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# Improving Academic Success for Undecided Students: A First-Year Seminar/Learning Community Approach

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# Improving Academic Success for Undecided Students: A First-Year Seminar/Learning Community Approach

**Abstract**
Undecided undergraduate students are often considered to be "at risk" for lower academic performance and lower retention rates than students with declared majors. First-year seminars and learning communities are two interventions the retention literature suggests can enhance the success of at-risk students. This paper summarizes the development, implementation, and preliminary assessment of an intervention directed toward undecided first-time-in-college (FTIC) students at University of North Texas. The intervention consists of enrollment in a first-year seminar or in a first-year seminar which is part of a learning community. The paper has three sections. The first section briefly summarizes the literature on undecided students, first-year seminars, and learning communities. The second section outlines the intervention including development of the seminar and the course pairings. The paper concludes with a summary of the success outcomes—GPA, percentage in good academic standing, and retention to the subsequent academic semester—for the students involved in the two interventions and a comparison group of undecided students. Preliminary data suggest better outcomes for students participating in the interventions than in the control group, but the study raises important questions about further research. The third section also includes recommendations for research and practice.

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**Keywords**
undecided students, first-year seminars, learning communities

## Introduction

Colleges and universities across the US have sharpened their focus on the retention rates of their first-time-in-college (FTIC) students. Whether motivated by shrinking state support, fixation on college rankings, or the realization that keeping students enrolled is more cost-effective than recruiting new students, American higher education institutions are devoting increasing resources to retention issues (Levitz, Noel, & Richter, 1999).

Retention rates, typically described as the percentage of the entering fall cohort that re-enrolls for the subsequent fall semester, among FTICs have remained relatively stable through time (Hossler, Ziskin, & Gross, 2009). With approximately 24% of the entering class at PhD-granting public institutions departing after their first year, there would appear to be ample room for improvement (Levitz, Noel, & Richter, 1999).

This study examines the outcomes associated with a pair of interventions targeted toward FTICs entering the university without a declared major. These "undecided students," the literature suggests, may be considered "at risk" in that they experience lower levels of academic success (Beal & Noel, 1980; Anderson, 1985). The interventions include participation in either a stand-alone first year seminar or a learning community that includes a first-year seminar. The outcomes analysis includes a third group of undecided FTICs enrolled in a traditional first semester course schedule.

## Undecided Students, First-Year Seminars, and Learning Communities

The following section includes a brief review of the literature examining the academic success of undecided students, institutional deployment of first-year seminars, and the development of learning communities. It also includes information on outcome measures associated with learning community success. This review provides a frame for the current study and is thus not exhaustive.

### Undecided students

Undecided college students have been the focus of study since at least the late 1920s (Crites, 1969, as cited in Gordon, 1981). In the intervening years, two contrasting threads of discourse have emerged in the literature. An earlier view, typified by the work of Beal and Noel (1980), suggests that students arriving at college with uncertain academic goals are at greater risk for attrition than students with more defined academic outcomes in mind, expressed by having a declared major. Similarly, Anderson (1985) argues that lack of certainty about a career can be a factor that limits a student's academic progress.

Later scholarship points out that entering without a declared major and future academic success as measured by retention and degree completion are not necessarily related (e.g. Graunke, Woosley, & Helms, 2006). Cuseo (2005) stresses that the point of view which holds that undecided students are at risk is "not well supported by empirical evidence" (p. 27). Buyarski (2009) explicitly points out that "caution must be exercised when making connections between major and career indecision and persistence" (p. 218). Speight's (2011) review of the literature leads him to the conclusion that there is the "possibility that decided students are at least at a comparable level of risk of attrition as undecided students" (p.2).

Despite the apparent disagreement in the literature, the current study focuses on an undecided population of FTIC students for two reasons. First, the campus observed lower rates of academic success—fall-to-fall retention, percent in good academic standing, and GPA—among its undecided FTICs. (Students at University of North Texas (UNT) may declare majors upon entry and are admitted directly into colleges and schools; undecided students are assigned to a separate advising unit.) Second, the academic unit with responsibility for coordinating campus wide academic success interventions is also the newly-established academic home for undecided students.

**First-year seminars**

The first-year seminar (FYS) is a common institutional approach to creating and sustaining support systems for entering students. Tobolowsky and Associates (2008), in a national survey of two and four-year higher education institutions, found that over 84% of the respondents (n=968) offered a first-year seminar. While there are various incarnations of the FYS, Hunter and Linder's (2005) review of national surveys indicates that most FYS courses are either extended orientation courses or some type of topical academic seminar.

Often described as a "movement" (Mamrick, 2005), the FYS approach advances the notion that sustained contact with FTICs focused around the concepts of transition and retention in a classroom format can have salutary effects on student academic success (Hunter & Linder, 2005). A number of studies have examined the outcomes associated with student participation in an FYS. While the literature is far from unanimous (Jamelske, 2008) a number of studies show a positive relationship between participation in an FYS course and academic success. Three studies show the range of results.

Williford, Chapman, and Kahrig (2001) examined a decade of outcomes associated with a seminar specifically targeted to undecided students. Results of an analysis of the two-hour course offered in the first term of the students' enrollment showed higher GPAs and retention rates, as well as higher graduation

rates among these undecided students completing the course when compared to other FTIC students. The study controlled for academic preparation by grouping and comparing students by ACT score.

Clark and Cundiff (2011) showed a partially similar result in their study of a three-hour extended orientation course. The analysis, controlling for self-selection bias using propensity score analysis, compared the academic success outcomes of a cohort of students completing the FYS with the outcomes for similar students who had not enrolled in the course. Their results indicated a positive relationship between completing the FYS and retention, but no statistically significant relationship to GPA.

In an ambitious study covering a range of student outcomes, Barton and Donahue (2009) examined the effects of an FYS course compared to less intensive success-oriented first year interventions. The student success analysis focused on GPA and retention. The results showed no association between completion of the FYS and retention to the second year, but a significantly positive GPA effect compared to the less-intensive interventions. In contrast to the two previously noted studies, this analysis did not attempt to account for self-selection into the various interventions.

Goodman and Pascarella (2006) suggest that the rigorous assessment of first-year seminars is still a work in progress. They call for more thoughtfully designed studies with explicitly defined academic outcomes. The studies cited above demonstrate the variability of the measured effects of a FYS approach even deploying the methods Goodman and Pascarella suggest.

## Learning Communities

In words echoing the description of efforts to introduce first-year seminars into American higher education, MacGregor and Smith (2005) assert that "Learning communities have arrived as a national movement" (p. 2). In a supporting vein, Laufgraben (2005) cites evidence of learning communities (LCs) at over three-fourths of research institutions responding to a national survey from 2001. Pike (2008) cites several later studies to support his argument that LCs "are so common that they may soon be the norm on college campuses" (p. 30).

Tinto (1999) defines the basic approach to LCs as a course enrollment strategy "that enables students to take courses together, rather than apart" (p.7). Laufgraben (2005) expands the LC taxonomy by differentiating between curricular, living-learning, and virtual LCs for students. Henscheid (2004) notes the prevalence of including an FYS as the common course across multiple curricular LCs. In this approach, student cohorts co-enroll in two or three courses in common, one of which is an FYS.

Several studies have explored the academic outcomes associated with the FYS/LC combination. Andrade (2007), in an extensive review of LC research, points out the difficulty of "determin[ing] which characteristics of learning communities...account for their success…" (p. 1). Nonetheless, a few studies attempt to show the differential impact of the LC and the FYS by comparing results for three groups—students participating in the FYS/LC combination, students participating in the FYS alone, and a third comparison group enrolled in neither intervention. Summaries of a pair of representative studies follow.

Potts and Schultz (2008) explored the effects of an extended orientation FYS as compared with the effects of an FYS/LC combination for FTIC business students at a public comprehensive institution; students in the LC co-enrolled in three courses in addition to the FYS. An added element of the analysis included a look at the differential effects on at-risk students. The analysis examined retention rates, GPA, and progression (credits earned) for three groups—FYS, FYS/LC, and the control group; the control group included randomly selected students from the entering class who were not engaged in either program. The three groups were further divided into at-risk subgroups based on living arrangement (on or off campus), ACT score (above or below the campus average), and high school rank.

The results of the analysis showed a significant positive retention outcome for the FYS (74.1% vs. 42.1%) and the FYS/LC (91.0% vs 42.1%) for off-campus students compared to the control group. The progression rates and GPAs were not significantly different. There were no statistically significant differences for any of the other group comparisons.

In an older study, Soldner, Lee, and Duby (1999) examined academic outcomes across three years for FTIC students participating in an FYS/LC and a control group of students consisting of the remainder of the entering class. The FYS/LC included cohorts averaging 25 students co-enrolled in at least two courses in addition to the FYS. The FYS included an extended orientation curriculum along with "career exploration and/or confirmation activities" (p.119). Undergraduate peer mentors assisted each cohort in co-instructing elements of the FYS and facilitating out-of-class engagement activities designed to augment class material and discussion.

The academic outcome analysis focused on good academic standing (at or above 2.0 GPA) and retention. After first showing that the treatment and control groups were statistically similar by pre-matriculation success measures (ACT and high school performance), as well as responses to an extensive orientation survey, the analysis described outcomes across five semesters. The FYS/LC group showed a statistically higher percentage of students in good academic standing in the first semester (77.8% vs. 67.0%) and numerically higher percentages thereafter. As well, the treatment group showed numerically higher retention rates across the five semesters.

## The Intervention

The subject intervention focused on a group of 343 undecided FTICs entering UNT in the fall of 2010. The university enrolls over 36,000 students on a suburban campus. The entering class averages 3,600, with an overall undergraduate enrollment of over 28,000. UNT, a moderately-selective public university has a High Research Carnegie classification.

The intervention took two forms: a three-credit FYS course that was part of the university's core curriculum plus cohort enrollment in two other required courses (FYS/LC), or the FYS course by itself. Curricular integration of the LC course content, termed "collaborative pedagogy" (Tinto, 1999, p. 6), was not an aspect of the intervention. Cohort enrollment consisted of groups of 20 or fewer students enrolled together in a three-course grouping. The course sections for all of the FYS/LC interventions (except the FYS section) included more students than just those in the cohorts. In most instances, the other courses were large-enrollment sections (n>100). An advanced undergraduate peer mentor was assigned to each FYS to facilitate educationally purposeful out-of-class activities designed to build good academic habits among students in the course.

The control group participated in neither of the interventions, although many of the students were likely enrolled individually in some of the same large courses (albeit not in the same course *sections*) as their counterparts in the treatment group. To be clear, the control group did not receive the FYS content, did not experience their courses as part of a designed small-group cohort, and did not have peer mentor support. An analysis comparing course and section-level performance of FYS and FYS/LC students with those in the control group is outside the scope of this paper.

The interventions were initially mandatory for all undecided students. However, as advising and registration proceeded, it quickly became apparent that conflicting course schedules would make participation impractical for a number of students. Thus, over 20% of the original targeted group of undecided FTICs became the control group.

### The First Year Seminar

Instructors volunteered to teach the FYS in addition to their regular duties; instructors included academic advisors, student affairs staff, college-level academic affairs administrators (dean, assistant/associate deans), and faculty. All instructors met the education level required by regional accreditors. Instructor training included a four-hour orientation to the required course outcomes, texts, and assessments, as well as detailed review of a 100+ page instruction manual.

The manual included sample class outlines and activities for each learning outcome. In addition, instructors agreed to serve as their students' academic advisors for their first semester. All instructors participated in advisor training before and during the fall term.

The FYS course focused on four meta-learning outcomes as part of the university's core curriculum. These included:

1. Think critically and creatively, learning to apply different systems of analysis.
2. Engage with a variety of others in thoughtful and well-crafted communication.
3. Be able to articulate the values that undergird their lives, the campus community, and the larger society.
4. Cultivate self-awareness, balance, and an openness to change.

The course subject matter focused on a critical analysis of potential career and major choices. Students completed common career-related assessments and explored career oriented resources.

An undergraduate peer mentor joined each FYS section. The peer mentor attended one class session per week during the term and initiated out-of-class activities with the students in each section. Common activities included a meal at the FYS instructor's home, attending a fall sporting event, attending a campus lecture, forming study groups, and participating in off-campus service projects. Peer mentor training included information about the common skill-building activities in the FYS course. Many instructors had their peer mentor lead the discussion of one or more of the skill-building activities.

## The Learning Community

The learning community part of the intervention included cohort enrollment in the FYS along with two required courses, most of which were in the core curriculum. Most of the courses offered large-enrollment sections (100+) although a few sections were small enough to enroll only students from the participating cohort.

Following the suggestion of Habley, Bloom, and Robbins (2012) in reporting on a national survey of retention initiatives, the LC intervention was designed to create a supporting peer environment through a Freshman Interest Group (FIG) model for undecided FTICs, an LC approach that is most parsimonious with regard to resources and organizational overhead (Gabelnick et al., 1990). Curricular integration featuring coordinated assignments for students in

the LCs, while an ideal (Tinto, 1999), was not part of the subject approach, nor was "collaborative pedagogy" (Tinto, 1999, p. 6) an aspect of the intervention.

Academic advising staff counseled students into an LC during summer orientation, a series of multiple three-day sessions culminating with course selection on day three. Written communication to the students prior to the orientation described the LC program, including LC options available for selection at orientation, and outlined the student success outcomes expected from participation—higher GPA, higher percentage in good academic standing, and higher retention.

The on-line registration system "bundled" the course sections together for enrollment purposes; students at the registration point had to register for the LC course sequence first. Despite efforts at assembling course sequences with a low likelihood of students receiving prior credit in high school, there were a few instances where students at Orientation offered evidence of AP testing or dual-credit completion of an LC course during high school. In those isolated instances, students enrolled only in the LC courses for which they had not received prior credit.

## Intervention Analysis and Results

The analysis of the intervention includes academic success outcomes from the first term of the students' enrollment. Similar to the studies previously cited, the following comparisons are included: retention to the next semester (fall to spring) and the next academic year (fall to fall), cumulative GPA, and the percent in good academic standing. Three sub-groups' outcomes are compared—FYS (students completing the first-year seminar), FYS/LC (students participating in a learning community and a first-year seminar), and Control (students participating in neither of the interventions). In addition, this section includes a three-way sub-group comparison using a number of demographic characteristics suggested by the literature as being correlated with student success.

### Sub-group comparison

Since the intervention includes students who are all undecided, an admittedly contested at-risk attribute, the sub-group comparison includes exploration of a number of other at-risk categories. The goal of the sub-group comparison is to see whether the sub-groups differ statistically by characteristics that are related to academic success outcomes. If the groups are statistically similar, differences in outcome can be more confidently associated with the interventions.

Table 1 (next page) shows a comparison of the three groups along a number of pre-matriculation characteristics the literature has shown to have a relationship to variable success outcomes on the subject campus, particularly retention; these include SAT score, Pell grant eligibility, ethnicity, and high school graduation percentile (e.g., Habley, Bloom, & Robbins, 2012).[1] SAT score and high school (HS) graduation percentile categories represent the high, middle, and lower thirds of the data distribution. According to Habley, Bloom, and Robbins (2012), students with lower standardized test scores or lower high school rank, as well as Pell eligible students, and students of color, exhibit lower levels of student success.

The chi-square analysis shows a few interesting characteristics of the groups. The control group had the highest percentage of high SAT students and the lowest percentage of Pell eligible students. The FYS/LC group had the highest percentage of both high HS percentile and low HS percentile. Despite the numerical differences, the chi-square analysis suggests that the three groups—FYS/LC, LC, and Control—did not differ significantly across the at-risk categories included in the analysis.

## Academic outcomes

The intervention analysis focuses on three commonly assessed academic outcomes—GPA, percent in good academic standing, and retention to the subsequent term. Table 2 shows the results of two-sample t-tests of academic outcomes for each intervention using measures for each sub-group (statistically significant results at the .05 level are shown in bold text).

Similar to previous studies, the analysis indicates positive outcomes on a number of the success measures using fall-to-spring outcomes. The outcomes associated with both the FYS and the FYS/LC intervention show significant positive differences in GPA and percent in good standing in comparison with the control group. The FYS group achieved a .38 higher GPA and a higher rate of good standing (16.7%). The FYS/LC group exhibited similar results: .34 higher GPA and a good standing rate 13.6% higher than that of the control group. Fall-to-spring retention rates did not differ significantly across the sub-groups, although it is worth noting that the FYS/LC intervention produced the highest numerical retention rates of all of the groups, a rate that exceeded the overall retention rate for all FTICs on the subject campus. In addition, the FYS intervention showed the numerically highest GPAs and percentage in good standing.

[1] We attempted to include date of application as another at-risk variable, but did not have sufficient observations in the later application category (after June 1) to complete the analysis.

**Table 1**
**Sub-Group Comparisons by Selected At-Risk Characteristics**

| Characteristic | FYS/LC (n=165) | FYS (n=69) | Control (n=109) | Significance |
|---|---|---|---|---|
| SAT | | | | |
| High (≥ 1131) | 45.5 | 46.4 | 60.6 | |
| Med (1001 – 1130) | 26.7 | 24.6 | 22.0 | |
| Low (≤1000) | 27.9 | 29.0 | 17.4 | $\chi^2$=7.3283, df=4,p≤0.120 |
| Pell Eligibility | | | | |
| Yes | 61.2 | 67.9 | 53.6 | |
| No | 38.8 | 32.1 | 46.4 | $\chi^2$=3.6910, df=2,p≤0.158 |
| Ethnicity | | | | |
| White | 61.8 | 62.3 | 63.3 | |
| African-American | 11.5 | 14.5 | 13.8 | |
| Hispanic/Latino | 19.4 | 14.5 | 14.7 | |
| Asian/Pacific Islander | 1.8 | 5.8 | 4.6 | |
| Native American | 3.6 | 1.5 | 3.7 | |
| Other | 1.8 | 1.5 | -- | $\chi^2$=7.1247, df=10, p≤0.714 |
| HS Graduation % | | | | |
| High (≥ 81) | 35.2 | 30.4 | 33.9 | |
| Middle (64-80) | 27.9 | 44.9 | 30.3 | |
| Low (≤ 63) | 37.0 | 24.6 | 35.8 | $\chi^2$=7.1906, df=4, p≤0.126 |

**Table 2**
**Intervention Type and Academic Outcomes—Fall-to-Spring**

| Intervention | Outcome | Significance |
|---|---|---|
| | Retention (%) | |
| FYS (n=69) | 84.0 | |
| Control (n=109) | 84.4 | t=-0.0612 p≤0.9513 |
| | GPA | |
| **FYS (n=69)** | **2.76** | |
| **Control (n=109)** | **2.38** | **t=2.1893 p≤0.0299** |
| | Good Standing (%) | |
| **FYS (n=69)** | **85.5** | |
| **Control (n=109)** | **68.8** | **t=2.7056 p≤0.0075** |
| | Retention (%) | |
| FYS/LC (n=165) | 92.1 | |
| Control (n=109) | 84.4 | t=1.8934 p≤0.0599 |
| | GPA | |
| **FYS/LC (n=165)** | **2.72** | |
| **Control (n=109)** | **2.38** | **t=2.2843 p≤0.0235** |
| | Good Standing (%) | |
| **FYS/LC (n=165)** | **82.4** | |
| **Control (n=109)** | **68.8** | **t=2.5415 p≤0.0118** |

Note: Statistically significant results at the .05 level are shown in bold text.

Table 3 summarizes academic outcomes using fall-to-fall measures. While the outcomes are similar to those indicated for the previous semester, statistically significant differences vanish. Both the FYS and FLS/LC groups show higher overall GPA and higher percentage in good standing at the end of the term for which they were enrolled. The positive difference in retention for the FYS/LC group persists as do the nearly identical retention rates for the FYS and Control groups.

**Table 3**
**Intervention Type and Academic Outcomes—Fall-to-Fall**

| Intervention | Outcome | Significance |
|---|---|---|
| | Retention (%) | |
| FYS (n=69) | 71.0 | |
| Control (n=109) | 71.6 | t=0.08 p≤0.93 |
| | GPA (overall) | |
| FYS (n=69) | 2.87 | |
| Control (n=109) | 2.61 | t=-1.67 p≤0.10 |
| | Good Standing (%) | |
| FYS (n=69) | 81.0 | |
| Control (n=109) | 75.0 | t=-0.86 p≤0.39 |
| | Retention (%) | |
| FYS/LC (n=165) | 78.8 | |
| Control (n=109) | 71.6 | t=-1.37 p≤0.17 |
| | GPA (overall) | |
| FYS/LC (n=165) | 2.78 | |
| Control (n=109) | 2.61 | t=-1.23 p≤0.22 |
| | Good Standing (%) | |
| FYS/LC (n=165) | 77.0 | |
| Control (n=109) | 75.0 | t=-0.35 p≤0.73 |

Despite the lack of statistical significance in the fall-to-fall comparisons, the practical differences merit mention and point out an intriguing difference between these interventions. The FYS produced the highest levels of GPA and percent in good academic standing, while the FYS/LC produced the highest retention measure. Given the demonstrated similarities between the three groups of students based on pre-matriculation measures, the gains in GPA and academic standing exhibited by both the FYS and FYS/LC groups and the retention gains shown by the FYS/LC group suggest promise for both interventions in increasing GPA and percent in good standing, while the FYS/LC intervention appears to produce marginally increased performance in retention.

## Implications, Limitations, and Recommendations

Undecided students at UNT had exhibited lower-than-average academic performance rates compared to students with declared majors for a period of several years. Coinciding with the establishment of an academic unit charged with coordinating campus wide retention efforts and advising all undecided undergraduates, the campus developed a first-year seminar (FYS) and co-enrollment-based learning communities (FYS/LC) in an attempt to increase the academic performance of undecided students.

The results of the initial semester of the intervention show that both the FYS and the FYS/LC led to improved academic outcomes for participating students (vs. undecided students not engaged in either intervention) in two of three focus areas—GPA and academic standing. There was no statistically significant improvement in fall-to-spring retention, although the FYS/LC intervention produced the numerically highest retention rate.

After one academic year, the statistically significant differences disappeared. The pattern of results remained stable, however, as the FYS showed the highest GPA and good standing percentage and the FYS/LC showed the highest retention rates.

The results suggest a number of implications. First, the success of the FYS, with its content focused on career and major exploration along with academic skill-building activities, confirms what many other studies of first-year seminars have shown. The statistically significant results, particularly when similar sub-groups are compared, suggest that the FYS intervention could be extended to all undecided students on the subject campus with the intention of positively effecting GPA and good standing in the first term.

Second, the learning community intervention showed significant positive results in the first term as well, even though the learning communities were implemented in the most minimal form. While numerical GPA levels and the good standing percentage were not as high for the FYS/LC as for the FYS

intervention, retention was numerically highest for the FYS/LC, but did not reach statistical significance. If increased retention is the main goal, the FYS/LC would appear to be an option to keep in the mix.

Third, the decline in statistically significant results after one academic year suggests that one semester of intervention might be insufficient to sustain success levels for this group of students at UNT. GPAs for all groups, including the control group, increased over the academic year, while, paradoxically, the good standing percentages declined for the two treatment groups. If increased academic performance as measured by GPA is the goal, second semester interventions may be needed.

Finally, since the FYS was a common part of both interventions, an obvious question arises as to the added value and costs of the grouped courses. The FYS/LC group, although showing marginally lower GPA and percentage in good standing than the FYS group, exhibited the highest retention rates. The absence of curricular integration and collaborative pedagogy in the grouped courses might explain the lower GPA and good standing outcomes. Additionally, peer mentoring was part of both the FYS and FYS/LC interventions. Perhaps the peer mentors are more efficacious when they are working with students sharing three courses in common rather than just the FYS, given the higher retention rates in the FYS/LC. Suffice to say that the differential impact on retention between the two interventions is intriguing. Since neither rise to the level of statistical significance, firm inferences are problematic. As Tinto (2012) and Habley, Bloom, and Robbins (2012) suggest, evaluation over multiple years may be more revealing.

In addition to the implications, there are limitations to the study worth noting. As a single-campus study, generalizing the results to other institutions should be done with great care. For instance, although the group receiving neither intervention was termed the “control” group, that group could be subject to self-selection bias despite efforts showing that the control group is not statistically different than the treatment groups along several at-risk categories. Another limitation is the length of time the study includes. Obviously, four-year and six-year graduation rate comparisons are years away. With successful graduation as the traditional long-term measurable outcome of the college experience, these results can be seen as preliminary at best.

A further limitation concerns the variability within the FYS and FYS/LC intervention. With over 20 learning communities and sections of the FYS, approaches among instructors and undergraduate peer mentors could impact academic outcomes differentially.

Finally, the intervention and accompanying analysis prompt several recommendations for further study. First, the results here suggest the potential for differential outcomes for FYS and FYS/LC interventions. Future analysis of FYS and FYS/LC interventions could focus on a more deliberate experimental design

with more closely matched groups or statistically control for differences using a technique like propensity score analysis (see Guo & Fraser, 2010). The "value added" of the LC part of the intervention could be more clearly defined with such an approach. Since learning communities require more time and resources to implement, even in their simplest form, measuring the outcomes attributable to that approach can greatly inform the analysis of the benefits vs. the costs. As well, the learning community part of the intervention could be made more robust through curricular integration and collaborative pedagogy. This would increase the cost of the intervention, but might also increase its effect.

Second, Tinto's conception of retention as equal part academic and social integration suggests that the study could be enhanced by including a measure of engagement like the National Survey of Student Engagement, as well as a measure of satisfaction like the Student Satisfaction Inventory. Students could take both instruments thus allowing for differential engagement and satisfaction levels to be measured and analyzed for the range of interventions. This analysis could shed additional light on the differential impact of the FYS and FYS/LC interventions.

Third, as suggested in the limitations, future study should examine multiple cohorts of program participants as well as following participating cohorts through to graduation. On the first point, Habley, Bloom, and Robbins (2012) suggest that interventions need time to show fruit. Tinto (2012) echoes their suggestion and calls for using results from two to three years of implementation to judge an intervention's effectiveness.

Finally, in the spirit of current national discussions of student learning—see *Academically Adrift: Limited Learning on College Campuses* (Arum & Roksa, 2011)—measures of learning within the grouped courses would add to our understanding of the contribution LCs and FYSs make to learning outcomes. In particular, student learning outcomes for students taking a similar course sequence outside of an LC could be compared to outcomes for students taking those same courses (not course *sections*) within an LC framework. Courses with common examinations would provide the best environment within which to conduct such a study. If curricular integration were to become a feature of the learning community, the added value of this student learning outcome could be assessed as well.

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