First-Year Learning Communities

Impact on First to Second Year Retention
Fall 2006 Cohort

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Abstract

This evaluation analyzes the impact of participation in First-Year Learning Community (FYLC) on retention to the second-year. The evaluation compares entering freshmen in fall 2006 who participated in a FYLC to non-participants in the same cohort. Using a multiple regression model, this analysis controls for a host of characteristics – such as gender, race/ethnicity, SAT scores, high school GPA, and first-generation background – in making the comparison. Conditional on these various control variables, we find that participation in a First-Year Learning Community increases the first to second year retention by four percentage points on average.

Introduction

In fall 2006, the College of Humanities, Arts, and Social Sciences (CHASS), College of Natural and Agricultural Sciences (CNAS), and Bourns College of Engineering (BCOE) launched pilot First-Year Learning Community (FYLC) programs tailored to fit the needs of students in each of the Colleges. FYLCs are designed to intentionally create small groups of students who attend the same cluster of courses, discussion sections, and/or laboratory. By doing this, students have the opportunity to make friends, form study groups, and participate in campus activities together. Recent literature indicates that students who participate in FYLCs maintain higher GPAs, finish their degrees in shorter periods of time, and are more satisfied with their overall university experience. This evaluation explores the impact of participating in a FYLC on the probability of retention into the second year. A detailed account of the types of FYLCs in each of the Colleges follows.

College of Humanities, Arts and Social Sciences

CHASS F1RST has three FYLCs that are designed to challenge and support new students as they make the transition from high school to academic life. In *CHASS Connect* students participate in a year-long program that is coordinated through a theme. Each themed course sequence consists of 75 students who are assigned one teaching assistant (TA) throughout the year, and two peer mentors. The program provides significant interaction with program faculty, personalized academic advising, and peer mentorship. The *Gateway Lectures* incorporate the annual CHASS theme into a university breadth course that is taught in conjunction with Freshman Composition. Classmates in the lecture's small discussion groups continue as classmates in the same Composition sections. This program is offered during the fall quarter. CHASS also sponsors several *First Year Learning Communities* where freshman students in large, introductory breadth courses are intentionally clustered together in the course's discussion sections and enrolled in the same Freshman Composition section. This program is offered during the fall quarter.

Supporting First-Year Students
First-Year Learning Communities are designed to help students to successfully transition to the university, and provide academic and social support.

College of Natural and Agricultural Sciences

CNAS Freshman Scholars Learning Communities are year-long programs for first-year CNAS students. Students attend their large science and math courses together and are placed into smaller discussion sections in these same courses. During the fall quarter, students in CNAS Scholars

participate in a Freshman Advising Seminar taught by a tenure-track faculty member in the College. Upper division CNAS students facilitate workshops and study groups associated with the learning community's science and math courses. This program is coordinated by tracks, such as Physical Sciences and Life Sciences, which determine a sequence of courses to be taken throughout the first year. Each FYLC has about 25 students.

Bourns College of Engineering

Engineering First-Year Learning Communities cluster freshman students in a primary course and discussion sections together. These clusters are created based on the students' major and students are enrolled in the same course sections together (as permitted) within their major course requirement. For instance, Electrical Engineering majors may be enrolled in Chemistry 1A and Math 9A sections together, while Computer Science and Engineering majors may be enrolled in English 1A and Math 9A sections together. The experience is designed to facilitate learning and create a smaller environment within a large university setting while supporting transition to university life. Both faculty and upper division students serve as mentors. Additionally, students are encouraged to join clubs and professional organizations related to their career goals, seek undergraduate research opportunities, and apply for summer internships.

Data

Using the official census third-week course enrollment data file, FYLC participants were identified by their enrollment in specific learning community courses and discussion sections. For example, CHASS First Year Learning Community participants were enrolled either in a History 20, a Political Science 20, CHASS Connect, or the CHASS Gateway lecture course. Learning community participants enrolled in a History 20, a Political Science 20, or the Gateway course were also enrolled in either an English 1A or English 4 composition course.

CNAS Scholar participants were identified by clusters in Physical Sciences, Biological Sciences, and preparatory tracks. The tracks consisted of students enrolled either in the Chemistry 1A and Math 9A (general chemistry and first-year calculus) courses or the Chemistry 1W and Math 5 (preparatory general chemistry and precalculus) courses. Each cluster also had an associated CNAS Scholars course in which students had to enroll as part of their learning community experience.

BCOE learning community participants were enrolled in a variety of courses – such as Basic Writing 3, English 1A and 4, Chemical and Environmental Engineering 10 and 11, Chemistry 1A, Computer Science 10, Math 5, 8A, 9A-C, Mechanical Engineering 1A, and Philosophy 3 – where they were grouped together in discussion sections of two courses.

Table 1 provides the variable definitions for our analysis, and Table 2 provides basic descriptive statistics for FYLC participants and non-participants (Non-FYLC participants) among the entering freshman population in fall 2006. Apart from the fact that the proportion of women is lower among learning community participants and that participants were more likely to live on campus, there is little difference across race/ethnicity and other demographic categories for the two populations. It is interesting to note that retention rates are indeed higher for the participant population

(85% versus 82% for the non-participant population). However, this difference in means may be accounted for by various intervening variables.

Results

In this analysis, we explore the impact of participation in fall 2006 FYLCs on first-year retention rates. In particular, we take the total freshman population entering in fall 2006 (3,594 students) and compare the retention propensity of FYLC participants with that of non-participants, controlling for a host of possible intervening factors.[i] Roughly one-third (33.1%) of the 2006 freshman population was involved in a LC in fall 2006.

The results reported in Table 3, column 3, reveal that, on average, participation in a learning community is predicted to statistically significantly increase the retention probability by four percentage points. Because only one-third of the freshman population was involved in FYLCs during this period, FYLCs boosted the campus-wide retention rate for this period by a little over one percentage point. It is interesting to note that when we add controls for the cumulative GPA of students at the end of their freshman year, participation in FYLCs are still predicted to have a statistically significant impact on retention, although the quantitative impact is diminished by roughly one half. This suggests that FYLCs affect retention probabilities quite independent of the effect they have on academic performance. Perhaps FYLCs give students a network of friends and a sense of connectedness to the campus in addition to affecting their academic performance.

Further analysis reveals that the average impact of FYLCs on campus-wide retention disguises significantly different impacts across the colleges. These results are found in Table 4. The FYLCs in CNAS and BCOE were found to have had no statistically significant impact on student retention, whereas when CHASS's LCs are analyzed in isolation, their average impact on retention is six percentage points and is strongly statistically significant. [ii] Furthermore, when we explore the impact of FYLCs within racial/ethnic categories, the FYLC impact among Hispanics was quantitatively large (ten percentage points) and was statistically significant.

Conclusion

First-Year Learning Communities in their pilot year at UCR proved successful in improving freshman student retention. Results suggest that some of this was due to the impact on academic performance, but that retention was also improved by the non-academic features of learning communities – the social or "communal" aspects if you will. FYLCs were found to have very different effects across the Colleges, and exploring the reasons for such differences is an important matter for future research.

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[i] A separate analysis focusing on participants and non-participants ***in the FYLC courses only***, and exploring the impact on grades, we found that with a few notable exceptions, FYLCs had little statistically significant impact on course grades. The average within-course impact across campus was not statistically significantly different from zero. However, positive and statistically significant effects were observed for the CHASS FYLC sections in English Composition, for the BCOE FYLC sections in CHEM 1A, and for the CNAS FYLC sections in Math 5.

[ii] In order to better understand the impact of FYLCs on student behavior, and thereby possibly connect the retention and grade impacts to specific behavioral differences across the participant and non-participant populations Undergraduate Education contracted with Professors Robert Hanneman and Martin Johnson to conduct a survey of the 2006 freshmen in the spring of 2007 to explore the impact of FYLCs on student behavior. The Executive Summary of their report can be found in Appendix A.

Table 1: Variable Definitions

First Year Learning Community (FYLC)	1 if participated; 0 otherwise
Retention	1 if retained the subsequent fall term (1-year); 0 otherwise
Gender	1 if female; 0 if male
African American	1 if African American; 0 else
Native American	1 if Native American; 0 else
Hispanic	1 if Hispanic; 0 else
Asian/P.I.	1 if Asian/P.I.; 0 else
Caucasian	1 if Caucasian; 0 else
Other	1 if Other; 0 else
CHASS	1 if CHASS; 0 otherwise
CNAS	1 if CNAS; 0 otherwise
BCOE	1 if BCOE; 0 otherwise
First-Generation Status	1 if either Parent Education LE no 4-yr degree received; 0 GE 4-yr degree or higher
Low-Income Status	1 if Parental Income LE 30K; 0 otherwise
High School GPA	GPA score
SAT Verbal	SAT Verbal score
SAT Math	SAT Math score
On Campus	1 if living in residence halls or university owned apartments; 0 otherwise
Needmet	1 if student's financial need was met; 0 otherwise

Table 2: Descriptive Statistics, Mean (Std. Dev.)

	FYLC Mean (Std. Dev.)	Non - FYLC Mean (Std. Dev.)
Retention	0.85 (0.36)	0.82 (0.38)
Gender	0.48 (0.50)	0.56 (0.50)
African American	0.08 (0.28)	0.08 (0.27)
Native American	0.00 (0.03)	0.00 (0.05)
Hispanic	0.30 (0.46)	0.28 (0.45)
Asian/P.I.	0.42 (0.49)	0.41 (0.49)
Caucasian	0.15 (0.36)	0.17 (0.38)
Other	0.02 (0.15)	0.03 (0.16)
CHASS	0.43 (0.50)	0.60 (0.49)
CNAS	0.31 (0.46)	0.36 (0.48)
BCOE	0.26 (0.44)	0.04 (0.19)
First-Generation Status	0.50 (0.50)	0.50 (0.50)
Low-Income Status	0.42 (0.49)	0.43 (0.50)
High School GPA	3.40 (0.42)	3.43 (0.44)
SAT Verbal	495 (99)	499 (103)
SAT Math	540 (113)	531 (110)
On Campus	0.77 (0.42)	0.70 (0.46)
Needmet	0.67 (0.47)	0.66 (0.47)

Table 3: FYLC Retention Regression

	^ B (Std. Error)	^ B (Std. Error)	^ B (Std. Error)
FYLC Impact	0.02* (0.01)	0.03* (0.01)	0.04* (0.01)
Gender		0.05* (0.01)	0.05* (0.01)
African American		-0.01 (0.03)	-0.02 (0.03)
Native American		-0.22 (0.13)	-0.23 (0.13)
Hispanic		-0.08* (0.03)	-0.07 (0.03)
Asian/P.I.		0.03 (0.03)	0.02 (0.03)
Caucasian		0.00 (0.03)	-0.03 (0.03)
CHASS			0.05* (0.02)
CNAS			0.04 (0.02)
First-Generation Status			-0.01 (0.01)
Low-Income Status			0.01 (0.01)
High School GPA			0.11* (0.01)
SAT Verbal			0.00 (0.00)
SAT Math			0.00 (0.00)
On Campus			0.02 (0.01)
Needmet			0.05* (0.01)
Constant	0.82* (0.01)	0.80* (0.03)	0.24* (0.07)

* Indicates statistically significant at the 0.05 level (two-tailed).

Table 4: FYLC Retention Regression by College

	Mean (Std. Dev.)	$\hat{B}$ (Std. Error)
FYLC Impact	0.33 (0.47)	0.04* (0.01)
CHASS	0.26 (0.44)	0.06* (0.02)
CNAS	0.30 (0.46)	0.02 (0.02)
BCOE	0.79 (0.41)	0.02 (0.05)

* Indicates statistically significant at the 0.05 level (two-tailed).

Executive Summary
UCR Freshman Academic Experience Survey, 2006-07: First-Year Learning Communities*

Survey Participation

- Respondents are more likely to have more advanced placement units, higher high school grade point averages, have more transfer units and enrolled units, be female.
- The overall response rate to the survey was 40.5%.

Who Joins FYLCs?

- Participation in FYLCs was between 39% and 46%.
- One-third of FYLC participants were in two or more programs.
- The population of students who participate in FYLC courses and programs is not highly predictable.
- Specific majors and Colleges are more likely to participate; and students taking more units, living on campus, and having higher high school GPAs also contribute to participation in a FYLC.

Outcomes

First-Year Learning Community Participants:

- Have more contact with faculty in office hours, and are slightly more likely to have contact with TAs.
- Engage in more peer projects and had more socially diverse contacts in these groups. However, FYLC participants were less likely to be in study groups.
- Report higher levels of effort and engagement with their coursework.
- Are more aware of academic support resources, and more likely to use them.
- Are more likely to be engaged with campus activities outside class.
- Are slightly more likely to recommend UCR to a friend.

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