

The Impact of a Living Learning Center on Students' Academic Success and Persistence

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Beginning in the 1980s and continuing into the new century, internal and external critics of higher education have focused on the quality of undergraduate education in colleges and universities in the United States (Boyer, 1987, 1990; Astin, 1993; Wingspread Group, 1993). In a three-year span in the mid-1980's, more than 30 national reports and approximately 300 task forces called for changes to improve the quality of undergraduate education (Cross, 1993). Today, legislators, the public, and those within the academy criticize the quality of undergraduate education based on student learning, retention, and graduation rates. As a response to such criticism, many institutions have sought to regain public confidence by improving undergraduate education (Schroeder and Hurst, 1996).

Residential life departments at colleges and universities across the country have responded to this focus on undergraduate education by increasing their focus on student learning through the implementation of programs to bridge the gap between curricular and cocurricular education. These programs, generally referred to as learning communities or living learning centers (LLCs), resemble a return to the early roots of American higher education and the Oxford and Cambridge models of residential living

(Schroeder and Mable, 1994). These LLCs are designed to "promote higher levels of student involvement in out-of-class activities, greater interaction between faculty members and students, and a more supportive peer environment" (Pike, 1997, p.7). Programs vary from grouping students by cocurricular interests to highly involved residential colleges that include classes and faculty living arrangements.

The purpose of this study was to a) determine to what extent does living in one LLC, the Ingersoll Residential College (IRC), impact the academic success (measured by GPA), of first-year students enrolled in the College of Natural Science (CNS) at the University and b) determine to what extent does living in the IRC impact the persistence of first-year students enrolled in the CNS at the University. Persistence was measured by whether or not the students continued:

1. attending the University from the first year to the second,
2. majoring within the CNS from the first year to the second,
3. continuing within their same CNS major from the first year to the second, and
4. living in the residence halls at the University from the first year to the second.

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Several examinations of LLCs have identified preexisting factors that need to be considered in order to accurately identify the impact of learning communities (Pike, Schroeder, & Berry, 1997; Pike, 1997; Pascarella, Terenzini & Blimling, 1994). Based on the findings of these studies, this investigation accounted for the impact of gender, ethnicity, and previous academic achievement in order to gain an accurate determination of the IRC's impact on student academic success and persistence. The researchers used the state Commission on Higher Education index score in an attempt to quantify the previous academic achievement of students in the study. The index score, combining a student's GPA and ACT or SAT score, is used in admissions decisions by institutions of higher education in the state. At the University a student with a score of 101 or higher is assured admission. Students with a score between 95 and 101 are considered "window admits." Students with a score from 87 to 95 can be admitted to the University's probationary program but must have supporting documentation (C. Chesson, personal communication, January 5, 2000).

Context for the Study

Realizing the generally positive benefits of residence hall living in students' academic achievement and persistence (Blimling, 1989; Astin, 1973; Thompson, Samiratedu, & Rafter, 1993), many practitioners have tried to increase the positive impacts of on-campus living by creating LLCs. The current literature indicates there are positive impacts of LLCs with direct effects on student learning or indirect effects from faculty-student interaction (Pike et al., 1997; Pascarella & Terenzini, 1980; 1981). Most of the literature indicates that students

participating in LLCs have an increased involvement with faculty, peer interactions, and cognitive involvement; all factors that have been shown to directly impact student's GPA (Pascarella et al., 1994). In addition to increased involvement and satisfaction with the living environment and the education experience, students in LLCs have shown increased academic achievement (Pascarella, et al. 1994). LLCs also have been found to positively impact student persistence. Even when gender, ethnicity, previous academic performance, and other factors are taken into consideration, the research is "clear, if not unequivocal," that LLCs positively effect persistence (Pascarella et al., 1994).

Despite the inconsistencies of studies examining the impact of residence hall living on academic success, at the University, living in the residence halls consistently has been shown to positively impact students' academic achievement. Residence hall students had a higher GPA at every class level (freshmen, sophomore, junior, senior) when compared with their off-campus counterparts (University, 1999).

To further increase residential student's academic success, the CNS and the Department of Residence Life created the IRC. The IRC identifies students with similar majors, courses, and interests in the natural sciences and assigns them to several floors in one residence hall. Each year every attempt is made to insure that the Resident Assistants (RAs) for the program are CNS majors. The RAs have access to additional resources and are encouraged to develop educational programming focused on the residents' interest in natural sciences. The IRC organizes study groups and tutors to meet the specific needs of students in a variety of the CNS classes. The IRC also arranges opportunities for faculty interaction through a

“Women in Science” program, a faculty lunch series, and numerous interactions with CNS advisors and staff.

METHOD

Participants

The participants in this study were 81 first-year students in the CNS living in the residence hall designated for the IRC and 261 CNS freshmen living in other residence halls on the University campus. To be eligible for selection, the students must have: been enrolled in the CNS, been a first-year student during the 1998-1999 academic year, attempted to take credits during the fall semester of the 1998-1999 academic year, attended the University during the spring semester of 1999, and been living in the University residence halls during the spring semester of 1999.

Data Collection

The CNS Dean’s Office provided data on first-year CNS students living in the residence halls. The initial information gathered included fall 1998 GPA, index score, major within the CNS, and self-identified gender and ethnicity.

In the middle of the fall semester 1999, the Department of Residence Life and the CNS gathered information needed to determine persistence in a number of areas. The data collected included which of the students had returned to the halls for the fall 1999 semester, major, major college, and credits completed. The cumulative GPA for the 1998-1999 academic year was also collected during the fall 1999 semester.

Analysis

The data were used to determine the level of effect ethnicity, gender, index score, and

involvement in the IRC program had on student’s academic success, using a linear regression method. A logistic regression analysis was used to evaluate the impact of ethnicity, gender, index score, and involvement in the IRC program to predict the probability of persistence. An Analysis of Covariance (ANCOVA) was used to determine estimated means for significant effects on persistence. ANCOVA is “a statistical method of equating on one or more variables and for increasing the power of a statistical test; adjusts scores on a dependent variable for initial differences on some variable such as pretest performance” (Gay & Airasian, 2000, p. 621).

Results

The results of this study indicated that the IRC had a positive impact on the academic success of men, the rate of persistence for non-white students to the University, and the rate of persistence of male students to the residence halls. Results reported as statistically significant indicate analysis, which rejected the null hypothesis at the 5% level of confidence.

Academic Success

For the purposes of this study, students’ academic success was measured by GPA.

Fall Semester 1999. It was found that gender, index score, and hall by gender interaction effect significantly impacted students’ fall semester 1998 GPA. A 0.369 increase in GPA was found for female students. A 0.034 increase in GPA was found for each point of increase in students’ index score. In addition, the hall by gender interaction had a significant impact on students’ academic success. The least square means estimated a GPA for male students living in other residence halls to be 2.392 at

TABLE 1.
Estimated Grade Point Average for the 1998–1999 Academic Year
at the Average Index Score of 108

Effect	Least Square Mean GPA	Standard Error	Significance
Non-IRC Women	2.919	0.057	0.0001 ^S
IRC Women	2.903	0.113	0.0001 ^S
Non-IRC Men	2.463	0.072	0.0001 ^S
IRC Men	2.860	0.119	0.0001 ^S

^S Statistically significant.

the average index score of 108, compared to an estimated GPA for female students living in other residence halls to be 2.76 at the same average index score. The impact of gender for those students living outside of the IRC was a statistically significant increase of .368 for women at the average index score of 108. Within the IRC no statistically significant difference for GPA between the genders could be found.

Academic Year 1998-1999. It was found that gender, index score, and hall by gender interaction effect significantly impacted students' 1998-1999 academic year cumulative GPA. A 0.452 increase in GPA was found for female students. A 0.024 increase in GPA was found for each point of increase in students' index score. Just as in the fall 1998 semester GPA analysis, a significant difference in GPA was also observed in the hall by gender interaction effect. The least square means estimated a GPA for male students living in other residence halls to be 2.463 at the average index score of 108, compared to an estimated GPA for female students living in other residence halls to be 2.919 at the same average score (Table 1).

The impact of gender for those students living outside of the IRC was a statistically significant increase of .455 for women at the average index score of 108. Within the IRC both male and female students had a statistically significant increase in GPA over non-IRC men, 0.4400 increase for women and 0.3965 increase for men.

Persistence

Student persistence was measured by students continuing from the first year to the second year in four categories, attending the University, majoring within the CNS, continuing within the same CNS major, and living in the University residence halls.

Persistence to the University. The analysis of covariance ANCOVA, based on the results from the logical regression, found that the hall by ethnicity interaction effect significantly impacted students' persistence to the University. The ANCOVA found that ethnicity significantly impacted persistence at the University for students not living in the IRC. Outside of the IRC non-whites in the population have a predicted probability of persistence of 75.68%. Non-whites in the

IRC have a predicted probability of persistence of 89.47%, higher than both non-white groups in other halls and in the IRC. Similarly to the lack of an impact gender had on academic success in the IRC, within the IRC no statistically significant difference in persistence could be found between white students and non-white students (Table 2).

Persistence to the CNS and major. The ANCOVA, based on the results from the logical regression, found that there is no significant relationship between the seven factors and persistence within the CNS and within CNS major for first-year students enrolled in the CNS living the residence halls.

Persistence to the residence halls. The ANCOVA, based on the results from the logical regression, found that there is a significant relationship between hall by gender interaction effect and persistence within the residence halls for first-year students enrolled in the CNS living the residence halls. The ANCOVA found that gender significantly impacts the persistence to the residence halls of students living in the

IRC. Outside of the IRC male students have a predicted probability of persistence of 13.7%. Men in the IRC have a predicted probability of persistence of 64.1%, higher than both male and female groups in other halls and in the IRC. Forty male students participated in the IRC during the year of the study.

Conclusions and Implications

The data suggest that the IRC was a significant factor in predicting an increase in GPA for male first-year students in the College of Natural Sciences. Outside of the IRC, women in the study had a significantly higher GPA than men in the study. However, male students involved in the IRC demonstrated an increase in their GPA to a level similar with the female students. The data suggest that the program did not significantly impact female GPA but did significantly increase the average male cumulative GPA for the 1998-1999 academic year when controlling for index score. This change in GPA for men was found in analysis of both

TABLE 2.

Predicted Probability of Persistence at the University Based on Ethnicity and Hall

Population	Predicted Probability of Persistence	Standard Error of Least Square Means	Significance Pr > T H0:LSMEAN = 0
<i>Outside of the IRC</i>			
Non-Whites	75.68%	0.56628060	0.0001 ^S
Whites	88.65%	0.02276223	0.0001 ^S
<i>Within the IRC</i>			
Non-Whites	89.47%	0.07902341	0.0001 ^S
Whites	82.26%	0.04374584	0.0001 ^S

^S Statistically significant.

the fall 1998 semester and the entire 1998-1999 academic year (Table 1).

Analysis of the data indicated that outside of the IRC non-white students in the population have a predicted probability of persistence of 75.68%, 13% *lower* than white students. For those students involved in the IRC, non-white students have a predicted probability of persistence of 89.47%, 7% *higher* than the rate of persistence for white students (Table 2). In actuality, 17 of the 19 students identifying as non-white who were involved in the IRC persisted to the University.

The findings of this study indicate that the IRC was a significant factor in predicting the rate of persistence to the University residence halls. This finding is consistent with the conclusions of Pascarella et al. (1994). Men living in the IRC returned to the residence halls for their sophomore year at a predicted rate of 64.11%, an increase of 50.41% over the predicted rate of return to the halls for men living outside of the IRC. The increase in probability of persistence of men in the IRC theoretically helped the residence halls at the University retain 20.16 more male students between the spring 1999 semester and the fall semester of 1999 than if the program had not been in place.

The data collected in this study also suggests that the IRC did have a positive impact on increasing academic success and persistence by countering the significantly lower GPA for male students and rates of persistence to the University for non-white students. The data also suggest that this program dramatically increased the persistence of male students to the residence halls.

Generally, the findings from this study support the conclusion of Pascarella et al. (1994) and others that LLCs have a positive

impact on students' academic success and persistence. As advocates of LLCs seek to establish new programs, expand existing efforts, or maintain support for current initiatives this information can be valuable. Student affairs administrators understand that increasing student learning and retaining students is often what guides faculty support and budgetary decision making. Faculty time and priorities are rare and valuable commodities on campus. By being able to show evidence that LLCs can help increase the academic success of students, advocates of LLCs can make stronger case for critical faculty involvement. Based on the results of this study cost benefit analysis may be useful in convincing institutional budgetary decision-makers that LLCs are wise investment for colleges and universities.

Specifically, the results of the study indicate that the IRC benefited student groups that typically appear to be marginalized in higher education. The IRC appears to have eliminated a gender gap in academic success, by bring the GPA of male students up to the same level of female students without negatively impact the GPA of female students. Similarly, this study also indicates that the IRC eliminated a gap in persistence between white and non-white students by actually raising the level of persistence of non-white students to a level higher than the rate for white students.

Limitations

Future assessments of the impact of similar programs should take into account the impact of gender, ethnicity, previous academic success, and self-selection. While care was taken to control for the impact of gender, ethnicity, and pervious academic success, a potential limitation is that self-selection factors were not accounted for in this study.

It was determined that 47% of the students involved in the IRC requested to live in that community. The other 53% of the students were assigned to the IRC, without requesting to live there, because of their selection of a major or Open Option category in the CNS. However, it should be noted that this study was conducted during the first year of implementation of the IRC, and those students who did select to be involved with the IRC had little information regarding a new and relatively unknown program. As a result the impact of self-selection as a factor in the results of this study could be limited but cannot be eliminated.

Further Research

Despite this limitation, this study contributes to the current literature by examining the impact of a living learning environment on persistence and academic success, while accounting for the impact of gender, ethnicity, and previous academic success. The results of this study support the findings of other studies (Blimling & Hample, 1979; Pascarella & Terenzini, 1981; Golden & Smith, 1983; Schein & Bowers, 1992; Thompson et al., 1993; Pascarella et al., 1994; Pike et al., 1997; & Pike, 1997) that gender, ethnicity, and previous academic

success are significant factors that must be considered when assessing the impact of LLCs. Based on the results of this analysis and previous studies (Pascarella et al., 1994; Pike et. al, 1997; & Pike 1997), further studies should be conducted to assess the impact of the IRC and similar programs on other outcomes, potentially using an instrument such as the College Student Experience Questionnaire (CSEQ). This information could provide valuable information about *why* LLCs have demonstrated positive impacts on student's academic success and persistence in this and other studies.

Institutions of higher education are seeking to respond to the numerous criticism of undergraduate education from a variety of constituencies. As colleges and universities are being held accountable based on academic success and persistence, learning communities, such as the one at the focus of this study, seem to have great promise as one set of tools to achieve such an ambitious and complex goal.

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