influence. In: Adelson, J. (ed.), *The American College*, John Wiley & Sons Inc, New York, pp. 469–488.
Padron, E. J. (1992). The challenge of first-generation college students: A Miami-Dade perspective. In: Zwerling, L. S. and London, H. B. (eds.), *First-Generation College Students: Confronting the Cultural Issues* (New Directions for Community Colleges, No. 80), Jossey-Bass, San Francisco, pp. 71–80.
Pallant, J. (2001). *SPSS Survival Manual*, Open University Press/McGraw-Hill Education, Berkshire, United Kingdom.
Pascarella, E. T. (2001). Using student self-reported gains to estimate college impact: A cautionary tale. *Journal of College Student Development* 42: 488–492.
Pascarella, E. T., and Terenzini, P. T. (2005). *How College Affects Students: A Third Decade of Research*, (2nd Ed.), Jossey-Bass, San Francisco.
Pascarella, E. T., Pierson, C. T., Wolniak, G. C., and Terenzini, P. T. (2004). First-generation college students: Additional evidence on college experiences and outcomes [Electronic version]. *The Journal of Higher Education* 75: 249–284.
Pike, G. (1999). The effects of residential learning communities and traditional residential living arrangements on educational gains during the first year of college. *Journal of College Student Development* 40: 269–284.
Pike, G. R., Schroeder, C. C., and Berry, T. R. (1997). Enhancing the educational impact of residence halls: The relationship between residential learning communities and first-year college experiences and persistence. *Journal of College Student Development* 38: 609–621.
Richardson, R. C., Jr., and Skinner, E.F. (1992). Helping first-generation minority students achieve degrees. In: Zwerling, L. S., and London, H. B. (eds.), *First-Generation College Students: Confronting the Cultural issues* (New Directions for Community Colleges, No. 80), Jossey-Bass, San Francisco, pp. 29–43.
Shapiro, N. S., and Levine, J. H. (1999). *Creating Learning Communities: A Practical Guide to Winning Support, Organizing for Change, and Implementing Programs*, Jossey-Bass, San Francisco.
Sherlin, J. H. (2002). *Understanding the System Persistence of First-Generation College Students through Path Modeling*. Unpublished doctoral dissertation, University of Maryland, College Park.
Stassen, M. L. A. (2003). Student outcomes: The impact of varying living–learning community models. *Research in Higher Education* 44: 581–613.
Terenzini, P. T., Rendon, L. I., Upcraft, M. L., Millar, S. B., Allison, K. W., and Gregg, P. L. et al., (1994). The transition to college: Diverse students, diverse stories. *Research in Higher Education* 35: 57–73.
Terenzini, P. T., Springer, L., Yaeger, P. M., Pascarella, E. T., and Nora, A. (1996). First-generation college students: Characteristics, experiences, and cognitive development. *Research in Higher Education* 37: 1–22.
Tierney, W. G. (1993). The college experience of Native Americans: A critical analysis. In: Weis, L., and Fine, M. (eds.), *Beyond Silenced Voices: Class, Race, and Gender in United States Schools*, State University of New York Press, New York, pp. 302–311.
Tinto, V. (1993). *Leaving College: Rethinking the Causes and Cures of Student Attrition*, (2nd Ed.), The University of Chicago Press, Chicago.
Zhao, C. M., and Kuh, G. D. (2004). Adding value: Learning communities and student engagement. *Research in Higher Education* 45: 115–138.

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