Different by Design: An Examination of Student Outcomes Among Participants in Three Types of Living-Learning Programs

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This study examines college environments and outcomes among students in three different types of living-learning programs compared with a control sample at one university. Results reveal that living-learning students exhibit higher levels of engagement in college activities with stronger academic outcomes, and experiences that varied by program type.

Undergraduate education at American research universities has been criticized for its lack of integrated and focused student learning (Boyer Commission on Educating Undergraduates in the Research University, 1998; Edgerton, 1999; Wingspread Group on Higher Education, 1993). In response to these critiques, several institutions have established learning communities in an attempt to improve their undergraduate educational endeavors (Gabelnick, MacGregor, Matthews, & Smith, 1990). Broadly construed, learning communities link together learning opportunities—whether they be courses, cocurricular activities, special topics, or interactions and conversations with faculty and peers— to help students integrate and obtain a deeper understanding of their knowledge (Gabelnick et al.; Lenning & Ebbers, 1999). Shapiro and Levine (1999) identified 4 major types of learning communities: (a) paired or clustered courses; (b) cohorts in large courses or first-year interest groups (FIGs); (c) team-taught courses; and (d) residence-based programs, also known as *living-learning programs*. The first 3 types of communities are more curriculum-focused, and have been examined by two national studies (Pascarella, Nora, et al., 1996; Snider & Venable, 2000); however, there have been fewer studies conducted on the fourth type of learning community: living-learning programs.

The critical difference between living-learning programs and other types of learning communities is that the participants not only partake in coordinated curricular activities, but also live together in a specific residence hall where they are provided with academic programming and services. These programs and services may include academic courses taught in the residence facility, in-hall tutoring, academic advising, ongoing lecture series, etc. (Shapiro & Levine, 1999). Living-learning programs were created as a means to integrate students' in-class and out-of-class experiences by providing a community that fosters greater faculty and peer interaction, increased opportunities for coordinated learning activities, and an academically and socially supportive living environment (Gabelnick et al., 1990; Lenning & Ebbers, 1999); thus, *living* and *learning* are combined seamlessly in students' college experience.

Since the 1960s, several different incar-

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nations of living-learning programs have been introduced on campuses around the country. Indeed, living-learning programs have become very popular in the past few decades, especially at institutions with large enrollments where the faculty and administration are attempting to make the campus more intimate and personalized. The foci of living-learning programs can vary widely, from one-year programs meant to improve the academic achievement of at-risk students, to four-year programs aimed at providing more challenging academic environments for high-talent students, to programs open to students of any class year that are designed to broaden students' social and cultural perspectives.

In fact, one institution may offer students the opportunity to participate in a host of different types of living-learning programs. The institution in this study boasts seven different living-learning programs—each of them with a different focus—which can be clustered into three broad thematic groups. The first group, Transition Programs, typically enroll first-year students and focus on facilitating a successful transition from home to college by providing academic support, skill development training, and programs and classes designed to create a more intimate learning environment. The second group, Academic Honors Programs, provides a rigorous academic experience to preselected high-talent students through specialized classes taught by affiliated faculty and concentrated coursework in collaborative and creative endeavors. The third group, Curriculum-Based Programs, focuses on specific topics of study or research, such as programs devoted to a foreign language, or for female science and mathematics majors, or for students interested in working on a professor's research project.

This study compares students' experiences and outcomes across the three different living-learning program groups at this institution. The results of this study illustrate how living-learning environments may impact the participants differently, even when the programs are at the same institution. Student development personnel at universities with more than one type of living-learning program can learn from this study how living-learning participants in different programs may interact with their college environments in disparate ways. The findings from this study may also help those considering the introduction of one or more types of living-learning programs at their institutions appreciate how different types of programs with varying goals and objectives have an impact on the students.

Indeed, the inclusion of several different types of living-learning programs in one study addresses one of the major limitations in the empirical literature, namely that much of the previous research on living-learning impact either assesses only the effects of participation in a single program on student outcomes (e.g., Arminio, 1994; Kanoy & Bruhn, 1996; Pascarella & Terenzini, 1980, 1981; Rice & Lightsey, 2001) or aggregates all types of participation in living-learning programs into one category (e.g., Pike, 1999). This study not only compares the outcomes of living-learning students to nonparticipating students but also examines outcomes among students in three different types of living-learning programs to investigate whether participation in these programs fosters the student engagement and outcomes commonly associated with the program objectives. The three outcomes examined in this study parallel the goals of the three types of programs:

- Transition Program goal: to facilitate a

smooth academic transition for first-year students;

- Academic Honors Program goal: to support students in their pursuit and enjoyment of challenging academic endeavors;
- Curriculum-Based Program goal: to provide stimuli that broaden students' social and cultural perspectives and horizons.

Three distinct questions guide this inquiry:

1. Are living-learning students more involved than their nonparticipant counterparts in college activities designed to be critical aspects of the living-learning experience? Do living-learning students perceive their college environments more positively?
2. Do living-learning students exhibit more positive outcomes than nonparticipants in three types of outcomes: (a) their academic transition to college; (b) their preference for and enjoyment of challenging academic pursuits; and (c) their interest in and openness to learning new and different perspectives? Additionally, do living-learning students in programs designed to achieve a specific objective show more positive outcomes for this objective than students in other living-learning programs?
3. Finally, do key college activities and environments provided by living-learning programs influence the outcomes of the students who participate in them? And how do the different types of programs influence the participants differently?

At first blush, the answer to these questions might appear to be self-evident. Of course, one would assume that living-learning students would be more involved in activities and environments designed to be key components of their program, and would exhibit outcomes that mirror the program goals and objectives at higher rates than their counterparts; however, participation in a living-learning program is not required to engage in coursework using critical thinking skills, to study in groups, to interact with faculty and peers, or to perceive the academic environment as supportive. Students who are not in living-learning programs may nevertheless engage in these activities at similar rates to living-learning participants. In addition, while programs are designed to provide certain contexts in the hope of facilitating specific outcomes, there is no guarantee that these results occur. Indeed, because admission to the institution at which this study took place is highly competitive, there may be little difference in the level of engagement and academic outcomes of living-learning students versus students in the general enrollment. This study examines potential differences that may be attributable to living-learning participation and further investigates whether participation in varying types of living-learning programs elicits similar or distinct patterns of engagement and student outcomes.

A commonly noted criticism in prior research on outcomes associated with participation in residential learning communities posits that positive student outcomes among this population may be less related to college or program impact and more related to the innate abilities and preferences of the students who elect to participate in living-learning programs. Embedded in this study's conceptual framework are several measures that attempt to

capture preexisting differences in intellectual ability, engagement, and curiosity that precede the college experience. The addition of these variables in this study, as well as the use of a college impact framework (Astin, 1993) in the study's causal analyses, will help to mitigate the vulnerability of the relationship between living-learning participation and higher outcomes as affected by a third variable: the precollege characteristics of a strong and talented self-selected pool of students who participate in living-learning programs.

REVIEW OF LITERATURE

Participation in living-learning programs has been associated with several positive student outcomes in the research literature. Based on a review of single-institution studies published prior to the early 1990s, Pascarella, Terenzini, and Blimling (1994) concluded that students in living-learning programs were more likely to persist, exhibit stronger academic achievement, interact with faculty, and engage in a more intellectual residence hall atmosphere than students in conventional residence halls. In their review of educational research, Pascarella and Terenzini (1991) reported that:

> A small but reasonably consistent body of research indicates that residence in a living-learning center (LLC) has positive and significant effects of students' gains in autonomy and personal independence, intellectual dispositions and orientations, and generalized personal development, as well as on declines in authoritarianism and dogmatism. (p. 261)

Other studies have shown positive outcomes in levels of involvement and interaction with faculty and peers, integration, learning, and intellectual development (Pike, 1999; Pike, Schroeder, & Berry, 1997) and institutional commitment (Pike et al.).

Study findings from institutions such as state universities in Maryland, Michigan, Missouri, and Wisconsin similarly reported that students in residential learning communities were significantly more likely than students in traditional residence halls: (a) to be more involved with campus activities and interact with instructors and peers (Inkelas, 1999; Pike, 1999); (b) to show greater gains in or higher levels of intellectual development (Inkelas; Pike); (c) to use campus resources, seek assistance from peers, faculty, and staff (Brower, 1997) and to experience a more smooth transition to college (Inkelas); and (d) to report their residence hall communities to be academically and socially supportive (Inkelas; Scholnick, 1996).

How do living-learning programs influence the positive student outcomes highlighted above? Part of the explanation may be inferred from the higher education literature. Over the past few decades, higher education researchers studying the impact of college on students have argued that one phenomenon distinguishes between those students who benefit from the college experience and those who do not. This phenomenon has been defined using different labels, including the concepts of *involvement* (Astin, 1984), *integration* (Tinto, 1993), *engagement* (Kuh, Schuh, Whitt, & Associates, 1991), and *quality of effort* (Pace, 1984); however, the premise remains similar: student outcomes are related to the amount of effort—both physical and emotional—that students put into their college experiences. The more effort students put into their experiences, or the more involved or engaged students are with their

college environments, the more likely they are to exhibit positive cognitive and affective development. After 40 years of research on college students across the United States, Astin (1996) concluded that the three types of student involvement with their college environments that are most influential on their academic outcomes are: (a) involvement with academics (e.g., time spent studying, etc.), (b) involvement with faculty, and (c) involvement with student peer groups.

The concept of engagement and the three key types of involvement cited by Astin (1996) lie at the foundation of the living-learning program philosophy. At their core, nearly all living-learning programs emphasize the above three elements in their programming to facilitate student persistence, academic performance, and other beneficial academic outcomes. These elements are manifested through academic services (such as tutoring, advising, and study groups), greater opportunities to interact with faculty on an informal basis, easier access to faculty (including offices frequently found inside the residence hall), and structured programming that promotes sustained interaction with peers (e.g., cultural outings, community service, in-hall programs, etc.) (Shapiro & Levine, 1999).

Among living-learning participants, the positive effects of interaction with faculty members and peers on student outcomes have been noted in several studies. In one study, after controlling for the effects of preenrollment characteristics, peer-group interactions and interactions with faculty were both significant predictors of intellectual development and personal development (Pascarella & Terenzini, 1980). Pike (1999) found that interaction with peers and integration of course material positively influenced gains in general education. The latter of the two predictors, namely integration of course material, infers that the emphasis of critical thinking skills in living-learning programs has a direct impact on positive intellectual outcomes.

Two other components of living-learning communities have been identified as critical to student learning and development: working in groups and students' perceptions that their living environment is supportive of their endeavors. Lenning and Ebbers (1999) recommended that successful learning communities incorporate small-group work projects that promote collaborative and cooperative learning. Indeed, learning communities that emphasize collaborative learning have been associated with improved grades, better retention, and increased satisfaction for undergraduates (see Gabelnick et al., 1990). Although there has been no direct empirical link between students' perceptions of a supportive living environment and improved academic outcomes, prior research has found that students' overall conceptions of a supportive campus climate influenced their intellectual development (Nora & Cabrera, 1996). Inkelas (1999) found that living-learning students perceived their residential environments to be significantly more supportive, both academically and socially, than students living in traditional residence halls. This current study examines the potential influence of students' perceptions of their residence environments on their outcomes.

Living-learning students are not solely influenced by their participation in their programs. In fact, a large body of research has shown that students' academic transition to college and level of intellectual engagement can be shaped by their precollege characteristics and collegiate experiences

outside the living-learning program. Several studies have shown that student background characteristics influence their quality of thinking. For example, the following demographics were found to be significant to intellectual development and openness to new perspectives: gender, race/ethnicity, parents' educational attainment, and precollege academic ability (Pascarella, Edison, Nora, Hagedorn, & Terenzini, 1996; Terenzini, Springer, Pascarella, & Nora, 1995).

Of course, the college impact literature has also demonstrated the influence of curricular and co-curricular environments outside living-learning programs on students' academic outcomes, such as the students' success of transition to college and level of intellectual engagement. Curricular influences found to predict intellectual outcomes are the student's major and academic class level (Mentkowski & Strait, 1983, as cited in Pascarella & Terenzini, 1991; Walsh & Hardy, 1999). Research on cocurricular influences has been more varied; for example, Inman and Pascarella (1998) found that extracurricular involvement in student clubs and organizations had a significant positive effect on critical thinking scores. In addition, a multi-institutional study of students during the first year of college found several significant differences between male students who are Greek-letter organization members and those who are nonmembers on several cognitive outcomes (Pascarella, Edison, & Whitt, 1996). Finally, positive cocurricular influences on openness to diverse perspectives during the first year of college include hours worked per week, student acquaintances, and conversations with other students; while participation in Greek life had a negative impact on the same outcome (Pascarella, Edison, Nora, et al., 1996).

CONCEPTUAL FRAMEWORK AND VARIABLES IN THE ANALYSIS

The conceptual framework for this study combines many of the constructs described in the Review of Literature section into one model by using an inputs-environments-outcomes (I-E-O) college impact model (Astin, 1993) as its foundation. In Astin's model, outcomes, or student characteristics after exposure to college, are thought to be influenced by both inputs, student characteristics before and at time of entry to college, and environments, various programs, policies, faculty, peers, and educational experiences that students interact with while in college. Astin argued that research examining how the college environment may influence student change or development will always be biased unless measures are taken to control for as many student inputs as possible. Thus, research that draws conclusions on the impact of living-learning program participation on student outcomes, but fails to take into account the inherent distinctions among students before they even enter college, will most likely overestimate the effects of living-learning programs on students' lives and achievements. Similarly, assessment that attempts to capture the impact of a specific program (such as a living-learning program or set of programs) on student outcomes may overestimate the significance of the program if it does not account for other types of activities and college environments in which students in the program may participate.

The inputs selected for the study reflect noncollegiate variables that were found to be significant predictors of students' transition to college and intellectual development

in previous research. Demographic input measures include gender, race/ethnicity, and parents' educational attainment; and high school academic aptitude measures include average high school grades and SAT scores (Pascarella, Edison, Nora, et al., 1996; Terenzini et al., 1995). The second set of input measures reflects students' anticipated college experiences and can be considered as pretest variables for the outcome measures for this study. These variables included composite measures representing students' anticipated ease of transition to college and the importance they assigned to intellectual self-discovery during their college years.

Similar to other college impact models (e.g., Tinto, 1993; Weidman, 1989), both curricular and cocurricular aspects of the college environment were incorporated into this study's framework. Curricular characteristics included students' current class level and their majors, which were grouped into 4 categories: undecided major (the referent category), science or mathematics, liberal arts, and professional or technical fields. Cocurricular environments included some of the most common types of out-of-classroom activities that students participate in: student clubs and organizations, social fraternities and sororities, community-service activities, and employment either on or off campus.

The remaining environmental measures in the framework are related to the special activities or experiences that living-learning programs strive to create for their participants: exposure to critical thinking in coursework, opportunities to study in groups, interaction with faculty and peers, and a supportive residence environment. The critical thinking composite measure includes single items, such as: indication whether or not students were required as part of their course assignments to compare or contrast different discussion topics; arguing for or against a particular point of view; and pointing out the strengths and weaknesses of a specific argument or perspective. Types of faculty interaction included the extent to which students discussed academic issues with their instructors outside of class or met instructors on social occasions (such as going to a cultural event or having dinner at a faculty member's home). Types of student interaction included the extent to which students discussed with their peers academic issues (e.g., assignments) and sociocultural issues (e.g., human rights, politics, multiculturalism). The final set of environment measures in the framework includes students' perceptions of their residence hall environments. The first perceptual climate index measures students' opinions that their residence hall environment is academically supportive (e.g., conducive for studying). The second index measures students' perceptions that their residence hall environment is socially supportive (e.g., socially tolerant). For a description of the single items that comprise the composite measures in the conceptual framework, see Appendix A.

The three outcome measures, as mentioned previously, mirror the goals and objectives of the types of living-learning programs highlighted in this study. Transition Programs seek to facilitate a smooth transition to college for first-year students, and this measure is comprised of students' perceptions of the relative ease or difficulty in the first year regarding forming study groups, communicating with instructors outside of class, and seeking academic or personal help when needed. Academic Honors Programs aim to support students in their pursuit and enjoyment of challenging intellectual endeavors, and this composite

measure includes individual items such as: questioning professors' statements and arguments in readings; figuring things out for oneself; exploring the meaning and interpretations of new ideas; and organizing and interpreting ideas instead of memorizing facts or details. Finally, Curriculum-Based Programs, through a particular disciplinary focus or theme, seek to provide stimuli to broaden students' sociocultural perspectives and horizons. This outcome measure is comprised of items such as: enjoyment of talking with people with different values; enjoyment of discussing issues with people who do not hold the same opinion; and enjoyment of taking courses that challenge existing beliefs and values. (Again, for information on the composite outcome measures, see Appendix A.)

METHOD

Sample and Procedure

This study utilized a stratified random sample of 4,269 students living in the residence hall system of a large, highly competitive public research university in the Midwest. Admission to this university is very competitive; entering undergraduates have an average high school grade point average (GPA) of 3.8 and cumulative SAT scores of 1269 (Princeton Review, 2002). To understand the effect of living-learning environments on student outcomes, the sample selected needed to include both those students who were participating in living-learning communities and those who were not; thus, all of the 1,531 living-learning participants on the campus were selected for the sample population, and a control sample of 2,738 nonparticipants consisted of students who lived in one of the university's residence halls but who were not part of a living-learning program. The control sample was stratified by gender, race or ethnicity, academic class, and residence hall so that it would roughly mirror the subjects in the living-learning sample.

In January 2001, resident advisors (RAs) of all of the undergraduate residence halls at the university were asked to distribute labeled envelopes to the residents who were selected to participate in the study. Individually coded surveys inside the envelopes were matched to the name of the resident on the label of the envelope. The surveys were coded so that respondents' data could be linked to institutional records. Of the 4,629 students surveyed, 2,833 residents filled out and returned their surveys (a 61.2% response rate). Living-learning participants responded to the survey at a slightly higher rate (63.4%) than nonparticipants (60.1%).

The final sample is diverse by several demographic factors; however, the living-learning sample varies from the control sample in several respects. For example, although the control sample selected was stratified to match the gender and race/ethnicity distribution of the living-learning sample, nonresponse created a gender distribution among the control sample (54.9% female) that was slightly less biased toward females than the living-learning sample (58.9% female). In addition, a greater percentage of students in the living-learning sample (48.7%) had parents with graduate degrees than students in the control sample (38.2%), which suggests that the socioeconomic status of students in living-learning programs may be higher than students in the general student body. Finally, despite the fact that there was no statistical difference in the self-reported average high school grades of students in the living-learning and control samples (no doubt due

to the competitive nature of this institution), living-learning students did report higher SAT or converted ACT composite scores. While 33.3% of the living-learning respondents reported an SAT composite score of 1370 or higher, only 20.2% of the control sample reported SAT scores in the same range. (See Appendixes B and C for more details.)

Instrument

The survey instrument contains 44 mostly multiple-choice questions and item sets asking respondents about their precollege disposition toward the collegiate experience, their ease or difficulty with their adjustment to college, the types of activities they have participated in while in college, their perceptions of the academic and social climate in their residence hall, and their preferences for or against varying aspects of intellectual engagement and curiosity. The instrument also includes several demographic and academic background questions. An initial version of the instrument was given to institutional living-learning directors and administrators for their feedback on question clarity and appropriateness. After revisions stemming from the feedback, the instrument was used in a pilot test on approximately 100 students living in one residence hall in October 2000. Students were also asked to comment on question items that were confusing or difficult to answer; these vulnerabilities were addressed in the final instrument. Alpha reliability tests were conducted on all of the item sets included on the pilot instrument, resulting in scale reliabilities ranging from .65 to .87.

QUANTITATIVE ANALYSES

Before the analyses of the data were conducted, the data set underwent several preliminary treatments. First, outliers and inconsistent responses were removed from the data set. Second, to preserve sample sizes, especially by individual living-learning program type, all missing independent variables that did not relate to demographics were replaced with mean substitutions; it is important to note that the greatest proportion of missing data for any single variable in the study was only 8.5%. Finally, to utilize a manageable set of variables for the study, data reduction techniques were used to create composite measures. The composite measures were created via exploratory factor analysis with orthogonal rotation; the reliability (model alpha) of the composite measures created was confirmed. The complete list of the composite measures utilized in this report, including reliability measures and individual item factor loadings, can be found in Appendix A.

Several analyses were conducted to study the effect of living-learning participation on students' experiences and outcomes. First, using analysis of variance tests (ANOVA), students' involvement with and perceptions of their college environments were compared among the three living-learning groups and the control sample in order to ascertain if living-learning participants are engaging more often in key collegiate experiences and perceiving more supportive living atmospheres. Second, another set of ANOVAs were conducted to discern significant differences in the three outcomes among the three types of living-learning programs versus the control group. For all ANOVA analyses, Tukey's post hoc tests were utilized to discern among the group differences.

Finally, multiple regression analyses

were conducted to examine the influence of the key living-learning environment measures in the study's conceptual framework on students' outcomes. Forced-entry hierarchical regression analysis was chosen to enter the input and environment measures in discrete blocks, which follow the order of the variables in the conceptual framework. The key living-learning environment measures were the final block entered in each regression equation to examine the independent impact of this block on the outcomes after having controlled for student inputs and other college environments outside living-learning programs. For each dependent measure, the regression analyses were run separately with 4 different samples: students in the Transition Program, students in the Academic Honors Program, students in the Curriculum-Based Program, and students in the control sample.

RESULTS

The data in Table 1 represent the mean differences in college experiences and perceptions among students in the three different types of living-learning programs, as compared to the students in the control group. All of the results discussed in this section are of statistically significant findings. As Table 1 shows, generally speaking, students in the living-learning programs were more engaged in key living-learning activities and perceived their environments more positively than non-participants. More specifically, Transition and Academic Honors Program participants more often used critical thinking skills in class assignments, met socially with a faculty member outside of class, and discussed sociocultural issues outside of class. For all three of the above activities, Curriculum-Based Program participants were less-often engaged or were not significantly different in their level of engagement than students in the control group. This is surprising, given that Curriculum-Based Programs explicitly promote curricular links; but the lack of difference may be related to the fact that one of these programs caters primarily to first- and second-year mathematics and science majors, who may be taking introductory courses in their disciplines that emphasize content mastery over critical thinking skills and tend not to discuss sociocultural issues at length. It is important to note, however, that participants in the Curriculum-Based Programs did take advantage of one feature of their programs: they tended to utilize study groups more frequently than students in any of the other samples.

Interestingly, students in Transition and Academic Honors Programs tended to go to different sources to discuss academic issues. Students in Transition Programs most often discussed academic issues outside of class with a faculty member, while students in the Academic Honors Programs were significantly more likely to discuss academic issues outside of class with their peers. While all living-learning programs strive to promote greater faculty and peer interaction, these findings can be construed as somewhat consistent with the intellectual development of students in these two programs. Participants in the Transition Programs are primarily first-year students, who might be assumed to be in earlier stages of intellectual development and therefore more reliant on the academic advice of authority figures (see Kitchener & King, 1994; Baxter Magolda, 1992; Perry, 1970). Participants in the Academic Honors Programs, on the other hand, have already been identified as highly talented and include students across all four

TABLE 1.

Differences in College Environment Interactions and Perceptions Among Different Types of Living-Learning Program Participants

	Transition Program (*n* = 318)	Academic Honors Program (*n* = 378)	Curriculum-Based Program (*n* = 187)	Control Sample (*n* = 1,277)	Significance	Tukey's post hoc tests
Used critical thinking skills in class assignments	2.88	3.05	2.51	2.76	$F = 26.45$; $df = 3$; $p < .001$	1, 2 > 4; 3 < 4
Discussed academic issues outside of class with faculty member	2.52	2.32	2.38	2.33	$F = 8.82$; $df = 3$; $p < .001$	1 > 4
Met socially outside of class with faculty member	1.61	1.50	1.39	1.41	$F = 11.57$; $df = 3$; $p < .001$	1, 2 > 4
Discussed academic issues outside of class with peers	3.14	3.30	3.13	3.12	$F = 10.07$; $df = 3$; $p < .001$	2 > 4
Discussed sociocultural issues outside of class with peers	2.86	2.95	2.75	2.68	$F = 17.43$; $df = 3$; $p < .001$	1, 2 > 4
Studied in groups	2.87	2.63	3.22	2.90	$F = 19.95$; $df = 3$; $p < .001$	3 > 4; 2 < 4
Residence environment is academically supportive	2.79	2.61	2.91	2.62	$F = 24.43$; $df = 3$; $p < .001$	1, 3 > 4
Residence environment is socially supportive	2.85	2.96	2.89	2.78	$F = 12.74$; $df = 3$; $p < .001$	2, 3 > 4

years of their college careers; thus, they may be more comfortable in using their peers as academic sounding boards. Ironically, Academic Honors Programs participants indicated that they studied in groups less frequently than students in any other program or in the control group; these students may converse with one another on academic issues such as class assignments or a topic discussed in class, but tend to study more independently.

Finally, living-learning students tended to find their residence environment to be more supportive than nonparticipants. Transition and Curriculum-Based Program participants were significantly more likely to find their residence environment to be academically supportive, and Academic Honors and Curriculum-Based Program participants were more likely to find their residence environments to be socially supportive. It is interesting to note that students in the Curriculum-Based Programs were satisfied with both the academic and social support they received in their residence environments; thus, they appear to be sustaining the healthiest living atmosphere of the participants in the three programs and in comparison to the control sample.

Table 2 shows that living-learning participants, more often than their control group counterparts, enjoy: (a) a smooth transition to college during their first year; (b) challenging academic pursuits; and (c) learning new or different perspectives. In addition, the students in the programs with objectives that mirror the outcomes in this study were generally found to exhibit the highest outcomes among their classmates. For example, participants in Transition Programs were the most likely to perceive a smooth transition to college, and significantly more so than Academic Honors Program participants and the control group students. Similarly, participants in Academic Honors Programs indicated more often that they enjoyed challenging academic pursuits, more than students in the other two living-learning programs and the control group. Participants in the Curriculum-Based Programs were surprisingly not the most likely to indicate that they enjoyed learning new or different perspectives; instead, students in the other two living-learning programs—Transition and Academic Honors—had higher mean scores.

Some may question whether the differences in outcomes in Table 2 are actually the result of differences in ability or aptitude among living-learning students versus the control sample. After all, students in the living-learning sample did have higher standardized test scores (although there was no significant difference in high school GPA among the two samples). So, perhaps the reason why living-learning students have an easier transition to college and find that they prefer intellectually engaging activities is more a by-product of a student population that is more academically inclined and talented.

To address this limitation, mean differences in the three outcome measures were re-analyzed, using only those respondents in the living-learning programs and the control sample whose SAT composite scores were over 1310 (the highest third of the sample). The results of these analyses revealed that living-learning program participants, as a whole as well as by program type, had significantly higher mean scores among the three outcomes than nonparticipants.

The final research question asks whether the key living-learning college environments identified for this study are pivotal in influencing the three outcomes of the

TABLE 2.

Differences in Outcomes Among Participants by Type of Living-Learning Program

	Living-Learning Program Participant (n = 883)	Control Sample (n = 1,277)	Significance
Smooth academic transition during first year	2.68	2.62	F = 6.61; df = 1; p < .01
Enjoy challenging academic pursuits	2.93	2.80	F = 37.55; df = 1; p < .001
Enjoy learning new or different perspectives	3.01	2.86	F = 44.45; df = 1; p < .001

	Transition Program (n = 318)	Academic Honors Program (n = 378)	Curriculum-Based Program (n = 187)	Control Sample (n = 1,277)	Significance	Tukey's post hoc tests
Smooth academic transition during first year	2.76	2.63	2.66	2.62	F = 5.32; df = 3; p < .001	1 > 2, 4
Enjoy challenging academic pursuits	2.89	3.02	2.81	2.80	F = 22.13; df = 3; p < .001	1 > 4; 2 > 1, 3, 4
Enjoy learning new or different perspectives	3.00	3.06	2.90	2.86	F = 19.07; df = 3; p < .001	1 > 4; 2 > 3, 4

students in the living-learning programs analyzed. The data in Tables 3, 4, and 5 depict both the total variance explained (total R^2) as well as the percent of variance explained by the final block consisting of the key living-learning environments (R^2 explained by the final block) for the three outcomes examined in this study, broken out by the three different living-learning samples and the control group. In addition, these three tables also show the partial regression coefficients that predict each outcome, respectively. The remainder of this section will highlight the significance of the key living-learning environments in predicting the academic outcomes of this study for living-learning students, and will conclude with the input and environmental measures outside the living-learning programs that were also found to predict the three outcomes.

As shown in Table 3, the total R^2 for the first outcome—smooth academic transition during the first year—appears to indicate that the conceptual framework developed for this study is a more effective predictor of transition for the students in the Curriculum-Based Programs than the Transition Programs and control sample. This is surprising, given that one might assume that the framework would be most effective among the Transition Program group, given the close relationship of this program's objectives with this particular outcome. It is interesting to note that the key living-learning environments entered in the last block were the most useful in predicting an easy transition for students in the Transition Programs (R^2 change = .15); thus, the key living-learning environments are important in understanding the factors that foster an easy transition to college for Transition Program students. Furthermore, the key living-learning environments are also fairly significant predictors for the other living-learning program samples as well with the proportion of variance left to be explained by the final block has already accounted for the variance consumed by the control measures.

Through the examination of the partial regression coefficients in Table 3, we can discern that several of the key living-learning environments were significant predictors of students' easy transition to college. For example, among students in any group, those who discussed academic issues with faculty members and studied in groups were more likely to indicate a smooth transition to college. For the living-learning students, however, a mix of academic and social interactions seems to have influenced their transition experiences. On the other hand, among the students in the control sample, all of the significant predictors involved academically focused activities that are more traditional.

The negative relationship between sociocultural peer discussions and the transition-to-college dependent measure among Academic Honors Program students is curious. Perhaps academically talented students, such as those recruited for the Academic Honors Programs, may be more willing to tackle controversial and complex contemporary issues, and these interactions may become impassioned to the point where participants may be uncomfortable. This discomfort may then undermine students' sense of belonging to the campus, which is a component of students' confidence in their transition to college. Indeed, other results in the Table 3 show that Academic Honors Programs students who perceive their residence hall environment to be socially supportive are more likely to express a

smooth transition to college; so the perception of social support by one's peers may be both directly and indirectly linked to an easy academic transition for these talented students.

For Transition Program students, perceptions of the residence hall environment play an even more critical role in their transitions, given that Transition Program students who perceive their residence halls to be both academically and socially supportive showed a significant positive relationship to a smooth transition to college. Similarly, one of the only other significant predictors of a smooth transition to college for Curriculum-Based students (other than academic discussions with faculty members) was their perception that their residence hall was supportive of their academic endeavors. For students in the control sample, the more traditional academic environments are directly related to the dependent measure: discussing academic issues with both faculty and peers, studying in groups, and perceiving an academically supportive residence hall were all positively associated with a smooth transition to college. This may indicate that students who are not socialized into a living-learning environment tend to rely on the more traditional outlets for academic support, while living-learning participants employ both these traditional outlets and built-in social networks as well.

For the second outcome measure—enjoyment of challenging academic pursuits—the conceptual framework is a stronger predictive model for all three living-learning samples, particularly for Academic Honors Program participants, than the control group (see Table 4). The last block of key living-learning environments were effective in predicting approximately 10% of the variance for all three living-learning program samples. Yet, for the three living-learning samples, the percent of variance explained in the final block was shaped primarily from one measure, although this measure changed from living-learning sample to sample. Among Transition Program students, discussing academic issues with faculty members was the only key living-learning environmental measure that significantly influenced their preference for challenging academic pursuits. In addition to discussing academic issues with faculty members, the other significant predictor of preference for challenging academic pursuits among Academic Honors Program students was discussing sociocultural issues with peers, which was also the case for participants in Curriculum-Based Programs.

Thus, discussions with peers of sociocultural issues are a strong positive predictor of this form of intellectual engagement among nearly all of the different groups. (The beta for the Transition Programs sample was marginally significant at $p = .065$.) Interestingly, discussing academic issues with peers was not a significant predictor among any of the samples. Thus, it would appear that the type of discussions that students partake in with their peers is influential in shaping their preference for engagement in challenging academic pursuits, and the type of discussions that positively predict this outcome are those concerning cultural differences and major social problems.

Finally, having coursework requiring critical thinking skills was only influential in predicting engagement in challenging academics for students in the control sample. The nonsignificance of critical thinking activities among the living-learning samples may be due to the fact that many such programs emphasize critical thinking exer-

TABLE 3.

Predictors of Students' Perceptions of a Smooth Academic Transition to College by Type of Living-Learning Program

	Transition Program (*n* = 323)		Academic Honors Program (*n* = 382)		Curriculum-Based Program (*n* = 195)		Control Sample (*n* = 1,292)	
Step/Variable	**Beta**	**β Sig**	**Beta**	**β Sig**	**Beta**	**β Sig**	**Beta**	**β Sig**
Demographic characteristics and HS aptitude								
Gender (Female)	–.16	–.04	–.19	–.05	–.58	–.15	.00	.00
White	.10	.03	.40	.11	–.25	–.07	.18	.05
African American	.45	.08	.91	.13*	–.96	–.19	–.05	–.01
Latino	–.01	.00	1.04	.13*	–1.10	–.11	–.03	.00
Asian American	.08	.02	.28	.05	–.82	–.18	–.05	–.01
Educational attainment of parents	.01	.01	.06	.10*	–.03	.06	.00	.01
High school GPA	–.34	–.12*	.10	.04	.12	.04	–.07	–.03
SAT score	.00	.06	.00	.04	.00	–.12	.00	.01
Pretest								
Confidence of easy transition to college	.06	.12*	.10	.21***	.10	.20**	.11	.23***
Predisposition to learning new perspectives	.04	.06	.00	.00	.00	–.01	.02	.04
Curricular environments								
Academic class level	–.43	–.12*	–.16	–.06	–.25	–.09	–.11	–.04
Undecided major (Referent)								
Science or Mathematics major	–.30	–.07	–.08	–.02	–.42	–.12	.09	.02
Liberal Arts major	–.28	–.07	.06	.02	–.59	–.13	.18	.05
Professional or Technical major	–.29	–.07	.01	.00	.05	.01	.29	.06

table continues

TABLE 3. *continued*

Predictors of Students' Perceptions of a Smooth Academic Transition to College by Type of Living-Learning Program

	Transition Program (*n* = 323)		Academic Honors Program (*n* = 382)		Curriculum-Based Program (*n* = 195)		Control Sample (*n* = 1,292)	
Step/Variable	**Beta**	**β Sig**	**Beta**	**β Sig**	**Beta**	**β Sig**	**Beta**	**β Sig**
Cocurricular environments								
Student clubs & organizations	–.02	–.04	–.02	–.03	–.09	–.17	.00	.00
Greek-letter organizations	–.06	–.06	–.03	–.02	.10	.07	–.01	–.01
Community service activities	–.05	–.05	.05	.05	.09	.09	–.04	–.04
Work on or off campus	.02	.01	.06	.04	–.08	–.06	–.05	–.04
Key living-learning environments and perceptions								
Had coursework requiring critical thinking	.02	.03	–.02	–.02	.02	.02	–.01	–.02
Discussed academic issues with faculty member	.14	.19**	.17	.23***	.13	.20*	.09	.13***
Met socially with faculty member	–.01	–.02	–.02	–.03	.10	.13	.02	.02
Discussed academic issues with peers	.05	.05	.17	.17*	.14	.14	.09	.09*
Discussed sociocultural issues with peers	–.01	–.01	–.10	–.16**	–.05	–.08	–.02	–.04
Studied in groups	.25	.12*	.19	.10*	–.07	–.04	.25	.13***
Perceived residence hall as academically supportive	.10	.16*	.05	.06	.12	.17*	.12	.17***
Perceived residence hall as socially supportive	.09	.17**	.11	.17***	.04	.06	–.02	–.03
R^2 explained by final block	.15		.12		.13		.08	
Total R^2	.24		.26		.29		.19	
F	3.64***		4.81***		2.63***		11.71***	

Note. Betas represent the standardized values in the final block for each sample.

* $p < .05$. ** $p < .01$. *** $p < .001$.

TABLE 4.

Predictors of Students' Preference for or Enjoyment of Challenging Academic Pursuits by Type of Living-Learning Program

	Transition Program (*n* = 323)		Academic Honors Program (*n* = 382)		Curriculum-Based Program (*n* = 195)		Control Sample (*n* = 1,292)	
Step/Variable	**Beta**	**β Sig**	**Beta**	**β Sig**	**Beta**	**β Sig**	**Beta**	**β Sig**
Demographic characteristics and HS aptitude								
Gender (Female)	–.27	–.06	–.43	–.09	–.99	–.17*	–.53	–.11***
White	.30	.06	–.35	–.07	.33	.07	.15	.03
African American	.10	.01	–.94	–.10	–.74	–.09	.20	.03
Latino	.05	.01	–.59	–.06	–.30	–.02	.19	.02
Asian American	.01	.00	–1.74	–.24***	–.84	–.13	–.41	–.06
Educational attainment of parents	–.05	–.05	–.04	–.05	–.04	–.05	.00	.00
High school GPA	.08	.02	–.07	–.02	–.22	–.05	–.03	–.01
SAT score	.00	.14*	.00	.16**	.00	.07	.00	.19***
Pretest								
Confidence of easy transition to college	.05	.08	.08	.13**	.06	.09	.05	.09***
Predisposition to learning new perspectives	.11	.13*	.17	.21***	.14	.17*	.13	.16***
Curricular environments								
Academic class level	.10	.02	–.08	–.02	.38	.10	.03	.01
Undecided major (Referent)								
Science or Mathematics major	–.26	–.05	–.14	–.02	.78	.15	–.11	–.02
Liberal Arts major	.76	.15*	–.04	–.01	.64	.10	.40	.08*
Professional or Technical major	–.05	–.01	–.28	–.04	1.19	.11	.42	.07*

table continues

TABLE 4. *continued*

Predictors of Students' Preference for or Enjoyment of Challenging Academic Pursuits by Type of Living-Learning Program

	Transition Program (n = 323)		Academic Honors Program (n = 382)		Curriculum-Based Program (n = 195)		Control Sample (n = 1,292)	
Step/Variable	**Beta**	**β Sig**	**Beta**	**β Sig**	**Beta**	**β Sig**	**Beta**	**β Sig**
Cocurricular environments								
Student clubs & organizations	.07	.09	.00	.01	.07	.10	.02	.03
Greek-letter organizations	–.07	–.05	–.05	–.02	.09	.05	–.14	–.09***
Community service activities	–.07	–.05	.01	.01	.23	.15	.02	.02
Work on or off campus	.08	.04	.06	.03	–.06	–.03	.00	.00
Key living-learning environments and perceptions								
Had coursework requiring critical thinking	–.01	–.01	.11	.09	.06	.06	.10	.10**
Discussed academic issues with faculty member	.16	.17**	.14	.14*	–.07	–.08	.06	.06*
Met socially with faculty member	.03	.03	.03	.03	.09	.08	–.03	–.03
Discussed academic issues with peers	.16	.12	.12	.09	.19	.12	.06	.05
Discussed sociocultural issues with peers	.11	.13	.14	.15**	.20	.22**	.13	.15***
Studied in groups	.12	.05	–.19	–.07	–.25	–.09	.05	.02
Perceived residence hall as academically supportive	.10	.12	–.03	–.03	–.12	–.12	.01	.01
Perceived residence hall as socially supportive	–.04	–.06	.01	.02	.03	.03	–.06	–.09
R^2 explained by final block	.09		.09		.09		.05	
Total R^2	.29		.34		.32		.22	
F	4.56***		6.97***		2.97***		14.08***	

Note. Betas represent the standardized values in the final block for each sample.

* $p < .05$. ** $p < .01$. *** $p < .001$.

TABLE 5.

Predictors of Students' Preference for or Enjoyment of Learning New or Different Perspectives by Type of Living-Learning Program

	Transition Program (*n* = 323)		Academic Honors Program (*n* = 382)		Curriculum-Based Program (*n* = 195)		Control Sample (*n* = 1,292)	
Step/Variable	**Beta**	**β Sig**	**Beta**	**β Sig**	**Beta**	**β Sig**	**Beta**	**β Sig**
Demographic characteristics and HS aptitude								
Gender (Female)	-.32	-.11	-.06	-.02	-.30	-.09	-.20	-.06*
White	.04	.01	-.16	-.05	.25	.08	.00	.00
African American	.14	.03	-.28	-.04	.29	.06	-.40	-.07*
Latino	-.44	-.06	-.03	.00	1.80	.20**	-.06	-.01
Asian American	.09	.02	-.42	-.09	.35	.09	-.12	-.03
Educational attainment of parents	-.02	-.04	.05	.08	.01	.01	.02	.03
High school GPA	-.02	-.01	-.03	-.01	-.25	-.09	-.16	-.06*
SAT score	.00	.09	.00	.11*	.00	.06	.00	.04
Pretest								
Confidence of easy transition to college	.00	-.01	.05	.11*	.08	.17**	.04	.10***
Predisposition to learning new perspectives	.09	.16**	.20	.36***	.12	.23**	.14	.26***
Curricular environments								
Academic class level	-.29	-.10	-.09	-.04	-.24	-.10	-.07	-.03
Undecided major (Referent)								
Science or Mathematics major	-.16	-.05	.16	.04	-.15	-.05	-.11	-.03
Liberal arts major	.11	.03	.33	.10	.05	.01	.01	.00
Professional or Technical major	-.15	-.04	.34	.07	-.28	-.04	.08	.02

table continues

TABLE 5. *continued*

Predictors of Students' Preference for or Enjoyment of Learning New or Different Perspectives by Type of Living-Learning Program

	Transition Program (*n* = 323)		Academic Honors Program (*n* = 382)		Curriculum-Based Program (*n* = 195)		Control Sample (*n* = 1,292)	
Step/Variable	**Beta**	**β Sig**	**Beta**	**β Sig**	**Beta**	**β Sig**	**Beta**	**β Sig**
Cocurricular environments								
Student clubs & organizations	.03	.07	-.03	-.06	.00	-.01	-.02	-.03
Greek-letter organizations	-.02	-.02	.11	.07	-.01	-.01	-.04	-.03
Community service activities	.15	.18***	.00	.00	.20	.21**	.03	.03
Work on or off campus	-.10	-.08	-.03	-.02	.15	.11	.02	.02
Key living-learning environments and perceptions								
Had coursework requiring critical thinking	-.04	-.06	.08	.11	.00	.01	.05	.08*
Discussed academic issues with faculty member	-.04	-.07	.04	.07	-.01	-.02	-.02	-.03
Met socially with faculty member	-.07	-.01	-.03	.00	-.09	-.12	.02	.02
Discussed academic issues with peers	.03	.04	-.08	-.09	-.03	-.03	.03	.03
Discussed sociocultural issues with peers	.15	.30***	.11	.18***	.19	.34***	.12	.22***
Studied in groups	.14	.09	-.01	-.01	-.10	-.06	-.02	-.01
Perceived residence hall as academically supportive	.10	.18**	-.03	-.04	-.03	-.05	.01	.01
Perceived residence hall as socially supportive	.02	.06	.04	.07	.01	.01	.02	.04
R^2 explained by final block	.13		.04		.09		.06	
Total R^2	.32		.31		.39		.25	
F	5.37***		6.12***		4.15***		16.58***	

Note. Betas represent the standardized values in the final block for each sample.

* $p < .05$. ** $p < .01$. *** $p < .001$.

cises so often in their courses that students no longer draw any significance from them, while students outside the programs participate in critical thinking activities with less frequency and thus draw more meaning from them.

As shown in Table 5, the conceptual framework was especially effective in prediction for the third outcome measure—enjoyment of learning new or different sociocultural perspectives—among students in Curriculum-Based Programs (39% variance explained). Although the final living-learning environmental block was effective in influencing between 4% and 13% of the variance for the living-learning samples, there appears to be only one key environmental measure that is a strong predictor of students' preference for learning new perspectives across all of the different samples: discussing sociocultural issues with peers. In other words, students who frequently discuss sociocultural issues with their peers are more likely to be open to and interested in learning new or different sociocultural perspectives. So, unlike the previous two outcome measures, peer interaction around social issues is the strongest influence on students' predilection to this form of intellectual engagement. This finding is consistent with a recent argument put forth by defenders of diversity as a compelling educational interest (Gurin, 1999; Hurtado et al., 1999). These authors argued that interaction with diverse peers is vital to learning new perspectives, and learning new perspectives is vital for appreciating cultural differences, a crucial aspect of a healthy and diverse democracy.

In addition to the key living-learning environments, there were several input characteristics and environmental characteristics outside the living-learning programs that significantly influenced students' academic outcomes. For example, in Table 3, African American and Latino students in the Academic Honors Programs were positively associated with a smooth academic transition in their first year. In addition, students with highly educated parents were more associated with a smooth transition. While it is to be expected that students with highly educated parents would be more confident in their academic transition to college than students with less educated parents, it is positive news that African American and Latino students in the Academic Honors Programs felt confident in their transition. Surprisingly, lower high school GPAs were significantly related to a smooth academic transition in the first year for students in the Transition Programs. Students with lower high school grades who felt at-risk with their academic transition to college may have decided to participate in a transition-focused living-learning program and as a result made the greatest gains in the perceptions of their actual transition.

Also in Table 3, first-year students in Transition Programs were found to be significantly more likely to express an easy transition than juniors and seniors. It is curious that first-year students would be more likely to find their transitions easier than upper division students, but this may be because juniors and seniors might look back upon their first year through a perspective that includes several more years of experience only to realize that it was more difficult than they initially thought, while first-year students do not have this perspective.

In Table 4, it is interesting to note that women in the Curriculum-Based Programs and the control sample and Asian American students in Academic Honors Programs were less likely to prefer engaging in challenging

academic pursuits. This finding may be somewhat related to the hesitancy of students in these two groups to challenge authority, especially in light of the knowledge that the sample in this study is predominantly composed of first-year and sophomore students. Given that women and Asian Americans are not always negatively associated with this trend across the entire sample, these results may be idiosyncratic to the women and Asian Americans in certain programs. Indeed, such culturally based stereotypes should always be used with caution when examining a diverse sample such as the one in this study. As expected, students with higher SAT scores across most other demographic groups were more likely to show a greater inclination toward challenging academic pursuits than students with lower SAT scores.

Two college environments outside the living-learning programs were associated with engagement with challenging academic work (see Table 4). For Transition Program students and students in the control sample, those who were majoring in liberal arts disciplines were more likely to express a preference for engaging in intellectual pursuits. Among students in the control sample, those involved with Greek-letter organizations were less likely to express an interest in challenging academic pursuits than those who were not. The Greek-letter affiliation finding has been validated in several previous studies (see Pascarella, Edison, & Whitt, 1996). For this study, the liberal arts category includes students whose majors are clustered in the humanities, social sciences, and fine arts. Given that the majority of the sample is composed of first-year students and sophomores, perhaps those who declare these types of majors so early in their college careers are predisposed to the study of broad issues that challenge assumptions and question authority.

Finally, among the input characteristics in Table 5, women and African American students in the control sample were negatively associated with a preference for learning new or different social or cultural perspectives. This relationship may be similarly related to the conjecture in the prior analysis, in which it was hypothesized that women and minority groups may be less inclined to challenge the status quo. However, given that this finding was only prevalent in the control sample, it may be suggesting that living-learning programs mitigate this negative association for women and African Americans. Indeed, among living-learning participants, Latino students in Curriculum-Based Programs are positively associated with an openness to new or different perspectives; nevertheless, this relationship should be further investigated. One final surprising relationship among the control group sample is the finding that students with lower high school GPAs were more likely to enjoy learning new or different perspectives than students with higher GPAs.

For students in Transition Programs and Curriculum-Based Programs, performing community service activities were positively associated with an interest in learning new or different sociocultural perspectives. This finding seems logical: students who participate in service learning are probably the types of students who wish to expand their horizons and learn about social differences. It is interesting to note that, among the three living-learning program types, the greatest proportion of students participating in community service activities were Transition Program students. This is primarily because one of the living-learning programs in the

Transition Program grouping requires its students to participate in a service learning opportunity. On the other hand, the lowest involvement in community service was among Curriculum-Based Program participants. This may suggest that those students who partake in community service, no matter the service orientation of their surroundings, appear to derive positive intellectual outcomes from their involvement. Perhaps this is a call to include a service learning opportunity into all living-learning programs.

DISCUSSION AND IMPLICATIONS FOR RESEARCH

This study examined three research questions associated with participation in different types of living-learning programs and found that participants in living-learning programs are more involved than nonparticipants in college activities designed to be critical aspects of the living-learning experience. Moreover, not only did living-learning students exhibit stronger outcomes on all dependent measures than students in the control group, but also participants in specific types of living-learning programs tended to exhibit the strongest outcomes among the dependent measures that most closely mirrored the objectives of those programs. These findings suggest that living-learning programs are effective in their missions; it is surprising, however, that the outcomes of participants in Curriculum-Based Programs were not significantly different than those of students in the control sample. Perhaps it is important for staff members in these programs to follow up with their students to understand why the program is not facilitating the expected outcomes.

Several findings from this study are instructive for practitioners and researchers interested in living-learning programs. Practitioners can observe that peer academic support occurs in different forms in the different types of living-learning programs. In this study, Academic Honors Program students tended to be more likely to discuss academic issues with their peers, but they did not often hold these discussions in group study sessions. On the other hand, students in Curriculum-Based Programs tended to study more often in groups and found their residence environments to be both academically and socially supportive, but they did not indicate that they often discussed academic issues with their peers. Living-learning staff members should be careful to draw conclusions about peer interaction in their programs: although students in these programs may be participating in some academically oriented peer activities (e.g., studying in groups), they may not be fulfilling other academic needs (e.g., holding discussions about academic issues). Instead, program staff should continually assess several different types of academic interactions that participants are or should be involved with to ensure that target interactions and program objectives are being served.

Campus administrators and program practitioners should also be cognizant of socially focused activities and environmental climates as well. The results from this study indicate that socially oriented activities are most influential in shaping a preference for new sociocultural perspectives. It is significant to note that openness to and tolerance for diversity is associated most strongly with peer interactions and not academic activities. Thus, those wishing to influence their students to be more open to new ideas and points of view should not only provide different perspectives in their curricula, but

also offer students opportunities to interact with and discuss social issues with their peers. In addition, perceptions of supportive residence environments were influential in easing the transition to college for students in all three types of living-learning programs. An academically minded and culturally inclusive living atmosphere can be inferred to be vital in two important institutional goals: retention and tolerance for diversity.

Differences found between the control sample and the living-learning samples in this study may indicate areas in which campus-level decision makers could infuse some elements of living-learning programs into the college experience of all students. The regression analyses in this study have shown that the types of environments that living-learning programs strive to enhance for their students are important in influencing positive academic outcomes. These environments include increased contact with faculty members, frequent peer discussions involving both academic and social issues, and a supportive residence environment. Since the ANOVA data revealed that students not participating in living-learning programs were significantly less likely to engage in all of these types of environments than their living-learning peers, and because researchers have shown how critical these types of environments are to student success, campus leaders should create ways for students who are not in living-learning programs to access these environments without a program structure.

On campuses where more living-learning programs cannot be instituted, it may not be necessary to create more living-learning programming to facilitate successful student engagement in these critical environments; instead, learning communities (without the residential component), such as cluster courses and interest groups, should be considered. Or, these critical environments may be augmented with cocurricular programming, such as faculty-student lunches and cultural outings or student tutoring programs. With increasingly diverse student populations, these types of alternative programs may be more beneficial for commuting students (including nontraditional-aged and low-income students, among others who do not or cannot live on campus).

There are several lingering questions from this study to guide future research in this area. Several of these questions are related to the methodological limitations of this study.

First, this inquiry was conducted at only one institution, so the representativeness of the findings may not be wholly transferable to all institutional types. Second, several measures in the study were self-reported by the respondents, which could have introduced bias or been affected by students' wishes to give socially desirable responses. The next generation of research should compare and contrast the impact of different types of programs in different institutional contexts and should link students' survey data to their institutional records to mitigate the effects of potentially skewed responses.

Another area for future investigation involves the surprising findings related to women and minority groups. Why are women and students of certain racial or ethnic backgrounds more or less likely to manifest intellectual outcomes than others? And why is this relationship only evident in specific types of living-learning programs? Addressing these questions could determine whether these findings are idiosyncratic to women and minority students in these specific programs, or if there is a more general pattern to be discerned.

Finally, living-learning research has always been hampered by the selection effect: it is difficult to draw conclusions about the impact of these programs when the types of students who elect to participate possess strong characteristics for college success. Yet, by using a hierarchical block-entry form of regression analysis, and by performing ancillary analyses by SAT scores, this study attempted to show that the living-learning effect is tangible and that it does add something unique and special to the college experiences of students who choose to participate.

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APPENDIX A.
Summary Statistics for Factor Scales in the Conceptual Framework

Scale description and individual items	Factor loadings	Alpha reliabilities
Precollege characteristics		
Pretest: Confidence of easy transition to college		.77
Feeling like I belong at this institution	.68	
Feeling confident about my academic success	.63	
Feeling comfortable in large classes	.60	
Becoming friends with students whose views are different from my own	.59	
Interacting with professors outside of class	.55	
Overcoming homesickness	.49	
Becoming part of extracurricular activities	.48	
Pretest: Predisposition to learning new perspectives		.79
Learning about cultures different from my own	.77	
Getting to know people from backgrounds different from my own	.76	
Learning more about myself	.58	
Gaining a broad education and appreciation of ideas	.50	
Discussing ideas and intellectual topics with friends and other students	.43	

Appendix continues

APPENDIX A. *continued*

Summary Statistics for Factor Scales in the Conceptual Framework

Scale description and individual items	Factor loadings	Alpha reliabilities
Key living-learning environments and perceptions		
Had coursework requiring critical thinking		.80
Compare or contrast different topics presented in the course	.82	
Point out the strengths and weaknesses of a particular argument or point of view	.79	
Argue for or against a particular point of view	.67	
Discussed academic issues with faculty member		.76
Made an appointment to meet with an instructor in his/her office	.70	
Visited informally with an instructor before or after class	.66	
Asked instructor for information related to a course	.60	
Communicated with instructor using E-mail	.60	
Met socially with faculty member		.82
Discussed personal problems or concerns with an instructor	.73	
Visited informally with an instructor during a social occasion (e.g., lunch, coffee, home visit)	.73	
Went to a cultural event (e.g., concert or play) with an instructor	.71	
Discussed career plans and ambitions with an instructor	.63	
Discussed academic issues with peers		.73
Discussed something learned in class	.75	
Held discussions with students whose personal values were very different from my own	.71	
Shared concerns about classes and assignments	.50	
Discussed sociocultural issues with peers		.85
Talked about different lifestyles and customs	.73	
Discussed views about multiculturalism and diversity	.71	
Discussed major social problems such as world peace, human rights, equality, and justice	.66	
Held discussions with students whose political opinions were very different from my own	.64	
Perceived residence hall as academically supportive		.73
I think staff in my residence environment spend a great deal of time helping students succeed academically	.65	
I think it's easy for students to form study groups at my residence environment	.59	
My residence environment clearly supports my academic achievement	.51	
I can find adequate quiet study space available in my residence environment	.50	
I think students in my residence environment are well aware of the campus academic support services available to them	.41	

Appendix continues

APPENDIX A. *continued*

Summary Statistics for Factor Scales in the Conceptual Framework

Scale description and individual items	Factor loadings	Alpha reliabilities
Perceived residence hall as socially supportive		.83
I find students in my residence environment have an appreciation for people of different religions	.68	
I find students in my residence environment have an appreciation for people of different races	.67	
Students in my residence environment are concerned with helping and supporting one another	.60	
I would recommend this residence environment to a friend	.57	
I see students with differing backgrounds having a lot of interaction with one another in my residence hall	.50	
I have enough peer support in my residence environment to do well in college	.49	
Dependent measures		
Perceptions of easy academic transition in first year		.63
Forming study groups	.57	
Communicating with instructors outside of class	.52	
Seeking academic or personal help when needed	.47	
Preference for or enjoyment of challenging academic pursuits		.68
In college, I frequently question or challenge professors' statements and ideas before I accept them as "right"	.54	
I'd rather figure something out for myself than simply have it explained to me	.53	
I prefer courses requiring me to organize and interpret ideas over courses that ask me only to remember facts or information	.48	
I try to explore the meaning and interpretations of the facts when I am introduced to a new idea	.47	
There have been times when I have disagreed with the author of a book or article that I was reading	.40	
Preference for or enjoyment of learning new or different perspectives		.60
I enjoy talking with people who have values different from mine because it helps me understand myself and my values better	.53	
I enjoy discussing issues with people who don't agree with me	.48	
I enjoy taking courses that challenge my beliefs and values	.34	

APPENDIX B.

Means and Standard Deviations of the Measures in the Conceptual Framework (N = 4,622)

Measure	*M*	*SD*	Description
Precollege characteristics			
Gender (Female)	1.56	0.50	Coded 1 = *male*; 2 = *female*
White	0.59	0.49	Coded 0 = *no*; 1 = *yes*
African American	0.10	0.31	Coded 0 = *no*; 1 = *yes*
Latino	0.04	0.22	Coded 0 = *no*; 1 = *yes*
Asian American	0.14	0.35	Coded 0 = *no*; 1 = *yes*
Parents' educational attainment	7.78	2.83	Composite of mother's and father's education level; Individual items coded 1 = *high school or less* to 6 = *doctoral degree*
High school GPA	5.48	0.63	Coded from 1 = *D+ or lower* to 6 = *A+ or A*
SAT score or converted ACT score	1266.87	136.97	Continuous math + verbal measure from 420-1600
Pretest: Confidence of easy transition to college	20.12	3.78	Scale index from 7 to 28, high value indicating high confidence
Pretest: Predisposition to learning new perspectives	15.53	3.08	Scale index from 5 to 20, high value indicating high importance
Curricular and cocurricular environments			
Academic class level	11.36	0.66	Coded 11 = *freshman*; 12 = *sophomore*; 13 = *junior*; 14 = *senior*
Science or Mathematics major	0.33	0.47	Coded 0 = *no*; 1 = *yes*
Liberal Arts major	0.18	0.39	Coded 0 = *no*; 1 = *yes*
Professional or Technical major	0.17	0.38	Coded 0 = *no*; 1 = *yes*
Student clubs and organizations	10.16	3.07	Scale index from 8 to 32, high value indicating participation in several clubs
Greek-letter organizations	2.78	1.46	Scale index from 2 to 8, high value indicating significant participation
Community service activities	3.49	1.77	Scale index from 2 to 8, high value indicating significant participation
Work on or off campus	1.76	1.15	Coded 1 = *not at all involved* to 4 = *very involved*
Key living-learning environments and perceptions			
Had course work requiring critical thinking	8.38	2.38	Scale index from 3 to 12, high value indicating frequent requirement
Discussed academic issues with faculty member	9.43	2.57	Scale index from 4 to 16, high value indicating frequent contact
Met socially with faculty member	5.80	2.35	Scale index from 4 to 16, high value indicating frequent contact
Discussed academic issues with peers	9.43	1.77	Scale index from 3 to 12, high value indicating frequent contact
Discussed sociocultural issues with peers	10.98	2.87	Scale index from 4 to 16, high value indicating frequent contact

Appendix continues

APPENDIX B. *continued*

Means and Standard Deviations of the Measures in the Conceptual Framework (N = 4,622)

Measure	*M*	*SD*	Description
Key living-learning environments and perceptions (continued)			
Studied in groups	2.89	0.92	Coded 1 = *Never* to 4 = *Once or more a week*
Perceived residence hall as academically supportive	13.34	2.60	Scale index from 5 to 20, high value indicating strong agreement
Perceived residence hall as socially supportive	16.91	3.16	Scale index from 6 to 24, high value indicating strong agreement
Dependent measures			
Perceptions of easy academic transition in first year	7.90	1.75	Scale index from 3 to 12, high value indicating very easy
Preference for or enjoyment of challenging academic pursuits	14.20	2.43	Scale index from 5 to 20, high value indicating strong agreement
Preference for or enjoyment of learning new or different perspectives	8.71	1.58	Scale index from 3 to 12, high value indicating strong agreement

APPENDIX C.

Demographics by Percentage of Respondents by Living-Learning Program and Control Samples

	Transition Program (*n* = 302)	Academic Curriculum-Honors Program (*n* = 346)	Academic Curriculum-Based Program (*n* = 169)	Control Sample (*n* = 1,243)	χ^2
Gender					
Male	37.9	33.7	25.1	37.2	$\chi^2 = 12.93$; *df* = 3, *p* = .005
Female	62.1	66.3	74.9	62.8	
Race or Ethnicity					
White	58.3	65.8	55.1	61.9	$\chi^2 = 24.28$; *df* = 18, *p* = .146
African American	11.1	6.5	5.0	10.0	
Latino	5.0	5.0	2.9	4.1	
Asian American	15.2	11.2	17.4	13.9	
Native American	0.3	0.5	1.4	0.4	
Race not included	10.2	11.0	10.1	9.4	
None indicated	0.0	0.0	0.0	0.3	
Educational level of Father or male guardian					
Don't know	2.7	1.8	2.5	3.1	$\chi^2 = 57.10$; *df* = 18, *p* = .000
High school or less	6.8	7.3	8.8	9.2	
Some college	8.6	7.3	12.3	11.4	
Associate's degree	1.8	2.8	3.9	3.6	
Bachelor's degree	21.9	20.7	26.0	26.6	
Master's degree	28.7	25.2	25.5	26.2	
Doctoral or Professional degree	29.6	35.0	21.1	19.8	
Educational level of Mother or female guardian					
Don't know	1.8	1.8	1.0	2.2	$\chi^2 = 52.44$; *df* = 18, *p* = .000
High school or less	7.1	8.5	10.2	12.1	
Some college	12.5	11.6	13.1	15.9	
Associate's degree	5.0	4.8	8.3	6.5	
Bachelor's degree	33.8	30.2	32.5	34.2	
Master's degree	28.8	29.1	27.7	22.7	
Doctoral or Professional degree	11.0	14.1	7.3	6.5	
Average high school grades					
A+ or A	43.7	62.0	66.5	54.5	$\chi^2 = 45.36$; *df* = 12, *p* = .000
A– or B+	49.9	33.7	31.1	38.6	
B	5.3	3.5	2.4	6.4	
B– or C+	1.2	0.8	0.0	0.5	
C or C–	0.0	0.0	0.0	0.1	
SAT score (in quartiles)					
1180 or lower	18.2	12.2	22.3	24.9	$\chi^2 = 133.50$; *df* = 9, *p* = .000
1190 to 1270	31.8	21.3	24.9	33.8	
1280 to 1350	25.5	18.9	26.4	21.7	
1360 or higher	24.5	47.6	26.4	19.7	

Appendix continues

APPENDIX C. *continued*

Demographics by Percentage of Respondents by Living-Learning Program and Control Samples

	Transition Program (*n* = 302)	Academic Curriculum-Honors Program (*n* = 346)	Based Program (*n* = 169)	Control Sample (*n* = 1,243)	χ^2
Confidence in transition to college					
Not at all confident	0.0	0.0	0.0	0.4	$\chi^2 = 15.82$; *df* = 9, *p* = .071
Somewhat confident	6.5	9.1	6.1	6.8	
Confident	51.8	59.6	61.9	58.7	
Very confident	41.7	31.3	32.0	34.2	
Importance of learning new perspectives					
Not at all important	52.9	79.7	78.9	69.7	$\chi^2 = 97.80$; *df* = 9, *p* = .000
Somewhat important	2.9	1.0	1.5	2.7	
Important	14.7	7.3	8.3	14.5	
Very important	29.4	12.0	11.3	13.1	
Academic class level					
Freshman	88.0	63.1	76.0	70.8	$\chi^2 = 69.91$; *df* = 9, *p* = .000
Sophomore	8.8	28.7	16.2	22.8	
Junior	2.1	7.5	6.9	4.9	
Senior	1.2	0.7	1.0	1.5	
Academic major					
Undecided	25.2	19.6	13.3	17.9	$\chi^2 = 192.92$; *df* = 9, *p* = .000
Science or Mathematics	22.7	16.1	62.2	34.0	
Liberal Arts	28.9	52.1	18.4	30.7	
Professional or Technical	23.3	12.2	6.1	17.4	
On-campus clubs and organizations					
Not at all involved	35.4	25.7	38.9	42.3	$\chi^2 = 40.45$; *df* = 9, *p* = .000
Somewhat involved	60.1	70.2	56.5	54.6	
Involved	3.2	3.4	3.6	2.8	
Very involved	1.3	0.8	1.0	0.3	
Greek-letter organizations					
Not at all involved	0.0	0.0	0.0	0.0	$\chi^2 = 21.75$; *df* = 6, *p* = .001
Somewhat involved	30.8	59.4	54.1	47.9	
Involved	49.7	33.3	29.7	39.2	
Very involved	19.6	7.2	16.2	12.9	
Community service activities					
Not at all involved	27.2	41.2	50.3	52.8	$\chi^2 = 90.25$; *df* = 9, *p* = .001
Somewhat involved	28.2	26.2	25.6	23.9	
Involved	34.4	22.6	19.0	17.1	
Very involved	10.0	10.0	5.1	6.2	
Work on or off campus					
Not at all involved	70.8	61.1	63.3	67.6	$\chi^2 = 18.64$; *df* = 9, *p* = .028
Somewhat involved	5.2	5.2	5.0	6.7	
Involved	10.5	17.5	15.1	11.2	
Very involved	13.5	16.2	16.6	14.5	

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