

The Impact of Learning Communities on Student Engagement Efforts at Community Colleges

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Abstract

This study examined the impact of learning communities on student engagement efforts at community colleges. The study showed the results from community colleges who used the Community College Center for Student Engagement survey to assess student engagement. Learning communities, a high impact practice, are being used in higher education as a way to improve engagement efforts, and as a result improve learning outcomes, retention, and graduation rates. Using Astin's student involvement theory (1984), the study compared learning communities to five student engagement benchmarks including active and collaborative learning, student effort, academic challenge, student-faculty interaction, and support for learners. Results showed that in all five areas of student engagement, participation in learning communities' impacted student engagement efforts at community colleges. This was compared to students who intended or did not participate in a learning community. Only in the areas of active and collaborative learning, student faculty interaction, and support for learners was there a significant difference between those who intended to participate in learning communities compared to those who participated in learning communities.

Key Terms: Learning Communities, Student Engagement, Benchmarks, Community College

INTRODUCTION

Student engagement is sought as an integral part of a student's success at a college or university. Several studies and research have been conducted on student engagement and the impact it may have upon the educational experience of the student (Astin, 1999; Courtner, 2014). As cited in Nguyen, 2011, (p.59,) Kuh's definition of student engagement is the "time and energy students devote to educationally sound activities inside and outside of the classroom, and the policies and practices that institutions use to induce students to take part in their activities". Understanding that student engagement involves the student being present and actively engaged on campus helps the student connect with the college experience, and therefore take ownership in the educational experience (Hawley & Harris, 2005).

High impact practices have been used by colleges as a mean to encourage student engagement on college campuses. The Community College Research Center at Columbia University described high impact practices as pathways that lead to student success at community colleges. According to the Center, "a growing number of colleges and universities are redesigning academic programs and support services to create more clearly structured and educationally coherent program pathways to student end goals, (Jenkins, 2014 p.1).

Assessing engagement efforts at community colleges has become a focal area for addressing retention and graduation deficiencies for its students. Implementing policies and high impact practices that encourage student engagement are important for colleges to ensue that their efforts are impactful, as research supports the notion that engagement increases both retention and graduation for students. In *College Students in the United States: Characteristics, Experiences, and Outcomes* (2013), Renn and Reason stated, "Institutions must identify desired student outcomes, articulate them clearly, measure them, and be transparent about the extent to which students meet them...desired outcomes will vary by student, institutional type, and mission" (Reason & Renn, 2013. p. 232). Community colleges must successfully engage students despite factors that do not positively contribute to these efforts.

Learning communities are becoming popular at both community colleges and four year institutions. They are used usually for an intentional outcome pertaining to retention of students from one semester to the next. A growing number of institutions are beginning to implement learning communities as an attempt to improve undergraduate education (Rocconi 2010). By taking courses together and regularly discussing their experiences in a structured first-year program, learning community students supposedly have better opportunities to make meaningful undergraduate experiences at college.

From their humble beginnings in the 1980s, learning communities are often recognized as high impact educational practices that are positively related to students' learning and success in college (Rocconi, 2010 & Kuh, 2008, p.178).

STUDY PURPOSE / RESEARCH QUESTION

The purpose of this study was to determine the effect of high impact practices (learning communities) on student engagement benchmarks, (active and collaborative learning, student effort, academic challenge, faculty-student interaction, support for learners) at community colleges. Existing studies show that high impact practices encourage student engagement, therefore potentially impacting graduation rates (Kuy et. all, 2007; Courtner, 2014).

This study will help administrators determine if participation in learning communities encourage student engagement factors at community colleges. Most student affairs literature on student engagement issues has been primarily limited to research on traditional undergraduate students at four-year institutions and minimal student engagement research has been conducted in community colleges (Greene, Marti, & McClenney, 2008, p. 514).

This study examined the following research question in five separate subparts: Does the participation in high impact practices (learning communities) impact student engagement benchmarks (active and collaborative learning, student effort, academic challenge, student faculty interaction, and support for learners)?

THEORETICAL FRAMEWORK / LITERATURE REVIEW

For the purpose of this study, Astin's (1984) Student Involvement Theory was used. Alexander Astin's Student Involvement Theory (1984) holds that desirable educational outcomes are based on one's physical and psychological energy that is put into their educational experience. Characteristics of students who are involved is one who devotes considerable energy to studying, spends much time on campus, participates actively in student organizations, and interacts frequently with faculty members and other students (Astin, 1984). Example characteristics of students who are uninvolved, include; they neglects studies, spends little time on campus, abstains from extracurricular activities, and have infrequent contact with faculty members or other students (Astin, 1984). Astin believed that students are more likely to be involved if they have access to high-quality programs and services that stimulate and challenge their learning. If extracurricular activities and classroom assignments are not directly relatable to students' goals and lives, and if faculty, student affairs professionals, and resources are not accessible to students at their convenience, students will not be directly involved in campus life. (Long, 2012, p. 52)

Astin refers to his student involvement theory as a response to the traditional pedagogical theories that are evident in education (Astin, 1984). In particular he refers to the subject-matter theory, the resource theory, and the individualized theory. All three theories depict student interaction from either the faculty to student, or the administration to the student.

In the subject-matter theory, student learning and development depend primarily on exposure to the right subject matter (Astin, 1984). In this approach, the faculty is the authority, and therefore is considered the expert at the particular subject. The student takes a passive role in the education process. Highly motivated students may excel in this approach, as well as students who are good listeners or good readers (Astin, 1984).

The resource theory is preferred among administrators and policymakers (Astin, 1984). In this theory, the resources provided by the college to the student is most important in the student learning process. Resources can include physical facilities, human capital, and fiscal resources (Astin, 1984). The resource theory states that if adequate resources are brought together in one place, student learning and development will occur (Astin, 1984, p. 520). A term closely associated with this theory is student-faculty ratios. To resources theorists, having quality student-faculty ratios will result in an adequate learning experience for the student (Astin, 1984).

Unlike the other pedagogy theories, Astin believes that his student involvement theory gives emphasis to the student's involvement in the learning process. He emphasizes the behavior of the student, and respectively how a student may respond to the instructor, the resources provided by the institution, as well as the desire one has to explore his learning interests. All of these areas are emphasized in one of the traditional pedagogy theories often used in higher education (Astin, 1984).

Astin's theory of student development is the result of a longitudinal study of college dropouts (Astin, 1975). Astin sought to discover what the factors were that influenced a student's persistence in college. He discovered that every effect could be linked to involvement. Every positive factor likely increased student involvement in the undergraduate experience. Every negative factor likely decreased student involvement in the undergraduate experience (Astin, 1984).

Student engagement has long been sought as a predictor of student learning outcomes. A sound body of literature has established robust correlations between student involvement in a subset of ‘educationally purposive activities’, and positive outcomes of student success and development, including satisfaction, persistence, academic achievement and social engagement (Trowler, 2010, p.2). Student engagement research has heavily supported traditional-aged students at four-year institutions. However, minimal student engagement research has been documented at community colleges (Greene, Marti, & McClenney, 2008, Nguyen, 2011). The unique dynamics of community college enrollment affords a different perspective for researchers to explore. According to Baum and Ma (2016), their open admission policy, coupled with low tuition and geographic proximity to home, makes them an important pathway to postsecondary education for many students, especially first-generation college students and those who are from low-income families, as well as adults returning to school to obtain additional training or credentials

Because of this dynamic, community colleges must understand the barriers and challenges that students who attend community colleges must overcome to effectively engage with the college in efforts to produce positive student outcomes.

According to research from the College Board, community college students are more likely to enroll as part-time students than any other higher education institution (Baum & Ma, 2016). Engaging part-time students can be difficult. Students who enroll part time are less engaged than their full-time peers, and more likely to drop out of college. This likelihood is high at community colleges, where close to two-thirds of students attend part time (Gonzalez, 2009, para. 2). With two-thirds of the student population at risk for being less engaged, that fraction of students is also at higher risk of not completing academic objectives or being retained at all (Nguyen, 2011).

Robert Tyler, an educational psychologist’s research on “time on task” has been considered the foundation of student engagement (1969). His research studied the relationship of the amount of time students spent on their work, and if it effected their learning. The research concluded that there was a positive impact on the amount of time on task to student learning (Courtner, 2014; Mcerwin, 1984; Tyler 1969). Tyler’s research was expounded on by C. Robert Pace in 1984. Pace realized that there was a need to measure elements of higher education, in particular a student’s quality of experience.

Pace created the College Student Experiences Questionnaire (CSEQ) in 1979 as a way to measure student development and learning. The survey focused on traditional college campus activities and behaviors that contribute to learning. The survey did not focus on behaviors that take away from the learning experience.

Tyler’s notion of time on task remains a component of today’s definition of student engagement (Mcerwin, 1984; Tyler, 1969, Courtner, 2014). Tyler’s impact to the term was significant. However, a major contribution to the concept can be credited to Alexander Astin. “While ‘student engagement’ has enjoyed considerable attention in the literature since the mid-1990s, its beginnings can substantively be seen a decade previously, seminally in Alexander Astin’s work on student involvement” (Trowler, 2010, p.1).

The Center for Community College Student Engagement (CCCSE) have identified five benchmarks that are key to student engagement efforts. These benchmarks are used in the center’s student engagement data, and also are proven to be areas of effectiveness when positively practiced (CCSSE). CCSSEE identifies the five benchmarks as (1) active and collaborative learning, (2) student effort, (3) academic challenges, (4) student-faculty interaction, (5) support for learners.

The Center as well as other higher education researchers and research-based groups have conducted research to validate measurement of these areas as effective indicators of student engagement. According to Marti (2004), the five benchmarks, which together constitute a model of effective educational practice, were derived via confirmatory factor analysis based on psychometric and expert feedback” (Price & Tovar, 2014, p.12)

Community college students do not traditionally participate in social engagement interests, they do however engage in academic forms of engagement (Maxwell, 2000, Chang, 2005). Braxton et al., (2004) expanded the linkage between Astin’s (1993) theory of involvement and persistence by proposing that students’ psychosocial engagement, or the energy students invest in social interactions, is influential in the degree to which students are integrated into college life through social interactions (Kuh, Cruce, Shoup, Kinzie, Gonyea, 2008). Research indicates that the classroom is the main point of student contact with the [community] college, and community college students are primarily concerned with and motivated by curricular and academic issues (Hagedorn et al., 2000, p. 596; Chang, 2005). Therefore student-faculty interaction can be cited as a key benchmark for community college students in their efforts to engage with the college.

A survey conducted for American community colleges cites that close to 50% of community college students participate in study group for classes, and 70% of them speak with faculty outside of class (Coley, 2000; Chang, 2005). According to Xueli Wang’s 2004 longitudinal study on first-time students who attended community colleges directly out of high school, faculty and student interaction positively impacted success rates of students matriculating through their degree goals.

Interaction with faculty members outside of class and studying in school libraries are amongst the postsecondary predictors that positively influence persistence in baccalaureate expectations (Wang, 2004). However, this notion has proven to be harder, given that most community colleges have large commuter populations. This makes it increasingly difficult where there is a large amount of part-time faculty. Given the fact that community colleges are predominately commuter campuses and that the percentage of part-time faculty members at community colleges has reached an average of 70% (Jaeger, 2008 pp. 42-43), it is not surprising that student-faculty interactions are limited and that most of these interactions occur in the classroom (Wang, 2004). His study concluded that faculty and student interaction is essential in community college students moving toward their degree goals, even pass the community college level.

In their 1979 research on formal and informal interaction between faculty and college freshman, Pascarella and Terenzini, as cited in Hawley and Harris (2005) concluded that more informal interaction between faculty and college freshman, positively impacts persistence for students (Hawley & Harris, 2005). Students' desire to achieve and feel connected with the academic community is stemmed from their interactions with faculty and other staff (Hawley & Harris, 2005).

CCSSE refers to support for learners, as students' perceptions of their colleges and assesses their use of advising and counseling services (Center for Community College Student Engagement, 2014). Research from CCSSE reveals that support for learners has significant impact on persistence rates for college students. Support for learners can be described as the support services provided by an institution to promote student success. Effective support services have an integrated network of academic, social, and financial supports. When implemented in a coordinated, targeted, and comprehensive structure, these initiatives have been shown to improve student achievement (Cooper, 2013, p. 23).

Support services can range in availability; however, some include academic guidance and advising, counseling and social networks, and financial aid advising funding (Cooper, 2013). Though many of these services are a part of the fabric at all institutions, much of the research for effective practices of these services are focused on the university level (Cooper, 2013). Recent research on community colleges have shown that these support services prove the most effective for positive student outcomes (Cooper, 2013). The findings may reflect that having a supportive campus environment and using academic support services helps to raise the performance of these academically underprepared students to the level of better-prepared students (Greene, Marti, & McClenney, 2008).

Collectively, the benchmarks set by the Center for Community College Student Engagement has made the student engagement instrument used by community colleges across the nation an effective tool for assessing engagement efforts. The Center has sponsored several research initiatives aimed at improving learning outcomes for community college students through student engagement efforts (CCSSE, 2014). Learning communities were developed as a methodology for teaching undergraduate students in their first two years of college to test experimental teaching methods under nontraditional conditions (Guyotte, 2001). The concept of learning communities was developed by Alexander Meiklejohn, who felt like they were more likely to learn if they were part of a community of students and faculty (Guyotte, 2001).

Authors of *Learning Communities: Creating Connections among Students, Faculty, and Disciplines*, state that as a result of learning communities, faculty share their syllabi and their classroom to promote collaborative learning experiences. It ultimately requires student to work together in collaborative groups and have a more responsible and active role in the learning experiences of both group members and classmates (Tinto, 2003). According to Tinto (2003), Learning communities, in their most basic form, begin with a kind of co-registration or block scheduling that enables students to take courses together, rather than apart. In some cases, learning communities will link students by linking two courses together, typically a course in writing with a course in selected literature or current social problems (Linked Courses). In other cases, it may mean sharing the entire first-semester curriculum so that students in the learning community study the same material throughout the semester (p.1).

In higher education, there are two important types of learning communities that should be considered when assessing effectiveness. Primary membership differentiates the characteristics of the group members, and primary form of interaction differentiates the group members' method of interaction (Ebbers, Lenning 1999). Each of them describe how individuals are classified into learning communities in higher education.

Previous studies have indicated that students participating in numerous practices were more likely to feel connected to and interact with the institution (Andrade, 2007; Keup, 2005). Astin's Student Involvement Theory (1999) argued that the physical and psychology energy that a student dedicates their academic experience is considered student involvement. The nature of learning communities increase physical and psychological involvement for students.

In recent years, several studies have been conducted to determine the effect of learning communities on student outcomes. The City University of New York has championed the use of learning communities; Kingsborough Community College.

A study launched in 2003 followed a group of 1500 students who were either assigned to the experimental learning community group, or to the controlled group (Weiss, Alexander, Cullinan, Ratledge, Sommo & Diamond, 2015). The learning community group, which was entitled Opening Doors Learning Community grouped students of 25 into courses that were taken together.

The courses included English, one academic level course, and a 1 credit orientation course (Weiss, et al., 2015). The program also consisted of enhanced tutoring services and textbook vouchers. The students also had the option to enroll in the usual unlinked courses provided by the college (Weiss, et al., 2015). The MDRC, a non-profit, nonpartisan, social and policy research conducted the assessment of the Opening Doors Learning Community at Kingsborough Community College. The results of the study indicated positive results on full-time enrollment, credits attempted, and credits earned (Weiss, et al., 2015).

Through the National Center for Postsecondary Research, a more extensive study conducted by the MDRC studied six community colleges' learning community programs. Of the six community colleges, the majority of the learning communities focused on students in need of developmental education. Results were similar to that of Kingsborough Community College (Weiss, et al., 2014). In randomized controlled trials of the programs, MDRC found that on average the learning communities that were studied had a small positive effect on students' progress in the targeted subjects and a small positive effect on total credit accumulation. The programs studied varied on focus, curricular integration, and student support.

METHOD

This research was designed to determine if there is a significant relationship between the participation in learning communities and student engagement at community colleges. The quantitative study used analysis of variance ANOVA to address the research question. Because the sample compared the variance of two variables for each benchmark, the repeated factors ANOVA test was used as there are five benchmarks that were identified as dependent variables, and compared to the independent factor, the participation in high impact practices (learning communities). The study used the Community College Survey of Student Engagement for all factor variables involved in the study. The survey addressed questions associated with both high impact practices and student engagement. The instrument has been used for numerous studies related to student engagement and learning outcomes.

POPULATION

The data population consisted of a three-year cohort (2012-2014). It included data from 684 institutions from 48 states, the District of Columbia, three Canadian provinces, plus Bermuda, Micronesia, and the Marshall Islands. Of those institutions, 296 colleges are classified as small (<4,500), 168 as medium (4,500-7,999), 141 as large (8,000-14,999), and 79 as extra-large institutions (1500+) credit students (CCSEE, 2014). There were 140 colleges classified as urban-serving, 149 classified as suburban-serving, and 395 as rural-serving (CCSSE, 2014). The demographics of the population of schools that participated in the CCSSE assessment was very similar to the sample demographic used for this study.

SAMPLE

The data included a 25% random sample of participants. This included 108,000+ respondents. It included data from 684 institutions. The participants vary in gender, race, and age. Of the respondents, 43% were male and 55% were female 72% were enrolled full-time, and 28% were less than full time.

Of the respondents, 56% identified as White, non-Hispanic. There were 14% who identified as Hispanic, Latino, and Spanish. There were 11% who identified as Black or African American, Non-Hispanic. Students who identified as International were 6%, while Asian, Asian American, or Pacific Islanders identified as 5% of the population. The remaining racial/ethnic identifying percentages included 4% as Other, and 2% as American Indian or other Native American (CCSSE, 2014). In cases where the percentages did not equal 100%, CCSSE indicated that there was likely missing data for the category. Rounding was also used for percentages (CCSSE, 2014).

Students were sampled at the classroom level. Therefore, many students who were surveyed were classified as full-time students (CCSSE, 2014). To adjust for sampling bias, a weight was applied to CCSSE results to ensure that full-time and less than full time students' responses were calculated effectively. "Weighting is uniquely calculated for each institution and is based on the most recent publicly available IPEDS enrollment figures" (CCSSE, 2014, para. 10).

INSTRUMENTATION / VALIDATION

The National Survey of Student Engagement (NSSE) and The Community College Survey of Student Engagement (CCSSE) assess the way that involvement is affected by college practices and expectations and publicize the programs and institutions where course requirements, support services, library access, financial aid, advance

registration, and a host of other areas of assistance are designed to maximize student involvement. (Cohen & Kisker, 2010, p. 484)

Both surveys have been the instrument used for several national and institutional studies pertaining to student engagement (CCSSE). Research studies using CCSSE generally find that student engagement in educationally effective practices has a positive effect on several student outcomes (Price & Tovar, 2014).

The CCSSE has been used for various research initiatives related to student engagement at community colleges. Its unique algorithms ensures that raw data can be used for specific studies as well as longitudinal studies that could benefit an institution's progression in a particular engagement area (Center for Community College Student Engagement, 2014). The results from CCSSE survey are used by administration and faculty members at several levels of the college. Constituents use it for intuitional planning, accreditation assessments, and employee development (Marti, 2012).

Because the instrument also tracks student demographics, it can also aid college practitioners in learning how to best address demographical barriers that may hinder positive learning outcomes. Addressing student demographics and special circumstances of targeted groups of students helps influence intuitional decision-making in regards to teaching practices, campus design and institutional culture (Marti, 2012).

To ensure the validity of the CCSSE instrument, the Center for Community College Student Engagement completed a validation research study on the instrument that was used from 2005 to 2016. The study examined the relationship between student engagement and community college student outcomes (CCCSE, 2017, p. 2). In its report, *Student Engagement and Student Outcomes, Key Findings from CCSSE Validation Research* (2016), the three-pronged collection of studies validates the relationships between student engagement and a variety of student outcomes in community colleges-including academic performance, persistence and attainment (CCCSE, 2017, p. 2).

Confirmatory Factor Analysis has been used for independent studies to determine the validity of CCSSE instrument and Community College Student Report. In the study, *Dimensions of Student Engagement in American Community Colleges: Using the Community College Student Report in Research and Practice*, Marti (2004) confirmed validity of the test instrument using confirmatory factory analysis. Reliability and validity analyses provide supporting evidence that the CCSR is effectively measuring student engagement. The CFA models consistently demonstrated measurement invariance across major subgroups and administration years, supporting the use of the instrument across a variety of populations and across time. Validity analyses based on students' reported GPAs show that the behaviors and attitudes measured on the CCSR are predictably associated with academic achievement (Marti, 2004, p. 14).

Marti noted that CCSSE has demonstrated reasonable internal reliability across these measures: active and collaborative learning ($\alpha = .66$), student effort ($\alpha = .56$), academic challenge ($\alpha = .80$), student-faculty interaction ($\alpha = .67$), and support for learners ($\alpha = .76$). Consistent with its goal, Marti goes on to state that CCSSE is a reliable instrument that can be used to inform institutional decision making with regard to teaching practices, campus design, and institutional culture. ... and can be used for research with community college students (Price & Tovar, 2014, p. 2).

DATA COLLECTION PROCEDURES

The participants involved in the study were enrolled in small, medium, large, and extra-large classified community colleges in the United States and neighboring regions. The study analyzed historical data collected from 2012-2014. The Center for Community College Student Engagement provided the data. Prior to releasing the data, a data use agreement was signed, and submitted to The Center for Community College Student Engagement. Permission to utilize second source data was also sought through the Institutional Review Board (IRB) at the researchers' institution. Upon review, it was determined that all IRB requirements were met by the researchers.

DATA ANALYSIS

By utilizing Astin's theory of student involvement (1984), an overall understanding of the influence of the participation of the learning communities on student engagement at community colleges was observed. Because the CCSSE translates its survey results into data that numerically describes student involvement, Astin's Student Involvement Theory helps one to articulate its relationship with learning community participation.

Statistical Package for Social Sciences® (SPSS) computer software was used for the statistical analysis. The data entered addressed responses from years 2014-2015. All records were coded by CCSSE to ensure the data submitted does not identify institution or state. Data entered compared learning communities to each of the five student engagement benchmarks. The comparison of intention to participate in learning communities and non-learning community participation was also compared with each of the five student engagement benchmarks. All three comparisons were assessed to determine significance.

One Way ANOVA was used for this study. The statistical level for all tests was 0.05. The conservative Post-hoc test was used to determine the accuracy of the study. The Levene test was used for all five comparisons of learning communities to the standardized five benchmarks.

In the case where Levene was not sufficient, additional testing was used. Because the post-hoc test was parametric with unequal variance and an unequal sample size, Dunnett T3 was used for 3 of the 5 research questions.

QUANTITATIVE FINDINGS

Statistical Testing

The study was quasi-experimental due to its “attempt to simulate the true experiment” (Kerlinger, 1986, Sprinthall, 2016). For one-way ANOVA, most tests assume equal sample size and variance. However, this study did not. The post-hoc test that was chosen was Dunnett T-3. Dunnett T-3 supports the descriptive characteristics of the data. Dunnett T-3 was chosen because it does not assume equal variance and it is compatible for large datasets. According to Shingala and Rajyaguru (2015), the Dunnett T3 pairwise comparison method is especially robust and conservative when analyzing group differences when the samples are large, and the variance is not equal among groups. Because of the conservative nature of the Dunnett T3 pairwise comparison test, a p-value of 0.01 or lower was utilized for determining if the null hypothesis as reject of fail to reject.

Independent Variable

The independent variable was the respondents’ answer to question 8h of the Community College Survey for Student Engagement. Question 8h addresses the following: Have you, or do you plan to participate in a learning community? Students were given three response choices which include, (a). Have not participated, nor plan to participate, (Group 1) (b) Plan to participate (Group 2) (c) Have already participated (Group 3).

Of the respondents, (66.6% of the valid sample) detailed that they had not participated (N=72,226). There was a smaller amount of respondents (20% of the valid sample) had intentions to participate in the learning community (N=21,723). Lastly, only (11.4% of the valid sample) had participated in the learning community (N=12,412). There was (2% of the valid sample) of respondents who did not answer the question (N=2,148). The respondents who did not answer the question were not included in the analysis. Overall, there were 108,509 respondents who completed the survey. The sample size for the study was only 106,361.

Dependent Variables

The dependent variables derived from the five benchmarks addressed in the Community College Survey for Student Engagement. They include active and collaborative learning, student effort, academic challenge, student-faculty interaction, and support for learners. A statistical description of the dependent variable(s) are as follows:

Table 1

Descriptive Statistics of the Benchmarks

Variable	Descriptive Statistics				
	N	Minimum	Maximum	Mean	Std. Deviation
Act / Collab	106361	-6.06	143.56	52.67	25.22
Effort	106360	-22.46	131.87	52.03	24.83
Aca Chall	106361	-34.89	111.29	52.59	24.57
Interaction	106340	-4.76	124.05	52.31	25.16
Support	106249	-1.13	111.88	51.29	24.84

The Kolmogorov-Smirnov test was run to determine if the distributions of the dependent variables were normal or non-normal. Table 2 illustrates the results of all five tests. The table show that there was no normal distribution. Because of the nature of ANOVA, there is very little harm to the results of an ANOVA test due to the assumptions not being met. ANOVA is considered to be a very robust test, and when its assumptions are not fully met, little harm results, unless there are marked differences in the homogeneity of variance within groups (Sprinthall, 2016, pg. 350). Because it is normal for assumptions to not be observed in ANOVA, a non-parametric statistical test was not run.

Table 2*Tests of Normality on Dependent Variables*

Variable	Kolmogorov-Smirnov		
	Statistic	df	Significance
Act / Collab	0.09	107,820	p < 0.01
Effort	0.02	107,820	p < 0.01
Aca. Chall.	0.02	107,820	p < 0.01
Interaction	0.10	107,820	p < 0.01
Support	0.05	107,820	p < 0.01

RESEARCH QUESTION

The research question was tested in five separate questions. The research question, “Does the participation in high impact practices (learning communities) impact student engagement benchmarks (active and collaborative learning, student effort, academic challenge, student faculty interaction, and support for learners)?” was tested with the following outcomes:

Dependent Variable 1 (Active and Collaborative Learning)

The first dependent variable tested was active and collaborative learning. The omnibus test was statistically significant [$F(2,106358) = 3661.43, p < 0.01$]. There was a difference among the means for the three conditions (Group 1 M= 48.72, Group 2 M= 57.26, Group 3 M = 67.62). The Levene statistic, based on the mean (218.51) was significant ($p < 0.01$), indicating it was prudent to utilize the Dunnett T3 pairwise comparison test.

From Table 3, there was a significant difference between Group 1 and Group 2 (Difference = 8.54, $p < 0.01$). There was a statistically significant difference between Group 3 and the Group 1 (Difference = 18.90, $p < 0.01$) and Group 3 and Group 2 (Difference = 10.36, $p < 0.01$). Results show the participation in learning communities, not just the intention to participate in learning communities, influences active and collaborative learning for community college students.

Table 3*Differences of Active / Collaborative Learning Mean by Learning Community Participation*

Variable	Learning Community		Significance
	Mean		
Have Not/Will Not (Group 1)	48.72		p < 0.01
Plan to Do (Group 2)	57.26		p < 0.01
Have Done (Group 3)	67.62		p < 0.01

Dependent Variable 2 (Student Effort)

Pertaining to the second dependent variable, student effort, the omnibus test was statistically significant [$F(2,106357) = 3405.96, p < 0.01$]. There was a difference among the means for the three conditions (Group 1 M= 47.93, Group 2 M= 59.06, Group 3 M = 63.60). The Levene statistic, based on the mean (9.10) was significant ($p < 0.01$), indicating it was prudent to utilize the Dunnett T3 pairwise comparison test. There was a significant difference between Group 1, and the Group 2, (Difference = 11.13, $p = 0.02$). There was a statistically significant difference between the Group 3 and Group 1 (Difference = 15.67, $p = 0.001$). Based on the results, it was concluded that there is significant evidence to suggest that participation in a learning community contributes to increased levels of Student Effort. Table 4 reflects the means to show the differences.

Table 4*Differences of Student Effort Mean by Learning Communities Participation*

Variable	Learning Community		Significance
	Mean		
Have Not/Will Not (Group 1)	47.93		p < 0.01
Plan to Do (Group 2)	59.06		p < 0.01
Have Done (Group 3)	63.60		p < 0.01

Dependent Variable 3 (Academic Challenge)

The omnibus test for the third dependent variable, Academic Challenge, was statistically significant. [$F(2,106358) = 2618.48, p < 0.01$]. This means that there was a difference among the means for the three conditions (M Group 1 = 49.17, M Group 2 = 57.33, M Group 3 = 64.23). The Levene statistic, based on the mean (81.66) was significant ($p < 0.01$). This indicates it was again appropriate to utilize the Dunnett T3 pairwise comparison test.

Based on the results, there was a significant difference between the Group 1 and the Group 2 (Difference = 8.16, $p < 0.01$); There was also a statistically significant difference between Group 3 and the Group 1 (Difference = 15.06, $p < 0.01$). There was a statistical difference between Group 2 and Group 3 (Difference = 6.90, $p < 0.01$). There is significant evidence to suggest that participation in a learning community, and not simply intention to participate, is a reason for increased levels of Academic Challenge for community college students. Table 5 showcases the means to show the differences.

Table 5

Differences of Academic Challenge Mean by Learning Community Participation

Variable	Learning Community		Significance
	Mean		
Have Not/Will Not (Group 1)	49.17		$p < 0.01$
Plan to Do (Group 2)	57.33		$p < 0.01$
Have Done (Group 3)	64.23		$p < 0.01$

Dependent Variable 4 (Student/Faculty Interaction)

The fourth dependent variable, Student/Faculty Interaction, also had an omnibus test result that was statistically significant [$F(2,106337) = 3170.60, p < 0.01$]. There was a difference among the means for the three conditions M Group 1 = 49.17, M Group 2 = 57.33, M Group 3 = 64.23). The Levene statistic, based on the mean (141.41) was significant ($p < 0.01$). This shows that the Dunnett T3 comparison test was needed.

Upon comparing the groups, it was determined that there was a statistically significant difference between the Group 1 and the Group 2 (Difference = 8.78, $p = 0.01$). There was a statistically significant difference between the Group 3 and Group 1 (Difference = 17.14, $p < 0.01$) and the Group 3 and Group 2 (Difference = 8.36, $p < 0.01$). Therefore, there was evidence to suggest that participation in a learning community, and intention to participate in a learning community impacts high levels of Student/Faculty Interaction in community college students. Table 6 demonstrates the means to show the differences.

Table 6

Differences of Student / Faculty Interaction Mean by Learning Community Participation

Variable	Learning Community		Significance
	Mean		
Have Not/Will Not (Group 1)	48.52		$p < 0.01$
Plan to Do (Group 2)	57.30		$p < 0.01$
Have Done (Group 3)	65.66		$p < 0.01$

Dependent Variable 5 (Support for Learners)

When comparing the Fifth dependent variable (Student Support), the omnibus test was statistically significant [$F(2,106246) = 3133.28, p < 0.01$]. There was a difference among the means for the three conditions (M Group 1 = 47.30, M Group 2 = 58.73, M Group 3 = 61.53). The Levene statistic, based on the mean (126.98) was significant ($p < 0.01$), which means it was again appropriate to utilize the Dunnett T3 pairwise comparison test.

Of the three comparisons, there was statistically significant difference between the Group 1 and the Group 2 (M Difference = 9.43, $p < 0.01$). There was also statistically significant difference between the Group 3 and Group 1 (M Difference = 14.23, $p < 0.001$). There was significance between Group 3 and Group 2 (M Difference = 4.80, $p < 0.01$). Therefore, there is convincing evidence to imply that participation in a learning community, and not just intention to participate in a learning community, is a reason for increased levels of Student Support. Table 7 displays the means to show the differences.

Table 7*Differences of Support for Learners by Learning Community Participation*

Variable	Learning Community Mean	Significance
Have Not/Will Not (Group 1)	47.30	p < 0.01
Plan to Do (Group 2)	56.73	p < 0.01
Have Done (Group 3)	61.53	p < 0.01

SUMMARY OF FINDINGS

Based on the results proven by the p-value threshold of 0.01 (used for large sample sizes), testing for differences using one-way ANOVA, and using the Dunnett's T3 comparison method, it was concluded that participation in learning communities benefit students in all five benchmarks. This implies that learning communities contribute to higher levels of student engagement at community colleges. The research suggests this implication based on its comparison to students who intended or did not participate in a learning community.

Discussion of Findings

The findings of this study are discussed within the context of the research question: Does the participation in high impact practices (learning communities) impact student engagement benchmarks (active and collaborative learning, student effort, academic challenge, student faculty interaction, and support for learners)? The study sought to discover if there was a difference in student engagement levels of those who reported participation in a learning community compared to those who did not participate or those who intended to participate? The study involved a three-year cohort (2012-2014). It included data from 684 institutions from 48 states, the District of Columbia, three Canadian provinces, plus Bermuda, Micronesia, and the Marshall Islands.

ANOVA was used to address the research question. It was concluded from the research that participation in learning communities impact student engagement levels for community college students. In the areas of active and collaborative learning, student effort, academic challenge, student faculty interaction, and support for learners, intention to participate in a learning community made no significant impact in student engagement levels.

Findings of Benchmark 1

The findings of benchmark 1, active and collaborative learning show that there was a difference between engagement levels of those who participated in learning communities as opposed to those that did not. Higher levels of engagement were reported for those who participated in learning communities compared to those who did not. Existing research states active and collaborative learning encourages social and academic integration, a concept that proves to be successful for retention efforts in higher education. According to Tinto (2009), Pedagogies of engagement — such as cooperative and problem-based learning — have been shown to be particularly effective in enhancing student success. Research in this regard is clear: Active involvement of students in learning activities in and around the classroom, especially with other students, is critical to student retention and graduation (Researchers, Tinto, 2009, par. 6)

In a review of at least 168 studies related to learning practices of STEM related fields, Johnson, Johnson, and Smith found that cooperative learning improved learning outcomes compared to individual work across the board (Prince, 2004). Traditional pedagogical learning assumes that a transfer of knowledge is passed from the learner.

However, research indicates that this kind of instruction causes students to learn in isolation, often forgetting the reasoning behind the explanation (Roth, 1994). Utilizing a learning community to encourage active and collaborative learning indicates positive learning pathways for positive learning outcomes.

Active and collaborative learning practices can include think-pair-share discussion prompts, problem-based learning, case studies, peer teaching, and small-group discussions (University of Maryland, 2018). All of these practices incorporate interaction and collaboration, making the learning process one that involves numerous participants instead of a traditional pedagogical style of learning.

Findings of Benchmark 2

The second benchmark, student effort, was tested using ANOVA. Results showed that there was a difference between engagement levels of those who participated in learning communities compared to those who did not. Higher levels of engagement were reported for those who participated in learning communities compared to those who did not. Existing research supports the results. Student effort refers to the amount of time a student pursues academic initiatives. It can be associated with Robert Tyler's "time on task". Time on Task refers to "the amount of

time students spend attending to school-related tasks (Tyler, 1969), such as following directions and engaging in learning activities” (Center on Instruction, 2009).

As supported by the literature and existing research, student effort may refer to time spent following directions or teacher’s instructions, studying, or any other effort placed by a student to educationally engaging activities. The efforts do not have to be limited to classroom activities, it could be effort spent on activities that are educationally sound or efforts that are associated with the college such as student activities

Findings of Benchmark 3

Results showed that there was a difference between engagement levels of those who participated in learning communities compared to those who did not. Higher levels of engagement were reported for those who participated in learning communities compared to those who did not. Academic challenge, refers to the academic and critical thinking academic programs bring to community college students. Student should be able to learn information gained in the classroom setting and make it applicable as needed for examinations as well as practical applications.

This goal is difficult when students experience academic challenges in the classroom. Mastery of information is essential to ensure that students feel that they can translate information into practical learning situations. Translating this information into practical learning situations increases critical thinking skills.

Findings of Benchmark 4

Results suggested that participation in a learning community influenced student engagement benchmark, student/faculty interaction in community college students. Student/faculty interaction, which refers to the frequency of interaction between student and faculty. “The more likely they are to learn effectively and to persist toward achievement of their educational goals. Through such interactions, faculty members become role models, mentors, and guides for continuous, lifelong learning” (CCSSE, 2014, p.12).

The results of this study support existing research. Research reveals that interaction with faculty members outside of class and studying in school libraries made a positive impact on baccalaureate expectations (Wang, 2004). Learning communities require interaction with faculty because learning communities usually require faculty to collaborate on syllabi and learning outcomes. This also encourages those faculty to interact with students beyond their course assignments in efforts to achieve learning goals.

Findings of Benchmark 5

Results suggested that participation in a learning community influenced student engagement benchmark, support for learners in community college students. Support for learners is essential to student success. CCSSE refers to Support for learners, as students’ perceptions of their colleges. It measures their use of advising and counseling services provided by the college. (Center for Community College Student Engagement, 2014). Research from CCSSE is consistent with the results from this study. Research reveals that support for learners has significant impact on persistence rates for college students.

CONCLUSION

Colleges and universities have begun to expand the use of LCs to help increase the connections among students, students and faculty, and students and the institution (Price & Lee, 2005). Research on Learning Communities have strongly indicated a relationship between participation and student engagement, and ultimately between student engagement and student success (Fayon, Goff, & Duranczyk, 2010; Pomerantz, 2000; Rocconi, 2011; Smith, 2010; Wilmer, 2009), but the relationship between LCs and student success has been an indirect relationship at best (Rocconi, 2011). Community colleges have the opportunity to incorporate learning communities into their college culture by assessing, adjusting, and refocusing their goals for student outcomes. As learning communities become more prevalent at community colleges, existing learning communities can become greater, and make a more profound impact as research continues to become available.

Results from this study added to the body of literature regarding learning communities. The results answered the research question sought. Its purpose was to help community college administrators acknowledge the effectiveness of learning communities to student engagement levels at community colleges. The results could lead to their attempt to incorporate learning communities into their college culture. As community college leaders are forced to provide increased attention to the services, functions, and outcomes of community colleges (Cooper, 2013) this research provides additional support as administrators decide to implement learning communities at their institutions.

Addressing retention and graduation deficiencies for community college students is important for higher education. In particular, community college administrators should incorporate high impact practices into their policies and practices based on low levels of retention and completion rates. Based upon this study’s results, and results from other studies, implementing policies and high impact practices that encourage student engagement increases the chances that students are retained and complete a credential at a community college.

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