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Lynn Murray
Pittsburg State University, lmurray@pittstate.edu

Alexander Binder
Pittsburg State University, abinder@pittstate.edu

Gail Yarick
Pittsburg State University, gyarick@pittstate.edu

Mary K. Wachter
Pittsburg State University, mwachter@pittstate.edu

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BETTER TOGETHER: THE EFFECT OF LEARNING COMMUNITIES ON BUSINESS STUDENT RETENTION AND PERFORMANCE¹

LYNN M. MURRAY
PITTSBURG STATE UNIVERSITY

GAIL L. YARICK
PITTSBURG STATE UNIVERSITY

ALEXANDER D. BINDER
PITTSBURG STATE UNIVERSITY

MARY K. WACHTER
PITTSBURG STATE UNIVERSITY

ABSTRACT

College student performance and retention have been areas of concern for higher education for decades, and increasingly so over the last quarter century. This study explores how creating a learning community comprised of a first-year seminar and two disciplinary gateway courses across two semesters affected student performance in the gateway classes and in student retention. The study found three things of interest: 1) participation in a learning community and in a residential learning community each slightly improve the likelihood that a student will enroll in the second semester; 2) performance in Introduction to Business, a disciplinary gateway course, is highly predictive of both retention across multiple semesters and performance in challenging gateway courses in the second semester; and 3) students participating in the learning community performed better than did non-learning community students in a challenging gateway course.

Keywords: retention, gateway courses, learning community, high-impact practices

BETTER TOGETHER: THE EFFECT OF LEARNING COMMUNITIES ON BUSINESS STUDENT RETENTION AND PERFORMANCE

College student performance and retention has seen copious amounts of research for nearly one hundred years (Grocchia 2018). While student pre-matriculation factors such as ACT and high school GPA influence student performance and retention in college, (Westrick et al. 2015; Saunders-Scott, Braley, and Stennes-Spidahl 2018), what is of interest here is how colleges and universities can affect post-matriculation performance and retention. Much of the existing research about student performance and retention is focused on student engagement and involvement.

Student engagement is “the time and energy students devote to educationally sound activities inside and outside of the classroom, and the policies and practices institutions use to induce students to take part in these activities” (Kuh 2003, 25) and has been linked to multiple, overlapping outcomes including improved learning and increased retention (Trowler 2010). Learning and development emerges from a student’s involvement in the experience, both quality and quantity of engagement (Astin 1984). Efforts to increase students’ involvement and/or engagement in the academic and social aspects of the college experience will improve student outcomes (Astin 1999). Many of the studies that explore student engagement and involvement have centered on high impact practices, one of which is the learning community. The research reported here explores how learning communities may affect student performance and retention – specifically the link between a two-semester learning community consisting of a first-year seminar and two gateway courses in business are related to class performance and student retention.

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Further, we consider an extension of the learning community comprised of students living in the residence halls.

This study is organized as follows: first, the literature about high impact practices, learning communities, and gateway courses is reported and hypotheses proposed. This is followed by a description of the learning community, the residential learning community, and institution. Next, a discussion of the methodology and the analysis is followed by a discussion of the results, recommendations for the learning community, and the limitations of the study.

LITERATURE REVIEW

While thought to be multi-dimensional (Groccia 2018), much of the research about student engagement has focused on the behavioral dimension as evidenced by the National Survey of Student Engagement (NSSE). Administered by the American Association of Colleges and Universities (AAC&U) since 1999, the NSSE focuses on student behaviors and how they link to student and institutional outcomes (Johnson and Stage 2018; Kuh 2003). The cumulative body of this research led the AAC&U to identify a set of institutional practices they designate as High Impact Practices (HIPs), institutional activities they found to be consistently linked to improved student learning and other outcomes.

HIPs include first year seminars, common intellectual experiences, learning communities, writing and inquiry intensive courses, collaborative assignments, undergraduate research, study away, service learning, internships and field experiences, capstone projects, and e-portfolios (Kuh, O'Donnell, and Schneider 2017). Kuh (2008) identifies a number of reasons why HIPs prove effective in increasing student engagement: they demand that a student invest more time and effort in their completion on an almost daily basis and because the nature of the HIPs themselves require students work with peers and faculty beyond a superficial level.

Participation in one or more of the original ten High Impact Practices (HIPs) were found to be linked to improved student outcomes, particularly in underserved populations—first in family to college, less-prepared for academic challenge, historically underrepresented racial or ethnic minorities (Kuh and O'Donnell 2013). Engagement in HIPs can increase the likelihood for students to become truly involved in deep and transformative learning (Wawrzynski and Baldwin 2014). HIPs were also found to improve the odds of either working or attending graduate school after graduation. Further, these effects differed by HIP. For example, those students participating in leadership activities were more likely to attend graduate school (Miller, Rocconi, and Dumford 2018).

The HIP of interest here is the learning community. Learning communities (LCs) are programs that “enroll cohorts of students in purposefully linked courses designed to promote connections between and across disciplines and beyond the classroom” (Schmidt and Graziano 2016, xvi). We discuss them next.

LEARNING COMMUNITIES

LCs take many forms, but they commonly consist of student cohorts enrolled in two or more classes, often with a common theme (Finley and Kuh 2016). They aim to provide the experience of small classes in which students develop relationships with peers and faculty, increase student engagement, improve student grades, and increase retention to completion. LCs have gained traction in more than 800 colleges and universities across the US.

There is a rich stream of research into the efficacy of learning communities, particularly their effect on student performance and retention. Zhao and Kuh (2004) used NSSE data from more than 80,000 students to explore the effect of LCs. They found that both first year students and senior students who participated in a LC expended more effort in their academic endeavors, saw greater academic integration, and engaged in more active and collaborative learning activities. They interacted more often with faculty, engaged more often in diversity related activities, and took more classes that emphasized higher order thinking skills. They were more positive about the quality of academic advising, the academic and social support provided by their institution, and were overall more satisfied.

Dunlap and Pettitt (2008) reviewed twenty years of data and concluded that participation in LCs see significant positive effects. LCs have been shown to shift Caucasian students' personal biases and stereotypes (Dunn and Dean 2013), increase faculty interaction (Garrett and Zabriskie 2004), and improve student retention across ethnicities and high school GPAs (Huerta and Bray 2013).

Hill and Woodward (2013) found that participation in any learning community improved student retention at an urban campus while Kilgo, Sheets and Pascarella (2015) found academic learning communities were positively linked to a positive attitude toward literacy and intercultural effectiveness. Another study found that developmental students enrolled in a classroom learning community embedded into developmental classes earned better grades than did their peers (Baier, Gonzales, and Sawilowsky 2019).

Tinto theorized that students leave an institution due to an interaction between their individual characteristics and institutional characteristics such as academic and social structures (1993). In other words, students leave because they don't feel at home. Learning communities seem to ameliorate this. In one study students experienced increased social and academic support from their peers, they continued to be more actively engaged in their learning, and they learned more after the LC concluded (Tinto 2006).

One extension of the learning community literature is the concept of a residential learning community (RLC) in which learners live together. Cambridge-Williams et al. (2013) compared three groups at George Mason University. They began by separating first year students into two groups: those who participated in a voluntary FYS and those who didn't. They then segmented the FYS group into those who also participated in a living community. While they found that students participating in the FYS saw improved retention and more usage of academic support services than those not participating in the FYS, they discovered that students participating in the living community saw even greater improvement in retention, had higher quality of education perceptions, and would be more likely to choose GMU again.

Wawrzynski and Jessup-Anger (2010) found that honors students in living communities and those not in learning communities have similar expectations about their college experience, but they experience college differently. They found that students in RLCs interacted with their peers about academics more often and that they had a more positive view of the residence hall environment as a contributor to their educational experience (M.R. Wawrzynski and Jessup-Anger 2010).

In a small pilot study, Hall and O'Neal (2016) found that participating in a living learning community improved student engagement, academic performance, and engagement among

students at high risk of dropping out. Interestingly, one of the inducements for students was a \$1500 annual, renewal stipend for students.

This study is interested in the effect of a discipline-based learning community and residential learning community on students' classroom performance and their retention. The following hypotheses are proposed:

H1: Participation in a two-semester disciplinary learning community will improve student performance as measured by course performance.

H2: Participation in a two-semester disciplinary residential learning community will improve student performance as measured by course performance beyond that of the learning community alone.

H3: Participation in a two-semester disciplinary learning community will improve student retention.

H4: Participation in a two-semester disciplinary residential learning community will improve student retention beyond that of the learning community alone.

In the next section, the components of a learning community are addressed.

COMPONENTS OF A LEARNING COMMUNITY

First year student learning communities are typically arranged around existing courses that see large enrollments of first year students. Frequently a first-year seminar (FYS), another HIP (Schmidt and Graziano 2016), is one of these courses. The other is often a composition, humanities, or other general education course.

First year seminars (FYS) exist in some form or other on 95% of US campuses. They emerged to counter the trend of introductory courses with large enrollments of first year students. They are programs designed to help students transition to college, both academically and socially, with the aim to socialize students into the life of the institution by explicitly providing them with necessary information with a goal to increase retention. (Schmidt and Graziano 2016). FYS programs have been shown to improve participants' GPAs (Jamelske 2009) and ease the transition for international students (Yan and Sendall 2016). Others have found that FYSs promote strong engagement and study skills in participants (Wismath and Newberry 2019).

Stacking HIPS can be highly beneficial to students. Finley and Kuh (2016) found that students who have participated in multiple HIPS experience better learning outcomes and participate in deep learning activities more frequently—especially those who participated in five or six HIPs. This was a universal finding for all student segments: transfer, first-generation, under-represented, minority, and traditionally-advantaged students. Further, Latino students who participated in five or six HIPs actually graduate at a higher rate than their white peers (Kuh and O'Donnell 2013).

The research reported here incorporates the FYS in the learning community but instead of a composition, humanities or other general education course, we explore two business gateway courses across two semesters. Next, we discuss gateway courses.

GATEWAY COURSES

Gateway courses, also called killer classes, are receiving increased scrutiny. Koch (2017) defined gateway courses as foundational courses with large enrollments within and/or across sections. They are high risk because they have high failure rates. Succeeding or failing in these courses can have impacts that last far beyond the course itself. A failing grade can easily convince a student that they've chosen the wrong major or even that they aren't college material. Passing that first course in the major or a subsequent challenging course can provide a student with the skills necessary for success, the confidence that they are in the right major, and that they made the right decision to attend college.

Flanders (2017) identifies gateway courses as the 100-level foundational course in the major. He looked at gateway courses in multiple majors, from biosciences to software engineering to liberal studies, and the effect of performance in the gateway course on GPA and enrollment. He found that students who successfully completed the gateway course were more likely to enroll the following semester than students who didn't enroll in a gateway course or who enrolled but didn't successfully complete the gateway course. He reasons that students who have declared a major and completed the gateway course successfully have reaffirmed their choice of a major and their decision to attend college.

The purpose in this research is to evaluate the effect that a two-semester learning community that combines two gateway courses and first year seminar has on retention and student performance. We also explore whether incorporating a living aspect to the learning community affects retention and performance. In the next section, we discuss the design and implementation of the LC and RLC.

LEARNING COMMUNITY DESIGN

This study occurred on a mid-size state university in the Great Plains region of the United States. The College of Business is the smallest of four colleges with an undergraduate enrollment consistently around 850-950 students. Offering seven undergraduate majors, the College confers a Bachelor of Business Administration degree that requires seventeen common courses of all business majors. The learning community described here runs across two semesters. All new business majors who had graduated high school within the prior two years who had not attended another institution were placed in the learning community. A total of 107 students were in the learning community, including fifty who lived on campus.

To create the residential learning community, University Housing agreed to place all business majors together on one floor. Of the 107 students in the learning community, fifty lived on campus next to each other in the residence halls. The existing literature indicates that these students would have the opportunity to develop stronger personal relationships and help each other succeed academically. This subgroup is designated as the Residential Learning Community (RLC).

No financial incentives were provided to students for their participation in either the LC or the RLC. All students in both the LC and the RLC would be considered traditional students—they each graduated high school within the prior two years.

Instead of focusing attention on other HIPs, the formation of a learning community was chosen for multiple reasons. First, curriculum changes made this student cohort the first to be required to complete Introduction to Business as part of their major. This provided an opportunity to collectively acculturate majors in their first year as business students. Second, the college's

administrators wanted to see high quality interaction between faculty and business majors occur earlier and more often, and they saw the LC as an effective and efficient way to do this as the compensation for the FYS instructors was already funded through the University's first year programs office.

Next, we discuss the structure of each of the two semesters.

SEMESTER ONE

The courses for the first semester LC and the RLC were the institution's long-standing FYS course and the Introduction to Business course, newly required of all business majors. Each is discussed more fully.

First Year Seminar

All new, recent high school graduates are required to be enrolled in a long-standing first year seminar at this institution. The FYS is taught by faculty and professional staff who are paid a \$2000 stipend to teach this highly scripted, two credit hour course. For the purpose of the business learning community, three tenure/tenure track faculty from different disciplines (accounting, economics, and marketing) were recruited to teach (one had significant experience in teaching the FYS). The three sections were offered at the same time on the same day to allow for common activities to occur across sections. For example, during advising and enrollment, the director of academic advising for the college was brought in to provide information specific to the College of Business requirements. Students were placed in the sections according to their majors in order to develop relationships with others in their majors sooner. Course enrollment for each section was thirty-five to forty students.

Introduction to Business

The FYS was paired with a specialized section of Introduction to Business, a newly required course for all business majors. The instructor for this in-load course was recruited for two primary reasons. First, the instructor is experienced and consistently sees high teaching evaluations from current and past students. Second, she is the sole instructor for a subsequent required course, Business Statistics.

Although the Introduction to Business course does not meet Koch's criterium as having a high failure rate, it does meet Flanders' definition of being the foundational course for business majors. The course was also chosen as part of the LC because it is an option for all University students as a General Education option. Therefore, if a student changed majors, their graduation date would not be affected. Perhaps more importantly, this course was chosen as part of the LC to provide students with an early win, offer early confirmation or disconfirmation of their choice of major, bolster their self-confidence, and reaffirm their identities as College of Business and university students.

SEMESTER TWO

In the second semester, students were pre-enrolled in one of two courses traditionally challenging for students: Financial Accounting or Principles of Macroeconomics. Both are required for any business major and both would satisfy general education requirements should a student change their major. Both courses meet Koch's definition as a gateway course. In addition, the sophomore status requirement for Principles of Macroeconomics was waived for the students

pre-enrolled in the special section. Instructors for both of these special sections served as FYS instructors in the fall.

EMPIRICAL ANALYSIS

Previous studies have primarily examined the effect of residential learning communities on retention and academic performance through t-tests comparing the LC cohort's retention rates or overall course scores to a control group's (Buch and Spaulding 2011; Cambridge-Williams et al. 2013; Dagley et al. 2016). This study adopts that same strategy, but attempts to go further by also using regression analysis to control for other factors such as the student's ability, commitment, or experience that affect their retention and performance. The requisite information to perform the regression analysis was limited to the LC cohort, which limited the regression analysis to estimating the effect of living on campus in the LC. Stated alternatively, the regression analysis should indicate if living in the LC has an effect on retention or academic performance compared to those students who did not live on campus but were still members of the LC. Two-tailed, unpaired t-tests and z-tests were then employed to compare the LC's retention and academic performance to two different control groups outside of the LC—one being the cohort's non-LC freshman class and the other being the previous year's business major freshman class.

To examine the effect of the RLC on academic performance, we first estimated students' overall score in Introduction to Business according to the following specification:

$$\text{IntroBusinessScore} = \alpha + \beta_1 \text{Male} + \beta_2 \text{ACT} + \beta_3 \text{TransferCredits} + \beta_4 \text{RLC} \quad (1)$$

where *Male* is 1 if male and 0 if female, *ACT* is the student's highest ACT score, *TransferCredits* is the number of credit hours the student completed prior to enrolling at the university, and *RLC* is 1 if living in the dorms with the cohort and 0 if not. The hypothesis is that students living together in community will perform better than students not in the community controlling for other factors that affect performance. *ACT* is included to control for academic aptitude, *TransferCredits* is included to control for experience in college-level courses, and *Male* is included to control for potential gender effects owing to different learning styles, commitments to college, or subject segregation (business students are disproportionately male) among other possibilities.

We then estimated the LC's performance in the follow-up courses of Principles of Macroeconomics and Financial Accounting according to the following specification:

$$\begin{aligned} \text{MacroeconomicsScore} = & \alpha + \beta_1 \text{Male} + \beta_2 \text{ACT} + \beta_3 \text{TransferCredits} + \beta_4 \text{RLC} \\ & + \beta_5 \text{IntroBusinessScore} \end{aligned} \quad (2)$$

$$\begin{aligned} \text{AccountingScore} = & \alpha + \beta_1 \text{Male} + \beta_2 \text{ACT} + \beta_3 \text{TransferCredits} + \beta_4 \text{RLC} \\ & + \beta_5 \text{IntroBusinessScore} \end{aligned} \quad (3)$$

where *MacroeconomicsScore* and *AccountingScore* is the overall score in the respective follow-up course, *IntroBusinessScore* is the student's overall score in Introduction to Business, and all others are the same as above. The model takes the same form and rationale as equation (1) with *IntroBusinessScore* included to control for less tangible student-specific variables such as effort or level of commitment to college or even the effect that early success can have on follow-up courses by affirming the student's decision to attend college (and therefore cause them to commit more

deeply) or the boost to confidence that motivates the student to further success. Descriptive statistics for the variables employed are shown in Table 1.

Table 1
Descriptive Statistics.

Variable	Minimum	Maximum	Mean	SD
IntroBusinessScore	48.0	99.7	84.03	10.314
FinancialAccountingScore	15.9	101.8	80.20	17.364
MacroeconomicsScore	54.0	102.1	84.44	9.861
Male	0.0	1.0	0.66	0.476
ACT	16.0	29.0	21.60	3.084
TransferCredits	0.0	38.0	6.61	9.964
RLC	0.0	1.0	0.46	0.501
Retained Second Semester	0.0	1.0	0.93	0.248
Retained Third Semester	0.0	1.0	0.76	0.431
Retained Fourth Semester	0.0	1.0	0.68	0.468
Retained Fifth Semester	0.0	1.0	0.62	0.488
Retained Sixth Semester	0.0	1.0	0.61	0.491

Notes: $n=107$; Standard Deviation reported in columns labeled SD.

Each of the above functions were estimated using ordinary least squares regression analysis. The independent variables for each equation were also tested for and cleared of multicollinearity. Results for each equation are displayed in Table 2.

Table 2
OLS Regression results for IntroBusinessScore, MacroeconomicsScore, and AccountingScore.

	Intro to Business		Macroeconomics		Financial Accounting	
	B	SE	B	SE	B	SE
Constant	78.067***	7.296	-17.937	12.894	-	19.053
Male	-5.613***	2.013	3.097	1.897	77.247***	4.522
ACT	0.417	0.337	0.828**	0.315	0.757	0.636

TransferCredits	0.246**	0.100	0.111	0.090	-0.308*	0.169
RLC	-1.787	1.924	1.099	1.821	4.794	3.435
IntroBusinessScore			0.922***	0.134	1.573***	0.192
Adj. R-squared	0.153		0.559		0.674	
F Statistic	5.215***		15.180***		15.916***	

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; $n=107$.

Students who performed better in the Introduction to Business course also performed significantly better in the follow-up courses even after controlling for aptitude and experience with the student's ACT and transfer credits, respectively. This suggests the student's effort or commitment are major factors affecting their success in the classroom. Interestingly, males performed significantly worse in Introduction to Business, but significantly better in Financial Accounting. However, the primary variable of interest, *RLC*, had no significant impact on student performance in each of the three courses. Each of the models were significant in explaining the dependent variable as indicated by the F-statistics, but the adjusted R-squared value for the first model, 0.153, was very low. The large increase in the adjusted R-squared values for models (2) and (3) suggests further that performance in Intro to Business is highly correlated with the performance in the follow-up business course.

We then estimated the cohort's retention to each of the subsequent semesters through the fall of 2020 according to the following specification:

$$\text{Retained} = \alpha + \beta_1 \text{Male} + \beta_2 \text{ACT} + \beta_3 \text{TransferCredits} + \beta_4 \text{RLC} + \beta_5 \text{IntroBusinessScore} \quad (3)$$

where *Retained* is a binary variable equaling 1 if the student enrolled in that semester and 0 if the student did not enroll and all others are the same form as above. The rationale is that the factors affecting retention are the same as those affecting performance. This function was estimated using logistic regression analysis. Results are displayed in Table 3.

Table 3

Logistic Regression results for Retention.

Variable	Semester Retained				
	Second	Third	Fourth	Fifth	Sixth
Constant	-9.717 (7.342)	- 10.697*** (3.562)	-10.53*** (3.401)	- 7.489*** (2.877)	-7.52*** (2.868)
Male	2.918 (1.897)	0.602 (0.618)	0.266 (0.576)	0.187 (0.512)	0.075 (0.506)

ACT	-0.207 (0.227)	0.079 (0.101)	0.011 (0.092)	0.061 (0.083)	0.026 (0.082)
TransferCredits	9.179 (634.458)	-0.017 (0.031)	0.002 (0.029)	0.023 (0.027)	0.017 (0.026)
RLC	2.846* (1.727)	0.64 (0.566)	0.748 (0.537)	0.289 (0.47)	0.295 (0.469)
IntroBusinessScore	0.181*** (0.077)	0.118*** (0.033)	0.128*** (0.034)	0.075*** (0.027)	0.085*** (0.028)
Pseudo R-squared	0.511	0.276	0.322	0.198	0.206
Likelihood ratio Chi-square	17.925***	18.729***	24.139***	14.727**	15.509***

Notes: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. M=107

The significance of the model's likelihood ratio chi square statistic indicates the independent variables provide some explanatory power. Interpretation of pseudo R-squared values is not as straightforward as standard R-squared values, but the Nagelkerke pseudo R-squared values—which are designed to most closely imitate the range of the standard R-squared values—provided in the table indicate the model explains retention to the second semester better than retention to subsequent semesters. Students who lived on campus did show higher retention to the second semester than those who did not, though the significance was only at the 90% threshold, and the effect did not linger into subsequent semesters. The only other significant variable correlated with retention was the student's overall score in the Introduction to Business course, which was predictive of retention throughout. This result suggests that a student's commitment and effort in the first semester as evident by their score in a relatively easy introductory course is a major factor in their retention.

Because the cohort alone offers limited information to estimate the effects of the RLC on retention and performance, and because information about the non-LC students was unavailable, we employed two-tailed, unpaired t-tests and z-tests to compare the LC's retention and performance against those not in the LC. Retention is here defined as the student completing at least one course credit hour in the selected semester following their first. Retention rates—the proportion of students retained to the second, third, fourth, and fifth semesters—of the LC were compared against the same retention rates of the 2018 non-LC freshman cohort and the previous year's business freshman cohort. The former comparison indicates if the LC significantly impacts retention compared to the University's overall retention rate of first-semester freshmen and the latter indicates if the LC significantly impacts retention of business students compared to a previously ungrouped cohort. The two comparison groups were chosen to account for differences across time and programs. The null hypothesis for each comparison is that the two groups have the same retention rate or level of performance, or stated alternatively, that the LC has no effect

on retention or performance. Z-tests were used for retention rates, which are proportions, and t-tests were used for performance measured by mean overall score in the respective course. Results for the retention rate z-tests are displayed in Table 4 and Table 5.

Table 4

Retention Rates to the University: 2018 Business LC vs Non-LC, Non-Business Students.

	2018 Learning Community		2018 Non-LC, Non-Business First-year Students		p-value
	Mean	SD	Mean	SD	
Retention to 2nd semester	0.935	(0.248)	0.872	(0.334)	0.060*
Retention to 3rd semester	0.757	(0.431)	0.738	(0.440)	0.667
Retention to 4th semester	0.682	(0.468)	0.700	(0.459)	0.701
Retention to 5th semester	0.617	(0.488)	0.620	(0.486)	0.952
N	107		969		

Notes: Standard Deviation reported in columns labeled SD.

Table 5

Retention Rates to the University: 2018 Business LC vs 2017 Business Students.

	2018 Learning Community		2017 Business First-year Students		p-value
	Mean	SD	Mean	SD	
Retention to 2nd semester	0.935	(0.248)	0.920	(0.272)	0.660
Retention to 3rd semester	0.757	(0.431)	0.824	(0.382)	0.208
Retention to 4th semester	0.682	(0.468)	0.736	(0.443)	0.368
Retention to 5th semester	0.617	(0.488)	0.672	(0.471)	0.384
N	107		125		

Notes: Standard Deviation reported in columns labeled SD.

Retention to the second semester for the LC was significantly higher than their non-LC 2018 freshman counterparts, but it was the lone retention of significance, falling just short of the 95% threshold. All other retention rates looked no different than their comparison groups and therefore the null hypothesis failed to be rejected. Retention rates for each cohort saw the largest

drop from the 2nd to the 3rd semester, or from year 1 to year 2. The 2018 freshmen cohort experienced the COVID-19 pandemic, which began in the middle of their fourth semester, during the period under investigation. Though their retention rates are lower than the 2017 freshmen cohort, this difference is not statistically significant. Overall these results suggest that the LC had an initial impact on student retention that quickly phased out.

Results for z-tests for retention in the College of Business—students who retained a business major—are displayed in Table 6. Fewer LC students remained in the College of Business through the third semester compared to the previous year, but more of them remained in the College of Business through the fifth semester. Neither difference was statistically significant.

Table 6

Retention Rates to the College of Business: 2018 vs 2017.

	2018 Community Mean	Learning SD	2017 First-year Mean	Business Students SD	p-value
Retention to 3rd semester	0.617	0.488	0.712	0.455	0.126
Retention to 5th semester	0.551	0.500	0.536	0.501	0.818
N	107		125		

Notes: Standard Deviation reported in columns labeled SD.

Academic performance was measured using the students' overall score achievement in the sophomore-level follow-up courses, Financial Accounting and Principles of Macroeconomics, in which the LC cohort was intentionally enrolled in their second semester. The comparison group consisted of students enrolled in the same courses and taught by the same instructors during the testing period of 2018-2020, but who were not in the LC. To control for potential differences due to course delivery, each section of the two respective courses consisted of the same content and assignments and were taught in the traditional face-to-face format. The instructors attempted to deliver each section in the same manner so as not to bias the results. Academic performance t-test results can be seen in Table 7.

Table 7

Overall Scores.

	2018 Community Students Mean	Learning SD	Non-LC, Business Students Mean	Non- SD	p-value
Financial Accounting	79.681	17.510	79.726	15.958	0.988
N	41		144		

Principles Macroeconomics	of	83.683	10.949	79.342	16.037	0.051
N		55		242		

Notes: Standard Deviation reported in columns labeled SD.

Students in the LC performed no different than their counterparts in Financial Accounting, but scored significantly higher in Principles of Macroeconomics, though the significance was just short of the 95% threshold. It is unclear why there would be an effect in one course, but not the other.

SUMMARY OF RESULTS

This research evaluated the effects of a business-focused learning community (LC) and residential learning community (RLC) on first year student performance and retention. Following existing literature, it was thought that students participating in the LC would see better performance in the form of a better grade in a gateway course (H1) and greater retention (H3). Further, we hypothesized that students participating in the RLC would see even better performance (H2) and greater retention (H4).

Results provided partial support for H1. Students participating in the LC and enrolled in a restricted section of Principles of Macroeconomics earned higher grades than did students not enrolled in the restricted section. There were no effects on GPA or on the course grade for those LC students enrolled in a restricted Financial Accounting course.

Similarly, H3 was partially supported. LC students enrolled in their second semester at a greater rate than did non-LC students. This effect faded through subsequent semesters, however.

No support was found for H2. Students participating in the RLC did not see added performance benefits beyond their participation in the LC. However, students in the RLC persisted through to the second semester at a greater rate than did students in the LC alone. Thus, H4 is partially supported.

Successful RLCs require some levels of staffing and programming in order for students in RLCs to flourish. In this case, no staff or programming was provided. Students were simply placed together on the same floor in the residence hall. To provide necessary support, the institution would need to reallocate resources from other critical programs. Therefore, no RLCs are planned for the future as the institution chooses to devote resources to other critical needs.

RECOMMENDATIONS AND FUTURE DIRECTIONS

This study evaluated the effectiveness of a two-semester, discipline-based learning community in improving student performance in gateway classes and in student retention. The data indicate three things of interest: 1) participation in the LC and the RLC slightly improve the likelihood that a student will enroll in the second semester; 2) performance in Introduction to Business is highly predictive of both retention across multiple semesters and performance in challenging gateway courses in the second semester; and 3) students participating in the LC performed better than did non-LC students in a challenging gateway course. In this section, we discuss each of these and the implications for the LC and further research.

While participating in the RLC and LC seem to increase the likelihood that students will continue through the second semester, that effect is transitory and disappears in the third and subsequent semesters. Student retention is highly complex. Reynolds et al. (2019) caution that what may work on one campus may not work on another. Johnson and Stage (2018) found little relationship between graduation rates and HIPs. Pike, Kuh, and McCormick (2011) found lagged effects, i.e. it takes time for the effects to become evident. They further suggest that the effects of a learning community are contingent on institution characteristics and student characteristics. For example, they found that although both first year students and seniors participating in learning communities benefited, seniors saw greater benefit. Perhaps more importantly, they found that effects of a learning community were indirect through student engagement; the direct effects of student engagement were not tested here, nor was the data gathered. This may be an area for future exploration.

This effect occurs when students were pre-enrolled in a second course. Taking a page from behavioral economics, pre-enrollment may be the nudge students need to make the decision to continue. Just as behavioral economists recommend creating financial savings such as 401k plans as opt-out rather than opt-in, pre-enrolling students changes the inertia. Rather than having to act to enroll for the upcoming semester, students act to unenroll from the coming semester. While withdrawing from a pre-enrolled course is extremely simple to do, making the decision to do so may not be. This is an interesting question for future exploration. Does extending the learning community and pre-enrolling students to a third semester improve retention? This question will be explored in the next iteration of the LC.

The effect of the easy-win gateway course, Introduction to Business, is persistent, strong, and wide-ranging. Performance in this course is also linked to greater retention across all semesters of interest. This aligns with Flanders' (2017) findings that successfully completing a gateway course within the major improves retention across disciplines. Including this course in the LC provides students opportunities to connect with each other, with their faculty, and with the discipline in a relatively easy, non-threatening environment. This can build trust and commitment and seems to provide a strong foundation for the students' more challenging gateway classes in the second term, Financial Accounting and Principles of Economics.

Further explanation of this effect is warranted. For example, comparing performance in a challenging gateway course in another major would allow for exploring whether an easy win is more beneficial for students. Another area to address is whether this effect on later courses continues and how long. And, exploring how students react to and use the learning community should be addressed.

Finally, participating in the LC through the second semester can improve performance as evidenced by the performance of students in a Principles of Macroeconomics course. These students performed better at a younger age than did students not in the LC taking the course. Providing opportunities and activities that leverage the LC—not done in either course— may improve performance in this course further, and we may see that students in the LC Financial Accounting course improve in their performance as well.

LIMITATIONS

A critical limitation that can be addressed by future research is how the learning community affects students' self-confidence, identity, and skills, and how the LC affects student engagement during

and after participation in the LC. Other questions about trust between students and between student-faculty can be addressed as well. Do business student have stronger relationships with their disciplinary peers than do non-business majors? Do they identify as a business major more?

This study looked at the link between participation in a learning community (and a residential learning community) and student performance and retention on a single campus—a limitation of the generalizability of this study. The fact that this research focuses on a single disciplinary based learning community may also limit its generalizability.

CONCLUSIONS

The data presented here result from the first year of the learning community. Three points of interest emerged. First, participants in the two-semester business learning community persisted through the second semester more than did previous business students, and students in the RLC portion persisted at an even greater rate for the first term. Second, success in the LC's Introduction to Business class is highly beneficial for students' subsequent performance in challenging courses and for their retention. Third, the LC can improve outcomes in challenging gateway courses.

The results of this study will be used to strengthen the learning community and improve outcomes for students with the goal of seeing improved student performance and seeing more students graduate on time. This is a critical task in this era of increased political pressure and increasing competition for a declining student pool of recent high school graduates.

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