

# **Assessing Integrative Learning and Assignments in the Context of Themed Learning Communities**

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## **Abstract**

The key goals for learning communities (LCs) are to encourage integration of learning across courses and to involve students with “big questions” that matter beyond the classroom. Integrative learning assignments can be an effective strategy for ensuring that LCs are quality “high impact practices” and improve students’ ability to make meaningful connections between classroom and co-curricular experiences, and real world social issues. We employed a quasi-experimental, mixed-method design to investigate the learning and academic success outcomes associated with completing integrative learning experiences and assignments. Results suggested that integrative learning assignments are associated with higher levels of integrative learning and positive academic outcomes.

## INTRODUCTION

Integrative learning is an “understanding and a disposition that a student builds across the curriculum and co-curriculum, from making simple connections among ideas and experiences to synthesizing and transferring learning to new, complex situations within and beyond the campus” (AACU, VALUE Rubric, 2010). This study examined the effectiveness of integrative learning assignments in improving students’ ability to make connections between their learning experiences and apply their learning to a diversity of contexts. At the institution in the current study, students had the opportunity to participate in Themed Learning Communities and many instructional teams required integrative learning assignments. This research enhances understanding regarding effectiveness of integrative learning assignments as components of high impact practices. Additionally, it helps researchers and assessment specialists develop methods and techniques to investigate how integrative learning assignments affect academic success and learning outcomes.

## LITERATURE REVIEW

Institutional researchers are often charged with determining which educational practices are the most effective in terms of improving students’ levels of academic success and learning outcomes. According to Kuh (2008), creating opportunities for students to participate in at least two high impact activities during their undergraduate program, one in the first year, and one taken later in relation to the major field is an effective way to enhance students’ levels of academic success and engagement. The obvious choices for incoming students are first-year seminars and learning communities (LCs). Kuh also notes that “to engage students at high levels, these practices must be done well” (p. 20). If high-impact practices have differing effects, we need to know the variability of impact not only across practices, but also between permutations of the same practice. Research has also shown that being intentional in linking courses and using engaging pedagogies within the context of learning communities can improve academic outcomes (Brownell & Swaner, 2010).

According to Lardner and Malnarich (2009), integrative learning requires that students are able to make connections between different learning experiences such as classroom interdisciplinary learning, activities, and tasks. Integrative learning can also “take the form of integrating personal experiences with academic modes of inquiry” (Lardner & Malnarich, 2009, p.32). Brownell and Swaner (2010) examined the five high impact practices, including learning communities, in an effort to determine if there are conditions under which positive outcomes are more likely to be found and the implementation strategies that practitioners should employ to maximize the impact of these practices. Within LCs they found that the following strategies resulted in more positive outcomes: being intentional in linking courses; tying an extended orientation or integrative seminar to the learning community; and investing in faculty development to ensure that courses are fully integrated, with coordinated material, assignments, out-of-class trips, and grading rubrics. More specifically, they found that ensuring that the courses are fully integrated resulted in higher levels of self-reported learning gains, academic performance, and retention rates. Additionally, designing effective integrated learning assignments helped to ensure that students experienced “full integration.”

Integrative learning assignments are often introduced to students in the context of learning community programs. However, learning communities can take many forms such as paired or clustered courses (in which a group of students share two or more courses in common) or team-taught programs that involve intentional curricular integration and purposeful faculty involvement (Shapiro & Levine, 1999). In general, learning community structures have been successful in

achieving the broad outcomes of academic skill building/academic success and the development of interpersonal skills such as communication skills and problem solving (Smith, Goldfine, & Windham, 2009). LCs have been advocated as effective interventions for enhancing student retention (Tinto, 2003), engagement levels (Yancy, Sutton-Haywood, Hermitte, Dawkins, Rainey, & Parker, 2008; Zhao and Kuh, 2004), student learning and academic success (Hegler, 2004; Henscheid, 2004; Kuh, 2008; Stassen 2003), and integrative learning (Lardner & Malnarich, 2008, 2008/2009, 2009).

## **CURRENT STUDY AND RESEARCH QUESTIONS**

The present study examined the effectiveness of integrative learning assignments in improving students' ability to make connections between their learning experiences and apply their learning to a diversity of contexts. At the institution in the current study, students had the opportunity to participate in Themed Learning Communities (TLCs) and many instructional teams required integrative learning assignments. Examples of integrative learning included the following: a) asking students to complete a written assignment "Psyched for Success" applying concepts learned in their psychology course and their career development first-year seminar course, b) requiring students to design research projects both individually and as teams to assess technological developments for both performance and safety in a "Motorsports" TLC, c) requiring students to give a speech using appropriate technology in their Technology and Communications TLC entitled "Thinking through Technology."

The research questions that guided this investigation were as follows:

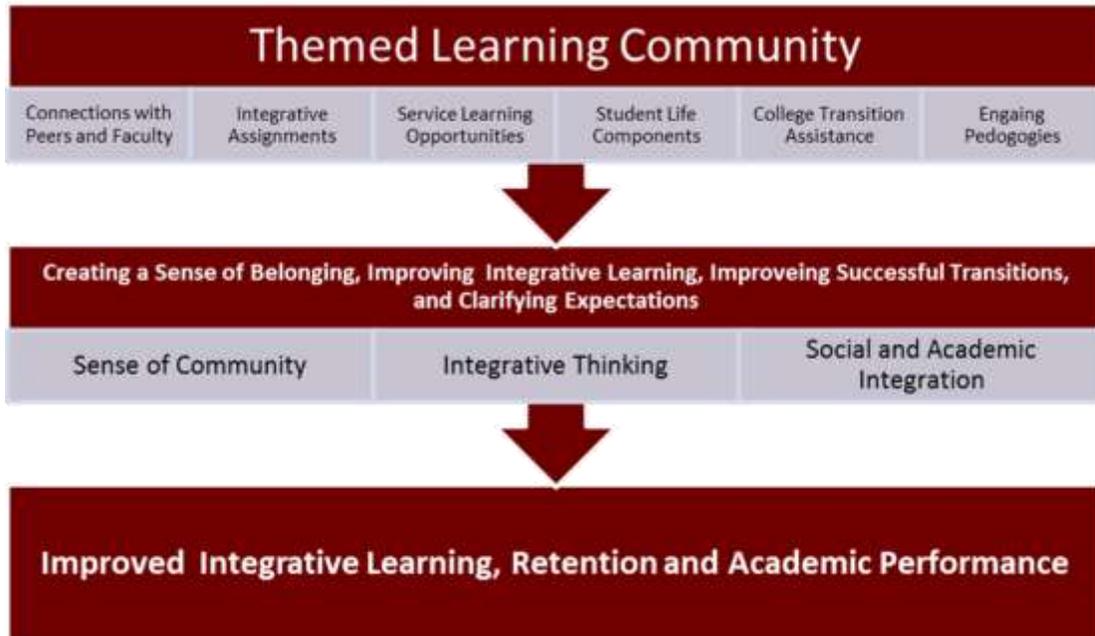
1. Do students who complete required integrative learning assignments have better academic success outcomes and learning outcomes compared to students who do not complete integrative learning assignments?
2. Have students' learning outcomes improved as instructional teams have implemented more integrative assignments over time?
3. What components of Themed Learning Communities significantly predict students' levels of satisfaction with their learning experiences and successful transitions to college?
4. What are students' perceptions of their integrative learning experiences?

## **METHODS**

### **Research Setting and Context**

The purpose of this research was to evaluate the effectiveness of the Themed Learning Communities offered at IUPUI during the fall semester. The IUPUI TLC program was designed to improve student retention, persistence, and academic performance. As such, the program was designed to offer students enriching learning experiences such as integrative learning and thinking, service learning, engaging pedagogies, and integrated assignments. Additionally, instructional teams worked collaboratively in efforts to engage in effective educational practices widely recognized as correlates to undergraduate student success such as ensuring positive faculty and peer-student interactions, offering college transitional assistance, helping students feel a sense of belongingness, and creating opportunities for students to develop strong connections with the campus. Figure 1 displays the TLC Program Theory and key components.

**Figure 1. Themed Learning Community Program Theory**



### **Mixed Method Design**

We employed a series of quantitative analyses to determine program effects on academic outcomes such as retention, integrative learning, satisfaction with learning experiences, self-reported learning outcomes, and quality of faculty-student and student-student interactions. A mixed-method design allowed for the measurement of students' educational outcomes as well as students' self-reported learning outcomes, perceptions, and intended behaviors. Methods included the following:

1. Post Program Academic Success, Retention Rates, and Graduation Rates
2. End of Course Questionnaire: Students' Sense of Community, Perceived levels of Integrative Learning, Peer Interactions, Faculty Interactions, and Communication Skills
3. Student Responses to Open-Ended Questions (qualitative data)

Datasets consisting of 2012 and 2011 first-time students' background characteristics, enrollment variables, academic preparation variables, program participation fields, and outcome variables (retention, academic performance, graduation rates) were assembled and analyses using SPSS version 18 or STATA version 11 were conducted.

An end-of-course questionnaire was administered to all TLC students at the end of the semester during class time. Students were asked to complete the anonymous questionnaire on a voluntary basis and no incentives for participation were provided. The 30-item questionnaire was designed to assess students' perceptions of their TLC learning experiences as related to their communication skills (writing and speaking); integrative thinking and learning; peer interactions; faculty interactions; participation in service learning, community events, and campus activities; and overall satisfaction. Additionally, the questionnaire contained open-ended items designed to capture what students liked the most and least about the community, what aspects contributed most to their

learning, suggestions for improvement, and their reasons for participating in the TLC program. The qualitative results are described in a separate report entitled: Themed Learning Communities (TLCs) Qualitative Report (Fall 2011). For electronic copies of this and other previous assessment reports please feel free to visit: (<http://research.uc.iupui.edu/>)

## Data Analyses

*Quantitative.* A series of descriptive and inferential statistical procedures were employed in an effort to examine the impacts of TLC participation on retention rates, GPAs, and graduation rates. Students who were Administratively Withdrawn or voluntarily Withdrew from the TLCs were excluded from all analyses because these students did not complete the program. In order to understand program-related effects, first-time, full-time TLCs participants were compared to first-time full-time nonparticipants with regard to academic performance and one-year retention rates while accounting for academic preparation variables, enrollment variables, and student background characteristics. Logistical regression procedures were used when the dependent variable was dichotomous (e.g., retention) and linear regression or Analysis of Covariance (ANCOVA) procedures were used when the dependent variable was continuous (e.g., GPAs, or overall satisfaction reported on a 5-point scale). Significant covariates were included in the ANCOVA models or regression models to account for differences in academic preparation, motivation, or background characteristics when appropriate. Common covariates included High School Grade Point Average (HS GPA), Scholastic Aptitude Test (SAT) Score or converted American College Test (ACT) Score, Income Level (received a Federal Pell Grant or not), First-Generation Status, and Sex (Female or not). Independent sample t-tests (for continuous variables) and chi-square analyses (for dichotomous variables) were also employed when making comparisons between participants and nonparticipants.

*Qualitative.* Student participants' open-ended questionnaire responses were first cleaned for errors and then uploaded into ATLAS.ti, a software program that assists in qualitative data analysis (Friese, 2012). A coding process was then employed as a primary means of examination (Glaser & Strauss, 1967; Srauss & Corbin, 1990). Through this process student responses were arranged into topical theme categories. These categories allowed for individual student perceptions of TLC experiences to be considered collectively. Theme categories were considered to be "emerged or notable" if 5% or more of students responded in a similar manner. In a number of occurrences a singular student comment addressed more than one topic or category. In these instances, student comments were included in multiple analyses and tables. An understanding of student comments in the aggregate facilitates a greater understanding of TLCs. While this method of analysis essentially quantifies student comments, it does allow for the students' key perceptions and feelings about the program to be identified. Many of the comments are concise statements and may not fully reflect the entirety of students' opinions.

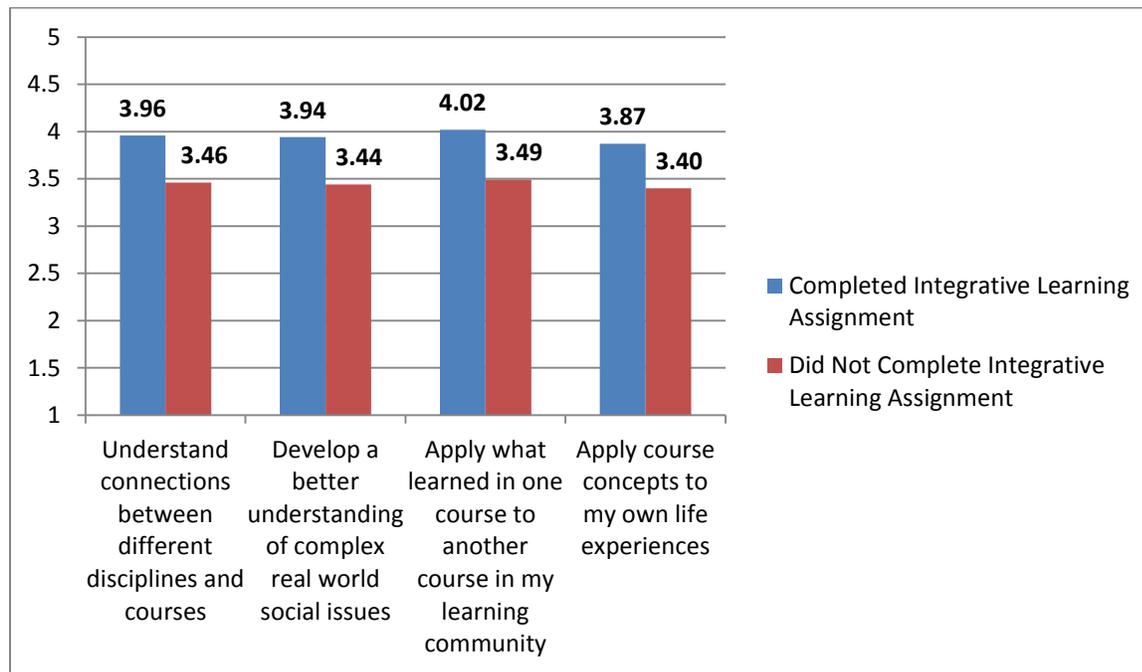
## RESULTS

**Research Question 1:** Do students who complete required integrative learning assignments have better academic success outcomes and learning outcomes compared to students who do not complete integrative learning assignments?

A series of independent samples t-tests were conducted to determine if students who completed integrative learning assignments had higher levels of self-reported learning gains compared to students who did not complete integrated learning assignments. Results suggested that students who completed integrative learning assignments had significantly higher mean scores in the

following areas: understanding connections between different disciplines and courses, developing better understandings of complex real world issues, applying content learned in one course to another course, and applying course content to their own life experiences ( $p < .05$ ). Mean scores are displayed in Figure 2.

**Figure 2: Students who Completed Integrative Assignments had Significantly Higher Levels of Integrative Learning**



Results suggest that TLC students had significantly higher one-year retention rates compared to nonparticipants, even when High School GPA, SAT Score, First Generation Status, Income Level, and Sex were entered into the first step of the model. In fact, TLC participants had a 33% better odds of being retained compared to nonparticipants (based on the odds ratio). Table 1 displays the results of a hierarchal logistic regression predicting one-year retention. TLC students also had higher levels of academic performance. Results are shown in Table 2.

**Table 1. Logistic Regression Predicting One Year Retention**

	Variable	B	SE	Wald Statistic	95% CI	p	Odd Ratio
Step 1	H.S GPA	1.15	.13	77.37	2.44, 4.06	.000	3.15
	SAT Score	.00	.00	2.21	1.00, 1.00	.137	1.00
	First Generation	-.10	.10	1.03	.74, 1.10	.310	.90
	Female	-.01	.10	.01	.81, 1.21	.932	.99
	Low Income	-.18	.10	3.34	.68, 1.01	.068	.83
Step 2	H.S GPA	1.17	.13	79.33	2.48, 4.14	.000	3.21
	SAT Score	.00	.00	2.51	1.00, 1.00	.113	1.00
	First Generation	-.11	.10	1.30	.73, 1.09	.255	.89
	Female	-.02	.10	.04	.80, 1.20	.835	.98
	Low Income	-.18	.10	3.11	.69, 1.02	.078	.84
	TLC	.28	.11	7.16	1.08, 1.63	.007	1.33

**Note 1:** Low Income is a dummy coded variable for received a Pell Grant or not. TLC s a dummy coded variable for participated in 2011 TLC Program or Not.

**Note 2:** TLC participants have 33% better odds of being retained compared to non-participants (based on the odds ratio). Nagelkerke  $R^2 = .076$  for Step 1; Nagelkerke  $R^2 = .080$  for Step 2

**Table 2. TLC Program Students' Academic Success Outcomes Compared to Non-Participating First-Time, Full-Time Students**

	First Year GPA	% Below 2.0 First-Year GPA	One-Year Retention Rate
TLC	<b>2.70</b>	<b>20%</b>	<b>76%</b>
Non-Participants	<b>2.57</b>	<b>24%</b>	<b>73%</b>
Overall	2.61	23%	74%

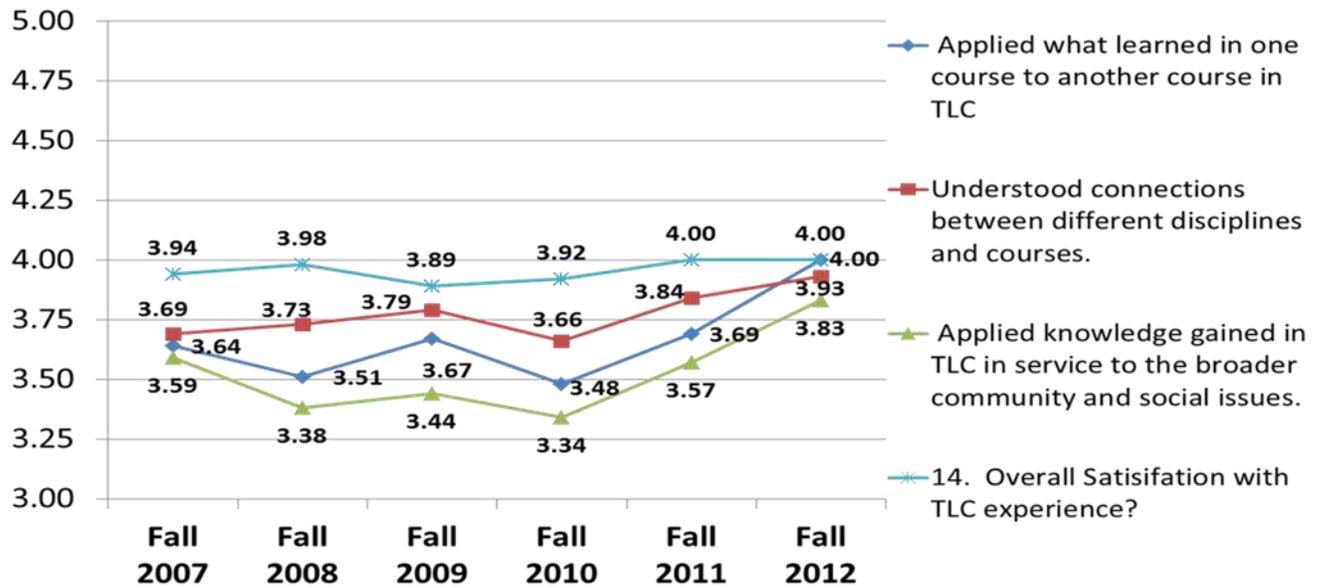
Note 1: Missing cases were excluded.

Note 2: Bolded items are statistically significant based on an independent samples t-test or chi-square test results ( $p < .05$ ).

**Research Question 2:** Have students' learning outcomes improved as instructional teams have implemented more integrative assignments over time?

An investigation of mean scores measured each year from 2007 to 2012 indicated that levels of application of knowledge and integrative learning significantly improved over time. Figure 3 displays the results of a time series analysis.

**Figure 3. Integrative Learning Improves Over Time**



**Research Question 3.** What components of Themed Learning Communities significantly predict students' levels of satisfaction with their learning experiences and successful transitions to college?

A multiple regression analysis was conducted in order to determine which TLC learning experiences made the most significant and substantial impact on students' overall satisfaction with their TLC learning experience. Results suggested that students' perceptions of the extent to which their TLC experience helped them develop their integrative and thinking abilities, feel a sense of community/belonging, and positive peer interactions predicted their overall satisfaction levels. It is noteworthy that students' perceptions of the extent to which their TLC experience helped them develop positive faculty interactions and their skills to communicate effectively in speaking and writing did not have significant positive effects on their overall satisfaction levels. It is not the case that these factors are not important aspects of the TLC experience. In fact, quality of faculty interactions and improving communication skills may be related to other important outcomes such as learning, academic performance, and retention. However, the anonymity of the questionnaires precluded linking students' questionnaire responses to any other academic outcomes.

**Table 3. Multiple Regression Results: Sense of Community, Integrative Learning and Peer Interactions Have Significant Effect on TLC Student Overall Learning Experience Satisfaction (N=570)**

Variable	<i>b</i>	<i>SE b</i>	$\beta$
Integrative Learning	.48	.08	.34***
Sense of Belonging	.27	.04	.26***
Communication Skills	.07	.05	.06
Peer Interactions	.13	.06	.11*
Faculty Interactions	-.09	.04	-.10

$R^2 = .357$  \*\*\* $p < .001$ , \*\* $p < .01$ , \*  $p < .05$

**Research Question 4.** What are students' perceptions of integrative learning experiences?

Students enrolled in a TLC were asked to voluntarily respond to an anonymous questionnaire administered at the end of the program. They were also encouraged to provide open-ended response feedback and describe how their TLC experience contributed to their learning. A total of 595 students responded to this item. Results shown in Table 4 suggest that TLCs contributed to the quality of their learning experiences by helping them make better transitions to college, form friendships, improve their critical thinking skills, and make connections between their learning experiences.

**Table 4: How the TLC Experience Contributed to Learning**

Please describe how your TLC experience contributed to your learning: (N = 595)

Contributed to Learning Through...	N	%	Examples of Actual Student Comments
<b>College Transition Assistance</b>	<u>95</u>	<u>16%</u>	<ul style="list-style-type: none"> <li>• “It helped me transition from high school to college.”</li> <li>• “Helped me get better acclimated to college.”</li> <li>• “It allowed me to adjust to college with excellent guidance.”</li> <li>• “It helped me in every aspect of getting used to college.”</li> <li>• “It helped to support me this semester and help me transition to college life.”</li> <li>• “It gave me an idea of how to approach college and the demand that comes with it.”</li> <li>• “TLC has helped me start college with a great outlook. I have made friends and made goals for my future.”</li> <li>• “TLC helped me see how I need to grow out of my high-school self into a college student &amp; prepared me for the rest of college.”</li> </ul>
<b>Meeting New Friends &amp; Developing Connections</b>	<u>71</u>	<u>12%</u>	<ul style="list-style-type: none"> <li>• “Made close friends.”</li> <li>• “It got me to meet new people.”</li> <li>• “Gained friends to count on.”</li> <li>• “Easy to network with other students.”</li> <li>• “Made it easier to connect to others.”</li> <li>• “You are around people (with) interests as yourself.”</li> <li>• “It was nice I met a lot of people and made good friends.”</li> <li>• “My TLC experience contributed to my learning by helping me build relationships with others that will help me be successful.”</li> </ul>
<b>Developed Critical Thinking Skills</b>	<u>53</u>	<u>9%</u>	<ul style="list-style-type: none"> <li>• “It helped me with my critical thinking.”</li> <li>• “I learned to be a critical thinker when reading articles.”</li> <li>• “My writing, thinking, and logic became better.”</li> <li>• “It helped me understand how deep things really are.”</li> <li>• “It taught me to use critical thinking throughout my life.”</li> <li>• “My TLC experience allowed me to become a better critical thinker and therefore made learning a lot more efficient.”</li> <li>• “I learned how to think about topics, issues, and concepts more critically applied PULs and RISE initiative.”</li> </ul>
<b>Helpful – Linked Courses</b>	<u>51</u>	<u>9%</u>	<ul style="list-style-type: none"> <li>• “TLC made it easier to relate classes/subjects.”</li> <li>• “Learned things in each class that helped in some way in the other.”</li> <li>• “It helped me realize that the things you learn in different courses can connect.”</li> <li>• “It helped me better see the relationships between different disciplines.”</li> <li>• “My TLC experience allowed me to tie together my classes for a more meaningful learning environment. It helped me connect three seemingly different courses.”</li> </ul>
<b>Developed Peer Support Network</b>	<u>45</u>	<u>8%</u>	<ul style="list-style-type: none"> <li>• “It gave me a support group.”</li> <li>• “It made me feel like I was part of a family and helped me learn better.”</li> <li>• “It helped a lot because I could ask my peers for help. We were a built in study group.”</li> <li>• “It is very helpful to be able to get to know such a small but tight-knit group which made the transition to college easier.”</li> <li>• “Basically, the friends/family I have made has improved my attendance, grades and motivation.”</li> </ul>

**Notes:** Percentages are rounded to the nearest whole. The remaining responses were so varied that no major themes emerged. (N) indicates the number of student responses included in analysis; percentages (%) are based on the number of question respondents.

## LIMITATIONS

A noteworthy limitation of this investigation is that students self-select into TLCs and selection bias may have affected the internal validity of this study. Thus, the ability to make causal inferences based on the information is limited. It is possible that the positive effects of TLCs on academic performance and persistence rates are due to the fact that students who decide to enroll may have differed in substantial ways from students who decided not to enroll and these differences (not TLCs) may have caused the positive outcomes. Although important variables were treated as covariates in the statistical models, it is difficult to adjust for all possible self-selection factors using traditional statistical techniques and when experimental designs using random assignment are not employed.

Student learning outcomes were assessed indirectly using a self-report measure. The findings would be more meaningful if measures of direct student learning outcomes were included in this investigation.

## DISCUSSION AND CONCLUSION

Results of this study suggest that integrative learning assignments are effective in improving students' ability to make connections between their learning experiences and apply their learning to a diversity of contexts. At the institution in the current study, students had the opportunity to participate in Themed Learning Communities and many instructional teams required integrative learning assignments. The vast majority of students who participated in a Themed Learning Community completed an Integrative Learning Assignment (about 90%). Students participating in TLCs also had significantly higher retention rates and GPAs compared to nonparticipants, suggesting that providing students with opportunities to make meaningful connections and integrate their learning can contribute to positive educational outcomes.

Results also indicate that higher students' levels of Sense of Community, Integrative Learning, and Peer Interactions were, the higher their overall satisfaction with their TLC learning experiences. As such, pedagogical strategies that facilitate sense of community, integrative learning and positive peer interactions may be the most effective strategies for enhancing students' overall satisfaction with their learning experiences. It seems that TLC instructional teams at the institution of interest have developed pedagogical strategies that facilitate positive connections, interactions, equip students with skills necessary to effectively adjust to college, and help students make connections between courses.

This research enhances understanding regarding effectiveness of integrative learning assignments as components of high impact practices. Additionally, it helps researchers and assessment specialists develop methods and techniques to investigate how integrative learning assignments affect academic success and learning outcomes. In terms of future research, it is important to continue to develop assessment techniques and methods to investigate impacts of TLC interventions and integrative learning activities and assignments. Future investigations should consider using actual student work as authentic evidence of integrative learning in order to determine meaningful impacts on student learning outcomes.

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