

INFLUENCE OF A LEARNING COMMUNITY ON THE
PERSISTENCE AND ACADEMIC PERFORMANCE OF
FIRST SEMESTER REMEDIAL STUDENTS AT
OKLAHOMA STATE UNIVERSITY INSTITUTE OF
TECHNOLOGY: A MIXED METHODS STUDY

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STUDY

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Title of Study: THE INFLUENCE OF A LEARNING COMMUNITY ON THE PERSISTENCE AND ACADEMIC PERFORMANCE OF FIRST SEMESTER REMEDIAL STUDENTS AT OKLAHOMA STATE UNIVERSITY INSTITUTE OF TECHNOLOGY: A MIXED METHODS STUDY

Major Field: OCCUPATION EDUCATION

Background and Method of Study:

Each year, approximately 67% of the entering first-time, full-time, degree-seeking population at Oklahoma State University Institute of Technology (OSUIT) is comprised of students who have not mastered the competencies to enter directly into college-level classes. For students who need remediation in three subjects (e.g., reading, English, and math) OSUIT's records indicated that 90% of these students left without earning any kind of credential. The purpose of this research was two-fold. First, the study examined whether learning communities influenced the persistence and academic performance of first-semester students with academic deficiencies in the technical community college environment of Oklahoma State University Institute of Technology. Second, the study also examined how the demographic factors of gender and ethnicity influenced persistence and academic performance.

Research Design:

This study used a mixed methods research design where qualitative data was embedded within a primary quantitative strand. Both quantitative and qualitative data gathering and analysis techniques were conducted using statistical analyses and focus group interview.

Conclusions:

The data in this study appeared to indicate that:

- the learning community treatment is an effective means for influencing the persistence of remedial students;
- the learning community treatment is an effective means for influencing the academic performance of remedial students;
- gender seems to be a moderating variable, possibly influencing both the strength and relationship between the learning community and dependent variables of academic performance and persistence;
- ethnicity seems to be a moderating variable, possibly influencing both the strength and relationship between the learning community treatment and the dependent variables of academic performance and persistence;
- the learning community appears to be an effective way to create a climate for success for first-time students at the lowest-skill levels; and,
- the focus group, made up of students who participated in the learning community, felt their experiences were beneficial.

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CHAPTER I

Introduction

A state of emergency was declared today as thousands of Oklahomans suffered from heat exhaustion due to extremely high temperatures that have caused air conditioning units to fail. A shortage of qualified HVAC technicians compounds the problem as even emergency shelters are placed on a priority list for repairs. Taxed air conditioning companies are trying to meet demand, but there simply aren't enough service technicians. According to the U.S. Bureau Labor of Statistics, 45,000 HVAC technicians are needed annually through 2018. However, all certificate and college-degree granting institutions nationwide only produce approximately 15,000 technicians annually, resulting in a labor shortage of 30,000 qualified technicians...

This scenario, while fictitious, is a true depiction of growing workforce needs. The statistics describing the shortage of qualified HVAC technicians is an accurate portrayal of existing conditions (Bureau of Labor Statistics, 2011). Politicians, industry leaders, and foundations such as Lumina, Kellogg, and Gates Millennium are partnering in programs such as Project Graduation and Complete College America to increase the number of persons possessing a college degree or other workforce readiness credential. In order to produce more degree or certificate-bearing graduates, educational institutions will need to address student remediation and retention.

Changing job needs fuel the demand for a more educated workforce. According to a report by the Oklahoma State Regents for Higher Education (2011), increased use of technology, even in occupations that previously required only a high school diploma, today mandates a minimum of an associate degree or higher (Oklahoma State Regents for Higher Education [OSRHE], 2011), and it's not just persons entering the workforce for the first time who are affected. As far back as a decade, a National Center for Education Statistics (NCES) survey revealed almost 50 percent of all workers stated that they are forced to go through more training to keep their current positions (NCES, 2004).

Remedial Population and Scope

Approximately 65 to 75 percent of the total U.S. population has less than a bachelor's degree. Of this figure, 89 percent are minorities (Beebe & Walleri, 2005). Research studies have indicated that minorities are overrepresented in the remedial population (Barr, 2011; Grubb, 2010, Handel & Williams, 2011; Howell, 2011; OSRHE, 2011). This may be driven by higher birthrates among minority populations, coupled with historically poor or limited access to a high quality education. Johnson (1992) reported that Allen Johnson stated in his book, *Privilege, Power, and Difference*, race often proscribes where a person lives, and where a person lives can profoundly affect her or his ability to access high quality education, along with the requisite programs and services (Johnson, 1992).

Of those persons without appropriate degrees, adults are affected the most as they have found it more difficult to remain employed or become gainfully employed without a degree, and are heading back to college. Also, just like minorities, adult students 22

years of age and older have a greater need for remediation than those who began college within three years of when they graduated or would have graduated from high school (OSRHE, 2011). Delays in applying the knowledge learned, or continuing to advanced courses of study, mean that students forget much of the material they have learned, and must relearn basic skills in order to advance to college-level coursework (Bahr, 2012).

With minorities and adult learners driving enrollment gains, the number of remedial courses has increased. Nationally, around 33 percent of incoming college freshmen are enrolled into remedial classes. In Oklahoma, that figure hovers around 61 percent (OSRHE, 2011): almost double the national average. However, this percentage is not considered unusual as studies by the Southern Region Education Board (SREB) have found that states with mandatory student assessment and placement programs report higher remedial enrollments (as cited in OSRHE, 2011). OSRHE policy mandates that all students must be assessed and placed into appropriate courses.

Importance of Remedial Education

Addressing remediation is important because unless students are able to satisfactorily meet academic progress and persist in college as short-term measures of retention, postsecondary institutions will be unable to graduate students who possess the necessary credentials. Research has indicated that students who do not complete the *prescribed remedial sequence* as early as possible in their college enrollment are very likely to leave without earning any type of credential (Bahr, 2012; OSRHE, 2011). Furthermore, studies have also indicated that other factors affect the likelihood of a student overcoming skill deficiencies. These factors include delays in enrolling in the

first remedial course immediately upon entering college (Bahr, 2012), the number of subjects in which a student needs to remediate (Wilmer, 2009; Jagers & Stacey, 2014), and the levels *in a subject* that a student needs to complete (Wilmer, 2009; Jagers & Stacey, 2014); Students who do not take their first remedial course immediately upon entering college have higher fail rates than those who began their remedial sequence during their first semester of college. Those students who delayed were less likely to attempt completion of the next step in the sequence (Bahr, 2012). OSRHE policy requires that students complete their remediation sequence within the first 24 attempted hours of college enrollment (OSRHE, 2011).

Sixty percent of remedial coursework nationwide is delivered through community colleges (NCES, 2004). Oklahoma colleges account for over 79 percent of the State's remedial enrollments (OSRHE, 2011). Until remediation is successfully addressed, student retention rates will continue their downward trend, particularly affecting those populations comprising the largest segments of students needing remediation: ethnic minorities and adults 22 years of age and older (Barr, 2011; Grubb, 2010; Handel & Williams, 2011; Howell, 2011; OSRHE, 2011).

Retention Measures

Student retention is one of the most widely used measures for determining institutional effectiveness in the higher education environment (Wild & Ebbers, 2002). State-supported institutions are accountable to both the general public and governmental organizations. During periods of tight budgetary constraints, when state governments are determining which agency budgets to cut and how to allocate scarce resources,

postsecondary institutions are particularly vulnerable to accusations of increasing tuition and fees, and failing to generate a return on investment for students in the form of degrees conferred and gainful employment obtained (McNutt, 2011).

Governing boards for higher education often measure student retention using the same metrics regardless of the type of institution. Community colleges are often lumped into the same category for comparison as research and four-year institutions, even though the profile of community college students differs greatly in terms of academic preparedness, family background, and age (Tinto, 2004; Wild & Ebbers, 2002). In addition, there are a greater proportion of minority and first generation college students, as well as working adults, enrolled through community colleges (Wild & Ebbers, 2002).

Defining *retention* is a challenge in community colleges as students attend for a variety of reasons. Wild & Ebbers (2002) noted that not all students have a goal to transfer to a four-year institution, or to earn a college degree. Goal achievement for students at a community college may include earning a certificate or associate degree, taking classes to enhance employability or upward mobility, or for personal reasons. Defining retention should consider factors such as the student's goal, academic performance, and persistence toward that goal (Wild & Ebbers, 2002).

Learning community as a retention strategy. The importance of effectively addressing student remediation provided this researcher with the impetus for this study. The study contributes to the literature on best practices for addressing remediation and retention challenges. The study's working hypothesis was that when a learning community incorporates features that create an environment in which students are able to

develop relationships and make connections to people at the university, retention and academic performance improves. This hypothesis was supported in the literature review indicating that a well-planned and well-executed learning community fosters collaboration among remedial students, leading to higher pass rates in remedial courses, and consequently to persistence and increased retention (Lardner & Malnarich, 2008).

Students with remedial challenges and working adults share a common criticism of higher education: taking classes that they do not see as important for current or future work, or as relevant to their lives. The learning community used in this study was designed to address this criticism by focusing on projects and activities specifically designed to help students make connections between what they were learning and how it applied to their personal and work lives. For example, in math remediation classes, students halved or doubled recipes to feed various sized families. Students were then able to make the connection between the importance of learning fractions and multiplication and its personal, practical application to their lives. Testing the working hypothesis of efficacy for a learning community in improving student performance and retention through a mixed method research design was the goal of this study.

Theoretical and Conceptual Framework and Variables

A literature review for this study identified several elements comprising learning communities that influenced student persistence and academic performance. The best results were achieved when a combination of these elements were incorporated into the learning communities. Numerous studies indicated *block scheduling* (enrolling the same students into block of classes together to form a cohort), *collaborative learning*, *career*

pathways, and *in-class social activities* to be the most fruitful (Corbo, 2010; Engstrom & Tinto, 2008; Hotchkiss, Moore & Pitts, 2006; Jaffee, 2007; Moore & Fetzner, 2009).

These components of successful learning communities led this researcher to several theoretical threads to underpin this study and several variables of importance to the study.

Conceptual or Research Framework

Figure 1 illustrates the research or conceptual framework showing the variables that were analyzed in this study and their hypothesized relationships. In the study's conceptual framework, the dependent variables of student persistence and academic performance were measured to find out if the independent variables of participation in a learning community, ethnicity, and gender influenced these dependent variables. Because financial aid plays a critical role in a student's ability to access education, it was also a pivotal part of the framework. In this study, *academic performance* was assessed as *satisfactory academic performance* (SAP), or a student's eligibility for federal financial aid. SAP is traditionally defined as minimum qualitative and quantitative criteria a student must meet in order to retain eligibility for federal financial aid (United States Department of Education [DOE], 2013). In this study, the qualitative standard was term grade point average (GPA); the quantitative standard was persistence. For this study, two specific metrics were used to operationalize the variable: (1) the mean percentage of earned-to-attempted hours for each group, and (2) the achievement of at least 75% of all attempted hours (PACE). The latter metric was selected because the U.S. Department of Education requires that students meet PACE in order to remain eligible for federal financial aid (DOE, 2013).



Figure 1. Research/conceptual framework indicating independent and dependent variables.

In the study's conceptual framework, gender and ethnicity were categorized as independent variables. It is possible that they may actually be moderator variables, which would change the conceptual model. A moderator can be any variable (e.g., gender, ethnicity, major, age, or grades) that may influence how strong the relationship is between an independent variable and its dependent variable, and may also affect the direction of that relationship (Baron & Kennedy, 1986). However, statistical analysis and explanation of moderator variables and their effects on relationships between independent and dependent variables requires multiple regression analysis (Baron & Kennedy). This analysis is complex and requires large samples for reliable results. Sheskin (2007) pointed out "...that the reliability of a multiple regression analysis will be a function of the number of predictors and the sample size..." and that "...with respect to the latter this is general consensus that the larger the sample the better" (p. 1439). Sheskin further cites several other sources, all indicating need for large samples in multiple regression analyses. Based on this caution, the researcher determined that the sample for this study ($n < 50$ for the learning community group) was too small for this statistical treatment. The reasoning was that if differences were found on dependent variables among the ethnicity and gender variables, then these variables might be moderator variables, and a future study, with larger sample sizes, would be warranted to fully describe the interrelationships among the variables.

Theoretical Framework

The theoretical foundation for this study was based on three components: Kearsley and Shneiderman's engagement theory (1998), Tinto's model of student departure (1987), and Wenger, McDermott, and Snyder's community of practice (2002).

Engagement theory. Kearsley and Shneiderman's engagement theory (1998) posits that three elements are necessary in order to create an optimal learning environment. The three elements are: (1) relate, (2) create, and (3) donate. Student involvement is critical to the learning process, and greater retention of knowledge occurs when students understand, or are able to *relate* to how the knowledge can be applied in a real-life setting. The theorists stated that having students *create* solutions to situations they or others may encounter in real-life helps to increase transfer of knowledge. In addition, student gain greater satisfaction with the learning experience when they are able to use their newly acquired knowledge to benefit someone else (*donate*).

In this study's learning community, project-based activities and group exercises were used to engage students in the classroom, and were designed around real-life problems. The activities and assignments required immediate application of the concepts students were learning in order to help them make the connection between the information they were learning, and how it *related* to the real world. By having students work on problems, students were able to use their newfound knowledge to *create* practical or novel solutions. The learning community also included a service learning component where students worked with nonprofit agencies and individuals requiring assistance. The service learning activities were selected by the class, to resolve a need,

and resulted in achieving the *donate* element of engagement. These elements of the study's learning community tied it directly to Kearsley and Shneiderman's (1998) engagement theory and allowed the theory to support the predictive working hypothesis for the study.

Model of student departure. Tinto's model of student departure (1987) meshes well with engagement theory and outlines the conditions under which optimal learning will occur. Tinto identified conditions critical for creating a successful learning environment. First, *create a smaller community* through the use of block scheduling where students are enrolled in several classes together to form a cohort. Second, *incorporate social activities* into class tie to help students create connections to each other. Third, *integrate a career component* by inviting business leaders to share their experiences, and provide assessments to help students determine their strengths and weaknesses, and how to integrate that into the selection of a college major. Finally, as with engagement theory, *incorporate project-based activities* to supplement instruction, enabling students to identify the applicability of knowledge gained to real-life situations they may encounter personally or professionally (Tinto, 1987).

The learning community in this study followed the guidelines of Tinto's model. It was restricted to a group of 25 students who attended all classes together for the semester. The classes were team taught by two faculty. This created an informal and personal environment that resulted in the formation of deeper relationships with each other and the faculty in a far shorter period of time than is typical in most traditional teaching/learning environments. The learning community included speakers from business and industry, as well as various university services such as counseling, tutoring, and career services. The

speaker series were designed to help students learn more about career opportunities, and the speakers discussed minimum required education, job outlook, and pay. Students were required to complete career assessments to help better define their strengths and weaknesses, and researched potential majors to suit their particular interests. Field trips rounded out the learning community, and supplemented the career and social components espoused by Tinto, whereby students engaged with potential employers, as well as with each other, outside of the classroom. These components grounded the learning community design to Tinto's model (1987).

Community of practice. In this study, the learning community was one phase in the evolution of the community of practice. A community of practice (COP) is a group of people with common interests who come together to share knowledge and expertise resulting in problem resolutions, the development of new skills, and expansion of personal networks. The COP matures over time, creating social and organizational structures governing how the group interacts and learns (Wenger, McDermott, & Snyder, 2002). For this study, it was expected that as students "graduated" from the insulated learning community to the regular college environment, they would continue to share knowledge and problems with each other, transitioning to another phase of the COP.

COP theory aligns with Tinto's model of student departure in the importance of creating an environment that enhances certain features necessary for student involvement and engagement. Wenger et al. (2002) provided a framework for creating an effective COP environment by asserting that it must contain the following: (1) ensuring that time and resources are provided for learning, (2) encouraging participation of the members, (3) removing barriers to involvement and learning, and (4) providing members with the

opportunity to create their own processes, and the agenda for learning outcomes. These same elements are echoed in Tinto's model when he describes the importance of student involvement. For example, Tinto prescribes project-based activities to encourage and engage students. This suggestion is similar to the COP framework of encouraging member participation. Likewise, allocating time and resources, as well as removing barriers in the COP framework, are comparable to Tinto's learning community model.

In the learning community, engagement theory recommends incorporating activities to create, donate, and relate. This is similar to the COP prescription for creating a *rhythm for the community* where various activities are designed to change the way people communicate with each other (Wenger et al., 2002). For instance, some activities are designed to be small group interactions, whereas others are events for the entire group. Some events are meant to benefit others, while other activities are strictly for the benefit of the group. By changing the way people communicate with each other through these different events, it is expected that this will lead to a deepening of the relationship.

The theoretical and conceptual framework is undergirded by the COP because this theory best describes how knowledge is accumulated through learning. COP theory recognizes that individuals gain knowledge in three different ways.

1. Knowledge gains life through human experience: It is contextual, and is an integral part of all planned and unplanned events. Each member is a resource for all others because of the knowledge they gain from their own life experiences.
2. Knowledge is tacit and sometimes can only be learned through shared experiences where the knower shares through direct communication and collaboration.

3. Knowledge has a social as well as individual element in that rapid changes in technology, and advances in many areas, mean knowledge is continually being formed. Sharing what we know helps to keep everyone updated.

To create an effective learning community, OSUIT mined its data (reasons indicated on withdrawal forms and informal conversations with faculty) to determine why students leave. What was found was similar to the factors identified in scholarly research. Students stated they had difficulties managing work/school responsibilities, family obligations, and/or had financial constraints.

Figure 2 shows the Theoretical and Conceptual Framework for the Learning Community as it was defined in this research. It depicts how the theories selected to support the study identified potential moderator variables (including the ones conceptualized as independent variables in this study), elements to be included in the learning community, and the outcomes to be measured. Variables displayed in the dashed (---) boxes are beyond the scope of the proposed study, but indicate the focus of future research. Persistence and academic performance as short-term measurements of retention were the focus of this study as its dependent variables. Repeated persistence and continued satisfactory academic performance (over a one year period, minimum) define retention and were beyond the scope of this study. Repeated persistence and continued satisfactory academic performance (over a one year period, minimum) define retention. The research framework is elaborated in the literature review in Chapter II.

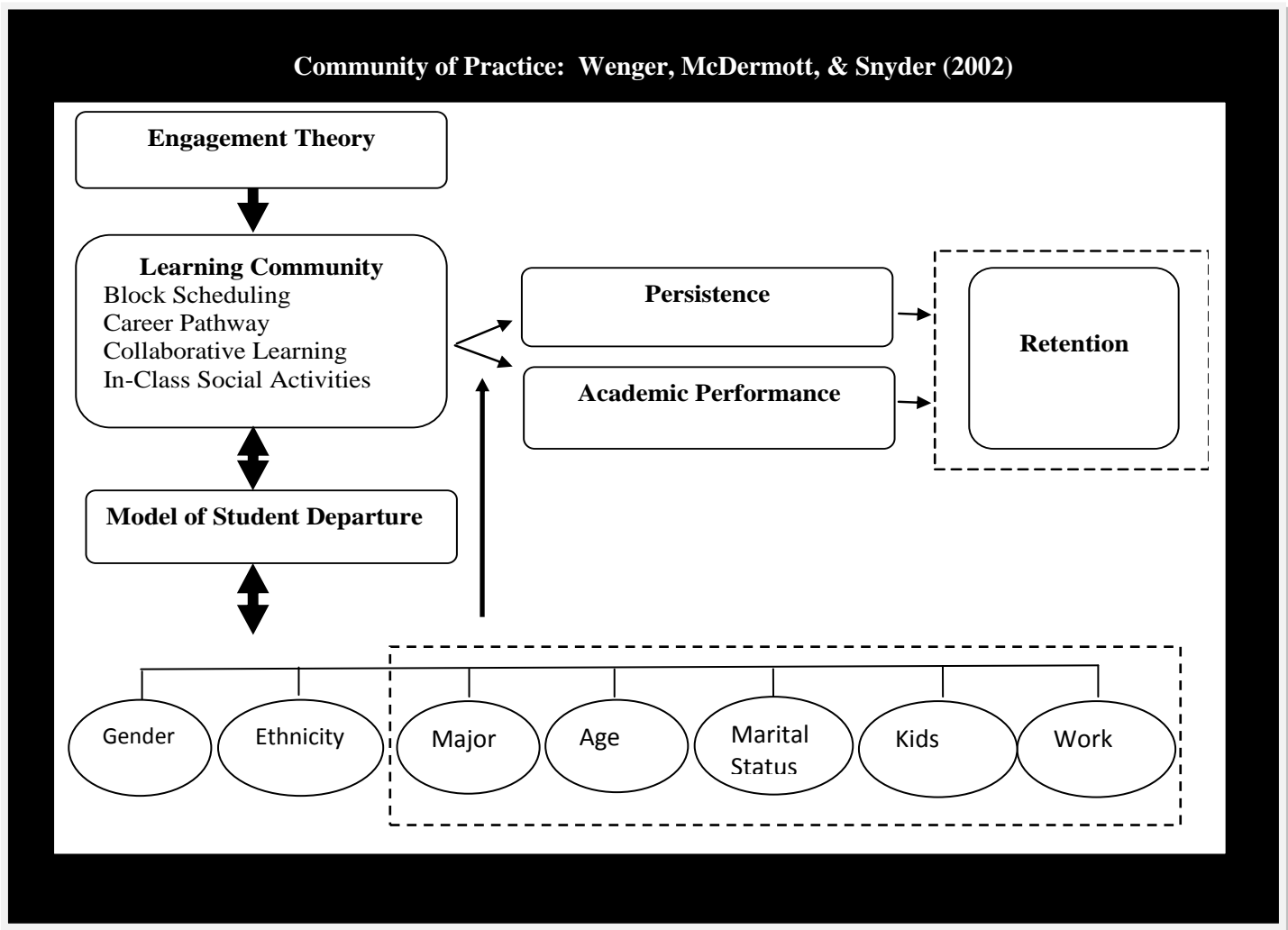


Figure 2. Theoretical and conceptual framework for the learning community.

Statement of the Problem

The problem for this study was how to utilize a learning community to influence academic persistence and performance of first-semester remedial students at Oklahoma State University Institute of Technology (OSUIT). The literature indicated that students pursuing technical degrees had lower rates of success in completing remedial sequences, and removing deficiencies (Jaggers & Stacey, 2014). This information could provide a useful approach to addressing the need to reduce the attrition of these students, which is a persistent problem. OSUIT is an open admission, public, state-supported technical

community college operating on a trimester system. A review of enrollment data for 2009-2011 indicated a 90% rate of attrition for students with three academic deficiencies, or 100 students annually.

Attrition is problematic for several reasons. First, state funding formulas and the evaluation of an institution's effectiveness are directly tied to enrollment (e.g., headcount, full-time enrollments, and number of graduates produced). A decline in any of these figures has the potential to reduce the amount of state aid allocated to OSUIT. Second, each full-time student generates approximately \$2,198 in tuition and fees for fifteen (15) credit hours per semester. Attrition of first-semester students is estimated to result in a loss of \$198,820 per semester in revenues or \$593,460 annually. Third, the economic cost to both students and the United States economy is enormous. As a result of college dropouts losing out in the increased earnings associated with a postsecondary degree, there are less federal income tax dollars collected, lost state income tax revenues, and loss of sales tax revenues. For the drop outs, lowered earnings means a reduction in long-term earning power. The cumulative effect of annual differences in the lifetime earnings between those persons with a high school diploma, versus those with a bachelor's degree, can be as much as \$500,000 (Schneider & Yu, 2011). Figure 3 shows a difference of \$5,000 in median earnings between non- and high school graduates, and an even larger earnings gap between bachelor's degree students and those without this degree.

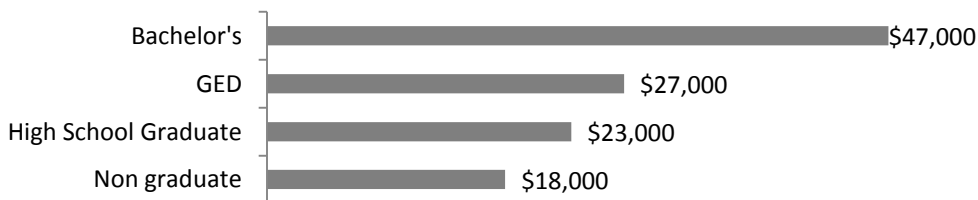


Figure 3. Median earnings by degree attainment. Source: "AIR High Cost of Low Graduation," by M. Scheider and L. Yu, 2011.

The problematic nature of student attrition underscores the dangers of the lack of empirical evidence regarding the relative efficacy of specific instructional strategies that may ultimately lead to a lowering of attrition rates. This supports the significance of the problem identified for this study regarding the potential value of a learning community.

Purpose of the Study

The purpose of this research was two-fold. First, the study examined whether learning communities influenced the persistence and academic performance of first-semester students with academic deficiencies in the technical community college environment of Oklahoma State University Institute of Technology. Second, the study also examined how the demographic factors of gender and ethnicity influenced persistence and academic performance.

Justification for Mixed Methods Embedded Design

Based on the purpose of the study, a *mixed methods research* design was chosen because a strictly quantitative design may limit understanding the effects of the learning community (treatment) on the dependent variables of student persistence and academic performance. The literature states that researchers must find ways to explain the student outcomes, and how they are improved (Commander & Ward, 2009; Cresswell & Plano Clark, 2011), and a mixed methods can complement the quantitative data by demythologizing (uncovering) the meaning behind the numbers. Furthermore, the use of an *embedded design*, where qualitative data was collected after the completion of the learning community, allowed the researcher to obtain data on how participants felt about

the learning community experience, and what suggestions they had for improving the learning community experience for future students.

Research Questions

This study addressed the following questions:

1. Does the persistence frequency differ between first-semester remedial students:
 - a. who belong to a learning community group and those who do not?
 - b. on the basis of gender?
 - c. on the basis of gender between groups?
 - d. on the basis of gender within groups?
 - e. on the basis of ethnicity?
 - f. on the basis of ethnicity between groups?
 - g. on the basis of ethnicity within groups?
2. Does the academic performance (average GPA) differ between those who belong to a learning community group and those in the control group?
3. Does the percentage of earned-to-attempted hours differ between those who belong to a learning community group and those in the control group?
4. Does the PACE rate (completion of 75% of the attempted credit hours) differ between those who belong to a learning community group and those who do not?
5. Does the reading performance differ between first semester remedial students:
 - a. who belong to a learning community group and those who do not?
 - b. on the basis of gender?
 - c. on the basis of gender between groups?

- d. on the basis of gender within groups?
 - e. on the basis of ethnicity?
 - f. on the basis of ethnicity between groups?
 - g. on the basis of ethnicity within groups?
6. Does the English performance differ between first-semester remedial students:
- a. who belong to a learning community group and those who do not?
 - b. on the basis of gender?
 - c. on the basis of gender between groups?
 - d. on the basis of gender within groups?
 - e. on the basis of ethnicity?
 - f. on the basis of ethnicity between groups?
 - g. on the basis of ethnicity within groups?
7. Does the math performance differ between first-semester remedial students:
- a. who belong to a learning community group and those who do not?
 - b. on the basis of gender?
 - c. on the basis of gender between groups?
 - d. on the basis of gender within groups?
 - e. on the basis of ethnicity?
 - f. on the basis of ethnicity between groups?
 - g. on the basis of ethnicity within groups?
8. What are the perceptions of the focus group learning community participants about their experiences in a learning community?

Definition of Key Terms

To guide readers more effectively through this discussion of key terminology and variables used in this study, the definitions below are sequenced logically rather than alphabetically. This ordering was done deliberately to guide readers through a logically-structured discussion of the study's key variables and how they were operationalized.

Learning Community

A learning community is a cohort of students who share some predefined set of characteristics, are enrolled in the same set of classes, and participate in enrichment activities incorporated into the curricula (Buch & Spaulding, 2008; Potts & Schultz, 2008; and, Tinto, 2004). OSUIT's learning community was designed for students who need remediation in reading, English, and math, and limited to 25 seats. In addition to the remedial courses in reading, English, and math, students were also enrolled in a one credit hour computer literacy course. Students were taught in a partnered teaching format, and the enrichment activities included industry speakers sharing information about various career paths, service learning activities, and pedagogy centered around collaborative learning with project-based assignments completed in class.

As stated earlier, student retention is usually defined by metrics more suitable to four-year institutions. Community college researchers are challenged by such long-term definitions and instead must define student retention with due consideration of the diverse goals of its student population (Wild & Ebbers, 2002). As this study was conducted at Oklahoma State University Institute of Technology, which is not a four-year institution,

short-term measures of success needed to be used that, if shown to relate to retention, could then be used to predict retention for future students.

Retention Metrics

Wild and Ebbers (2002) described a number of measures that could be used to define retention, and are easily adapted or modified for use in any postsecondary institutional setting. These included:

- Percent of degree-seeking students who attend a certain number of semesters in a predefined period.
- Percent of degree-seeking students who stop out after one semester and do not return in a predefined period.
- Percent of students who progress from developmental English to college-level English or from developmental math to college-level math.
- Percentage of earned-to-attempted credit hours.
- Percent of students graduating or completing goals within a predefined period of time.
- Number of hours earned by students who must complete remedial courses.

These variables were useful in identifying and operationalizing the variables for this study, and will be considered again in future studies by this researcher.

Operational Definitions of Variables in This Study

To meet the specific needs of this study and the academic environment in which it was conducted, variables in the theoretical and conceptual/research framework were

operationalized with appropriate specific definitions. These were tabled for ease of reading. Table 1 presents operational descriptions and data coding of the variables used in this study.

Table 1

Operational Definitions and Coding of Variables in the Study's Theoretical and Conceptual Frameworks

Variable	Variable Operational Definition and Coding for Analysis
Learning community	<p>The grouping or independent variable in this study, treated as a quantitative nominal variable describing those participants in a learning community as compared to those who are not in a learning community with the following categories:</p> <ul style="list-style-type: none"> • Learning Community (1) - students in the learning community who need remediation in reading, English, and math • Control Group (2) - students who need remediation in reading, English, and math, and are not in the learning community • Remedial Group (3) - students who need remediation in only one-to-two subjects, and are not in the learning community
Retention	<p>A long-term variable beyond the scope of this study. The test or dependent variable for a <i>future study</i>, treated as a quantitative nominal variable describing the continuous enrollment from one year to another of the participants with the following categories:</p> <ul style="list-style-type: none"> • Retained (1) • Not Retained (2)
Academic performance	<p>A test or dependent variable for this study, comprised of quantitative scale (continuous) variables and nominal variables comparing the following between subject groups:</p> <ul style="list-style-type: none"> • Mean Academic Performance (scale variable) - a comparison of the overall GPA of the learning

- community group to the control group
- Percentage of Earned-to-Attempted Hours (scale variable) - a comparison of the overall percentage of the learning community group to the control group
- PACE (nominal variable) - a comparison of the percentage of students in each of the groups (learning community, control, and remedial) who earn 75% of the total attempted hours.
 - Met PACE (1)
 - Did not meet PACE (2)
- Pass Rate (nominal variable) - a comparison of the percentage of students who passed remedial classes. Pass rate will be determined by subject (English, reading, and/or math) between the learning community, control, and remedial groups.
 - Passed remedial class (1)
 - Did not pass remedial class (2)

Persistence

A test or dependent variable for this study, treated as a quantitative nominal variable, comparing the percentage of students in the learning community who re-enroll in the following term to those in the control group.

- Persisted (1)
- Did not Persist (2)

Gender

Treated as a quantitative nominal variable describing the gender of the participants with the following categories:

- Male (1)
- Female (2)

Ethnicity

Treated as a quantitative nominal variable describing the race/culture group of the participants with the following categories:

- Black (1)
- White (2)
- Asian or Pacific Islander (3)
- Native American (4)
- Hispanic (5)
- Foreign Student (6)

Perceptions about the learning community experience	Treated as a qualitative variable reporting the stated opinions and feelings of the focus group comprised of students who were in the learning community group
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Researcher's Perspective

My career has primarily focused on the recruitment of students. This study provided an opportunity to stretch my professional abilities in a meaningful way. I take great pride in explaining what I do as follows: "I help people achieve financial independence and security through education. I am the Vice President of Student Services, and my name is Ina Agnew." However, I cannot state this with a clear conscience if the reality is that greater numbers of students are coming into college unprepared, and they are not remaining at OSUIT.

I expect that by addressing student remediation through the learning community instructional treatment, and using the results to improve what has been learned through this study, the University will experience an upsurge in enrollment and graduation rates. The learning community is a way to help our students persist, and perhaps even improve, their academic performance. Should the model examined in this study be successful, I plan to develop additional learning communities to target specific populations. Furthermore, based on division budget expenditures, the cost to retain students is much lower than it is to recruit new students. Enrollment gains resulting from increased student persistence, and ultimately greater retention, will enable me to reallocate funds better used for student support services.

Significance of the Study

The research is significant in that it has several implications for higher education, and may result in important contributions to research and practice, particularly for trade, vocational, and technically-oriented college programs of study. Retaining (and consequently graduating) more students will lead to a greater number of skilled workers ready to meet the workforce skills gap, and may help to demonstrate the value of higher education to a growing number of critics.

Empirical Significance

This study expands the repertoire of research addressing student remediation, persistence, and academic performance. In addition, it contributes to a growing body of knowledge focused on learning communities and best practices, and broadens the type of institutions in which those studies are conducted. Furthermore, because many studies still measure retention success based on the definition of data elements best suited to baccalaureate degree-granting institutions, this study will help to define the differences between two- and four-year institutions, and why they should be evaluated differently (Wild & Ebbers, 2002).

Theoretical Significance

This study makes several theoretical contributions to the theories utilized for the framework. The study may contribute any or all of the following:

- Corroborate Kearsley and Shneiderman's Engagement Theory (1998) by demonstrating how an applied (hands-on, project-based) learning environment contributes to an increase in learning.

- Provide evidence that creating activities to help students make the connection between what they are learning and how it relates to their lives, strengthens the learning experience, thus providing additional confirmation of Engagement Theory.
- Contribute to the literature on retention by validating the factors identified by Tinto in his Model of Student Departure (1987) on creating an optimal learning environment.

Practical Significance

Several practical benefits may accrue from this study, including:

- Help practitioners identify ways to improve classroom learning and engagement.
- Positively affect institutional performance resulting in increased state funding and eligibility for grants.
- Increase the institutional revenue generated through student tuition and fees.
- Increase the institutional revenue generated through auxiliary services such as residence life, food service, and bookstore operations.
- Increase state allocations through the Oklahoma State Regents' funding formula.
- Improve graduation rates of students with the credentials to become gainfully employed and earn livable wages.
- Address the need for a larger labor force with the technical skills needed for high-demand occupations.
- Lower the loan default rate for the university.
- Address burgeoning concerns with unemployment and underemployment rates.

Limitations and Assumptions of the Study

Assumptions

- It was assumed that the study's participants made sincere academic effort during the study.
- It was assumed that participants in the learning community group understood how to participate in the learning community and made sincere effort to participate.

To the extent that either of these assumptions was not true, the data obtained may be inaccurate and unreliable.

Limitations

- The quasi-experimental research design limits the internal validity of the study and makes it difficult to state with certainty all the other plausible explanations that may account for any observed effects.
- The sample may not be a good representation of the OSUIT remedial population. This limits the generalizability or external validity of the study.
- The study lacks random assignment of students to the treatment group. To accommodate the requirements of the institutional environment, placement was dependent upon when the student enrolled into classes because enrollment into the learning community was on a first-come, first-served basis until all seats were filled. A review of adjudication records indicates that those students who register for classes later in the enrollment period generally have greater disciplinary issues and are less prepared for college. This means that the more difficult students may have been

automatically excluded from the learning community group, which could have altered the outcomes of the study. This research design problem represents limitations on both the internal validity of the study, and the generalizability of its findings.

- Difficulty arises with integrating results of the quantitative and qualitative data analyses as they are used to answer different research questions. This might limit insights gained from the mixed methods design of the study as some data relationships may be missed.

CHAPTER II

LITERATURE REVIEW

There are two primary goals to accomplish when writing a literature review for a dissertation: (1) to provide a 360° view of the topic and (2) to demonstrate mastery of the field being studied (Galvan, 2009). For the literature review in this study, the researcher introduced and expounded on concepts that are commonly found in the field of student retention. In addition, the researcher felt it was necessary to include emerging terms and new insights that are indicated in the literature.

The researcher was evaluating if a learning community influenced the persistence and performance of first-semester students with academic deficiencies. In her theoretical and conceptual framework, the learning community was also defined as one stage of a community of practice. To this end, it was necessary that the literature review defined what are academic deficiencies (remediation), the vocabulary describing deficiencies, how the literature described learning communities and populations served, purposes and designs of learning communities, and definition of a community of practice and its phases.

Remediation

The Oklahoma State Regents for Higher Education (OSRHE) labels students as academically deficient when they fail to meet "either the minimum ACT subject scores

(English, math, science reasoning or reading) or institutional secondary assessments required for a student to enroll in college-level courses in the subject area" (OSRHE, 2011, p. 84). If students fail to earn a minimum of 19 on any of the subtests of the ACT, the students must remediate. Remediation is defined by OSRHE as the "process for removing curricular or basic academic skills deficiencies through remedial/developmental course work or supplemental instruction...or other interventions that lead to demonstration of competency" (OSRHE, 2011, p. 84). Students remediate by taking "zero-level courses that do not carry college credit and are designed to raise students' competency...to the collegiate level" (OSRHE, 2011, p. 84).

Non-Standardized Applications of Policy

While OSRHE states students must earn a minimum of a 19 on the subjects of the ACT, or the equivalent on other exams, this cutoff score is only applicable to community colleges. The ACT organization research shows that students who do not achieve a 19 ACT subject score, and are placed directly into the college-level class for that subject, are more likely to fail the course (ACT, 2010). Regional and research institutions set higher standards for students to demonstrate competency to enroll in college-level classes.

To compound the confusion on how to determine who needs remediation, the definition varies by state, governing board, and even by individual institutions. Remediation is not required by all, and in many cases, students may bypass remediation and take the college-level courses as prerequisites are not established (Bailey, Jeong, & Cho, 2009). The OSRHE leaves it up to each institution to establish its own standards *as long as it meets or surpasses the minimum cutoff score*. This means a student may be declared remedial at one institution, and non-remedial (ready for placement into college-

level classes) at another institution (Deil-Amen, 2011; OSRHE, 2011). Table 2 shows the myriad ways in which remediation is defined.

Table 2

Comparison of the Application of Remediation Policy

Assessment Factors	Enforcement of Standards	Oklahoma
Instruments to assess readiness	<ul style="list-style-type: none"> • Institutionally-developed • National • Combination of national and in-house • Overall GPA • Self-Reported 	Combination of national and in-house
Cutoff Scores for placement	<ul style="list-style-type: none"> • Varies by type of institution • State mandate • Governing board mandate 	Mandated by state policy with minimum standards set for two-year, regional, and research institutions
Placement into remedial classes	<ul style="list-style-type: none"> • State mandate • Recommended, but not required • Disregarded 	Minimum standards mandated by state policy by type of institution
Application of Credit	<ul style="list-style-type: none"> • For credit • Non-credit 	Non-credit
Assignment of Grades	<ul style="list-style-type: none"> • Letter Grades • Pass or Fail 	Pass or Fail
Financial aid to cover cost of remedial classes	<ul style="list-style-type: none"> • Federal aid applied • Federal aid not applied 	Depends on type of institution, but generally applied
Transcribing of Credit	<ul style="list-style-type: none"> • Class counts toward a degree at awarding institution only • Class counts toward a degree • Class does not count toward a degree 	Class does not count toward a degree

As Table 2 indicates, "a slippery slope characterizes the placement and classification systems that determine who enrolls in remedial courses and who does not" (Deil-Amen, 2011, p. 61).

The Language of Remediation

There is much disagreement among experts on the definition of *college-ready*. In fact, the policies and regulations governing how readiness is assessed, and consequently how students are assessed, placed, and instructed varies by state, college, and even program (Bahr, 2012; Bailey et al., 2009). College-ready and non-remedial are not necessarily synonymous. The literature appears to define college-ready as students whose scores allow them to bypass remediation (Deil-Amen, 2011; OSRHE, 2011). Those students who don't meet the cutoff scores on national or institutional placement tests are classified as remedial. Yet, the literature also reveals that remedial and non-remedial students oftentimes struggle to complete a degree because they are not "college-ready" (Deil-Amen, 2011). In some scholarly research, college-ready refers to the maturation level of the student, *in addition to* the student's academic preparedness to begin college-level work (Bahr, 2012; Deil-Amen, 2011). However, through the literature review, a common set of terms and definitions emerged and defined below (Bahr, 2012, Bailey et al., 2009; Deil-Amen, 2011; OSRHE, 2011).

Point of Entry. This term refers to a student's skill level for a particular subject upon entering college. At OSUIT, for example, a student earning a 45 on the pre-algebra compass exam would be eligible to enroll at the second level of remedial math, MATH0153.

Breadth. A term used to describe a student's skill level resulting in a deficiency in more than one subject. For example, a student may need to remediate in reading and math, as determined by performance on the compass test.

Depth. A term used to describe a student's skill level resulting in the need to remediate in more than one level of the same subject. In this case, a student may have scored lower than a 45 on the pre-algebra compass exam. Because the minimum cutoff score was not met, the student would have a *depth* deficiency in that the student would need to complete MATH0143, followed by MATH0153.

Placement. Describes how the institution determines the student's academic preparedness to enter into college-level classes. Placement is generally handled through some sort of institutionally-designed placement test or the use of scores on standardized tests.

Skill level. The term used to describe a student's academic preparedness.

High skill. This term describes a student whose score is just below the cutoff point to enter directly into a college-level class.

Low skill. The term used to describe a student whose score indicates the need to take one or more remedial classes to remove the academic deficiency. For example, a low skill student is one who needs arithmetic, pre-algebra, and intermediate algebra before removing the academic deficiency to finally take college-level algebra.

Sequence. The term used to describe a prescribed set of courses that must be completed in order to remove academic deficiencies.

Sequence completer. A sequence completer describes any student who has completed and passed the highest level of remedial education for a specific subject.

Delays. Delays describe situations in which a student does not progress to the next course in the sequence because the student failed to pass a course on the first attempt. The literature indicated that students do not typically repeat the course they did not pass.

College-level competency. The student achieves college-level competency when the sequence of remediation needed for a particular subject has been completed, and the student advanced to the college-level course and earned a passing grade. Note that this term is different from *removing a deficiency* which is defined as completing the prescribed course or sequence of remediation in a particular subject. For English, success would be defined as completing freshmen composition or a comparable writing course that fulfilled the general education composition requirements (Bahr, 2012).

Is Remediation Necessary?

The research on the benefits of remediation indicated mixed results. There are some programs that reported modest, positive results and others that had no empirical evidence to support the claim that enrollment in remedial coursework resulted in degree completion (Deil-Amen, 2011; Handel & Williams, 2011). Findings from a series of studies conducted on behalf of the Community College Research Center reported the following (Bahr, 2012; Bailey et al., 2009; Jagers & Stacey, 2014):

- Enrollment into remedial courses has negative effects on student outcomes for students whose scores are near the cutoff points.

- The success of remedial efforts appeared to be tempered by student demographics and the extent to which the student is academically prepared.
- Remediation appeared to be ineffective for female students, students younger than 25, and black students.
- Attrition and failure may not necessarily be a function of the remedial instruction or sequence.

Demographics of Remedial Students

Students requiring remediation come from a number of different backgrounds and various levels of academic deficiency. Furthermore, these students share many of the non-cognitive characteristics found in first-generation and minority students such as low income household or lacking a support system. There is extreme variation in characteristics of the students who vary by skill level, mental acuity, language, etc. These high-risk factors are concentrated in the remedial population, but there is no one way to describe this population (Bahr, 2012; Grubb, 2010).

Predicting success. Studies indicated that the following characteristics were associated with a lower probability of retention and graduation

- working while enrolled,
- part-time attendance, and
- studying in vocational areas (Bailey et al., 2009).

Determinants of success. Studies indicated that students who shared the following characteristics had a higher probability of successfully remediating and completing degree requirements:

- pursuing a major in the liberal arts,
- of Asian or Filipino descent,
- traditional college-age student defined as a student between the ages of 17-20, and
- female (Bahr, 2012; Bailey et al., 2009).

The Costs of Remediation

Although funding may be addressed in many ways, Oklahoma allows its public universities to establish their own fee structure for remedial courses. In 2007-2009, fees charges to students enrolled in remedial courses generated \$2.2 million. Nationally, less than one percent of the total public higher education budget is expended on remediation (OSHRE, 2011). In separate studies funded by the Community College Research Center, estimates to fund remediation at community colleges in the United States ranged from \$1.9 to \$7 billion annually (Bailey et al., 2009; Jagers & Stacey, 2014).

The Strong American Schools report, as cited in Reimagining Remediation, concluded that students and families incurred \$700 million annually in tuition and fees for remedial coursework (Handel & Williams, 2011). The costs to students and families go beyond tuition and fees, however. Students take on debt to cover the lost earnings while in classes, deplete eligibility for financial aid (in some states like Texas), and lose time spent on personal obligations or charitable work (Bailey et al., 2009). However, critics bemoaning the need to deliver remediation in higher education institutions may not recognize the cumulative effects of failing to offer such assistance to students. The financial costs are miniscule when compared to the costs of failure (e.g., lower graduation rates, declining skilled workforce, increasing illiteracy rates, and lower tax base) because

of employment in low-wage jobs (OSRHE, 2011). Students bypassing remedial courses are 17 to 39 percent less likely to earn a formal award as compared to students who do enroll in postsecondary remedial courses (National Center for Education Statistics [NCES], 2004).

Factors Affecting Remediation Success

In addition to the characteristics of remedial students, there are other factors that affect efforts at remediation.

Skill Level

Scores on placement tests indicate the *point of entry* for students into *sequence* of remedial courses, or college-level classes mitigate success. Research conducted by Bahr (2012) indicated the following:

- The majority of college students who start in remedial sequences are unable to succeed in the subsequent college-level subject.
- Students with more levels of academic deficiencies do not reach the skill level to successfully complete the college-level class at the same rates as students who have a deficiency that does not require as many levels of remediation.
- Students who begin at the lowest levels of skill in the remedial sequence leave in greater proportion than those who begin at higher skill levels.
- Students who need remediation in more than two subjects have a higher failure rate than those who need remediation in just one-to-two subjects.
- Low-skill students leave higher education prior to achieving college-level competency as compared to high skill students.

- It takes an average of five semesters for the lowest-skill level students to complete remedial sequencing and demonstrate competency by passing the college-level course.
- High-skill remedial students achieve college-level competency at higher rates than do low-skill remedial students, even when controlling for persistence.

Sequencing and Timing

Sequencing is the series of prescribed classes a student takes to remove an academic deficiency. Problems with sequencing occur because there are any numbers of actions that can occur, affecting time to completion. Students might totally bypass the recommended sequencing, enroll in the wrong level, pass or fail one or more of the levels, or fail to enroll in subsequent levels. The literature indicates the following (Bahr, 2012; Bailey et al., 2009):

- Very few students complete the full sequence of remedial courses.
- Female students across the board had higher remedial sequence progression than male students.
- A high portion of the students who followed the prescribed sequence never pass the first course.
- A higher proportion of students never enroll in the initial or subsequent course in the sequence than students who fail or drop out of the sequence.
- Students who do not complete the prescribed remedial sequence after beginning college are very likely to leave without earning any type of credential. Depending on

the subject area, between 33 to 46 percent of students actually complete their entire remediation sequence.

- Students who did not take their first remedial course immediately upon entering college had higher fail rates than those who began their remediation sequence during the first semester of college.
- Students who delayed taking their first course in the sequence were less likely to attempt completion of the next step in the sequence.
- Delays between remedial courses may result in lower graduation rates for two reasons: (1) it takes longer for the student to achieve college-level competency, and (2) by the time the student returns to the remedial sequencing, much of the material previously learned may be forgotten.
- Students with more levels of deficiency in math or writing (English) were more likely to delay taking the first level remedial course, and were less likely to pass the class.

The Link Between Remediation and Academic Performance

The successful completion of the remedial sequence appears to be correlated to earning passing grades. The literature indicates (Bahr, 2011; Bailey et al., 2009; Jagers & Stacey, 2014):

- Students who earn a non-passing grade at any point in the remedial sequence are less likely to advance to the next step.
- Students who earn a non-passing grade, and advance to the next step, are more likely to fail at their first attempt to pass subsequent levels.

- Students who earn a non-passing grade are more likely to delay taking the next course in the sequence.
- Students who fail their first remedial course are more likely to leave.
- Students whose placement scores were near the cutoff score showed no difference in pass rates as compared to students who achieved the cutoff score and enrolled directly into college-level classes.
- Black students had lower pass rates in math than whites.
- Black students had lower pass rates in reading than whites.

The Link Between Remediation and Persistence

- Remedial efforts had positive effects on the persistence of foreign students, particularly those who took both reading and writing developmental courses.
- Students who remain enrolled for five semesters were more likely to enroll in remedial courses in other deficient areas, take more credit hours, and achieve a postsecondary credential or upward transfer to a four-year institution.
- Persistence in college is more likely to be achieved by students who are female, of Asian or Filipino descent, or a traditional college-age student.
- Even if students persist, remedial students of low-skill level still have a higher differential loss relative to those students who entered at a higher skill level.

Learning Communities

Numerous studies have indicated that learning communities are adaptable in design and purpose, and may encompass multiple student retention strategies. They may be used to support diverse student populations (Trammell & Bruce, 2008), and can target

a specific population such as undecided students (Corbo, 2010), online students (Moore & Fetzner, 2009), graduate students (Kraska, 2008), or students living in the same residence halls (Corbo, 2010; Muldoon & Macdonald, 2009). Additionally, learning communities are flexible enough that other components, such as peer mentoring or freshmen seminars, may be readily integrated to customize the learning communities to the needs of the institution and its students. To serve as an advanced organizer and overview for readers, the literature selected by the researcher for the review presented here, Figure 4 presents a graphic summary of the existing literature selected for this review on learning communities.

Definition

Learning community definitions are as diverse as the institutions and purposes for which they are put to use. One definition stated that learning communities are "small, focused groups of students, faculty and staff organized for a common purpose" (Browne & Minnick, 2005, p. 775). Another definition is it's a community whereby members are able to share issues of concern, cultivate relationships with others, and learn to work and play together (Muldoon & MacDonald, 2009). In general, a learning community is any small group of students enrolled into a block of courses, based on some common interest, to form a community of collaborative learning and social development (Buch & Spaulding, 2008; Potts & Schultz, 2008; Tinto, 2004).

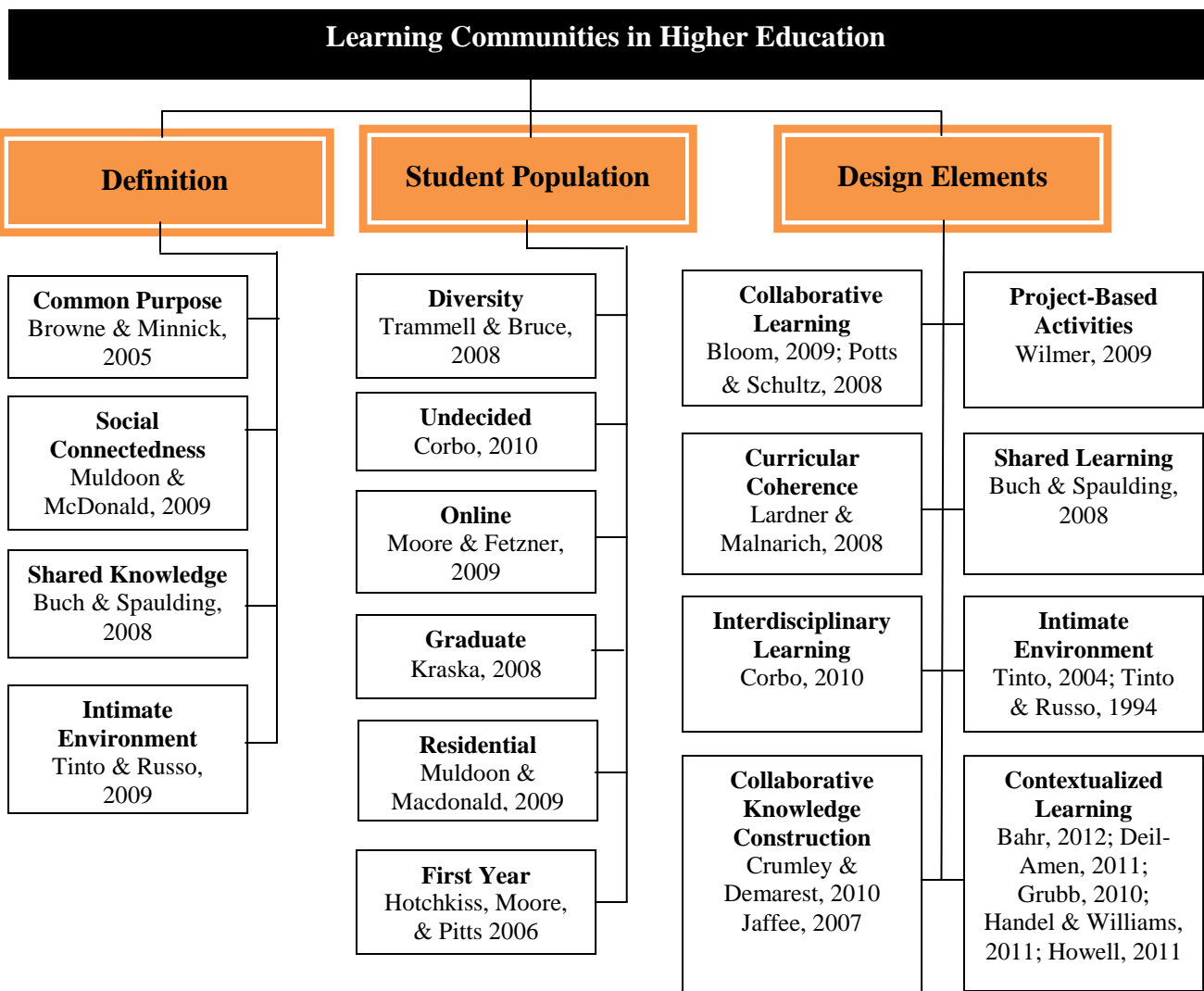


Figure 4. Literature map of selected learning community literature. Design adapted from "Research design: qualitative, quantitative, and mixed methods approach," by J.W. Cresswell, 2009.

The three common building blocks establishing the foundation of any learning community are (Buch & Spaulding, 2008):

- shared knowledge,
- shared knowing, and
- shared responsibility.

Shared knowledge. The learning environment is created by bringing together students who have similar characteristics or interests (Buch & Spaulding, 2008).

Research indicates that these intimate environments, where students feel connected to others, create a learning situation where students are more interactive, willing to speak up and express their thoughts and opinions (Muldoon & Macdonald, 2009; Moore & Fetzner, 2009; Tinto & Russo, 1994). As a result, knowledge is collectively generated and shared.

Shared knowing. In a learning community, students are generally enrolled in the same common courses or block, and may have one or two other classes that they take with students from the general population (Corbo, 2010; Crumley & Demarest, 2010; Potts & Schultz, 2008). The teaching approaches may differ. For example, in an interdisciplinary approach to teaching, instructors share the same students, but not the same classroom space. In partnered teaching, instructors share the same students *and* the same space. Regardless of the format used, instructors collaborate on the materials that will be presented in the separate subjects, but choose materials that will complement each other, and create assignments that overlap and build upon each other (Corbo, 2010). Because of the intimacy of the learning environment (e.g., restricted class sizes, common interests) students achieve a higher level of cognitive functioning and understanding because the learning spans subjects both in and outside of their major (Buch & Spaulding, 2008).

These shared classes also lead to intensified contacts between the students and faculty, which in turn leads to greater knowing as knowledge is constructed by the interactions of students and teachers working together. And, it also leads to *practical*

wisdom. Practical wisdom is the application of information and knowledge (Elias & Merriam, 2005). Because of the deep learning that occurs, students are able to transfer and apply what has been learned to new or different circumstances (Wilmer, 2009).

Shared responsibility. Pedagogical approaches in which students are engaged in learning together are not untypical. Synonyms for this type of approach include active, cooperative, collaborative, group and team learning (Bloom, 2009). Shared responsibility is achieved through group work and participation in service learning activities where students have an opportunity to give back (donate) to the community (Buch & Spaulding, 2008; Kearsley & Shneiderman, 1998).

In one learning community design, students were enrolled into first year interest groups based on themes. In the social and cultural awareness interest group, for instance, students partnered with a local cold weather shelter to provide meals throughout the winter. Faculties developed and conducted curricular programming efforts to provide learning opportunities within and outside of the classroom setting (Crumley & Demarest, 2010).

In a unique twist, an experimental study in collaborative testing was conducted where students in one psychology class were allowed to collaborate on tests, while in the control group, students took tests independently. Collaborative testing refers to students working together to complete an exam. Students were allowed to share resources, explain their responses, keep or discard answers, and reach a consensus on the final response. What the researcher discovered is that deep learning occurred through collaboration. Students in the test group had higher recall and greater transfer of

knowledge than the students in the control group, and that this *knowing* persisted over time (Bloom, 2009).

Learning Communities as Communities of Practice

In a community of practice, there are five stages of development. Learning communities appear to follow these cycles at various speeds of maturation. Just like communities of practice, the evolution of learning communities are dependent upon how much planning and preparation went into the development of the group, and how the relationships among the participants (e.g., faculty, staff, and students) coalesced. The five stages for communities of practice are (Wenger et al, 2002)

- potential,
- coalescing,
- maturing,
- stewardship, and
- transformation.

Potential

In stage one of development, the main task is to find common interests to bind or attract the participants. When participants realize that other people share similar concerns or deficiencies, the group is more likely to have greater durability. It is this "connection" that results in the long-term success of the group even in times of conflict or stagnation, than groups formed where members do not have common ground. Learning community interests might be major, college readiness, student classification, or any

number of other variables. Three elements must be satisfied in order to drive sustainability of the group.

Purpose of the group. The main question to answer when assembling a community of practice/learning community is, "what will be the goals and objectives for the development of this group?" Articulating upfront why the group is needed, and how participants will benefit from involvement is key to building membership. Goals may include increasing subject pass rates, eliminating deficiencies, or even workforce preparedness.

Membership. Once the purpose of the group has been determined, members need to be recruited. Having a strong purpose identifies the characteristics of the persons who will be invited to join. The question to be answered is, "who stands to benefit from involvement in this group?" Members might be comprised of students with subject deficiencies, first-time freshmen, or even all degree-seeking students. The successful response then leads to the third key element of potential, learning needs.

Learning needs. With goals or the focus of the group outlined, and members to be recruited identified, the third element must now be addressed. The question to be answered is, "What learning needs does the group share?" Understanding the needs of the members sets the course for creating a calendar of activities, curriculum, and other events for the accumulation of knowledge.

Coalescing

At this stage, the community of practice begins meeting. How the group is launched may occur in a variety of ways including special events, meetings, a symposium, or other activities.

Collective knowledge generation. It is critical that these events include a focus on the importance of sharing knowledge. This sharing establishes the expectation that the opinions of the participants are important and encouraged.

Building trust. Without trust, the community of practice cannot function. The success of the group is dependent upon participants developing relationships that make them feel secure and comfortable enough to engage in team projects, collaborative activities, and knowledge-building lessons.

Maturing

During this stage, the community of practice shifts from starting to sustaining. During maturation, roles are clarified as members become more familiar with each others' strengths and weaknesses, interests, and level of commitment. Learning becomes deeper as members move from sharing information to engaging in projects that allow each to develop areas of expertise to lead the group.

Preservation of relationships. A sense of intimacy develops among the members, and shifting roles and expectations may cause some of those relationships to change. At this point, the goal of the group is to maintain solid relationships, while continuing to meet the needs of the learners.

Shifting resource boundaries. Resources expand as members of the group take on leadership of the group or leadership of different activities. Bringing in speakers, referrals to services, etc., may cause tensions among the members of the community of practice as it disrupts the normal, established routine of the group. Remaining true to the core purpose of the group can become a challenge for the instructors or leaders of the

group. Continual review of the goals for the group, and how these new resources achieve those purposes, must take place.

Stewardship

As relationships within the group change, participation tends to wind down. The community goes through a series of cycles in which participation climbs then dwindles. The leaders must be vigilant in its planning and implementation of a variety of activities to continually re-engage the group, as no one type of event is attractive to all of the members. By offering a variety of curricular programming, different members may stake out ownership and take the lead on those events.

Transformation

The issues that caused the development of the group may fade away, or come to a natural end. The continuation of the group depends upon the ability of the membership to connect in new and different ways. Some relationships are such that while the interests that brought the group together have come to an end, the members transform into a new group with a new focus and learning objectives.

Factors in Designing and Implementing Learning Communities

When designing the learning community, there is a delicate balance between how it is structured, and how students are taught. The Washington Center, a national resource center for learning communities, works with two- and four-year institutions to exchange knowledge for creating collaborative environments challenging faculty and staff to develop innovative curriculum and instructional strategies to enrich classroom

experiences taking students beyond books into real-world applications of knowledge learned to complex situations. Designers are advised to include the following four elements into any learning community design (Lardner & Malnarich, 2008)

- curricular coherence,
- interdisciplinary learning,
- collaborative knowledge construction, and
- contextualized learning.

Curricular Coherence

Coherence in the curriculum refers to a methodology where faculties identify what they want students to learn and be able to apply in the class, in the discipline, and in the real world. Sometimes referred to as abilities-based education, it is an objective-based alternative to designing a curriculum based on a list of topics (Lardner & Malnarich, 2008).

Interdisciplinary Learning

Once learning objectives have been identified, the next step is the intentional development of assignments and activities that reinforce the concepts to be learned (Corbo, 2010). When putting together the syllabus, faculty work together to deliberate on learning objectives, subject matter, and how assignments may be integrated throughout the block of classes to reinforce concepts. For instance, in one learning community, students took the information they learned in their history class to write papers in their English composition class. In this way, students were able to delve deeper into a topic, honing their skills and knowledge (Corbo, 2010).

Collaborative Knowledge Construction

Project-based assignments, where students work in groups, have had positive and persistent effects on knowledge creation (Wilmer, 2009). Having the opportunity to bounce ideas off each other, share resources, and gain the confidence to debate differing perspectives, leads to collective knowledge generation, and ultimately, an increase in the retention and application of that knowledge (Block, 2009; Crumley & Demarest, 2010; Lardner & Malnarich, 2008).

Contextualized Learning

Contextualized learning is the fuel that drives collaborative knowledge construction. This common element, contextualization, was found by the researcher to be unmistakable throughout the reviewed literature. Pedagogy which fails to connect the real world to subject matter, and how this knowledge is used in everyday life, is identified in the literature as a clear indicator that students will not successfully achieve the required competencies. It is repeatedly reported that success is enhanced when contextualized learning takes place (Bahr, 2011; Deil-Amen, 2011; Grubb, 2010; Handel & Williams, 2011; Howell, 2011). To illustrate, students who were able to select passages to read and write about in areas that were *applicable to them*, had a higher pass rate than students whose material was prescribed (Grubb, 2010).

Examples of Learning Community Design

Learning community designs in the literature have primarily focused on first-semester/first-year students. Findings have demonstrated that the earlier an institution intervenes to help college students make connections, the more likely it is students will

persist (Brown & Minnick, 2005; Hotchkiss et al., 2006; Tinto & Russo, 1994). In one particular design, freshmen students who declared an interest in psychology were enrolled in a freshman seminar where they were able to explore the many subdisciplines and career paths available to students in psychology. In this design, learning community students networked with current students and alumni through planned forums and receptions. Students were required to attend four co-curricular activities and write papers on each (Buch & Spaulding, 2008).

In a design focused on living-learning communities, first-year students were required to live in the same residence halls. Social and class activities were completed in the residence halls, and peer tutoring sessions were scheduled several nights a week. The benefits to this type of accommodation include an almost immediate familiarity with others, and generation of a family-like atmosphere with greater support among the students (Corbo, 2010).

Some residential learning communities are more loosely organized. While students are block scheduled into one or two courses, the majority of the interaction takes place during designated study nights. Working with the student life department to avoid competing interests, Tuesday evening activities were reduced or blocked; instead, each residence hall had group study sessions with peer mentors and faculty available to help answer questions (Muldoon & Macdonald, 2009).

The Effects of Learning Communities

In reported literature, learning communities have almost across the board resulted in an increase in the retention and persistence of students; however, there have been

various results, dependent upon the *design and purpose* of the learning community. For example, in one learning community where instructional methods focused heavily on group work, improved learning occurred, which resulted in higher GPAs, greater persistence, and improved graduation rates (Corbo, 2010; Tinto, 2004). The achievements were attributed to increased social interaction and comfort with peers and faculty. Interviews with learning community faculty highlighted the following:

- Students took a personal interest in each other,
- Students were more likely to help each other.
- Students were more likely to form study groups than those who were not in the learning community (Wilmer, 2009).

However, a potentially negative outcome may be that the increase in social engagement may lead to hyperbonding in some learning communities, creating a difficult classroom management experience for the teacher (Jaffe, 2007).

The literature also reveals conflicting findings when evaluating the long-term effect of the learning community. One study reported that students in learning communities had higher rates of retention than the control group, and that these rates continued over time (Tinto & Russo, 1994; Engstrom & Tinto, 2008). On the other hand, some studies found that the influence of learning communities on participants' academic performance was short-lived and decreased after the first semester (Hotchkiss et al., 2006). Still, results did indicate a higher retention rate one year after joining the learning community.

Other findings have indicated that learning communities organized around demographic variables, such as ethnicity or gender, may have variable outcomes. For example, one study demonstrated that black men benefit the most from learning community participation, with the least significant effect on retention and academic performance for white women (Hotchkiss et al., 2006).

To summarize, the literature indicates that when a learning community creates an environment in which students are able to develop relationships and make connections to people at the university, retention and academic performance improves. The effects may last for a short period of time such as a single semester, or may be more persistent. The literature also suggests that until we clearly state what students are intended to learn from the class including attitudes to portray and the intellectual traits to hone, and assignments are created to accomplish those goals, a deeper academic experience resulting in long-term results will not occur from learning communities (Lardner & Malnarich, 2008). The long-term results, then, are what separate a good learning community from a well-planned and executed one.

Design of OSUIT's Learning Community: Applying a Newer Approach

The literature demonstrates that the design of learning communities is shifting away from developing a model to generating learning. When the Washington Center first started offering professional development for learning communities, the goal of the participants was to pick a model already in use, and try to replicate the results. Retention specialists coined this goal as *projectitis* because the purpose was to learn how to *implement* the learning community, not how to *design* it to serve an institutionally-specific purpose. Nine years later, most designers are now utilizing institutional data to

determine the goals for the learning community and then developing and incorporating features to achieve those goals (Larnder & Malnarich, 2008).

Learning communities are now being repurposed to do more than retain students; the focus is now support for the academic achievement of all students in order to ensure that every student will move from memorization of facts to being able to apply the knowledge to complex problems never experienced heretofore, and assume social and personal responsibility for what happens in the workplace and community (Lardner & Malnarich, 2008). Table 3 illuminates the shifting characteristics of learning communities from when they first originated, to what the literature reveals today about their focus and design.

Table 3

Shifting Characteristics of Learning Communities

Characteristic	Formerly	Now
Purpose	<ul style="list-style-type: none"> • Increase retention • Student engagement 	<ul style="list-style-type: none"> • Generation of learning • Student involvement and civic engagement • Improve academic achievement
Design	<ul style="list-style-type: none"> • Co-enrollment in classes • Team work • Interdisciplinary 	<ul style="list-style-type: none"> • Co-curricular integration • Collaborative knowledge construction (intentional assignments) • Cross-disciplinary
Use of Data	<ul style="list-style-type: none"> • To measure effect of the learning community on retention and engagement • Limited use of data; mostly internal 	<ul style="list-style-type: none"> • Reviewed upfront to make decisions about the purpose of the learning community • Intentional use of national instruments for norming and internal measurement • Extract by demographics, college readiness, faculty/staff awareness
Method	<ul style="list-style-type: none"> • Quantitative • Objectivism/Positivist 	<ul style="list-style-type: none"> • Mixed Method • Constructionism, Post Positivist

Note. Adapted from *A new era in Learning: Why Pedagogy of Intentional Integration Matters*, by E. Lardner & G. Malnarich.

The newer approach to learning communities shown in Table 3 above was adopted for the learning community developed at Oklahoma State University Institute of Technology and tested in the research reported here.

Community College Student Profile and Data: A Critical Component of Learning Communities

The researcher has learned from the literature and from personal and professional experience that the profile of the student body at the community college is different from that of a four-year institution. There are a greater proportion of minority and first-generation college students who are enrolled, as well as working adults (Tinto, 1994; Wild & Ebbers, 2002). Remedial students share many of the non-cognitive characteristics as first-generation and minority students (Wilmer, 2009). Institutional data available to the researcher in her administrative position there show that at Oklahoma State University Institute of Technology (OSUIT), students needing remediation are broadly represented. These students are minorities and non-minorities, first-generation and multi-generation, traditional age (17-20 years of age), and adult learners. Before the study reported here was initiated, the institution's retention committee mined its data to determine where improvements might be made to sustain enrollment. OSUIT data revealed that only ten percent of the students who needed remediation in more than two subjects were retained, which was considered a disturbing revelation. Remedial students comprise more than 65 percent of OSUIT's population, with those needing remediation in three subjects - specifically reading, English, and math - accounting for 20 percent of the degree-seeking incoming freshmen class, i.e. 211 students out of a total incoming freshmen class of 1,064.

Concerned about this data, the OSUIT committee began researching best practices addressing the remedial population. Based on this research, the committee chose the learning community as the means through which it would address student retention, specifically retention of students needing remediation. One finding that promoted this selection was that in one reported study, the transcript of the faculty interview stated that the learning community environment was particularly important for students needing remediation because they "need the security of a welcoming, emotionally safe environment as they transition into their first college experience" (Wilmer, 2009, p. 64). Thus, the use of a learning community appeared to be a potentially successful strategy for addressing specific needs of a significant segment of the OSUIT student population with known low retention statistics.

Purpose of the Learning Community

In order for goals to be achieved through the learning community, the purpose of the learning community must be explicitly stated including features and outcomes (Lardner & Malnarich, 2008). For example, Malcolm X College's purpose is stated as,

Malcolm X College's learning community will encourage student engagement in learning and will be taught actively, using problem-based teaching and learning. The intended outcomes for the program--increased student engagement, retention, and success--will be achieved at Malcolm X College by deepening the learning experience, developing community and adopting research-based practices for teaching reading, writing, and math. (Lardner & Malnarich, 2008, p. 34)

The stated purpose of OSUIT's learning community, as drafted by the researcher, and identified for testing in this study, is that it will result in an improvement in the academic performance and persistence of its remedial students, as compared to remedial students not in the learning community, through a cross-disciplinary approach to

encourage multiple perspectives to applied and problem-based lessons and activities occurring in- and out-of-class, and that will contextualize learning to enable students to transition from the memorization of facts to practical application of knowledge in the workplace, at home, and through community involvement. This purpose statement for the learning community was developed by the researcher in her position at OSUIT as part of this experiment with the efficacy of learning communities to meet student needs.

Model Elements for Learning Communities with Goal of Influencing Student Persistence and Academic Performance

The literature review identified several elements that should be featured in learning communities that influence student persistence and academic performance - ultimately resulting in increased retention. According to the literature, the best results were achieved when the following design elements were featured:

- block scheduling,
- collaborative learning,
- career pathways, and
- in-class social activities.

These elements were considered to be the most fruitful in the literature (Corbo, 2010; Engstrom & Tinto, 2008; Hotchkiss et al.; Pitts, 2006; Jaffe, 2007; Moore & Fetzner, 2009). Based on this finding in the literature, these elements were featured in OSUIT's learning community study in the research reported here.

Block Scheduling

Students in the OSUIT learning community were taught through a partnered teaching format. The literature demonstrates that social connections, such as those with peer and faculty, result in a higher level of confidence and participation in the class (Wilmer, 2009). This format appeared to result in quicker socialization as the students spend several days a week together. The format also assists in preparation for work as many graduates will find employment in positions in which interaction with others is a key part of their work. This format helped students develop those social skills (Bloom, 2009).

Collaborative Learning

The literature identified two types of learning groups: informal and formal (Bloom, 2009). Selecting which type of learning community to use is based on the type of activity to be implemented and its duration. Informal learning is used for short activities during class to apply what has been learned in a class period, while formal learning groups are formed for projects lasting from a few days to several weeks, and may continue outside of class time (Bloom, 2009). OSUIT utilized both types of learning in its experimental learning community, creating project-based assignments students completed in the class, and others that involved service learning activities which took place outside of class.

Career Pathways

In its learning community, OSUIT dedicated class time to the discussion and exploration of college and life goals. The curriculum incorporated speakers (both on- and

off-campus) to provide exposure to potential career choices, and discussions on where it has led for others who took those paths. This approach was consistent with those reported in the literature (Tinto, 2004; Tinto & Russo, 1994).

In-class Social Activities

Students, particularly adult learners, have many obligations outside of school. Based on the literature, OSUIT concluded that building social activities into the curriculum encouraged and enabled students to make connections to each other and the faculty. While there are many forms of curricular involvement, within the academic environment, the literature indicates that the most important are peer, academic, and student-to-faculty. Research has indicated that these social connections result in a higher level of confidence and participation in the class (Wilmer, 2009). It is for this reason that OSUIT built in a variety of social functions into regular class time.

Summary of Learning Community Literature and Design of OSUIT Experimental

Learning Community

Overall, the literature suggests that learning communities have significant influence on the development, attitudes, and perceptions of students that lead to greater level of intellectual and social development, academic performance, and higher involvement and engagement (Buch & Spaulding, 2008; Corbo, 2010; Muldoon & Macdonald, 2009). Based on the literature review, the retention committee at OSUIT selected the learning community to use as the means for addressing student remediation and retention. As learning communities are customizable, allowing the selection of features to achieve the desired goals of the institution - identified for this study as

improvements in persistence and academic performance - OSUIT selected those features most frequently cited in the literature as appropriate for our goals *and* the student population at issue, and that matched the capabilities of our institution. The elements incorporated as design/model features in the experimental learning community tested in this study included

- block scheduling,
- collaborative learning,
- career pathways, and
- in-class social activities.

The literature review provided the background for the learning community, and rationale for the selection of elements that were included in OSUIT's design to serve the remedial population. The review also established the foundation that guided the research process from choice of philosophy through selection of methods. The research process is described in Chapter III.

CHAPTER III

METHODOLOGY

The purpose of this research was to determine if a learning community influenced the persistence and academic performance of first-semester students with academic deficiencies in the technical community college environment of Oklahoma State University Institute of Technology (OSUIT). For this study, persistence was defined operationally as enrollment in the following term. Academic performance was operationally defined as group mean GPA, percentage of earned-to-attempted hours, achievement of 75% of total attempted hours, and pass rates in reading, English, and math. Specifically, the study and its design were guided by the following research questions:

1. Does the persistence frequency differ between first-semester remedial students:
 - a. who belong to a learning community group and those who do not?
 - b. on the basis of gender?
 - c. on the basis of gender between groups?
 - d. on the basis of gender within groups?
 - e. on the basis of ethnicity?
 - f. on the basis of ethnicity between groups?
 - g. on the basis of ethnicity within groups?

2. Does the academic performance (average GPA) differ between those who belong to a learning community group and those in the control group?
3. Does the percentage of earned-to-attempted hours differ between those who belong to a learning community group and those in the control group?
4. Does the PACE rate (completion of 75% of the attempted credit hours) differ between those who belong to a learning community group and those who do not?
5. Does the reading performance differ between first semester remedial students:
 - a. who belong to a learning community group and those who do not?
 - b. on the basis of gender?
 - c. on the basis of gender between groups?
 - d. on the basis of gender within groups?
 - e. on the basis of ethnicity?
 - f. on the basis of ethnicity between groups?
 - g. on the basis of ethnicity within groups?
6. Does the English performance differ between first-semester remedial students:
 - a. who belong to a learning community group and those who do not?
 - b. on the basis of gender?
 - c. on the basis of gender between groups?
 - d. on the basis of gender within groups?
 - e. on the basis of ethnicity?
 - f. on the basis of ethnicity between groups?
 - g. on the basis of ethnicity within groups?
7. Does the math performance differ between first-semester remedial students:

- a. who belong to a learning community group and those who do not?
 - b. on the basis of gender?
 - c. on the basis of gender between groups?
 - d. on the basis of gender within groups?
 - e. on the basis of ethnicity?
 - f. on the basis of ethnicity between groups?
 - g. on the basis of ethnicity within groups?
8. What are the perceptions of the focus group learning community participants about their experiences in a learning community?

Research Design

This study used a mixed methods design. Specifically, an embedded design (see Figure 5) was used in which qualitative data collection was embedded within a quasi-experimental format. The purpose of the study and the research questions led to the selection of a design in which the secondary research question (mixed methods question) was answered within a principally quantitative study, hence the selection of an embedded design. Reasons for considering an embedded design include:

- Different types of data are needed in order to support, enhance, or explain a quantitative (for this study) or qualitative design.
- An underlying theme or main question is being addressed by both methods.
- Comprehension is better achieved with a secondary data set (Cresswell & Plano Clark, 2011).

The design met the complementarity function in that the quantitative results were enriched, broadened to gain a deeper understanding not possible through numbers alone, and clarified with contextually specific accounts from the perspective of focus group participants who participated in the learning community.

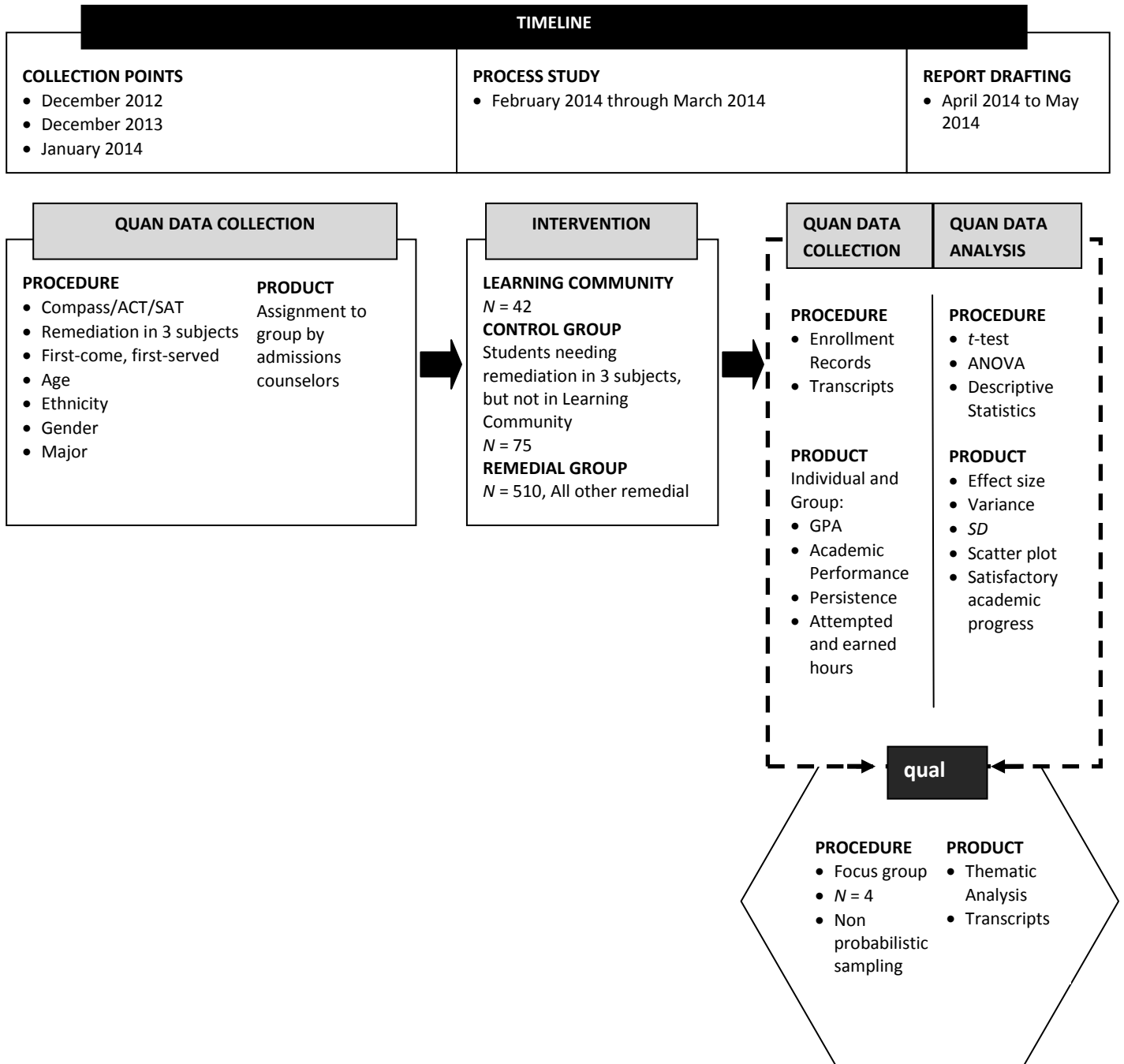


Figure 5. Diagram for learning community embedded design study.

Rationale for Mixed Methods Research Design

Quantitative design should be chosen when a researcher is interested in exploring the accuracy of a theory to explain interactions between independent and dependent variables. Conversely, for studies in which the researcher is interested in understanding a person's or group's perspective of why certain outcomes occurred, or how the behavior was manifested in the study, qualitative design would be the better approach (Lowhorn, 2007; Seigle, 2007). Table 4 presents some differences between quantitative and qualitative designs.

Table 4

Comparison of Quantitative and Qualitative Research Designs

Quantitative	Qualitative
Purposes are generalizability, causal explanations, and predictability	Purposes are understanding the actor's perspective, interpretation
Research is assumed to be independent of the object; objectivism as the epistemology	Social reality is constructed, researcher involved
Etic (outside point of view)	Emic (inside point of view)
Reduction of data to numerical indices	Minimal use of numerical indices
Assumes that the variables can be identified and measured	Variables are interwoven, complex, difficult to measure
Primacy of methods	Primacy of subject matter
Focus is on the outcomes, product	Focus is on the process
Language in write-up is abstract	Descriptive language for write-up
Deductive reasoning	Inductive reasoning

Note. Adapted from "Qualitative Versus Quantitative Research: Key Points in a Classic Debate," by D. Siegel, 2007.

This study examined interactions between the independent variables of learning community, gender, and ethnicity, and the dependent variables of persistence and academic performance. A simple quantitative design would have reduced the data into numerical indices to determine if significant differences existed between the independent-variable groups, and would not have been sufficient to help the researcher understand *why* students felt the way they did, nor *how* the learning community affected their persistence and academic performance. On the other hand, a strictly qualitative design would have provided the researcher with an inside perspective, but it would not have determined if the differences between the learning community and control group were statistically significant, and therefore replicable in and generalizable to similar student groups. A variety of qualitative methods may be used in experiments to improve comprehension of *how* interventions work (Shadish, Cook, & Campbell, 2002). It is for this reason that a mixed methods approach was used by the researcher for this study.

Faculty Selection

Once IRB approval was granted for the learning community, the enrollment management team discussed the desired qualities for faculty who would teach the students in the learning community. Topping the list was faculty interest in working with the remedial population, closely followed by a hands-on approach to instruction. To this end, the learning community was explained to faculty in the Arts and Sciences Division, and two adjunct faculties volunteered to serve in this paid, full-time position for the semester. When the decision was made to continue with the learning community, both instructors asked to teach the learning community students.

The instructors were involved from the beginning with the design of the learning community. In addition to the instructors of record, other key positions involved with the creation of the learning community included the Assistant Division Chairperson for Engineering Technologies, Chairperson of the Arts and Sciences Division, head faculty of remedial education, Director of Admissions, Vice President for Student Services, Executive Vice President, Director of the Learning and Student Success Opportunity Center, and Administrative Assistant for the Arts and Sciences Division.

Professional development. The person responsible for developing the learning community curriculum attended one national conference on student retention and learning communities in San Diego, California. In addition, she utilized the resources of the Washington Center at The Evergreen Institute, the acknowledged source for learning communities research. Following her participation in the institute, and upon completion of the curriculum, she worked with the instructors to provide hands-on training to develop projects, activities, and create the necessary materials and syllabus.

Learning Community and Control Group Environments

Per the design of OSUIT's learning community, and in accordance with best practices described in the literature on retention, class size for the learning community was restricted in order to create an intimate environment. Normally, remedial classes average 35-40 students. The learning community was limited to 25 students. Table 5 shows the differences between the learning community and control group environments.

Table 5

Comparison of the Learning Community and Control Group Environments

Features	Learning Community	Control Group
Class Size	25 students	35-40 students
Enrollment	Cohort - students took same classes together	Students enrolled in what was available
Instructors	Dedicated to the learning community group; team-taught	One instructor per course; may have different instructors for each course
Schedule	Monday through Friday; dedicated class space	Dependent upon schedule; move from class-to-class
Instructional Methodology	Project-based, hands-on team activities directed by instructors	Self-directed, on-line instruction through Renaissance Software, instructors as tutors
Enrichment Activities	Speakers, field trips	Dependent upon instructor and course

Research Process

To guide the research process for the study, the four elements to sound research were used to guide the study design. The purpose of the four elements is to enable researchers to identify which methodology and methods to choose from and justify the selections by tying design choices back to the purposes of the research (Crotty, 1998). The four elements that contribute to sound research are epistemology, theoretical perspective, methodology, and method. Overarching these elements is the philosophy.

The purpose of this study was to determine if placement into a learning community affected the persistence and academic performance of first semester remedial

students at OSUIT, and was based on the progressivism philosophy. The working hypothesis was that the learning community would create a contextualized environment; that is, students involved in the learning community would develop the basic, practical skills for functioning in society. The learning community environment mirrors the definition of the progressivism/pragmatism philosophy as defined by John Dewey (1916) in his book, *Democracy and Education*. Dewey stated that the purpose of progressivism is to communicate social and cultural mores, and help people develop the practical and problem-solving skills to become involved in and improve society (Dewey, 1916).

The epistemology for this study is constructionism. The epistemology is the worldview one has, and how it defines reality; how we come to know what we know (Crotty, 1998). Under the constructionism view, the belief is that meaning is *constructed* by one's own interpretations of events as they are lived, and the researcher's interpretations in ascertaining what the participants meant.

The theoretical perspective is assumptions about reality that influence the types of questions asked in research, and therefore the answers we receive as a result. Post positivism holds that cause-and-effect is difficult to establish with certainty for social phenomena. As a result, it is necessary to use multiple methods to explain social phenomena, hence again, the justification for a mixed methods design.

The third element, methodology, is the process or design tying the choice of methodology to the outcomes. The choice of a quasi-experimental research, and focus group interviews, flow from a post positivist theoretical perspective, and reflect the mixed methods design.

Lastly, the method is defined as the way data is collected and analyzed. It was stated that earlier that the purpose of the study was to determine the effectiveness of a semester remedial students. In order to determine the statistical significance of the effect, quantitative methods were used, and statistical calculations performed to analyze the data. In addition, to understanding more deeply *why* the treatment was or was not effective, it was imperative to gather data from the perspective of those who were in the learning community. The use of a focus group for the qualitative strand accomplished this goal. The use of focus groups is a qualitative method. The quantitative and qualitative strands tied all the elements together, including the research questions to be answered through this study. Figure 6 reflects the philosophy and four elements guiding the research process for this study.

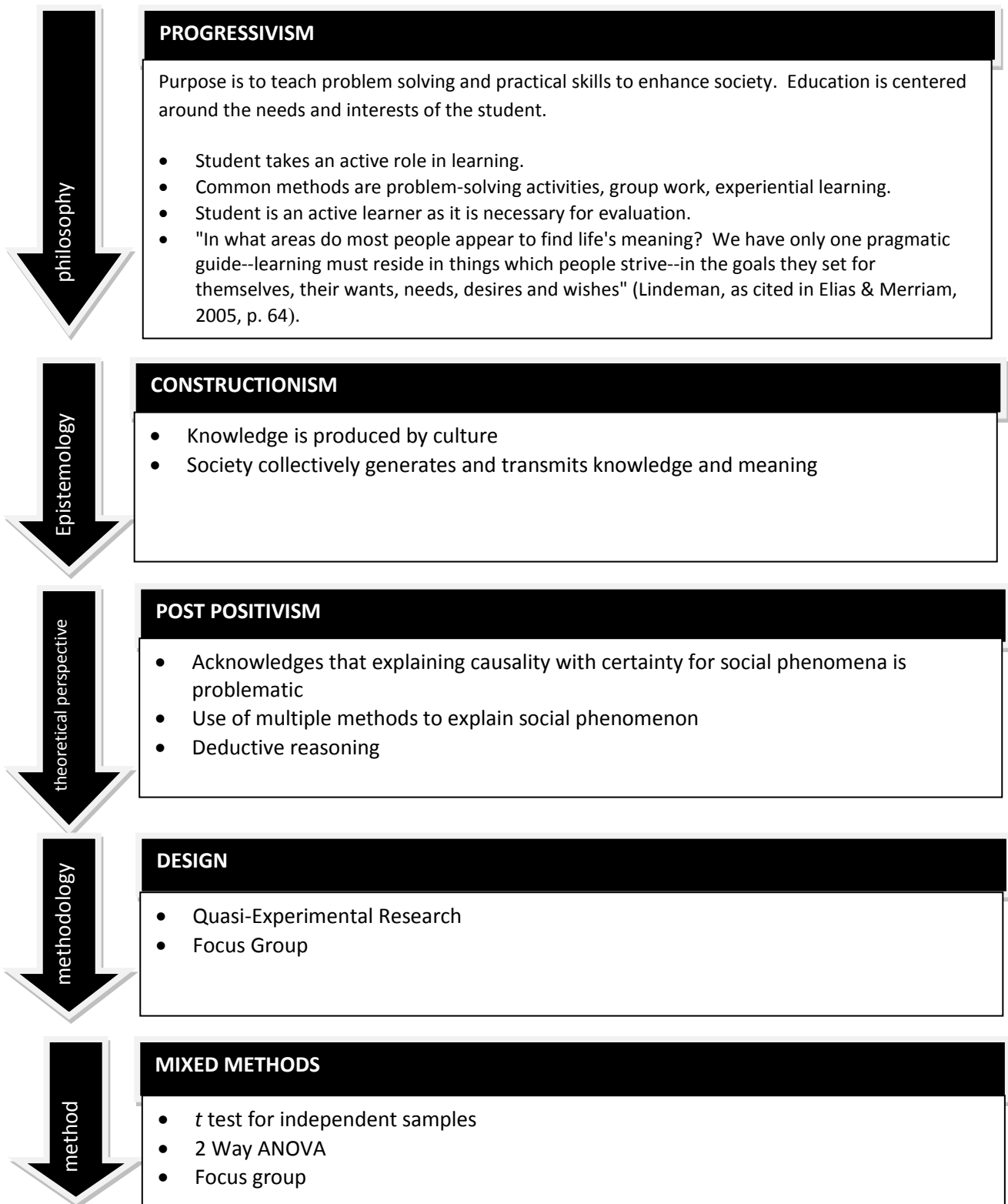


Figure 6. Philosophy and research process guiding the study. Adapted from M. Crotty, *The Foundations of Social Research*, 1998; M. Self, *Theoretical Perspectives Summary Sheet*, 2012; and, G. Zhao, *Summary of Theoretical Perspectives*, 2012.

Population and Sample

Salkind (2008) defined a population as "all the possible subjects or cases of interest" (p. 393). The population for this study was first-semester students at OSUIT enrolled for the term, and needing remediation in reading, English, and math.

Assessment and placement data from OSUIT indicated this population averages 200 students annually (fall, spring, and summer terms).

In the State of Oklahoma, students are classified as deficient (remedial) when failing to achieve at least a 19 on any of the subtests of reading, English, or math on the ACT; or not meeting the minimum cutoff scores on approved, institutionally-developed placements tests; or not achieving the minimum cutoff scores on other approved, nationally-normed examinations (OSRHE, 2011). In order to successfully remediate, the student must complete the prescribed sequence of courses repeating the high school-level content of reading, English (writing), and math in preparation for the college-level course (Jaggers & Stacey, 2014). The population was chosen for this study because this category of students has the highest rate of attrition at OSUIT, over 90%, causing a loss of 90 students each fall. Therefore, it was reasoned by the researcher that any increase in the persistence and performance of this population would likely have the greatest effect on overall university retention.

For this study, three different student sub-groups within the OSUIT total remedial population were identified. The *target sample and experimental group* for this study was 42 first-semester students starting in the fall term, who needed remediation in three subjects: reading, English, and math, and who were identified and placed into the

learning community by the university admissions counselors. The learning community was limited to no more than 25 new students each fall to create a more personal environment, conducive to social interaction and participation. The limitation on enrollment was made on the basis of the number of students that could be accommodated in the dedicated learning community classroom. As students were identified as needing remediation in three subjects, and the students agreed to participate in the study signing the consent form, they were placed into the learning community until all dedicated seats were filled.

The *control group* consisted of all the remaining first-semester students starting in the fall term, needing remediation in reading, English, and math, $N = 75$, and who were not in the learning community. Additionally for this study, the *remedial group* consisted of all the first-semester students starting in the fall term, who needed remediation in one-to-two subjects, but not all three, $N = 510$. These three sub-groups comprised the *total remedial population* for this study. Comparative demographics for the three sub-groups in the remedial population are shown in Table 6.

Table 6

Comparison of the Demographics of the Sub-Groups of the Remedial Population at OSUIT

Demographic	Learning Community Group $N = 42$		Control Group $N = 75$		Remedial Group $N = 510$	
	n	%	n	%	n	%
Gender						
Male	25	60%	42	56%	344	68%
Female	17	41%	33	44%	166	33%
Ethnicity						

Black	10	24%	13	17%	33	7%
White	14	33%	26	35%	290	57%
Asian or Pacific Islander	-	-	-	-	7	2%
Native American	12	29%	30	40%	162	32%
Hispanic	-	-	4	5%	9	2%
Foreign Student	6	14%	2	3%	9	2%

Institutional Review Board

Research Site and Access to Data

As part of the application process seeking approval for conducting research using human subjects through the Oklahoma State University Institutional Review Board (IRB), the researcher obtained permission from the president of Oklahoma State University Institute of Technology (OSUIT) to use OSUIT as a research site. The letter of approval from the president is in Appendix A. In addition to granting permission to conduct the research at OSUIT, the president allowed the researcher to:

- recruit subjects for the study,
- collaborate with faculty and staff to create the learning community and establish procedures for the selection and placement of students into the learning community, and
- access whatever documents and databases were necessary to collect and gather data to conduct the analyses.

The approved IRB application is located in Appendix B.

Training Process

During one of the regularly scheduled staff meetings, the admissions counselors were trained on consistent communication with potential learning community subjects. As part of the training, counselors were briefed on this study and provided with a script (Appendix C) to use when speaking to eligible students about the learning community to ensure the informed consent process was appropriately handled. The learning community release form, signed by participants to indicate their consent to be a part of the study, is in Appendix D.

Focus Group Recruitment

The focus group was formed from the students who were enrolled in the learning community. As students were determined eligible for the learning community, and were informed of the study, students who opted to participate in the learning community signed the learning community release form. By signing the form, students also indicated their willingness to be contacted to participate in focus group interviews. The email approved by the IRB (Appendix E) was sent to all learning community participants to solicit their participation in the focus group interviews.

Placement of Participants Into Experimental Learning Community Group

Instrumentation Used

The Compass exam, an ACT product, was the placement test used at OSUIT to determine student academic deficiencies, and consequently, eligibility for placement into the learning community. Introduced in 1992, and designed to be comparable to the College Readiness Benchmarks for the ACT® test, the Compass examination is an

adaptive test that assesses skill levels in reading, writing skills, writing essay, mathematics, and English as a second language. More than 1,300 higher education institutions and over 2.5 million students use Compass or Compass/ESL (ACT Organization, 2014).

Procedures for Assigning Participants

As new students met with representatives of the OSUIT admissions office to complete the enrollment process, if they needed remediation in reading, English, and math, they were placed into the learning community. Only the admissions counselors in the Student Services Division had the ability to enroll students into the learning community.

The students were identified for placement into the learning community as follows: (1) met the eligibility criteria, i.e., needed remediation in reading, English, and math; and (2) agreed to participate in the learning community, signing the consent form. This process continued until all 25 seats set aside by OSUIT were filled. As stated previously, class size was purposefully restricted to create a more personal setting, and allow for greater interaction among the participants.

Procedures: Quantitative Data Collection

Access to the required quantitative data for this study was available to the researcher because of her position as Vice President for Student Services at OSUIT. Quantitative data was collected after the drop/add period of the Spring, 2014, semester to compare persistence (defined as enrollment in the following term) between the learning

community, control, and remedial groups. All other quantitative data was collected immediately following the posting of grades for the term.

The data for academic performance and persistence were mined from student transcripts which documented term and cumulative measures for the following variables: grade point average, attempted hours (total number of hours in which the student is enrolled), total hours earned, and grades. The admissions application was used to discover gender and ethnicity. In situations where the demographic variables were not indicated on the application, the admissions representatives followed normal university procedures and requested the information from the applicant. Lastly, the enrollment record was used to determine enrollment in a subsequent term. The use of these documents was in line with the evaluation measures outlined by Tinto and Russo (1994).

The quantitative design model for the study was quasi-experimental because random assignment of subjects to treatment groups was absent. Administrator selection was used in this study, with the admissions counselors determining participant assignment as described previously. Shadish, Cook, and Campbell (2002) defined a quasi-experiment as one in which assignments to groups or treatments may be made on the basis of self-selection (participants choose their own assignments), or by way of administrator selection whereby someone other than the participant makes the assignment. This type of design is legitimate as it shares a similar purpose as other experimental designs, i.e., "to test descriptive causal hypotheses about manipulable causes..." (p. 14).

Quantitative Data Analyses

Formation of Participant Groups for Statistical Analyses

Upon extracting the data for the Fall 2013 learning community, an anomaly was discovered. For the Fall 2012 learning community, students were block-scheduled into remedial reading, English, and math, as well as one-to-two credit-bearing classes. This additional course load enabled students to earn a college GPA as remedial courses are strictly pass/no pass and GPA-neutral. For Fall 2013, however, students in the learning community were not enrolled in any credit-bearing classes. As a result, analysis of academic performance based on GPA was restricted to Fall 2012 data for comparison purposes. The remedial group was not included in this analysis, as these students took more credit-bearing classes than did the learning community and control groups, which left only two groups (experimental and control) for GPA comparison. For this analysis, academic performance in the two groups was measured only once; at the end of the term.

For examining the influence of the treatment on other measures of academic performance and persistence, subjects formed three groups rather than two: (1) the learning community (treatment) group which was comprised of students who needed remediation in reading, English, and math; (2) the control group which was comprised of students who needed remediation in reading, English, and math, and who did not receive the treatment; and, (3) the remedial group which was comprised of all other first-semester students who needed remediation in one or two subjects, but not all three, and who did not receive the treatment.

For examining if gender affected the persistence or academic performance of students in the learning community group and those who were not, subjects formed two

groups: (1) male and (2) female. For examining if ethnicity affected the persistence or academic performance of students in the learning community group and those who were not, subjects formed four groups: (1) black, (2) white, (3) Native American, and (4) other: a collapsed category that included Asian/Pacific Islander, Hispanic, and foreign ethnicities as there were not enough students in the sample size to meet the minimum standard for the analyses.

Selection of Statistical Analysis Tools

Several statistical analysis tools were used to analyze the study's quantitative data. These included descriptive statistics, *t*-test, cross-tabulation contingency tables with chi-square (χ^2), and Mann-Whitney *U* test. All data was numerically coded and entered into SPSS Version 21 to perform these analyses.

The *t*-test for independent means (independent samples *t*-test) was selected to determine if the academic performance, using the group mean GPA as the dependent measure, differed between the experimental learning community and control groups. Salkind (2008) outlined three steps for determining if the *t*-test would be appropriate. They are:

1. the differences between groups are being explored.
2. subjects are tested once, and
3. there are two, and only two, groups (p. 172).

The difference in academic performance and persistence between the groups was explored, and the subjects' academic performance was measured once: at the end of the term. These three conditions were met for a comparison of the GPAs of the learning

community and control groups. Thus, an independent sample t -test was used for this comparison.

For this t -test, a Levene's test for homogeneity of variance in the two comparison groups was planned to determine whether unpooled or pooled variance estimates should be used in interpreting the t -value, df , and p -value. As unequal variances could also indicate the t -test's assumption of normality was violated, the Mann-Whitney U test was also planned, if needed, as a cross-check on the t -test. Because the scores on the test variable for the nonparametric Mann-Whitney U test are transformed to ranks prior to analyses being conducted, there is no need for the two populations to be normally distributed. The Mann-Whitney U test is an appropriate choice for situations that meet the following conditions:

1. the grouping variable separates cases into two groups or categories, and
2. the dependent or qualitative variable (test variable) evaluates individuals on an ordinal or scale variable (Green & Salkind, 2008).

Both conditions were met by the comparison of GPA between the learning community and control groups.

Academic performance was also measured by three dichotomous categorical or ordinal variables and one variable expressed as a percentage. They were:

- the pass rates for the remedial subjects (pass, no pass),
- percentage of earned-to-attempted hours,
- PACE (met pace, did not meet pace), and

- persistence (re-enrolled, did not re-enroll).

For Title IV financial aid eligibility, a student must earn at least 75% of the hours attempted in order to remain eligible for financial aid, thereby meeting PACE.

The data format for pass rates, PACE, and persistence were all nominal variables and needed to compare three groups: learning community, control, and remedial. As a result, identifying an appropriate statistical measure meant selecting from nonparametric procedures that would accommodate categorical variables expressed as frequency counts and more than two groups. The two-way contingency table analysis using crosstabs and chi-square (χ^2) was selected. In studies where the researcher is interested in evaluating if a statistical relationship exists between two variables, the two-way contingency table analysis based on frequency distributions is one method that may be utilized. The conditions to be met were (Green & Salkind, 2008):

1. observations were independent of each other, and
2. no more than twenty percent of the cells have frequencies less than 5.

The study met the expectations outlined; therefore, the use of the two-way contingency table analysis was an acceptable choice for these analyses.

For the purpose of determining if gender and/or ethnicity was related to the learning community treatment and influencing - either separately or in interaction - its effects on the dependent variables, a determination had to be made whether to treat gender and ethnicity as simple independent variables or as actual moderator variables possibly influencing the strength and direction of the relationship between the treatment and dependent variables. Several factors were taken into account by the researcher in

making this decision. Complete analysis of the nature and contributions of moderator variables when dependent measures are scale required large samples and complex multiple regression analyses (Baron & Kenny, 1986).

In this study, the sample size was small, making it inappropriate to conduct a regression analysis. Additionally, the possible moderator roles of gender and ethnicity was merely explored, and the use of a complex regression analysis appeared to be premature before examining them as significant independent variables through a simpler variance analysis. The data format for gender and ethnicity were all nominal variables; therefore, identifying an appropriate statistical measure meant selecting from nonparametric procedures that would accommodate categorical variables expressed as frequency counts and more than two groups. The two-way contingency table analysis using crosstabs and chi-square (χ^2) was selected. In studies where the researcher is interested in evaluating if a statistical relationship exists between two variables, the two-way contingency table analysis based on frequency distributions is one method that may be utilized. The conditions to be met were (Green & Salkind, 2008):

1. observations were independent of each other, and
2. no more than twenty percent of the cells have frequencies less than 5.

Asian/Pacific Islander, Hispanic, and foreign ethnicities were collapsed into an *other* category when frequencies were less than 5. The study met the expectations outlined; therefore, the use of the two-way contingency table analysis was an acceptable choice for these analyses. Table 7 outlines and summarizes the variables, data sources, quantitative data analyses, and justification for statistical choices made for this study.

Table 7

Variables, Quantitative Data Sources, Analyses, and Rationale

Variable	Data Source	Data Analysis	Rationale for Analysis
Ethnicity, Gender (demographics)	Admissions application, FAFSA, during the enrollment process	Descriptive statistics: Mode and frequency distribution	Descriptive statistics are suitable when describing quantitative (categorical) variables such as those describing the sample of this research; and, mode as a measure of central tendency is best utilized with categorical variables (Green & Salkind, 2008)
(Relationship treatment and dependent measures)		Two-way contingency table analysis with cross- tabs and χ^2	The choice of this statistical procedure is appropriate for nominal variables expressed as frequencies (Salkind, 2008)
Persistence (nominal categorical variable)	Enrollment records	Two-way contingency table analysis with cross- tabs and χ^2	The choice of this statistical procedure is appropriate for nominal variables expressed as frequencies (Salkind, 2008)
Academic performance (nominal categorical variables)	Transcripts	Two-way contingency table analysis with cross- tabs and χ^2 ; descriptive statistics: mean as measure of central tendency	The choice of this statistical procedure is suitable for nominal variables (Salkind, 2008)
(scale variables)		<i>t</i> test for independent samples; Mann Whitney <i>U</i> test	Choice of these statistic meet the criteria outlined by Salkind (2008) and Green & Salkind (2008)

Procedures: Qualitative Data Collection via Focus Group

The qualitative data was harvested during a focus group interview at the conclusion of the Fall 2013 semester to learn what in-group participants reported about their experiences in the learning community. The focus group was recruited from actual participants in the learning community. The reported benefits are described. These perceptions contributed richness and detail to the study, and also offered guidance for possible future research, redesign of future learning communities, and improvements to remedial education courses.

The purpose of the focus group was to provide for a careful and systematic analysis of data: to look for clues and insights into how the learning community was perceived. The size allowed for a diversity of opinion, but was small enough to allow all to feel comfortable about contributing to the conversation. This focus group is described as a nonprobabilistic sampling as the group was comprised of individuals who were available to be studied, and not selected because they demonstrated certain desired characteristics (Cresswell & Plano Clark, 2011; Teddlie & Yu, 2007).

One focus group comprised of four students was interviewed about their perceptions and experiences in the learning community. A single-category design was used and was defined as a design in which participants are not compared or contrasted on any features (Krueger & Casey, 2000). The use of focus groups is documented as an acceptable means for harvesting qualitative data when the purpose of the study is to:

- pilot test or analyze a new method or program,

- understand the conditions or circumstances that influence customer satisfaction for planning and goal setting,
- conduct a needs assessment where listening to the experiences and opinions of others helps to identify what is needed,
- identify issues affecting quality, or
- develop criteria for the implementation of rules, procedures, and policies (Krueger & Casey, 2000; Lowhorn, 2007).

A non-directive questioning style was used, and consisted of ten open-ended questions with a focus on the respondents. The questions for the focus group are listed in Table 6. A good questioning route begins with an opening that encourages everyone to talk without feeling uneasy, then moves to an introductory question that broaches the phenomenon under study. The questioning route progresses to transition questions where the researcher begins to probe for information critical to understanding the phenomenon, and continues to key questions that more directly lead to the collection of data critical to comprehending participant perspectives. Lastly, the interviews close with questions to collect any final thoughts (Krueger & Casey, 2000). The rationale behind having a strong questioning route is to achieve saturation or the point at which no new ideas or opinions are emerging from the group (Krueger & Casey, 2000).

Table 8

Questioning Route and Question Type for Qualitative Analysis

Questions	Question Type
1. Can you share with me why you came to college, and why you chose OSUIT?	Opening
2. So, tell me why you agreed to be enrolled in the learning community.	Introductory
3. Can you share with me what expectations you had going into the learning community?	Transition
4. What were you hoping to gain from your involvement in the learning community?	Key
5. Please tell me what you think the benefits of the learning community were for you. If you did not think there were any benefits, please share with me why.	Key
6. One the index card, make a list of the types of teaching activities you think are important to help you learn a particular subject. Please rank them in order of importance, and then share with the group why you thought it was important, and why you ranked them in that order.	Key
7. On the index card, write a word or phrase that best describes your experience in the learning community. Please share your word or phrase with the group, and why you chose it.	Key
8. On the index card, write a word or phrase that best describes your thoughts/feelings about the learning community. Please share this with the group.	Key
9. Given your experiences with the learning community, would you encourage others to participate? Why or why not?	Ending
10. If we were to set up another learning community for students in the future, what suggestions do you have for us to help improve students' learning community experience?	Ending

Qualitative Data Analysis

The focus group imparted information that enriched and shed light on the quantitative data collected, and helped the researcher to learn what elements of the learning community participants found to be the most beneficial, how it could be used to improve the learning community, and how to design future learning communities. All four participants were male minorities. Table 9 depicts the demographics of the focus group participants.

Table 9

Demographics of Focus Group Participants

Focus Group Participants, <i>N</i> = 4		
Gender	Ethnicity	Citizenship
Male	Black	United States
Male	Black	United States (Virgin Islands)
Male	Hispanic	United States (Puerto Rico)
Male	Foreign	Africa

General procedures for analyzing qualitative data are: data preparation, exploring the data, analyzing the data, representing the data analysis, and interpreting the results (Cresswell & Plano Clark, 2011; Taylor-Powell & Renner, 2003).

Data Preparation

The focus group interview was recorded, and HyperTranscribe was used to prepare the data for analysis by transcribing the recording into full transcripts and notes, which were then imported into HyperResearch for coding and analysis.

Exploring the Data

The next step, exploring the data, consisted of reading through the transcript multiple times forming impressions, and creating a codebook. As the researcher read through the transcripts, notations of impressions formed were described, and any limitations identified. Any comments or examples that stood out were noted, and codes were added and assigned.

Determining the focus of the analysis. The analysis was organized by question, which helped to generate an overall feel of the responses across the group. As there were only four participants in the focus group, there was no need to separate the transcripts by participant. Taylor-Powell and Renner (2003) suggested in their model that researchers consider organizing the transcripts into several levels: by question, by participant, etc. With such a small *N* value, it did not make sense to separate by participant or demographics.

Analyzing the Data

Consistencies across the data were noted and descriptively labeled as codes. Definitions were created and attached to each code in order to establish consistency on what was included and excluded in each category. Taylor-Powell and Renner (2003) suggested two ways to categorize narrative data: preset and emergent categories. Preset are those categories identified through a literature review, or are expected outcomes. For learning communities, the literature review revealed several consistent themes such as connectedness to peers, connectedness to faculty, connectedness to the university, a sense of purpose, and, improved ability to manage obligations.

Codes are assigned when transcriptions reveal responses that were not anticipated, nor were they identified in the literature reviewed. These emergent categories were primarily used in this study.

Representation of the Data Analysis

Using HyperResearch, a frequency analysis was conducted identifying the number of times codes were assigned throughout the transcript. The codebook is illustrated in Table 10.

Table 10

Codebook, Definitions, and Frequencies for Qualitative Data Analysis

Code	Definition	Frequency
Help with studies	Peer and/or faculty support, tutoring, or other activities where person is able to receive help with studies	21
Visual Aids	Power points or any other methods that are demonstrative, visual rather than straight lecture	18
Supportive	Caring, empathy on part of instructors	14
Promote	To make known, advertise	13
Gain knowledge	Any activities in which a person has the opportunity to learn something new	12
Constructive	Productive, positive in relation with others	10
Social/Cultural Activities	Interaction with people from different backgrounds, cultures, and experiences	13
Creative	Having the freedom to use one's imagination	5
Group Activities	Group projects, working in a team	5
More instructors	Not enough instructors in the program	5
Exceptional	Highest quality	2

Services and Resources	Find out what different services are available (academic and social)	2
Lecture	Faculty lectures	2
Credential	Something to make oneself more marketable	1
Image	Reputation, branding	1
Note Taking	Student creates his or her own notes	1

Interpreting the Results

A list of key points or important findings from the synthesis was developed. These data included insights that were not apparent from the quantitative analysis, as well as the perceptions of the researcher based on the interview.

Qualitative Legitimation

Legitimation is a mixed methods term synonymous with validity in quantitative research and credibility in qualitative research. It describes the quality of a research study and the resulting applications (Onwuegbuzie & Johnson, 2006). To seek legitimation for this study, inside-outside legitimation was used.

The purpose of inside-outside legitimation is to accurately present both an etic (objective) and emic (subjective insider) point of view. During the mixing of the strands, combining inferences from the quantitative and qualitative phases of the study can be affected by the researcher's dual roles: that of the objective outsider, while on the other hand also interpreting or relating events from an insider's perspective (Onwuegbuzie & Johnson, 2006). Member checking was used to achieve inside legitimation by having the focus group participants review the transcripts of the interview, and the conclusions

drawn by the researcher. Outside legitimation was pursued through a review of data by persons uninvolved with the study.

CHAPTER IV

PRESENTATION OF FINDINGS

The purpose of this study was to evaluate the effectiveness of using a learning community to improve the academic performance and persistence of first-semester remedial students at Oklahoma State University Institute of Technology (OSUIT). Retention theories posit that students who are placed into smaller groups and enrolled as a cohort in the same courses generally outperform those who are not. As a result, persistence and retention increases. Numerous studies indicate that the results may be due to greater comfort in the classes because they are smaller and, therefore, a less threatening environment. Students also generally become more actively involved in class, developing connections with other students, and that this connection or comfort with classmates leads to a strong supportive network (Corbo, 2010; Hotchkiss et al., 2006; Tinto, 2004). This literature formed a basis for the researcher's working hypothesis that subjects in this study who participated in a learning community would have better performance and persistence than those who did not.

To evaluate the effects of the learning community, an embedded mixed methods design was chosen. A mixed methods design may be used when interested in accomplishing one or more of the following:

1. Achieve triangulation which is determining how data converge and corroborate or validate findings from different methods measuring the same phenomena.
2. Achieve complementarity where the findings from one method are used to gain a greater understanding of the results from the other method.
3. Use the findings of one method to improve the other.
4. Achieve initiation by demystifying or exposing false realities that may lead to reframing the research question.
5. Achieve expansion, or go beyond current research, to delve more deeply into various components (Commander & Ward, 2009).

Timing

In an embedded design, the collection of quantitative and qualitative data may occur at the same time, one at a time, or a combination of the two (Cresswell & Plano Clark, 2011). Sequential timing was used in this study for data collection and analysis, with the collection and analysis of the qualitative strand occurring *after* the collection and analysis of the quantitative strand. Mixing occurred at the level of design, where the qualitative data was embedded within a design that had a quantitative priority. For the quantitative analysis, both parametric and nonparametric measures were used. The *t*-test for independent samples was selected for scale data, and the crosstabs procedure applying a χ^2 test for contingency table analysis was used for the nominal variables. On the qualitative side, a focus group interview was conducted in an effort to achieve triangulation and complementarity.

Mixing of Strands

The mixing of the strands took place at the end of the experiment. The results of both data analyses were reviewed to interpret how the results were *connected*, and how they answered the quantitative, qualitative, and mixed methods questions. Cresswell and Plano Clark (2011) listed seven reasons for adding qualitative data after the conclusion of an experiment. Some of those reasons cited are in alignment with the purpose of this study:

1. To obtain feedback from the participants that can be used to enhance or revise the treatment.
2. To evaluate the effectiveness of the treatment when comparing results against baseline data.
3. To understand, from the perspective of the participants, what they thought occurred during the treatment.
4. To explain the quantitative results.
5. To find out if there are long-term effects following the treatment.
6. To gain a more in-depth understanding of the theoretical model and what revisions may be necessary.
7. To determine if the research processes used for conducting the study had treatment fidelity (Cresswell & Plano Clark, 2011).

Research Questions

Statistical procedures and findings are reported below for each research question. Alpha level for all tests of significance was set at $p = .05$. Figure 7 illustrates how the sub-groups of the remedial population were compared.

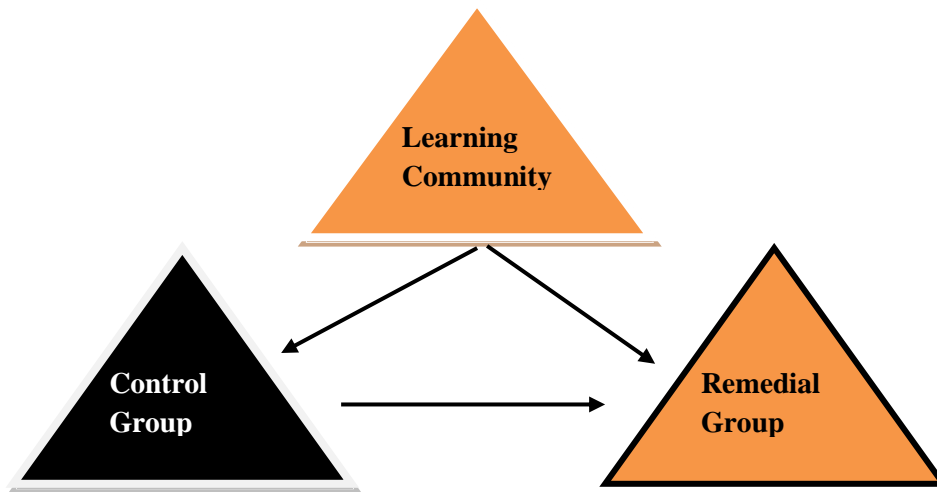


Figure 7. Comparison of the sub-groups of the remedial population at OSUIT.

Persistence

Persistence and Student Groups

RQ1: Does the persistence frequency differ between first semester remedial students:

a. Who belong to a learning community group and those who do not?

A two-way contingency table analysis was conducted to evaluate whether there was a difference in persistence frequency for students in the learning community, control, and remedial groups. These groups were defined in Chapter I as follows:

- The *learning community group* is comprised of students who need remediation in reading, English, and math.
- The *control group* is made up of students who need remediation in reading, English, and math, but are not in the learning community.
- The *remedial group* is composed of students who need remediation in only one-to-two subjects, and are not in the learning community.

The two variables were *group* with three levels (learning community, control, and remedial), and *persistence* with two levels (re-enrolled, did not re-enroll). Group and persistence were not found to be significantly related, ($N = 327$; Pearson $\chi^2 = 3.262$, $df = 2$; $p = .20$; Cramér's $V = .07$).

Descriptive percentages of re-enrollments in the three groups clarified the non-significant χ^2 result. Students in the learning community were 1.17 times more likely to persist than those in the control group, with 62% of the learning community group re-enrolling as compared to 53% of the control group. The remedial group had 64% of its students re-enroll. Students in the remedial group were 1.21 times more likely than the control group to re-enroll.

Persistence by Gender

b. on the basis of gender?

A 2 x 2 contingency table analysis was conducted to determine if there was a difference in persistence frequency based on gender. The two variables were *gender* with two levels (male and female), and *persistence* with two levels (re-enrolled, did not re-enroll). Gender and persistence were not found to be significantly related, ($N = 627$; Pearson $\chi^2 = .005$; $df = 1$; $p = .95$; Cramér's $V = .003$).

Persistence by Gender between Groups

c. on the basis of gender between groups?

Separate 3 x 2 contingency table analyses were conducted to determine if persistence frequency differed *by the same gender between groups*. For both males and

females, the two variables were *groups* with three levels (learning community, control and remedial), and *persistence* with two levels (re-enrolled, did not re-enroll). Figure 8 represents how the comparisons between groups and gender were conducted.

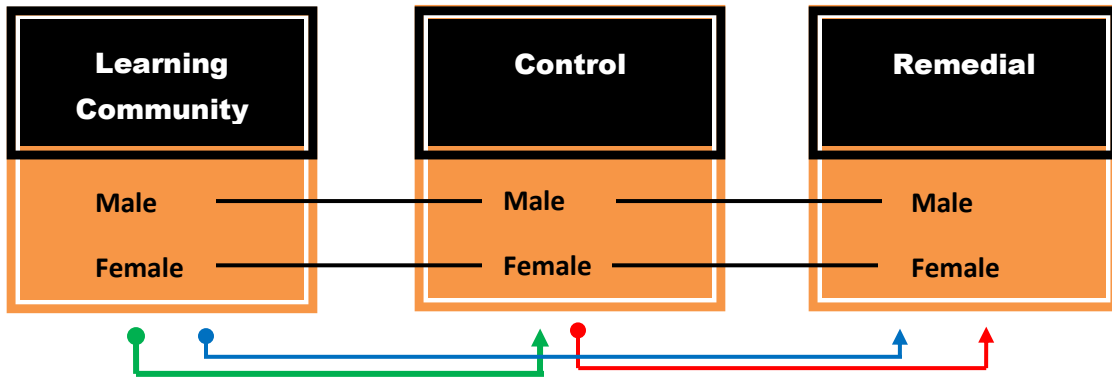


Figure 8. Comparison of gender between groups.

Male students. Based on the Pearson chi-square test, relationship between gender and persistence approached but did not attain significance for males, ($N = 411$; Pearson $\chi^2 = 5.084$; $df = 2$; $p = .08$; Cramér's $V = .11$).

Female students. Gender and persistence was not found to be significant for females, ($N = 216$; Pearson $\chi^2 = 3.764$; $df = 2$; $p = .15$; Cramér's $V = .13$).

Persistence by Gender within Groups

d. on the basis of gender within groups?

To determine if there was a difference between the persistence frequencies of men versus women *within remedial groups*, separate 2 x 2 contingency table analyses were conducted for the learning community, control, and remedial groups. The variables were *gender* with two levels (male, female) and *persistence* with two levels (re-enrolled, did

not re-enroll). Figure 9 shows how the comparisons by gender within groups were conducted.

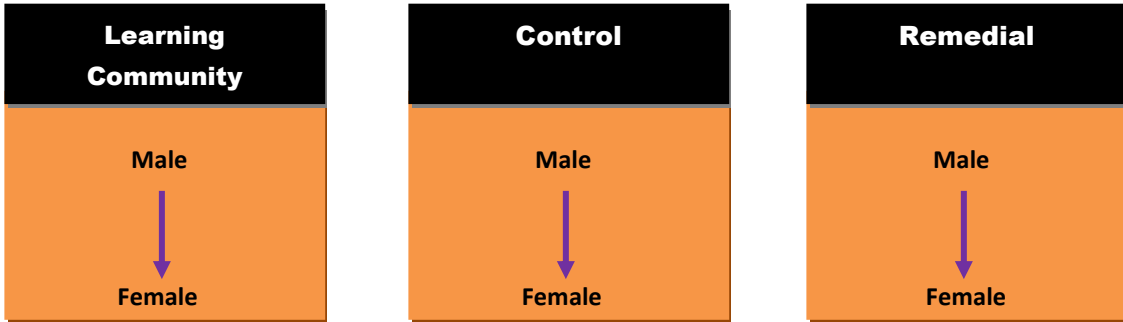


Figure 9. Comparison of gender within groups.

The only relationship that presented as significant was gender x persistence in the learning community group, with females demonstrating greater persistence frequency than males, ($N = 42$; Pearson $\chi^2 = 5.064$; $df = 1$; $p = .024$; Cramér's $V = .35$). This magnitude of the V statistic indicated a medium effect size. Effect sizes are generally considered small at .10, medium at .30, and large at .50 (Green & Salkind, 2008). Figure 10 illustrates the gender differences within groups.

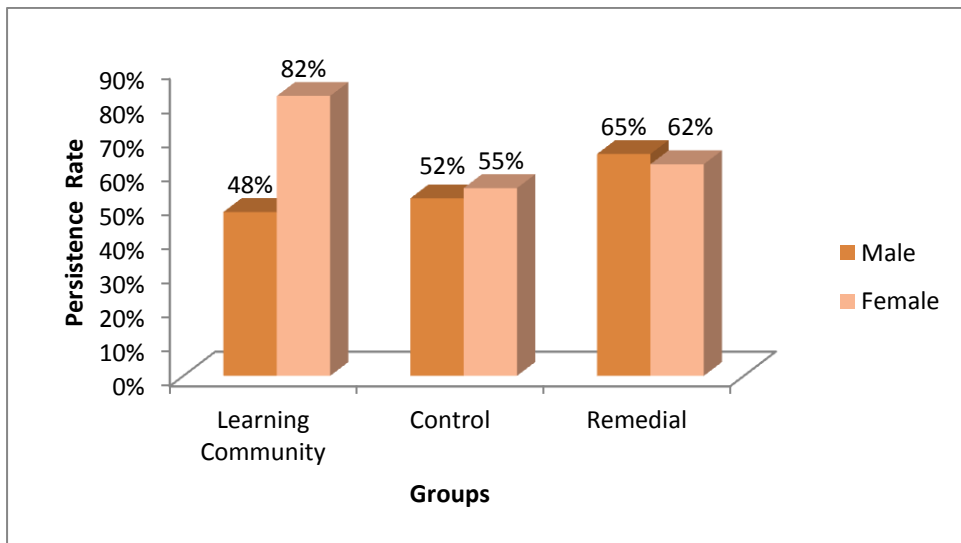


Figure 10. Persistence rates by gender and group expressed as percentages.

Persistence by Ethnicity

e. on the basis of ethnicity?

Green and Salkind (2008) state that sample size is not as important for the crosstabs procedure applying a chi-square test for contingency table analysis; rather, it is the size of the *expected cell frequencies* that matter. In situations where more than 20% of the cells have expected frequencies of less than 5, the χ^2 results is questionable (Green & Salkind, 2008). In this study, when the percentage of cells did not meet this criterion, some ethnic categories were collapsed to create an *other* category. The *other* category combined Asian/Pacific Islander, Hispanic, and foreign student ethnicities.

A 4 x 2 contingency table analysis was conducted to determine if there was a difference in persistence frequency based on ethnicity. The two variables were *ethnicity* with four levels (black, white, Native American, and other), and *persistence* with two levels (re-enrolled, did not re-enroll). Ethnicity and persistence were not found to be significantly related, ($N = 627$; Pearson $\chi^2 = 6.818$; $df = 3$; $p = .08$; Cramér's $V = .104$).

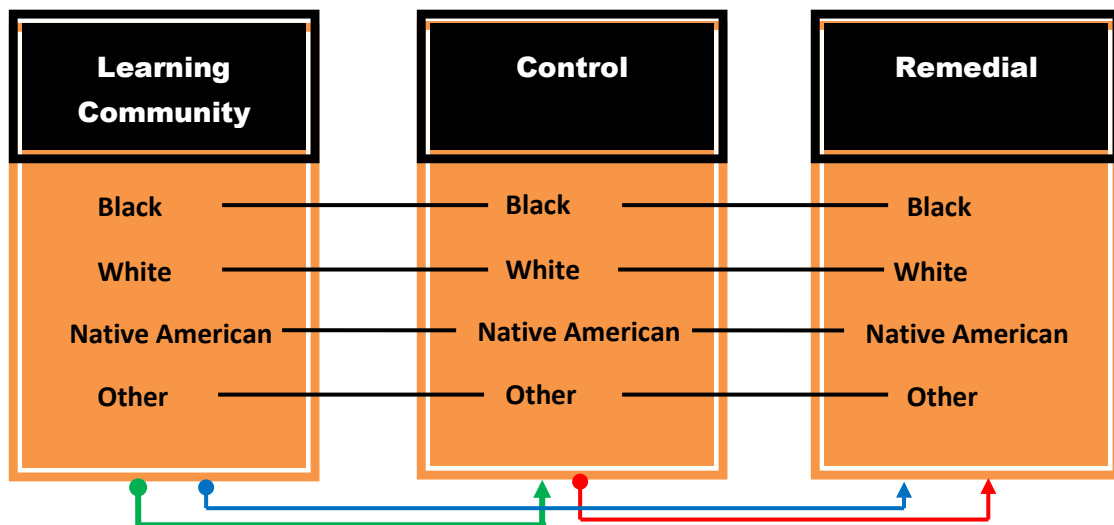


Figure 11. Comparison of ethnicity between groups.

Figure 11 above portrays how the between group comparisons by ethnicity were conducted.

Persistence by Same Ethnicity between Groups

f. on the basis of ethnicity between groups?

Separate 3 x 2 contingency table analyses were conducted for each ethnicity (black, white, Native American, other) to determine if persistence frequency differed *by the same ethnicity in the learning community, control and remedial groups*. The two variables were *groups* with three levels (learning community, control and remedial), and *persistence* with two levels (re-enrolled, did not re-enroll).

Black students. Based on the Pearson chi-square test, ethnicity and persistence were not significantly related for black students, ($N = 56$; Pearson $\chi^2 = 2.434$; $df = 2$; $p = .30$; Cramér's $V = .209$).

White students. Based on the Pearson chi-square test, ethnicity and persistence were not significantly related for white students, ($N = 330$; Pearson $\chi^2 = 1.380$; $df = 2$; $p = .50$; Cramér's $V = .07$).

Native American students. Based on the Pearson chi-square test, ethnicity and persistence were not significantly related for Native American students, ($N = 204$; Pearson $\chi^2 = 4.950$; $df = 2$; $p = .08$; Cramér's $V = .16$).

Other students. Based on the Pearson chi-square test, ethnicity and persistence were not significantly related for other ethnicity students, ($N = 37$; Pearson $\chi^2 = 1.451$; $df = 2$; $p = .49$; Cramér's $V = .20$).

Persistence by Ethnicity within Groups

Figure 12 presents how comparisons were conducted within groups by ethnicity.

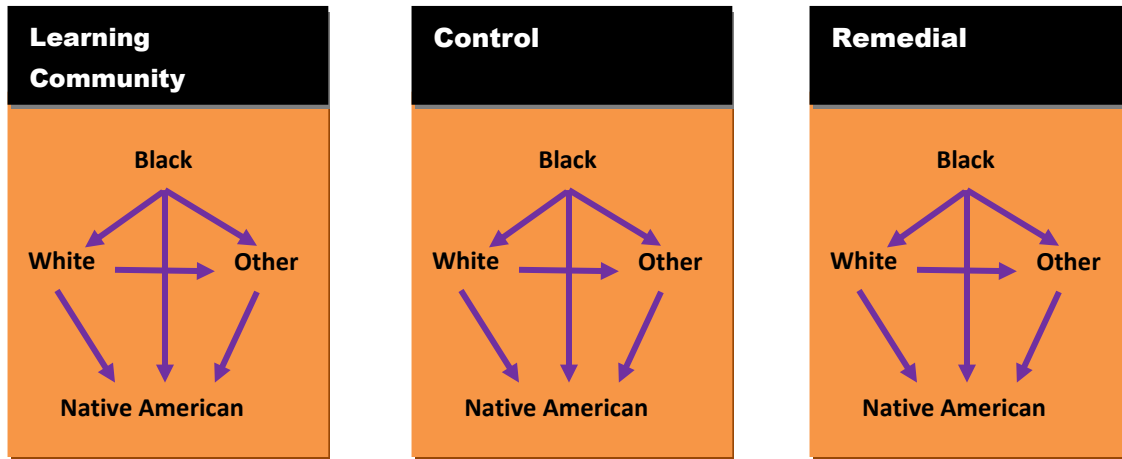


Figure 12. Comparison of ethnicity within groups.

g. on the basis of ethnicity within groups?

To determine if persistence frequency differed by ethnicity *within groups* (learning community, control, and remedial), separate 4 x 2 contingency table analyses were conducted. The variables were *ethnicity* with four levels (black, white, Native American, other), and *persistence* with two levels (re-enrolled, did not re-enroll).

Ethnicity by learning community group. Fifty percent of the cells had a frequency of less than five; therefore, the χ^2 results were not used.

Ethnicity by control group. Twenty-five percent of the cells had a frequency of less than five; therefore, the χ^2 results were not used.

Ethnicity by remedial group. Twenty-five percent of the cells had a frequency of less than five; therefore, the χ^2 results were not used. While chi-square could not be

used due to cell size limitations, descriptive persistence rates could be calculated. These rates are presented in Figure 13.

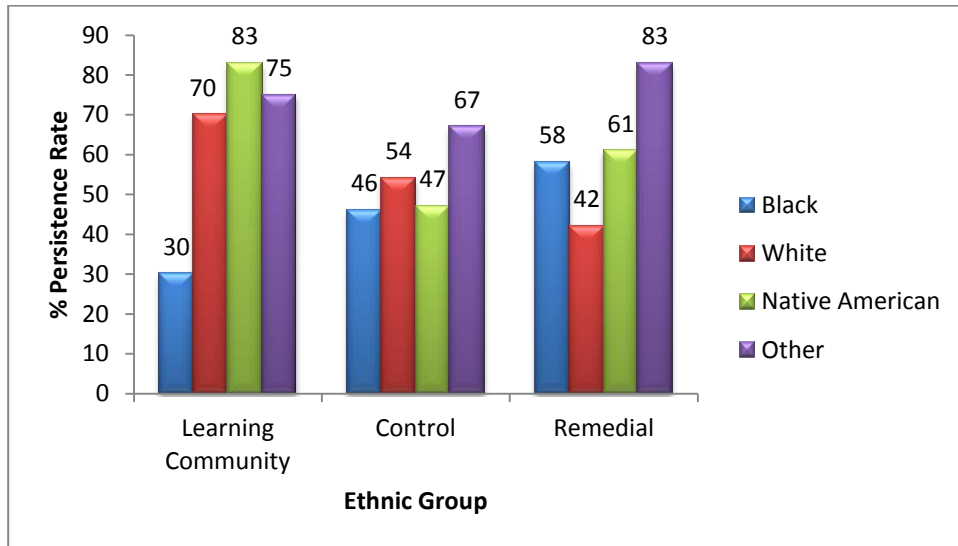


Figure 13. Persistence rates by ethnicity and group expressed as percentages.

Average GPA

RQ2: Does the academic performance (average GPA) differ between those who belong to a learning community group and those in the control group?

An independent samples *t*-test was conducted to evaluate if the average GPA differed between the Fall, 2012, learning community group and control group. The results of a Levene's test for homogeneity of variance ($F(1, 60) = 3.96; p = .05$) indicated that the homogeneity of variance assumption was violated and pooled variance estimates for the groups should be used. The *t*-test for unequal variances, ($t(36.125) = 1.808; p = .08$), approached but did not attain significance. Because the homogeneity of variance assumption of the *t*-test was violated and the *t*-value approached significance, an alternative statistical test was applied. When the assumption of equal population variances is not met, a nonparametric alternative is an option (Green & Salkind, 2008).

Here, the t -test was backed up with a nonparametric Mann-Whitney U test to evaluate if the medians on the GPA test variable differed significantly between the groups. On this test, the results were in the expected direction and significant, ($z = -1.98$; $p = .048$). The learning community group had an average rank of 37.39, while the control group had an average rank of 28.26.

Percentage of Earned Hours

RQ3: Does the percentage of earned-to-attempted hours differ between those who belong to a learning community group and those in the control group?

The attempted and earned hours were culled from the transcripts, and earned-to-attempted hours was expressed as a percentage. An independent samples t -test was conducted to determine if students in the learning community group earned more of their attempted hours than those in the control group. The test approached, but did not quite attain, significance, ($t(115) = 1.93$; $p = .06$). Descriptive statistics indicated that students in the learning community ($M = .76$, $SD = .41$) on the average earned more of the hours they attempted than those in the control group ($M = .60$, $SD = .43$). The 95% confidence interval for the difference in mean percentages was wide, ranging from $-.00$ to $.32$. Figure 14 shows the error bars for the means and 95% confidence intervals for the learning community and control groups. The standard deviations of the two group means and the widths of the confidence intervals suggest within-group variance may have prevented the between-group variance from being significantly different. This is consistent with the fairly sizeable difference of 16 percentage points between the means of the two groups, in favor of the learning community group.

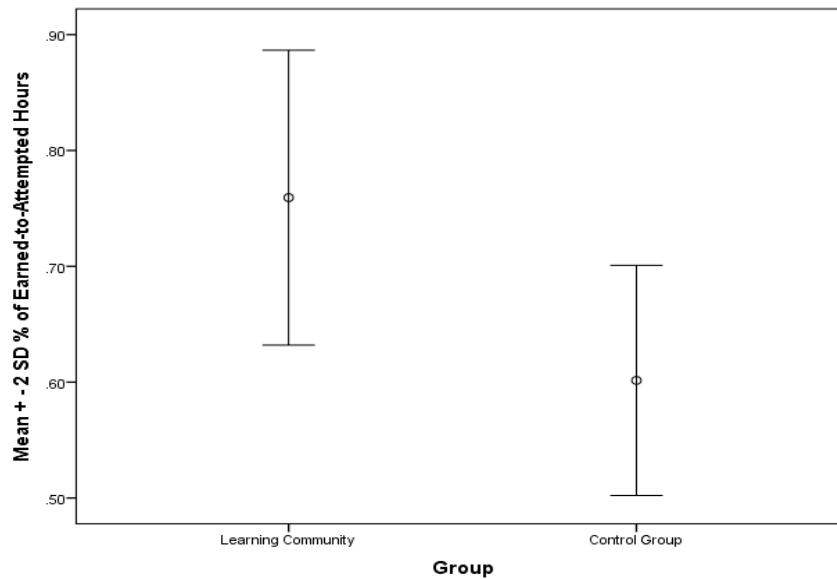


Figure 14. Error bars (two standard deviations above and below the mean) for the percent of earned-to-attempted hours.

PACE Rate

RQ4: Does the PACE rate (completion of 75% of the attempted credit hours) differ between those who belong to a learning community group and those who do not?

Attempted and earned hours were obtained from transcripts and were used to calculate a percentage score, and a two-way contingency table analysis was conducted to evaluate if there was a difference in PACE rates between the participant groups. The two variables were *group* with three levels (learning community, control, and remedial), and *PACE* rates with two levels (met PACE, did not meet PACE). Since the test, ($N = 627$; Pearson $\chi^2 = 4.216$; $df = 2$; $p = .12$) was not significant, there was no need to conduct pairwise comparisons.

Even though the chi-square distribution was not significantly from chance, the descriptive statistics suggested further analysis of the learning community and control groups merited further examination. The percentage of students who met PACE was

76% for the learning community, 57% for the control group, and 62% for the remedial group. Students were 1.33 times more likely to meet PACE when in the learning community as compared to the control group. Thus, it appeared that the non-significant chi-square may have been attributable to the effects of the remedial group rather than to a difference between the learning community and control groups.

To test this possibility, a second 2 x 2 contingency analysis was conducted using only the learning community and control groups. Further examination analyzing the PACE rates between the learning community and control groups indicated a significant difference, ($N = 117$; Pearson $\chi^2 = 4.160$; $df = 1$; $p = .04$; Cramér's $V = .19$).

Academic Performance

Grades were obtained from transcripts, and a two-way contingency table analysis was conducted to evaluate if there was a difference in pass performance between and within groups (learning community, control and remedial), for each remedial subject (reading, English, and math), by gender and ethnicity.

Overall Reading Performance

RQ5: Does the reading performance differ between first-semester remedial students:

a. who belong to a learning community group and those who do not?

A 3 x 2 contingency table analysis was conducted to determine if there was a difference in the reading pass/no pass frequency distributions between groups. The two variables were *group* with three levels (learning community, control, and remedial), and *reading performance* with two levels (pass, no pass). The result, ($N = 204$; Pearson $\chi^2 =$

11.707; $df = 2$; $p = .003$), indicated significant differences in pass/no pass frequency distributions among the three groups. Because the Pearson chi-square test had more than one degree of freedom, pairwise comparisons were conducted. The Holm's sequential Bonferroni method was used to control for Type I error at the .05 level across the three comparisons. For the pairwise comparisons, two groups presented a significant difference: the learning community versus the control group, ($N = 115$; Pearson $\chi^2 = 8.70$; $df = 1$; $p = .003$); and, the control group versus the remedial group, ($N = 163$; Pearson $\chi^2 = 7.232$; $df = 1$; $p = .007$). The Cramér's V values for these two comparisons also presented medium effect sizes.

Students in the learning community were 1.33 times more likely to pass reading than those in the control group, with 78% of the learning community participants passing reading, as compared to 59% of the control group participants. Additionally, the probability of a student passing a developmental course was 1.39 times more likely when the student needed remediation in reading, i.e., remedial group, as compared to the control group where students needed remediation in reading, English, and math. Table 11 summarizes the pairwise reading comparison statistics.

Table 11

Pairwise Reading Pass Frequency Distribution Comparison Using the Holm's Sequential Bonferroni Method

Comparison	Pearson χ^2	p value (Alpha)	Critical Value	Cramér's V
Learning Community vs. Control Group	8.70	.003	.017	.28
Control Group vs. Remedial Group	7.232	.007	.025	.21
Learning Community vs. Remedial Group	.840	.359	.050	.08

Note. Critical value is the alpha level used to evaluate each paired comparison to minimize committing a Type I error for multiple hypotheses.

Overall Reading Performance by Gender

b. on the basis of gender?

A 2 x 2 contingency table analysis was conducted to determine if there was a difference in reading pass/no pass frequency distributions based on gender. The two variables were *gender* with two levels (male and female), and *reading performance* with two levels (pass, did not pass). Gender and reading performance were not found to be significantly related, ($N = 206$; Pearson $\chi^2 = 2.952$; $df = 2$; $p = .23$; Cramér's $V = .12$).

Reading Performance by Gender between Groups

c. on the basis of gender between groups?

Separate 3 x 2 contingency table analyses were conducted to determine if reading pass/no pass frequency distributions differed *by gender and group*. For both males and females, the two variables were *groups* with three levels (learning community, control and remedial), and *reading performance* with two levels (pass, did not pass).

Male students. Based on the Pearson chi-square test, gender and reading performance was significant for males, ($N = 127$; Pearson $\chi^2 = 8.092$; $df = 2$; $p = .017$; Cramér's $V = .25$). For the pairwise comparisons, two groups presented a significant difference: males in the learning community versus males in the control group, ($N = 65$; Pearson $\chi^2 = 5.071$; $df = 1$; $p = .024$); and, males in the control group versus males in the remedial group, ($N = 103$; Pearson $\chi^2 = 6.301$; $df = 1$; $p = .012$). The Holmes sequential Bonferroni method was used to control for Type I error at the .05 level across both comparisons. Table 12 shows the results of these analyses.

Table 12

Pairwise Male Reading Pass Frequency Distribution Comparison Using the Holm's

Sequential Bonferroni Method

Comparison	Pearson χ^2	<i>p</i> value (Alpha)	Critical Value	Cramér's <i>V</i>
Control Group Males vs. Remedial Group Males	6.301	.012	.017	.25
Learning Community Males vs. Control Group Males	5.071	.024	.025	.28
Learning Community Males vs. Remedial Group Males	.14	.71	.050	.04

Note. Critical value is the alpha level used to evaluate each paired comparison to minimize committing a Type I error for multiple hypotheses.

Female students. Gender and reading performance between groups was not found to be significant, ($N = 77$; Pearson $\chi^2 = 4.853$; $df = 2$; $p = .09$; Cramér's $V = .25$). No follow-up pairwise comparisons were necessary.

Reading Performance by Gender within Groups

d. on the basis of gender within groups?

To determine if there was a difference in the reading pass/no pass frequency distributions of males versus females *within remedial groups*, separate 2 x 2 contingency table analyses were conducted for the learning community, control group, and remedial groups. The variables were *gender* with two levels (male, female) and *reading performance* with two levels (pass, did not pass).

Learning Community Group. There was no difference in the reading performance of males versus females in the learning community group, ($N = 41$; Pearson $\chi^2 = 1.11$; $df = 1$; $p = .29$; Cramér's $V = .17$).

Control Group. There was no difference in the reading performance of males versus females in the control group, ($N = 74$; Pearson $\chi^2 = 1.493$; $df = 1$; $p = .22$; Cramér's $V = .14$).

Remedial Group. There was no difference in the reading performance of males versus females in the remedial group, ($N = 89$; Pearson $\chi^2 = .443$; $df = 1$; $p = .07$; Cramér's $V = .07$). Figure 15 illustrates the differences in the reading performance expressed as pass rates (i.e., percentages) by gender and group.

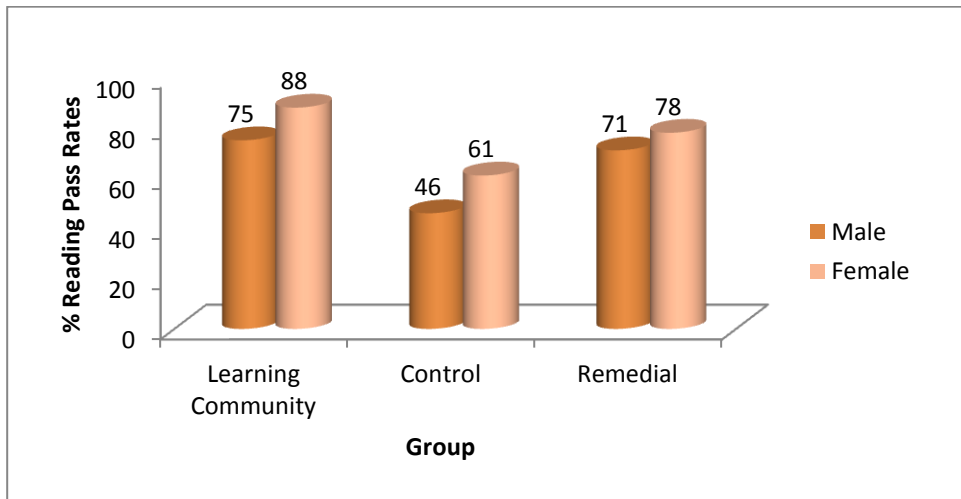


Figure 15. Reading pass rates by gender and group expressed as percentages.

Reading Performance by Ethnicity

For calculations to determine if the reading performance of students differed by ethnicity, the crosstabs procedure applying a chi-square test for contingency table analysis was conducted. Because more than 20% of the cells had a frequency of less than five, ethnic categories were collapsed to form an *other* category. The ethnic categories combined into *other* were Asian/Pacific Islander, Hispanic, and foreign students.

e. on the basis of ethnicity?

A 4 x 2 contingency table analysis was conducted to determine if there was a difference in reading pass/no pass frequency distributions based on ethnicity. The two variables were *ethnicity* with four levels (black white, Native American, other), and *reading performance* with two levels (pass, did not pass). There were no differences in the pass/no pass distribution of students based on ethnicity, ($N = 204$; Pearson $\chi^2 = 5.075$; $df = 3$; $p = .17$; Cramér's $V = .16$).

Reading Performance by Ethnicity between Groups

f. on the basis of ethnicity between groups?

For this comparison, each ethnicity was evaluated individually to determine if their reading performance differed based upon type of group (learning community, control, and remedial). A two-way contingency table analysis was conducted for each ethnicity.

Black students. A 3 x 2 contingency table analysis was conducted to determine if the reading pass/no pass distribution differed between black students in the learning community, control, and remedial groups. The two variables were *group* with three levels (learning community, control, and remedial), and *reading performance* with two levels (pass, no pass). Ethnicity and reading performance was not significant for black students, Pearson $\chi^2 (2, N = 29) = .486$, $p = .78$, Cramér's $V = .13$.

White students. A 3 x 2 contingency table analysis was conducted to determine if the reading pass/no pass distribution differed between white students in the learning

community, control, and remedial groups. The two variables were *group* with three levels (learning community, control, and remedial), and reading *performance* with two levels (pass, no pass). Ethnicity and reading performance was not significant for white students, ($N = 84$; Pearson $\chi^2 = 1.042$; $df = 2$; $p = .59$; Cramér's $V = .11$).

Native American students. A 3 x 2 contingency table analysis was conducted to determine if the reading pass/no pass distribution differed between Native American students in the learning community, control, and remedial groups. The two variables were *group* with three levels (learning community, control, and remedial), and *reading performance* with two levels (pass, no pass). Ethnicity and reading performance were found to be significantly related for Native American students, ($N = 76$; Pearson $\chi^2 = 10.883$; $df = 2$; $p = .004$), and the Cramér's $V = .38$ indicated a moderate effect size. The proportion of Native Americans who passed reading was 92% for the learning community, 40% for the control group, and 68% for the remedial group.

Follow-up pairwise comparisons were conducted to evaluate the difference among these proportions. Table 13 shows the results of these analyses. The Holm's sequential Bonferroni method was used to control for Type I error at the .05 level across all three comparisons. The only pairwise difference that was significant was between the learning community and control groups. Results indicated Native Americans were 2.30 times more likely to pass reading in the learning community as compared to the control group.

Other students. Because 100% of the cells had a frequency of less than five, the analysis was not conducted.

Table 13

Pairwise Native American Reading Pass Frequency Distribution Comparison Using the Holm's Sequential Bonferroni Method

Comparison	Pearson χ^2	<i>p</i> value (Alpha)	Critical Value	Cramér's <i>V</i>
Learning Community vs. Control Group	9.236	.002	.017	.47
Control Group vs. Remedial Group	4.916	.027	.025	.28
Learning Community vs. Remedial Group	2.654	.10	.05	.24

Note. Critical value is the alpha level used to evaluate each paired comparison to minimize committing a Type I error for multiple hypotheses.

Reading Performance by Ethnicity within Groups

g. on the basis of ethnicity within groups?

A two-way contingency table analysis was conducted to evaluate whether ethnicity affected the reading pass/no pass frequency distributions of students within groups. For this comparison, all four ethnic groups were compared to each other *within a single group (learning community, control, and remedial)*. Further, the *other* category was eliminated as their count was too low to meet the minimum standard for the analysis.

Ethnicity by learning community group. A 3 x 2 contingency table analysis was conducted to determine if the reading performance of black, white, and Native American ethnicities differed within the learning community group. The variables were *ethnicity* with three levels (black, white, Native American), and *reading performance* with two levels (pass, did not pass). Fifty percent of the cells had a frequency of less than five, therefore, the results were not used.

Ethnicity by control group. A 3 x 2 contingency table analysis was conducted to determine if the reading performance of black, white, and Native American ethnicities differed within the control group. The variables were *ethnicity* with three levels (black, white, Native American), and *reading performance* with two levels (pass, did not pass). There was no difference in the reading performance distribution by ethnicity, ($N = 68$; Pearson $\chi^2 = 4.89$; $df = 2$; $p = .09$; Cramér's $V = .27$).

Ethnicity by remedial group. A 3 x 2 contingency table analysis was conducted to determine if the reading performance of black, white, and Native American ethnicities differed within the remedial group. The variables were *ethnicity* with three levels (black, white, Native American), and *reading performance* with two levels (pass, did not pass). There was no difference in the reading performance distribution by ethnicity, ($N = 86$; Pearson $\chi^2 = 4.888$; $df = 2$; $p = .18$; Cramér's $V = .20$). Figure 16 illustrates the pass rate for reading expressed as percentages of the different ethnicities and groups.

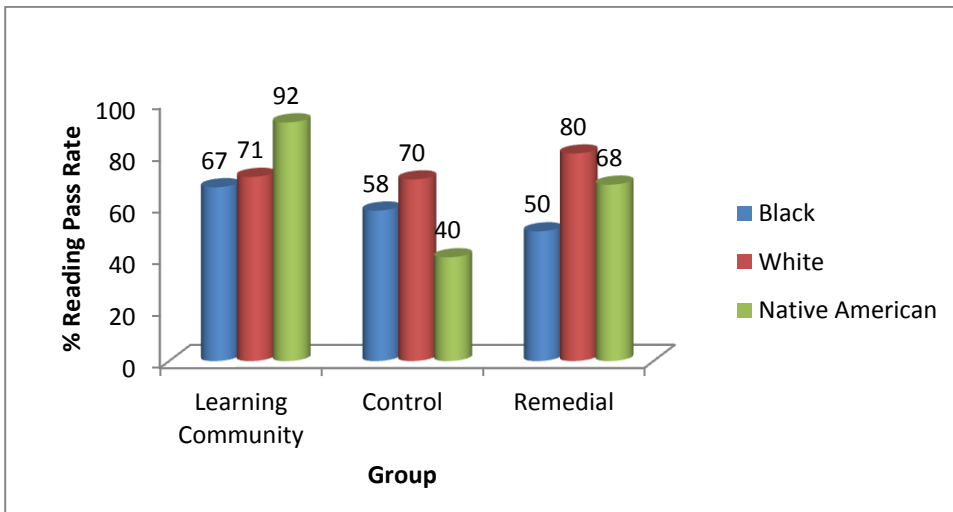


Figure 16. Reading pass rates by ethnicity and group expressed as percentages.

Overall English Performance

RQ6: Does the English performance differ between first-semester remedial students:

a. who belong to a learning community group and those who do not?

A 3 x 2 contingency table analysis was conducted to determine if there was a difference in the English pass/no pass frequency distributions between participant groups. The two variables were *group* with three levels (learning community, control, and remedial) and *English performance* with two levels (pass, no pass). Significant differences in pass/no pass frequency distributions among the groups were presented, ($N = 327$; Pearson $\chi^2 = 7.84$; $df = 2$; $p = .020$). Since the Pearson chi-square test had more than one degree of freedom, this omnibus test indicated the need for follow-up tests.

The Holm's sequential Bonferroni method was used to control for Type I error at the .05 level across all three comparisons. For the pairwise comparisons, one group presented a significant difference: the control group versus the remedial group, ($N = 286$; Pearson $\chi^2 = 7.403$; $df = 1$; $p = .007$). Students in the remedial group are more than 1.30 times more likely to pass English than students in the control group. Table 14 summarizes the pairwise English comparison statistics.

Table 14

Pairwise English Pass Frequency Distribution Comparison Using the Holm's Sequential Bonferroni Method

Comparison	Pearson χ^2	p value (Alpha)	Critical Value	Cramér's V
Control Group vs. Remedial Group	7.403	.007	.017	.16
Learning Community vs. Control Group	3.32	.07	.025	.17
Learning Community vs. Remedial Group	.001	.981	.050	.002

Note. Critical value the alpha level used to evaluate each paired comparison to minimize committing a Type I error for multiple hypotheses.

Overall English Performance by Gender

b. on the basis of gender?

A 2 x 2 contingency table analysis was conducted to determine if there was a difference in the English pass/no pass frequency distributions based on gender. The two variables were *gender* with two levels (male and female), and *English performance* with two levels (pass, did not pass). Gender and English performance were not found to be significantly related, ($N = 333$; Pearson $\chi^2 = .624$; $df = 2$; $p = .73$; Cramér's $V = .04$).

English Performance by Gender between Groups

c. on the basis of gender between groups?

Separate 3 x 2 contingency table analyses were conducted to determine if the English pass/no pass frequency distributions differed *by gender and group*. For both males and females, the two variables were *group* with three levels (learning community, control and remedial), and *English performance* with two levels (pass, did not pass).

Male students. Based on the Pearson chi-square test, gender and English performance was significant for males, ($N = 227$; Pearson $\chi^2 = 11.957$; $df = 2$; $p = .003$; Cramér's $V = .23$). The percentage of males who passed English was 71% for the learning community, 48% for the control group, and 75% for the remedial group.

Follow-up pairwise comparisons were conducted to evaluate the difference among these proportions. The only pairwise difference that was significant was between the male students in the control group versus males in the remedial group, ($N = 203$; Pearson $\chi^2 = 11.906$, $df = 1$; $p = .001$; Cramér's $V = .24$). The Holm's Sequential

Bonferroni method was used to control for Type I error at the .05 level across all three comparisons. The results of these analyses are shown in Table 15.

Table 15

Pairwise Male English Frequency Distribution Comparison Using the Holm's Sequential Bonferroni Method

Comparison	Pearson χ^2	<i>p</i> value (Alpha)	Critical Value	Cramér's <i>V</i>
Control Group Males vs. Remedial Group Males	11.906	.001	.017	.24
Learning Community Males vs. Control Group Males	3.341	.07	.025	.23
Learning Community Males vs. Remedial Group Males	.21	.65	.050	.03

Note. Critical value the alpha level used to evaluate each paired comparison to minimize committing a Type I error for multiple hypotheses.

Female students. Gender and English performance between groups was not found to be significant, ($N = 100$; Pearson $\chi^2 = .679$; $df = 2$; $p = .71$; Cramér's $V = .08$). No follow-up pairwise comparisons were necessary.

English Performance by Gender within Groups

d. on the basis of gender within groups?

To determine if there was a difference in the English pass/no pass frequency distributions of males versus females *within groups*, separate 2 x 2 contingency table analyses were conducted for the learning community, control group, and remedial groups.

The variables were *gender* with two levels (male, female) and *English performance* with two levels (pass, did not pass).

Learning Community Group. There was no difference in the English performance of males versus females in the learning community group, ($N = 41$; Pearson $\chi^2 = .161$; $df = 1$; $p = .69$; Cramér's $V = .06$).

Control Group. There was no difference in the English performance of males versus females in the control group, ($N = 75$; Pearson $\chi^2 = 2.721$; $df = 1$; $p = .10$; Cramér's $V = .19$).

Remedial Group. There was no difference in the English performance of males versus females in the remedial group, ($N = 211$; Pearson $\chi^2 = 1.622$; $df = 1$; $p = .09$; Cramér's $V = .09$). Figure 17 depicts the differences in the English performance expressed as pass rates (i.e., percentages) by gender and group.

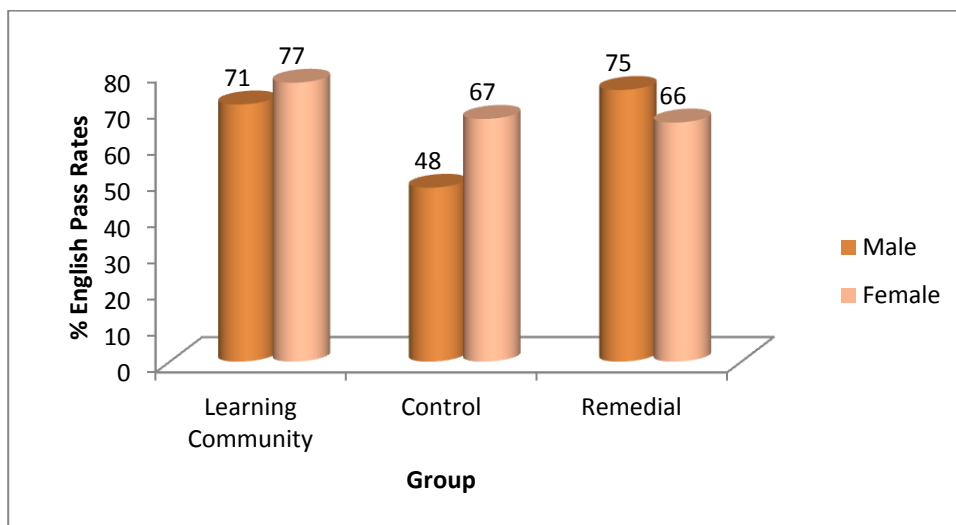


Figure 17. English pass rates by gender and group expressed as percentages.

A 4 x 2 contingency table analysis was conducted to determine if there was a difference in English pass/no pass frequency distributions based on ethnicity. The two variables were *ethnicity* with four levels (black white, Native American, other), and *English performance* with two levels (pass, did not pass). There were no differences in the pass/no pass distributions of students based on ethnicity, ($N = 327$; Pearson $\chi^2 = 7.476$; $df = 3$; $p = .06$; Cramér's $V = .15$).

English Performance by Ethnicity and Group

e. on the basis of ethnicity?

For this comparison, each ethnicity was evaluated individually to determine if their English performance differed based upon type of group (learning community, control, and remedial). A two-way contingency table analysis was conducted for each ethnicity.

Black students. A 3 x 2 contingency table analysis was conducted to determine if the English pass/no pass frequency distributions differed between black students in the learning community, control, and remedial groups. The two variables were *group* with three levels (learning community, control, and remedial), and *English performance* with two levels (pass, no pass). Ethnicity and English performance were not significant for black students, ($N = 31$; Pearson $\chi^2 = .392$; $df = 2$; $p = .82$; Cramér's $V = .11$).

White students. A 3 x 2 contingency table analysis was conducted to determine if the English pass/no pass frequency distributions differed between white students in the learning community, control, and remedial groups. The two variables were *group* with three levels (learning community, control, and remedial), and *English performance* with

two levels (pass, no pass). Ethnicity and English performance were not significant for white students, ($N = 161$; Pearson $\chi^2 = 3.916$; $df = 2$; $p = .14$; Cramér's $V = .16$).

Native American students. A 3 x 2 contingency table analysis was conducted to determine if the English pass/no pass frequency distributions differed between Native American students in the learning community, control, and remedial groups. The two variables were *group* with three levels (learning community, control, and remedial), and *English performance* with two levels (pass, no pass). Ethnicity and English pass rate were found to be significantly related for Native American students, ($N = 109$; Pearson $\chi^2 = 7.635$; $df = 2$; $p = .02$). Cramér's $V = .27$ indicated a moderate effect size. The proportion of Native Americans who passed English was 92% for the learning community, 47% for the control group, and 64% for the remedial group.

Follow-up pairwise comparisons were conducted to evaluate the difference among these proportions. Table 16 shows the results of these analyses. The Holm's sequential Bonferroni method was used to control for Type I error at the .05 level across all three comparisons. The only pairwise difference that was significant was between the learning community and control groups. Native Americans are 1.96 times more likely to pass English in the learning community as compared to the control group.

Table 16

Pairwise Native American English Pass Frequency Distribution Comparison Using the Holm's Sequential Bonferroni Method

Comparison	Pearson χ^2	<i>p</i> value (Alpha)	Critical Value	Cramér's <i>V</i>
Learning Community vs. Control Group	7.204	.007	.017	.41
Learning Community vs. Remedial Group	3.555	.06	.025	.21
Control Group vs. Remedial Group	2.623	.11	.050	.16

Note. Critical value the alpha level used to evaluate each paired comparison to minimize committing a Type I error for multiple hypotheses.

Other students. Because 100% of the cells had a frequency of less than five, the analysis was not conducted.

English Performance by Ethnicity within Groups

f. on the basis of ethnicity between groups?

A two-way contingency table analysis was conducted to evaluate whether ethnicity affected the English pass/no pass frequency distributions of students within groups. For this comparison, ethnic groups (black, white, and Native American) were compared to each other *within a single group (learning community, control, and remedial)*. The *other* category was eliminated as the count was too low to meet the expected cell frequencies standard for the analysis.

Ethnicity by learning community group. A 3 x 2 contingency table analysis was conducted to determine if the English pass/no pass frequency distributions of black, white, and Native American ethnicities differed within the learning community group.

The variables were *ethnicity* with three levels (black, white, Native American), and *English performance* with two levels (pass, did not pass). Fifty percent of the cells had a frequency of less than five, therefore, the results were not used.

Ethnicity by control group. A 3 x 2 contingency table analysis was conducted to determine if the English pass/no pass frequency distributions of black, white, and Native American ethnicities differed within the control group. The variables were *ethnicity* with three levels (black, white, Native American), and *English performance* with two levels (pass, did not pass). There was no difference in the English performance by ethnicity, ($N = 69$; Pearson $\chi^2 = 1.982$; $df = 2$; $p = .37$, Cramér's $V = .17$).

Ethnicity by remedial group. A 3 x 2 contingency table analysis was conducted to determine if the English pass/no pass frequency distributions of black, white, and Native American ethnicities differed within the remedial group. The variables were *ethnicity* with three levels (black, white, Native American), and *English performance* with two levels (pass, did not pass). There was no difference in the English performance by ethnicity, Pearson $\chi^2 (2, N = 197) = 5.189$, $p = .08$, Cramér's $V = .16$. Figure 18 shows the English pass rate expressed as percentages for the various ethnicities and by group.

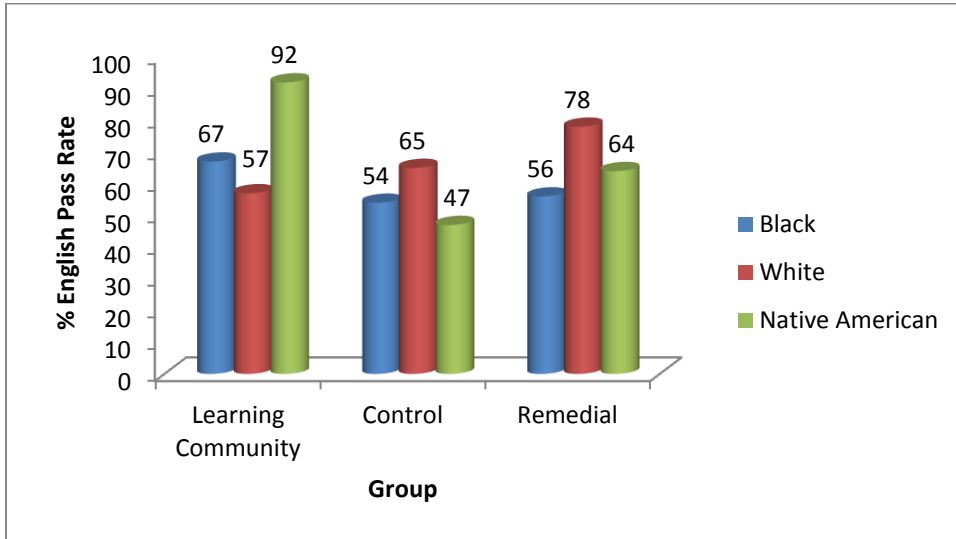


Figure 18. English pass rates by ethnicity and group expressed as percentages.

Overall Math Performance

RQ7: Does the math performance differ between first-semester remedial students:

a. who belong to a learning community and those who do not?

A 3 x 2 contingency table analysis was conducted to determine if there was a difference in the math pass/no pass frequency distributions between groups. The two variables were *group* with three levels (learning community, control, and remedial) and *math performance* with two levels (pass, no pass). There were no significant differences between the groups, ($N = 414$; Pearson $\chi^2 = 3.343$; $df = 2$; $p = .19$).

Overall Math Performance by Gender

b. on the basis of gender?

A 2 x 2 contingency table analysis was conducted to determine if there was a difference in the math pass/no pass frequency distributions based on gender. The two

variables were *gender* with two levels (male and female), and *math performance* with two levels (pass, did not pass). Gender and math performance was not found to be significantly related, ($N = 306$; Pearson $\chi^2 = 5.297$; $df = 2$; $p = .07$; Cramér's $V = .13$).

Math Performance by Gender between Groups

c. on the basis of gender between groups?

Separate 3 x 2 contingency table analyses were conducted to determine if the math pass/no pass frequency distributions differed *by gender and group*. For both males and females, the two variables were *group* with three levels (learning community, control and remedial), and *math performance* with two levels (pass, did not pass).

Male students. The difference for males by group was not significant, ($N = 174$; Pearson $\chi^2 = 2.095$; $df = 2$; $p = .35$; Cramér's $V = .11$). The proportion of males who passed math was 75% in the learning community, 62% in the control group, and 73% in the remedial group.

Female students. The difference for females by group was not significant, ($N = 124$; Pearson $\chi^2 = 2.890$; $df = 2$; $p = .24$; Cramér's $V = .15$). The proportion of females who passed math was 88% in the learning community, 73% in the control group, and 75% in the remedial group.

Math Performance by Gender within Groups

d. on the basis of gender within groups?

To determine if there was a difference in the math pass/no pass frequency distributions of males versus females *within groups*, separate 2 x 2 contingency table

analyses were conducted for the learning community, control group, and remedial groups. The variables were *gender* with two levels (male, female) and *math performance* with two levels (pass, did not pass).

Learning Community Group. There was no difference in the math performance of males versus females in the learning community group, ($N = 41$; Pearson $\chi^2 = 1.11$; $df = 1$; $p = .29$; Cramér's $V = .17$).

Control Group. There was no difference in the math performance of males versus females in the control group, Pearson $\chi^2 (1, N = 75) = .974$, $p = .32$, Cramér's $V = .11$.

Remedial Group. There was no difference in the math performance of males versus females in the remedial group, ($N = 182$; Pearson $\chi^2 = 3.368$; $df = 1$; $p = .06$; Cramér's $V = .14$). Figure 19 depicts the differences in math pass rate by gender and group.

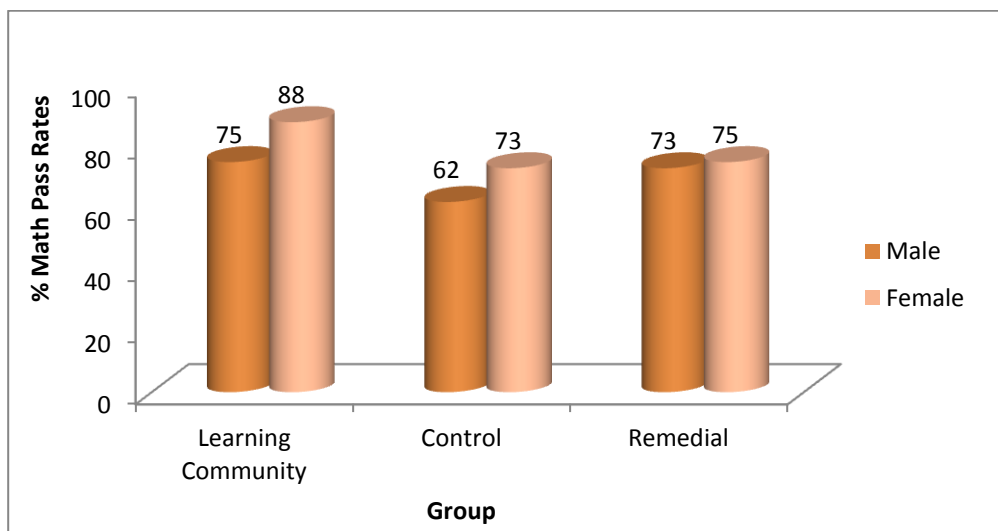


Figure 19. Math pass rates by gender and group expressed as percentages.

Math Performance by Ethnicity

e. on the basis of ethnicity?

A 4 x 2 contingency table analysis was conducted to determine if there was a difference in math pass/no pass frequency distributions based on ethnicity. The two variables were *ethnicity* with four levels (black white, Native American, other), and *math performance* with two levels (pass, did not pass). There were no differences in the pass/no pass distributions of students based on ethnicity, ($N = 298$; Pearson $\chi^2 = 2.045$; $df = 3$; $p = .56$; Cramér's $V = .08$).

Math Performance by Ethnicity between Groups

f. on the basis of ethnicity between groups?

For this comparison, each ethnicity was evaluated individually to determine if their math performance differed based upon type of group (learning community, control, and remedial). A two-way contingency table analysis was conducted for each ethnicity.

Black students. A 3 x 2 contingency table analysis was conducted to determine if the math pass/no pass frequency distributions differed between black students in the learning community, control, and remedial groups. The two variables were *group* with three levels (learning community, control, and remedial), and *math performance* with two levels (pass, no pass). Ethnicity and math performance were not significant for black students, ($N = 38$; Pearson $\chi^2 = .618$; $df = 2$; $p = .73$; Cramér's $V = .13$).

White students. A 3 x 2 contingency table analysis was conducted to determine if the math pass/no pass frequency distributions differed between white students in the

learning community, control, and remedial groups. The two variables were *group* with three levels (learning community, control, and remedial), and *math performance* with two levels (pass, no pass). Ethnicity and math performance were not significant for white students, ($N = 142$; Pearson $\chi^2 = 1.803$; $df = 2$; $p = .41$; Cramér's $V = .11$).

Native American students. A 3 x 2 contingency table analysis was conducted to determine if the math pass/no pass frequency distributions differed between Native American students in the learning community, control, and remedial groups. The two variables were *group* with three levels (learning community, control, and remedial), and *math performance* with two levels (pass, no pass). Ethnicity and math performance were not found to be significantly related for Native American students, ($N = 100$; Pearson $\chi^2 = 3.825$; $df = 2$; $p = .15$; Cramér's $V = .20$).

Other students. Because 100% of the cells had a frequency of less than five, the analysis was not conducted.

Math Performance by Ethnicity within Groups

g. on the basis of ethnicity within groups?

A two-way contingency table analysis was conducted to evaluate whether ethnicity affected the math pass/no pass frequency distributions of students within groups. For this comparison, all four ethnic groups were compared to each other *within a single group (learning community, control, and remedial)*. Further, the *other* category was eliminated as their count was too low to meet the minimum standard for the analysis.

Ethnicity by learning community group. A 3 x 2 contingency table analysis was conducted to determine if the math pass/no pass frequency distributions of black, white, and Native American ethnicities differed within the learning community group. The variables were *ethnicity* with three levels (black, white, Native American), and *math performance* with two levels (pass, did not pass). Fifty percent of the cells had a frequency of less than five; therefore, the results were not used.

Ethnicity by control group. A 3 x 2 contingency table analysis was conducted to determine if the math pass/no pass frequency distributions of black, white, and Native American ethnicities differed within the control group. The variables were *ethnicity* with three levels (black, white, Native American), and *math performance* with two levels (pass, did not pass). There was no difference in the math performance distribution by ethnicity, ($N = 69$; Pearson $\chi^2 = .309$; $df = 2$; $p = .86$; Cramér's $V = .07$).

Ethnicity by remedial group. A 3 x 2 contingency table analysis was conducted to determine if the math pass/no pass frequency distributions of black, white, and Native American ethnicities differed within the remedial group. The variables were *ethnicity* with three levels (black, white, Native American), and *math performance* with two levels (pass, did not pass). There was no difference in the math performance distribution by ethnicity, ($N = 176$; Pearson $\chi^2 = .569$; $df = 2$; $p = .75$; Cramér's $V = .06$). Figure 20 shows the math pass rates expressed as percentages for the various ethnic categories and groups.

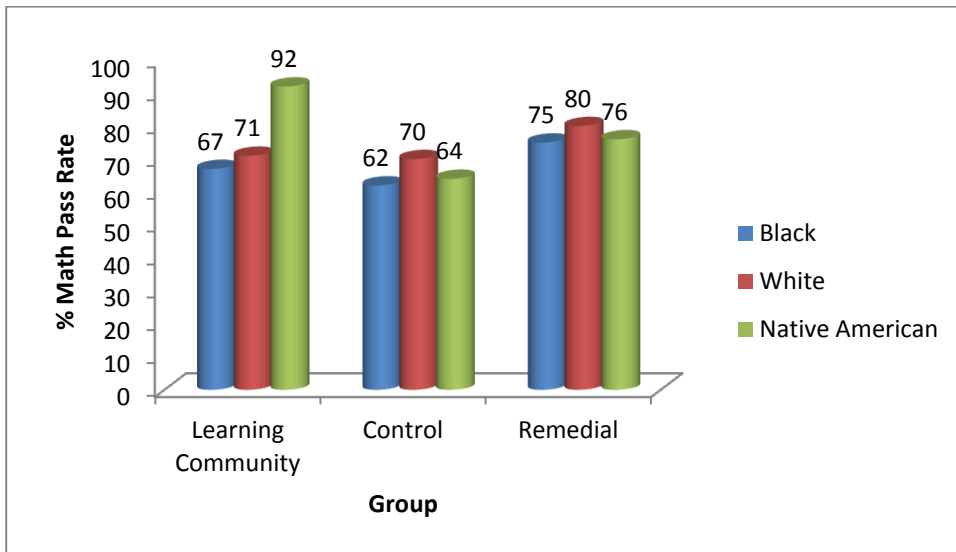


Figure 20. Math pass rates by ethnicity and group expressed as percentages.

Focus Group Perceptions

RQ8: What are the perceptions of the focus group learning community participants about their experiences in a learning community?

All participants in the learning community ($N = 42$) were invited to participate in the focus group. Invitations were first extended via email, and then the researcher called each participant to personally invite to take part in the interview. The day prior to the interview, reminder emails were sent, and phone calls made, to reconfirm participation. Nine students committed to be interviewed.

Setting for the Focus Group Interview

The interview was held on the OSUIT campus in one of the meeting rooms in the Grady Clack Center (administration building). The Grady Clack Center is a well-known building as it houses many of the services students need such as admissions, bursar, financial aid, and registrar offices. Dinner was provided for the focus group participants,

and as they arrived, they served themselves from the buffet and everyone sat at the conference table which comfortably seats 12 people.

It was apparent as the members of the focus group arrived that they had strong ties to each other. The invitation to be a part of the focus group had been discussed among the four who attended, as well as the others who were participants in the learning community, but did not come to the focus group interview. After the start time for the interview, when the five remaining students did not show, the four in attendance self-initiated calls to *the cell phone numbers of the others*. When unable to reach the others, the interview process commenced.

Description of the Participants

As first shown in Chapter III, Table 9 describes the make-up of the group.

Table 9

Demographics of Focus Group Participants

Focus Group Participants, N = 4		
Gender	Ethnicity	Citizenship
Male	Black	United States
Male	Black	United States (Virgin Islands)
Male	Hispanic	United States (Puerto Rico)
Male	Foreign	Africa

Interview Process

To begin, the researcher requested permission to audio-record the conversation using an iPad. Then, the following took place:

- Participants were told about the research and the purpose of the interview.

- Participants were told they could leave the interview at any time, without any penalties.
- The researcher described how the interview process would work, with each question being asked one-at-a-time, and all having the opportunity to share their own opinions.
- Participants were told they would receive a copy of the researcher's transcription, and asked for their feedback to ensure the researcher's interpretations accurately reflected what the group wanted to convey.
- Index cards and pens were distributed to each participant to use during the questions when these materials would be needed.

Recording and Transcription Process

Upon conclusion of the interview process, the researcher took the following steps:

1. imported the MP4 media file from the iPad into HyperTranscribe software on a desktop computer,
2. transcribed audio into a text file,
3. exported the text file into a word document to edit more easily and use formatting to highlight or section different parts of the transcription,
4. imported the file back into HyperTranscribe, and
5. named and saved the file to prepare for export into HyperResearch software for analysis and coding.

Coding and Analysis Process

Once the file was ready for analysis, the researcher:

- imported the text file from HyperTranscribe into HyperResearch,
- read through the transcript several times, forming impressions and making notations in the margins of the text file,
- noted any trends or categories that emerged,
- created codes and definitions in the code book for used on the transcript,
- assigned codes to the appropriate statements throughout the transcript.

The literature review identified several preset themes the researcher set aside to use as codes. However, during the transcription and analysis process, these preset themes did not appear as frequently as the emergent themes that were identified.

Interpretation Process

A frequency analysis was conducted identifying the number of times codes were assigned throughout the transcript. After multiple readings of the transcript, and reviews of the coding, a list of important findings was drawn. The researcher went back to the transcript and selected responses from the participants that best represented the findings.

Expectations of the Learning Community

All members of the focus group agreed that their attraction to participating in the learning community was solidified by the description of how it would work: limited enrollment and the same students being enrolled in the same classes. Their willingness to participate in the learning community was driven by their interest in meeting persons from different cultures or backgrounds, learning by working in groups, and the ability to socialize with others.

Involvement in the learning community. Focus group participants stated that they had hoped to be able to socialize with others in the class environment, and gain a better understanding of other cultures through the relationships developed as students progressed through classes together. One participant, in particular, stated that he had hoped to achieve the deeper understanding that comes from the sharing of experiences, how other students in the group responded to the problems in class, and how their cultures and backgrounds influenced their approach.

Benefits of the learning community. Again, the participants had similar responses as to how they benefitted from the learning community. All were in agreement that the development of relationships was a key benefit. The ability to interact with other people, regularly, resulted in a comfort level where everyone contributed to the learning experiences. Several focus group members stated that everyone participated, everyone helped, and everyone was encouraging--from the students on up through the instructors who team-taught the courses.

Additionally, members said they felt more connected to the general campus community because they learned about resources in other areas, how OSUIT operates in general, and where to go for help. All repeatedly mentioned the Learning and Student Support Opportunity (LASSO) Center which is where students are able to access tutoring services, and academic accommodations. Stated one participant, "everybody is trying to create the best experiences for the students." At the LASSO Center, "they give you popcorn...or whatnot...that's common courtesy, you know it keeps me want [sic] to come here even if I don't want to be there...."

Teaching activities. Participants were asked to independently come up with three strategies for effective teaching, and then share why they chose those strategies. Then, students ranked their preferences from one to three. Table 17 indicates the strategies and overall rank. The strategies highlighted by the focus group participants were an integral part of the instructional pedagogy in the learning community. During the discussion, to ensure students chose instructional methods they preferred, and not just what was used in the learning community, they were questioned further. All confirmed that these methods were chosen because it worked best for them—regardless of the subject.

Table 17

Rating and Ranking Points Descriptive Statistics for Top Three Teaching Activities

Teaching Activity	Minimum Rating	Maximum Rating	<i>M</i>	<i>SD</i>	Σ Rank Points	Overall Rank
Visual aids (i.e., powerpoints, demonstrations)	0	3	2.0	1.41	8	1
Assertive assistance	0	3	1.5	1.29	6	2
Group activities	0	2	1.25	.96	5	3
Study groups	0	3	.75	1.5	3	4
Note taking	0	2	.5	.58	2	5

Experience in the learning community. Participants were asked to independently write down a word or phrase that best described their experience in the learning community. Figure 21 illustrates their descriptive word. During the discussion, participants repeatedly expressed the importance of connecting with others to learn and be creative.

learning constructive explainable CrEAtiVE

Figure 21. Wordle describing participants' learning community experience.

Thoughts or feelings about the learning community. Participants were asked to reflect upon their time in the learning community, then independently write a word or phrase to summarize what they felt about the learning community, and then share with the group. The question was meant to elicit how the participants felt about learning community overall, and the selected words and synonyms they used mostly centered around their *feelings about their instructors*. Figure 22 is a visual depiction of those words and synonyms.

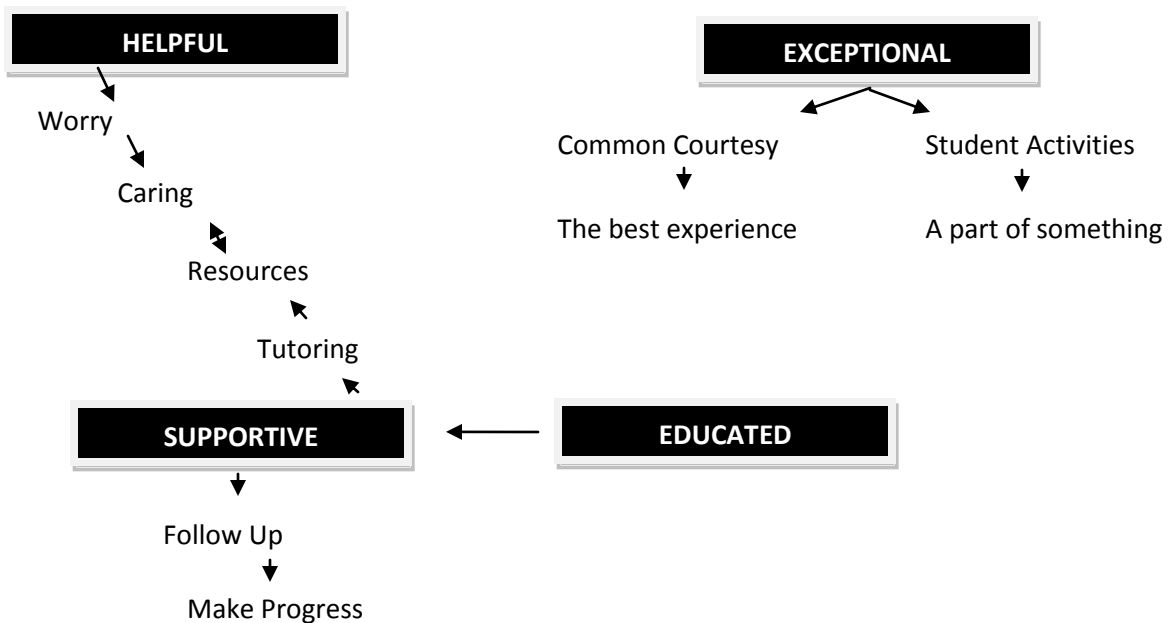


Figure 22. Word tree reflection of participants' feelings about the learning community.

Focus group participants were appreciative and enthusiastic about sharing their personal experiences in the learning community and benefits accrued. Upon conclusion of the interview, the participants asked if the researcher would take a group photo and email it to them. They stated, "we are all friends, and we would like a picture of our time spent here today." In addition, stated one focus group participant, "This is the best group meeting I've had since I've been here....We got to open up and show/talk about the school, our ideas, and, you know, how we feel."

Summary of Findings

Major findings derived from the data presented in this chapter include the following:

- Students in the learning community earned more of their attempted hours than students in the control group.
- Students in the learning community group had higher persistence rates than students in the control group.
- Students in the learning community group had a higher mean GPA than students in the control group.
- Students in the learning community group had the highest PACE rate, followed by students in the remedial group, then those in the control group.
- Females in the learning community and control groups had higher persistence rates than males in these respective groups.
- Females in the learning community had higher persistence rates than females in the control and remedial groups.

- Males in the remedial group had a higher persistence rate than females in the remedial group.
- All ethnicities, *except for blacks*, had higher persistence rates in the learning community than in the control and remedial groups.
- Students in the learning community had higher reading and math pass rates than both the remedial and control groups.
- Students in the learning community had a higher English pass rate than the control group.
- Females outperformed males in reading, English, and math.
- Females in the learning community, control, and remedial groups outperformed males in the learning community, control, and remedial groups.
- Females in the learning community group outperformed females in the control and remedial groups in reading, English, and math.
- Males in the learning community group outperformed males in the control group in reading, English, and math.
- All ethnicities in the learning community group, *except white*, had higher pass rates in reading, English, and math than the control group.
- White students in the learning community group had lower pass rates in reading and math than white students in the control and remedial groups.
- Native Americans in the learning community group had higher pass rates in reading, English, and math than all other ethnicities in the learning community group.
- The social aspects of the learning community were a critical part of why students felt they were successful.

- The instructional techniques most appreciated by the learning community focus group participants involved group work and demonstrations.

CHAPTER V

CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

Summary of the Study

The purpose of this study was to determine if the learning community treatment was an effective means for influencing the persistence and academic performance of first-semester remedial students at Oklahoma State University Institute of Technology (OSUIT), and to examine how the demographic factors of gender and ethnicity might influence persistence and performance. To this end, three sub-groups of the total remedial population of first-semester students were compared which are

- the *learning community group* ($n = 42$), comprised of first-semester students needing remediation in reading, English, and math, and who agreed to be a part of the learning community;
- the *control group* ($n = 75$), which consisted of first-semester students needing remediation in reading, English, and math, and who were *not* in the learning community group; and,
- the *remedial group* ($n = 510$), which included all remaining first-semester students needing remediation in at least one or two subjects, but not all three.

This study used a mixed methods design in which the qualitative strand was embedded within a quantitative, quasi-experimental format. The quantitative data were obtained from OSUIT student academic transcripts and admissions records, which were available to the researcher because of her senior position at the institute. Statistical analyses consisted of independent samples *t*-test, Mann Whitney *U* Tests, and two-way contingency tables using crosstabs and chi-square (χ^2). Through the use of these statistical analyses, the three groups were compared to determine if the academic performance and persistence of the groups differed. In addition, analyses were conducted to compare gender and ethnicity within and across groups to determine if these demographic variables influenced the academic performance and persistence of students.

The qualitative data was collected through a focus group interview ($n = 4$), with students who participated in the learning community. Thematic coding analysis was used to evaluate the qualitative strand. To achieve internal validity, the participants were provided with a copy of the transcription, and asked for their feedback to ensure the researcher's interpretations accurately reflected what the group wanted to convey. The integration of the qualitative data component enabled, "...knowledge to become dynamic; that is, the multiple layers of narrative meaning hidden by the numbers is revealed" (Commander & Ward, 2009, p. 27).

Faculty Participation

To identify faculty to instruct in the learning community, the Division Chairperson for the Arts and Sciences Division and staff in the Learning And Student Support Opportunity Center (LASSO) constructed a list of faculty with an interest or

prior teaching experience with the remedial population. In addition to interest in working with the remedial population, other considerations were given to faculty whose instructional methodologies included hands-on activities and project-based assignments. Faculty on the list were provided with a summary of the purpose of the learning community, and asked to respond if interested. Two faculty volunteered to serve in this paid position. The summary discussed the salient points of the learning community study:

- To retain the lowest-skill-level students who have the highest attrition rate of any of the remedial population.
- To enroll students as a cohort, where they take all their classes together, Monday through Friday, with two teachers dedicated for this purpose.
- If the learning community proved to be successful, it would serve as a model for building additional learning communities for specific populations, and successful strategies replicated in other classes.

Conclusions

From the data in this study, six major conclusions can be drawn.

Conclusion 1: The learning community appears to positively influence the academic performance of students.

GPA, enrollment data, and grades were obtained from academic transcripts and used to compare the academic performance of students in the learning community,

control, and remedial groups. Several measures for academic performance were assessed:

- group mean GPA,
- percentage of attempted-to-earned hours,
- PACE which is defined as earning at least 75% of the attempted hours, and
- Pass/no pass distributions in reading, English, and math.

For comparing the groups' mean GPA, the independent samples *t*-test was used. For this analysis, only the learning community and control groups were used. For the other measures of academic performance, in which the data were all nominal variables, the two-way contingency table analysis using crosstabs and chi-square (χ^2) was selected, and all groups were compared.

Several studies in the selected literature reported that low-skill-level students were less likely to pass remedial subjects than the high-skill-level students (Bahr, 2012; Bailey et al., 2009; Deil Amen, 2011; Wilmer, 2009). The literature also indicated that students who needed remediation in more than two subjects did not perform as well as students who needed remediation in one or two subjects (Bahr, 2012; Bailey et al., 2009; Deil-Amen, 2011; OSRHE, 2011). Based on these studies, a working hypothesis for this study was that the remedial group would outperform both the learning community and control groups. However, the results of the data analyses for this study contradicted those findings, and refuted the working hypothesis.

The learning community outperformed both the control group (low-skill-level students) and remedial group (high-skill-level students) *in all subjects*. Figure 23 shows the pass rates (i.e., percentages) between the groups.

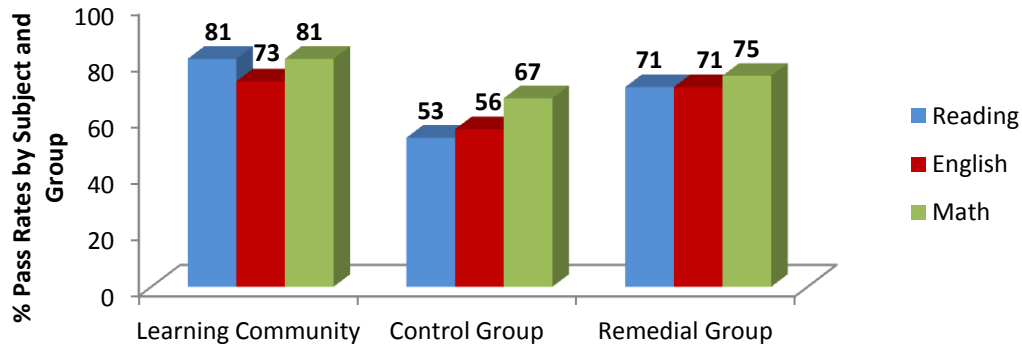


Figure 23. Pass rates by subject and groups expressed as percentages.

In addition:

- students in the learning community group had a higher mean GPA than the students in the control group,
- the students in the learning community group had a higher percentage of hours earned as compared to their counterparts in the control group, and,
- the students in the learning community group had a higher PACE rate than either the control or remedial groups.

All these findings support a conclusion of the efficacy of the learning community as a strategy for improving the academic performance of students requiring remediation in reading, English, and math.

Conclusion 2: The learning community appears to positively influence the persistence of students.

Enrollment data were obtained from student academic transcripts and used to determine if students enrolled at OSUIT for the semester immediately following the conclusion of the learning community, i.e., in the 2013 spring semester for students who were enrolled in the 2012 fall semester learning community, and in the 2014 spring semester for students who participated in the 2013 fall semester learning community. The two-way contingency table analysis using crosstabs and chi-square (χ^2) was used to evaluate the relative frequencies of students in each group who re-enrolled at OSUIT.

In studies commissioned by the Community College Research Center, remediation was frequently reported as negatively correlated with persistence. Persistence decreased as the need for remediation in the number of subjects, *breadth*, and/or levels within a subject, *depth*, increased (Bahr, 2012; Bailey et al., 2009; Jagers & Stacey, 2014). The importance of persistence is that the longer students stay, the greater the likelihood the students will attempt and complete remediation in other subjects. In addition, the literature noted that any delays in beginning the remedial sequence led to greater fail and exit rates (Bahr, 2012; Deil-Amen, 2011; OSRHE, 2011).

On the basis of these reports, a working hypothesis for this study was that the remedial group would have the highest level of persistence, and that there would be no difference in the persistence rates of the learning community and control groups because these students share the same *breadth* and *depth* of needed remediation in reading, English, and math. In support of the findings in the literature, the remedial group in this

study did re-enroll at higher rates than the learning community and control groups. However, unlike the research reviewed, there was a difference in the persistence distributions between the students in the learning community and control groups, with the learning community group re-enrolling at a higher rate. The persistence rates were 64% for the remedial group, 62% for the learning community, and 53% for the control group. Thus, the learning community group was more like the remedial group than the control group, suggesting a positive influence of the learning community strategy.

Conclusion 3: Gender may be a moderating variable, possibly influencing both the strength and relationship between the learning community and dependent variables of academic performance and persistence.

Gender data was extracted from the admission records maintained in the SCT Plus® student information system at OSUIT. The two-way contingency table analysis using crosstabs and chi-square (χ^2) was used to evaluate the persistence rates as well as the pass rates in reading, English, and math by gender. As shown in Chapter III, Figures 8 and 9 illustrate how gender and sub-groups of the OSUIT total remedial population were compared.

Bailey, Jeong, and Cho (2009) stated, "...gender, race/ethnicity, age, and cohort differences are commonly identified as determinants of postsecondary outcomes" (p. 19). In a study by Jagers and Stacey (2014), they described variables that seemed to hamper the success of remediation efforts. In general, the researchers stated that race, ethnicity, and age appeared to influence the efficacy of remediation efforts. For female students, remediation appeared to be ineffective. In a similar study where first year students were

placed into learning communities, black men appeared to gain the greatest benefits, while white women showed the least improvement (Hotchkiss et al., 2006).

Contrary to what the above-mentioned studies expressed, in this study, females gained the most benefit from the learning community and remediation efforts. Females outperformed males in every remediation subject. In addition, females in each group, i.e., learning community, control, and remedial, had higher pass rates in every subject than their male counterparts in those respective groups. Furthermore, the females in the learning community had higher pass rates in every subject than their female peers in both the control and remedial groups. These findings support the efficacy of the learning community strategy for female remedial students.

For persistence, females in the learning community and control group had higher persistence rates than their male counterparts in these respective groups. Similarly, when comparing females to each other, females in the learning community had higher persistence rates than females in the control and remedial groups. Further demonstrating the efficacy of the learning community treatment, males in the learning community outperformed males in the control and remedial groups in reading and math. Based on the literature, it was a working hypothesis for this study that the students in the remedial group would surpass the performance of both the learning community and control groups. This expectation was not supported in this study, which indicated instead both support for the efficacy of the learning community and a possible moderator role for gender between learning community participation and academic outcomes. This possibility merits further research on the role of gender as a moderator variable.

Conclusion 4: Ethnicity may be a moderating variable, possibly influencing both the strength and relationship between the learning community treatment and the dependent variables of academic performance and persistence.

Ethnicity data was extracted from the admission and financial aid records maintained in the SCT Plus® student information system at OSUIT. The two-way contingency table analysis using crosstabs and chi-square (χ^2) was used to evaluate the pass distributions in reading, English, and math by ethnicity. As shown in Chapter III, Figures 11 and 12 illustrate how the ethnicities and remedial groups were compared.

Several studies in the literature indicated that ethnicity was a commonly identified determinant of educational outcomes in a postsecondary setting (Bailey et al., 2009; Hotchkiss et al., 2006; Jagers & Stacey, 2014). In one study, remediation appeared to be ineffective for black students (Jagers & Stacey, 2014). However, in this study, black students in the learning community had higher reading and English pass rates than black students in the control group *and* black students in the remedial group. In addition, black students in the learning community had higher math pass rates than black students in the control group. These findings indicate efficacy of the learning community strategy for black students.

The effects of remediation seem to be tempered by student demographics (Jagers & Stacey, 2014). In this study, all ethnicities in the learning community group, *except white*, had higher pass rates in reading, English, and math than the control group. Native American students in the learning community group had higher pass rates in all subjects

than Native American students in the control *and* remedial groups. These findings indicate efficacy of the learning community strategy for Native American students.

In terms of persistence, the literature indicated that remedial efforts had positive effects on the persistence of foreign students, particularly when students took both reading and English (Jaggers & Stacey, 2014). In this study, the *other* category which was comprised of foreign students and Asian/Pacific Islander did not have enough frequencies in the cells to allow statistical analyses to be performed; this prevented direct comparison with the literature. However, enrollment records indicated a 100% persistence rate among the foreign students in the semester following completion of the learning community. Furthermore, all ethnicities, *except for black students*, had higher persistence rates in the learning community than in the control and remedial groups. Black students in the learning community group had the lowest persistence rate (30%) as compared to black students in the control (46%) and the remedial groups (58%).

Taken collectively, these findings suggest that ethnicity may play a moderator variable role in the effects of the learning community strategy on academic outcomes of participants. Further research on the moderator role of ethnicity is warranted.

Conclusion 5: The learning community appears to be an effective way to create a climate for success for first-time students at the lowest-skill levels.

In this study, students' eligibility to participate in the learning community was determined on the basis of compass placement scores and ACT or SAT test scores. Those students whose scores showed the need for remediation in reading, English, and math were invited to participate. The data was obtained from academic records

maintained in the SCT Plus® student information system. The first 25 students who met the eligibility requirements, and agreed to be enrolled in the learning community, formed the learning community group.

The control group was comprised of all remaining low-skill students who needed remediation in reading, English, and math, and were not enrolled in the learning community. As with the learning community group, the compass placement scores and ACT or SAT scores, were used to determine remedial needs. The students in the control group had scores within the same range in reading, English, and math as the learning community group.

The remedial group was formed from all remaining first-semester students needing remediation in at least one subject, but no more than two. These students had placement scores that may have been close to the cutoff score for direct entry into college-level classes, or may have needed to complete more than one level of remediation in a particular subject to remove the deficiency.

For low-skill-level students (those needing remediation in more than one subject, or more than one level of a particular subject), the learning community may provide "...the security of a welcoming, emotionally safe environment as they transition into their first college experience" (Wilmer, 2009, p. 64). In this study, both the learning community and control groups were comprised of students at the lowest-skill level. The findings which led to conclusions 1-4 listed above support the efficacy of the learning community treatment. In almost every comparison, students in the learning community group outperformed the control group. The learning community group presented

- had higher pass rates in reading, English, and math;
- greater persistence rates;
- higher group mean GPA;
- higher percentage of earned-to-attempted hours; and,
- higher group average for PACE (earning 75% of the attempted hours to meet financial aid satisfactory academic progress).

Furthermore, the performance of the students in the learning community group was just slightly below or even surpassed the performance of students in the remedial group (students who needed remediation in one or two subjects). The literature indicated that students who needed remediation in more than two subjects (low-skill-level) had higher failure rates and rates of attrition than those with remedial needs in one-to-two subjects. In addition, research studies noted that it took much longer for the low-skill-level students to resolve their deficiencies (Bahr, 2012, Bailey et al., 2009). However, in this study, the following results were achieved by low-skill-level students enrolled in the learning community group:

- A higher reading pass rate (78%) than the remedial group (72%).
- A higher math pass rates (81%) than the remedial group (76%).
- A higher PACE rate (76%) than the remedial group (62%).
- A similar persistence rate (62%) to those in the remedial group (64%).

These findings collectively indicate support for the efficacy of the learning community as an effective environment in which low-skill-level or remedial students can improve their academic performance and prepare for transition to college-credit courses.

Conclusion 6: The focus group, made up of students who participated in the learning community, felt their experiences were beneficial.

Research on learning communities affirms that the effects of the learning community are that it results in helping students socially acclimate, assisting in developing contacts with others, and possibly resulting in greater involvement and higher levels of student satisfaction with their experiences (Browne & Minnick, 2005; Buch & Spaulding, 2008). In this study, students in the learning community focus group were asked to describe what they thought were the benefits of the learning community. On the basis of these statements, the focus groups' opinions support the literature. They said:

- "You get to interact with different people."
- "Everyone can participate...."
- "Different people are all around us, like he said, you know, try to help and be helped, so I think we're all benefiting from it. I don't really see anything discouraging about the learning community."
- "I think that can also help future academic programs."

The group questioned the researcher as to why all first-semester students were not provided with a learning community experience. They felt that more students should have an opportunity to develop the kinds of relationships they had with each other in the focus group, as well as others who were enrolled in their learning community. They described the learning community as helpful, with caring instructors who worry about you, are concerned for your progress, and making sure that you know where to go for help. This perspective is similar to what Commander and Ward (2009) uncovered in their qualitative study using focus groups. Students reported feeling a closer connection

with peers, faculty, and the university leading to what they believed was greater support and commitment to their success.

Implications and Discussion

Empirical Implications

This study adds to a growing body of knowledge on learning communities using mixed methods research design, specifically addressing student remediation, persistence, and academic performance. This study supports many of the findings in the literature about learning communities, including:

- Students working collaboratively report greater satisfaction with their learning experiences, and have a higher retention of knowledge (Bloom, 2009; Browne & Minnick, 2005; Wild & Ebbers, 2002).
- The learning community has a positive effect on the academic performance and persistence of students (Browne & Minnick, 2005; Hotchkiss et al., 2006).
- Learning communities may strengthen students' skills in specific subject areas around which they are designed, i.e., remediation, foreign language, major, etc. (Browne & Minnick, 2005; Wenger et al., 2002).

Theoretical Implications

The gestalt of learning communities is that it is *customizable* to achieve various purposes, address a multitude of needs, and serve a variety of constituents. "It is a set of things such as a person's thoughts and experiences considered as a whole and regarded as amounting to more than the sum of its parts" (Learner's Dictionary, <http://www.learners>

dictionary.com/search/gestalt). The mixed methods design of this study enabled the researcher to discover, through the focus group participants, how much more there is to the learning community experience.

The theoretical framework developed for this study was comprised of several theories. Each of these theories was reinforced and validated with the findings and conclusions in this study and described below.

Engagement Theory. This theory suggests incorporating three elements for the creation of an optimal learning situation. The three elements are *relate*, *create*, and *donate*. *Relating* refers to contextualized learning which is where students are able *connect* what they have learned with how it can be practically applied to their personal or work situations (Kearsley & Shneiderman, 1998). For instance, many graduates will find employment in positions in which working within teams is a critical part of their job responsibilities. When students understand that working together on projects helps them to develop the social skills that will serve them in the workplace, the group projects become more meaningful (Bloom, 2009; Wilmer, 2009). The learning community in this study revolved around contextualized learning. Students learned how to apply the knowledge learned in math to cooking, house remodeling, and other situations they might likely encounter in their own lives.

The *create* element is defined as applying newly learned concepts to create solutions to real life situations, thereby resulting in an increased and persistent transfer of knowledge. Buch & Spaulding (2008) conducted a study in which students were engaged in activities with students of similar characteristics, formulating solutions to problems

they might encounter in the real world. Such a practical application of knowledge resulted in deeper learning. In the OSUIT learning community, student teams were given scenarios where they had to use the information they just learned to overcome the problems they encountered in the scenarios.

The last element of the engagement theory, *donate*, is using knowledge to benefit someone else. Lardner and Malnarich (2008) reviewed learning communities where public issues were made the focus of an assignment. The students engaged in substantive work, integrating knowledge from different disciplines. As the students conducted their research, developed their response, and then presented it, they gained understanding of an issue that helped them to develop deeper learning. Thus, all three elements of engagement theory were incorporated, and the results supported the hypothesis of deeper learning. In this study's learning community, the students engaged in service learning activities where they may have done light bookkeeping for a non-profit organization, applying math skills; volunteered at Open Gate Ministries preparing meals for more than 100 homeless individuals, thereby reinforcing the importance of multiplication and fractions; or reading to children in the public schools validating the need for strong reading skills.

Model of Student Departure. Several retention theorists have espoused the importance of conditions critical for supporting a successful learning environment. Tinto (1987) first outlined these conditions, which have since been repeatedly validated in the literature: smaller enrollments into classes through block scheduling (formation of a cohort), integration of social activities into the curriculum, instruction through project-based or problem-solving learning, and inclusion of a career component.

OSUIT's learning community created a "small, focused groups of students, faculty, and staff organized for common purpose" (Browne & Minnick, 2005, p. 775). Enrollment was limited to 25 participants, providing students with the opportunity to quickly know each other, and develop friendships. Students were enrolled into a set of common courses, in a partnered teaching format where the faculty shared the same students and classroom space (Corbo, 2010).

In cooperation with student life, the faculty created in-class social activities, after-hour study groups, and projects that were completed in- and out-of-class. The learning community focus group noted that these activities (e.g., study groups, project-based activities, direct assistance from faculty) led to greater comfort levels for participation, and may have been behind the higher persistence and pass rates of the learning community group in comparison to that of the control and remedial groups. When asked about the teaching strategies they found most effective for learning new material, they cited:

- student-to-student group activities,
- team work, and
- study groups.

For a one-word description of their thoughts or feelings about the learning community, they used words like supportive, caring, exceptional, and explainable.

Community of Practice. Wenger et al. (2002) described the community of practice as a group of people who share common interests, and come together to advance those interests through sharing knowledge. OSUIT's learning community parallels this

definition as the common shared interest was learning the concepts necessary to pass the remedial courses and advance toward degree completion. While there are five stages of development in a community of practice, due to the short duration of this learning community, it was not expected that all five stages would be completed. In this study, the stages of *potential*, *coalescing*, and *maturing* were achieved.

Potential. The purpose of the learning community was to evaluate the effectiveness of the learning community treatment on the persistence and academic performance of first-semester remedial students. This purpose is essentially the same as potential: identifying the reason for the existence of the community of practice, which then helps to identify whom should be invited or included. Students in the OSUIT learning community were involved in a shared learning environment with others who needed remedial in reading, English, and math.

Coalescing. In this stage of the community of practice, members begin relationship-building, assessing each others' strengths and weaknesses through a series of planned activities such as workshops, events, or other activities. In this study, students in the learning community engaged in problem-solving activities, participated in service learning field trips where they applied knowledge learned in classroom lessons, and got together to study. Through these activities, the members of the learning community were able to size each other up, and determine respective places in the classroom hierarchy.

Maturing. The third stage of the community of practice is where members test the parameters of the group through shifting relationships and differing levels of involvement. In the learning community, this was the stage where students began to

select the members with whom they wanted to be involved in the group activities, identifying those strengths that would play to the benefit of the group and each other. Although students could have formed different groups for each activity, they remained intact throughout the semester.

It appeared that upon conclusion of the semester, the learning community focus group had moved toward *stewardship* and *transformation*, the last two stages of evolution in a community of practice. Even though the learning community had come to an end, the group redefined itself with a new focus: to support each other through degree completion by remaining involved in the study group, and regularly engaging in social activities to deepen their friendships.

Practical Implications

The findings from this study provide the empirical evidence to recommend the continuation, and even the expansion, of learning communities at OSUIT. This research also provides important avenues for additional enrollments through partnerships with other institutions. For example, the Muscogee Creek Nation's capitol is located in Okmulgee. The Secretary of Education and Training has asked what the Muscogee Nation can do to secure additional spots in the nursing program for its citizens. Nursing is a highly competitive program, and selection is based on points earned for academic performance in general education classes and national examinations. With the data from this study on the significant performance of Native Americans in the learning community, the researcher can now approach Muscogee Nation with a solution: to form a learning community comprised of Muscogee citizens interested in pursuing a career in nursing.

Additional implications for OSUIT include:

- utilizing data to make informed decisions about strategies for retention and college completion,
- incorporating elements from the learning community into required college strategies for first-time students,
- replicating the success of the learning community for other populations such as females, undecided students, and others.

The results of this study shed light on strategies that may be successful practices for student success or retention coordinators and others charged with college completion goals. These strategies could include:

- intensifying contacts between students and faculty beyond in-class and office-hour appointments through activities that take place outside of the norm (e.g., once a month evening tutoring sessions in the residence halls or other designated space, service learning trips, etc.);
- build into the curriculum of gateway courses with high failure or rates of attrition problem-based activities that address real world issues students may face regardless of major;
- find ways to incorporate relationship-building activities during class time.

Future Research

This study identified several areas for future research. They include:

- Creation of a learning community for faculty development that would include pedagogical practices for learning how to design assignments that include project-based and problem-based activities.
- Creation of professional development for learning community instruction.
- Examine what factors or characteristics are most critical in learning communities.
- Examine the influence of culture in learning communities.
- The role or effects of peer mentoring in learning communities.
- Continue tracking the students in the learning community group to see if they achieve college-level competency by passing Composition I, college algebra or business math, and a humanities course.
- Continue tracking students in the learning community group to see if students in the technical majors persist at the same rate as students in the Arts and Sciences Division.
- Create cohorts of students who are undecided, enrolling them together in a block of classes to evaluate academic performance and persistence.
- The ideal characteristics of a learning community in a technical community college environment.
- Examine the affects of student attrition on faculty self-esteem and job satisfaction.

Final Thoughts

OSUIT's student population demographics are: 67% male and 33% female, average age for men is 25 and for women it's 27, and the largest ethnic population is white at 60%, followed by Native Americans at 19%. In every subject, females in the learning community outperformed females in the control and remedial groups. The

females in the learning community also outperformed the men in *all* of the groups. In an institution that is largely male-dominated, with workforce preparation in careers that are male-dominated, did the learning community provide a "safe" environment for women? There is research that indicates same-gender schools outperform mixed-gender schools.

Native Americans in the learning community outperformed Native Americans in the control and remedial groups in every measure. And, Native Americans in the learning community also outperformed their peers (e.g., white, black, other students) in the learning community, control, and remedial groups. It is a primary tenet of the Native American culture to provide support to each other. Does the learning community provide a natural extension of this cultural bridge? The retention rates of OSUIT's Native American students skyrocketed when The College of Muscogee Nation began operating on the campus of OSUIT.

When under pressure to meet goals, collecting and analyzing data is generally relegated to the back burner. However, as has been made clear through this study, it's not enough to identify best practices and then implement it without giving due consideration to how to evaluate its effectiveness. OSUIT now has the evidence it needs to move forward with addressing the attrition rate of remedial students.

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APPENDICES

APPENDIX A

LETTER OF APPROVAL FROM PRESIDENT

OKLAHOMA STATE UNIVERSITY INSTITUTE OF TECHNOLOGY



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September 16, 2013

Dr. Sheila Kennison, IRB Chair
Oklahoma State University
219 Cordell North
Stillwater, OK, 74078

Dr. Kennison:

Ina Agnew, Vice President for Student Services, was instrumental in the creation and implementation of a learning community at OSU Institute of Technology. The learning community is one of our efforts to improve the retention rate, and ultimately the college completion rate, of remedial students. With my permission, Ina has used this as the basis for her dissertation.

In order to assess the learning outcomes, she will utilize the SCT Plus student information system. Vice President Agnew has my permission to carry out her dissertation as outlined in the IRB application, accessing whatever records are needed.

Sincerely,

A handwritten signature in black ink, appearing to read 'Bill R. Path', with a long horizontal flourish extending to the right.

Dr. Bill R. Path
President

Oklahoma's Only University of **APPLIED** Technology

APPENDIX B
INSTITUTIONAL REVIEW BOARD APPROVAL FORM

Oklahoma State University Institutional Review Board

Date: Tuesday, October 15, 2013
IRB Application No ED13171
Proposal Title: Influence of a Learning Community on the Persistence and Academic Performance of First-Semester Remedial Students at Oklahoma State University Institute of Technology: A Mixed Methods Study
Reviewed and Processed as: Exempt

Status Recommended by Reviewer(s): Approved Protocol Expires: 10/14/2016

Principal Investigator(s):
Ina Agnew Lynna Ausburn
900 N. Mission Ln. 257 Willard
Okmulgee, OK 74447 Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval. Protocol modifications requiring approval may include changes to the title, PI, advisor, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Dawnett Watkins 219 Cordell North (phone: 405-744-5700, dawnett.watkins@okstate.edu).

Sincerely,



Shelia Kennison, Chair
Institutional Review Board

APPENDIX C
LEARNING COMMUNITY SCRIPT



**INSTITUTE OF
TECHNOLOGY**

Learning Community Script

Hi <<Name>>:

We have started a new program that I'd like to tell you about. It's called a Learning Community, and it's designed to be a smaller class environment, with hands-on projects and activities, instead of just lectures. Only 25 students are allowed into the learning community, and it's on a first-come, first-served basis.

We know that the first semester is the most difficult, and we hope to make it easier for you and the other students in the Learning Community to get used to the pace of college classes, and what services are available to help you as you earn your degree.

The best part of the Learning Community is that it is a pilot project where we are experimenting with incorporating in-class activities, field trips, and guest speakers. You'll also have more of an opportunity to know your classmates and faculty because you'll spend the majority of your time together. Your class schedule would be _____ . How does that sound?

Our research indicates that students in the Learning Community have a higher pass rate than those in other classes, and it appears most of the students in the Learning Community do better at staying on track for graduation. This Learning Community is an experiment that we hope to eventually offer all new students once we have evidence showing the value of the learning community at OSUIT.

What this means is after you complete your first semester, we'd like to interview you, if you are willing, to see what you thought of the program, and if you think it should continue. Would you please take a moment to read the release form and sign if you are willing to participate?

APPENDIX D

LEARNING COMMUNITY RELEASE FORM



***INSTITUTE OF
TECHNOLOGY***

Learning Community Release Form

I, _____, give my permission to Oklahoma State University Institute of Technology to be placed in the Learning Community program. I understand that my academic and enrollment records may be used for research purposes, and will remain completely confidential.

If asked, I agree to be interviewed about my experiences in the learning community. The purpose of the interview will be to help OSUIT understand, from the student perspective, if the Learning Community has been beneficial. I agree to participate, to the best of my ability, in all Learning Community activities.

I have read this release before signing below, and I fully understand the contents of this form.

Student Signature

Date

APPENDIX E

FOCUS GROUP RECRUITING EMAIL

Focus Group Recruiting Email

Subject Line: Learning Community

Hi <<First Name>>:

Congratulations on your continued enrollment at OSUIT! Each semester you complete brings you one step closer to graduation with your college degree.

When you enrolled into the Learning Community pilot project, you signed a release form granting us permission to contact you to see if we may interview you. Your participation will help us learn what works, what can be improved, and any suggestions you have for future pilot projects.

You'll be interviewed along with 5-7 other learning community participants, and I'll have lunch or dinner provided--a build your own burger station. Would you please complete the doodle poll at <<hyperlink to doodle poll>> and let me know when you would be available to participate? I'll call you to confirm at <<phone number>>. If this number is not correct, would you please email me your preferred number?

Thank you for your consideration, and I am looking forward to meeting you!

APPENDIX F
FOLLOW-UP SCRIPT FOR PHONE CALL TO
SOLICIT FOCUS GROUP PARTICIPANTS

Script for Follow Up Telephone Call Solicitation

Hello, may I speak with <<First Name>>?

This is Ina Agnew from OSUIT. <<First Name>>, according to my records, you were enrolled in our learning community pilot project in <<semester>>, is this correct? Great! I'm interested in finding out what students thought about the learning community because it will help us in the planning of future pilot projects--particularly activities that will help students transition to college, and successfully get them through their first semester of college.

Would you be willing to help me out by agreeing to be part of a focus group of 6-8 students who will be interviewed?

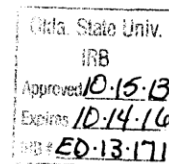
If Yes:

Great. I have three dates/times to choose from so just let me know what works best for you. Also, don't worry about eating. I'll be providing lunch/dinner. Which date/time works best for you?

I have you marked down for <<date>> and <<time>>. If something should come up, and you need to reschedule, or have changed your mind, would you please call me to let me know you won't be coming? My direct line is 918-293-4761.

If No:

Well, thank you for hearing me out. If you should change your mind, and decide to participate, would you get back to me? My direct line is 918-293-4761.



APPENDIX G
FOCUS GROUP RELEASE FORM

Informed Consent for Focus Group Interview - OSUIT Learning Community Pilot Project

Project Title: The Influence of a Learning Community on the Academic Performance & Persistence of First Semester Remedial Students at OSUIT

Investigator: Ina Agnew, Vice President for Student Services, M.S. Human Services, Murray State University, Ph.D. Candidate

Purpose:

The purpose of my study is to determine if the learning community experience affects a student's ability to pass the classes, and whether the student continues in school. I contacted you to participate because you were enrolled in and completed the learning community. Your participation in the focus group interviews will help me learn what you think works, what can be improved, and what you thought about your experiences.

Procedures & Participant Rights:

The interview should conclude in 90 minutes or less, and there are ten questions. I'll be recording the interviews so I can pay attention to you and the others in the group, and can always go back to the recording if I don't remember something.

1. Mostly, I'll be asking questions, and you'll tell me what you would like me to know.
2. On a couple of questions, I'll ask you to write down your answer, and then explain that answer to the group.
3. Your participation is voluntary and you can stop at any time and leave without any fear of retaliation or penalties.

Benefits:

The benefits to participation are strictly intrinsic. Sharing your experiences with me will help in planning future projects, and you have the satisfaction of knowing you contributed to making students' shift to college better.

Confidentiality:

The records of this study will be kept private. Any written results will discuss group findings and will not include information that will identify you. Research records will be stored securely and only researchers and individuals responsible for research oversight will have access to the records. It is possible that the consent process and data collection will be observed by research oversight staff responsible for safeguarding the rights and wellbeing of the people who participate in research.

- The recording, notes, and cards you write on will remain private and stored under lock/key in my office, and only I have access to my office.

Contacts:

If you have any questions about your rights as a research volunteer, please contact Dr. Sheila Kennison, Oklahoma State University IRB Chair, 219 Cordell North, Stillwater, OK, 74078, 405-744-3377.

If you should have any questions about the research, feel free to contact me, Ina Agnew, at Grady Clack Center, OSUIT, 918-293-4761, or ina.agnew@okstate.edu.

My advisor is Dr. Lynna Ausburn, 257 Willard Hall, Stillwater, OK, 74078, 405-744-8322, lynna.ausburn@okstate.edu.

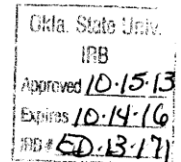
Consent to Participate:

I have read and fully understand the consent form. I sign it freely and voluntarily. A copy of this form has been given to me.

_____	_____
Signature of Participant	Date

I certify that I have personally explained this document before requesting that the prospective participant sign it.

_____	_____
Signature of Researcher	Date



VITA

Ina O. Agnew

Candidate for the Degree of

Doctor of Philosophy/Education

Thesis: INFLUENCE OF A LEARNING COMMUNITY ON THE PERSISTENCE AND ACADEMIC PERFORMANCE OF FIRST SEMESTER REMEDIAL STUDENTS AT OKLAHOMA STATE UNIVERSITY INSTITUTE OF TECHNOLOGY: A MIXED METHODS STUDY

Major Field: Occupational Education

Biographical:

Education:

Completed the requirements for the Doctor of Philosophy/Education in Occupational Education at Oklahoma State University, Stillwater, Oklahoma in May, 2014

Completed the requirements for the Master of Science in Human Services at Murray State University, Murray, Kentucky, in 1999.

Completed the requirements for the Bachelor of Arts in Human Resource Management/Psychology at University of South Florida, Tampa, Florida, in 1986.

Experience:

- ◆ Vice President for Student Services, Oklahoma State Institute of Technology, Okmulgee, OK, November 2008-Present
- ◆ Director, New Market Development, Ottawa University, Ottawa, KS, September 2006–October 2008
- ◆ Dean of Student Affairs, Ottawa University, Ottawa, KS, August 2004-August 2006

Professional Memberships:

- ◆ Coalition of College and Military Educators
- ◆ Oklahoma Association of Community Colleges
- ◆ Tulsa Area Higher Education Consortium
- ◆ Tulsa Hispanic Chamber of Commerce
- ◆ Tulsa Metro Chamber *Intern in Tulsa*
- ◆ The College Board