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The Effectiveness of Learning Communities on Students' Knowledge Acquisition and Perceived Self-Efficacy

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Study Purpose

The purpose of this study is to examine the effectiveness of community college students participating in a learning community (LC) linking a lecture-based course with an experiential learning, activity-based course to demonstrate improvement in students' academic performance and perceived self-efficacy. The LC for this study, "Get Active, Be Healthy" includes a required 2-credit health course, "Health, Behavior and Society" (HE 102) and a 1-credit physical education course, "Aerobic Exercise" (PE 541) which fulfills one PE requirement for most majors at the college. HE 102 is a lecture course and includes classroom-based instruction, reading assignments, writing essays and exams. PE 541 is an activity course and includes experiential learning and performance of exercise for physical fitness. In this LC, PE 541 is the experiential learning experience for the HE 102 course.

Previous Research

This study was developed from the previous literature on learning communities (LCs) at community colleges. LCs have been categorized as a high impact strategy to enhance student academic performance, social

engagement and college retention rates (Hotchkiss, Moore and Pitts, 2006). Further, it has been shown to increase student confidence levels in discipline-specific areas, such as mathematics (Kaye and Berry, 2012). Stebleton and Nownes (2011) found English students who participated in a LC had significantly higher retention rates than those who were not part of a LC. Malnarich (2005) describes the benefits of LCs in college"…to engage students in hard, persistent and challenging work associated with academic success." College faculty members who have participated in LCs reported, "enhanced interpersonal relationships" with colleagues and "fostering collaborations" (Jackson, Stebleton, and Laanan, 2013). Other research has shown no significant increase in students' academic performance, yet "social linkages" and "curricular integration" was noted (Weiss, Visher, and Wathington, 2010).

Much of the previous literature on LCs focus on research of students attending two or more courses that may be linked by specific learning goals, assignments or projects. What is missing from the previous literature is a study that examines the effectiveness of a LC linking a lecture-based course with an experiential learning, activity-based course to demonstrate improvement in students' academic performance and perceived self-efficacy. This study examines the learning outcomes of a course assessment from

community college students participating in a lecture and activity LC to increase their knowledge acquisition and self-efficacy for applying course content. This research seeks to answer the following questions and hypotheses.

Research Questions

1. Will community college students who participate in a lecture and activity LC demonstrate a significant increase in their knowledge acquisition of course content?
2. Will college students who participate in a lecture and activity LC demonstrate a significant increase in their self-efficacy for applying the skills learned from the course content?

Hypotheses

1. There will be a significant difference in knowledge acquisition between students' enrolled in the lecture and activity LC as compared to those who attend the lecture course alone.
2. There will be a significant difference in value and self-efficacy for applying the skills learned from the course content between students enrolled in the lecture and activity LC as compared to those who attend the lecture course alone.

Methodology

Participants

100 Undergraduate CUNY – Queensborough Community College (QCC) students who are over 18 years of age, and enroll in the LC, "Get Active, Be Healthy" with HE 102 and PE 541 courses will be the treatment condition. Students who enroll only in separate course sections of HE 102 will be the control group.

Measures

The *dependent* measures for this study include: (a) HE 102 course assessment, (b) exam scores, (c) grades, (d) attendance and (e) participation. The *independent* variables include participation in the LC and the profile questionnaire, providing their background information. The HE 102 pretest course assessment is a *covariate*.

The HE 102 course assessment pre- and posttest measures students' recall and comprehension of course material from the 10 HE 102 course objectives, that are linked to the college's general education objectives. The pre- and posttest also measures how students' rate the value of the course content and their perceived self-efficacy for applying the skills learned in the course.

Research Design

The research design of this study is quasi-experimental since random assignment is not possible. Baseline measures will test the differences between

the two groups at the start of the study. If the two groups have varying baseline measures, then the pretest scores on the HE 102 course assessment will serve as a covariate to control for lack of random assignment.

Procedure

The participants complete the profile questionnaire and HE 102 course assessment pretest. The students in the LC participate in their linked HE 102 and PE 541 courses and the students in the control group attend their separate HE 102 course sections. Every week the researcher records attendance for HE 102 and the LC. The researcher also records student participation in HE 102 based on students' verbal and written activity in class. During weeks 6, 11 and 15, students take their regular-scheduled HE 102 course exams. Also on week 15, all students take the HE 102 course assessment posttest.

Results

Pretest Analyses

86 students completed the study with a total of 40 students enrolled in the "Get Active, Be Healthy" LC and 46 students in the non-LC HE 102 course sections. The course assessment included direct assessment of health content questions as well as an assessment of students' perceived value of the course content and their self-efficacy to apply the skills of the course. Scores ranged from zero to 100 percent in (a) public health promotion methods and (b)

physiological and biological processes related to various health areas, including, nutrition, stress and exercise. For the perceived self-efficacy questions, the students selected: (1) strongly agree; (2) agree; (3) neither agree nor disagree; (4) disagree; or (5) strongly disagree for rating: (a) the importance of health issues; and (b) their capability to make healthy choices.

Table 1 provides the students' pretest scores for course content competency. The LC scored 20 percent competency for knowledge of public health promotion methods and 10 percent competency in physiological and biological processes related to various health areas. The non-LC students' competency level was four percent in the physiological and biological processes related to various health areas. Also, the control group scored 30 percent competency in public health promotion methods.

Table 1: Pretest Course Content Competency Level

Course Content	Learning Community	Control Group
Public Health Promotion Methods	20%	30%
Physiological and Biological Processes	10%	4%

In terms of perceived course value, 100 percent of the LC students either strongly agreed or agreed that their awareness of health issues is important. Meanwhile, less than half of the LC students strongly agreed or agreed that they

are capable of making healthy lifestyle choices. A third of the LC students could not determine whether or not they are capable of making healthy lifestyle choices and nearly one-quarter of the LC students did not think the were capable of making health lifestyle choices at the start of the semester. Similarly, nearly all of the non-LC students either agreed or strongly agreed that their awareness of health issues is important. Only one student disagreed. The self-efficacy responses to the question of whether or not the students are capable of making healthy lifestyle choices varied from strongly agree (33.3%), agree (38.9%), neither agree nor disagree (16.7%), disagree (5.6%) and strongly agree (5.6%), (see table 2).

Table 2: Pretest Perceived Course Value and Self-Efficacy

Importance of Health Issues	Learning Community	Control Group
Strongly Agree	78.9%	68.2%
Agree	21.1%	27.3%
Disagree	0%	4.5%
Capability to Make Healthy Lifestyle Choices		
Strongly Agree	16.7%	33.3%
Agree	27.8%	38.9%
Neither Agree nor Disagree	33.3%	16.7%
Disagree	22.2%	5.6%
Strongly Disagree	0%	5.6%

T-tests were performed to determine whether there were any significant difference between the two groups at the start of the semester, in terms of health

knowledge, beliefs and lifestyle. The results show that there were no significant differences for course content (t = .906, n.s.), or personal health responses regarding health (1) issues (t = 1.041, n.s.); (2) decisions (t = .400, n.s.); and choices (t= 1.382, n.s.). Therefore, the two groups were considered equivalent at baseline.

Posttest Analyses

Table 3 lists the posttest course content competency scores as a percentage from 0 to 100. At total of 40 participants from the "Get Active, Be Healthy" LC participated in the posttest assessment. The LC demonstrated significant gains since the start of the fall semester in the physiological and biological processes related to various health areas, from 10 to 75 percent competency and public health promotion methods from 30 to 81 percent competency. Other health areas where the LC students significantly improved their scores, include, sexual health at 88 percent competency, and stress at 81 percent competency.

A total of 46 participants from the control group participated in the posttest assessment. Similar to the LC, the control group demonstrated significant gains since the start of the semester in the physiological and biological processes related to various health areas, from 4 to 79 percent competency and public health promotion methods 30 to 79 percent competency. The control

group also significantly improved their scores in sexual health to 100 percent proficiency.

Table 3: Posttest Course Content Competency Level

Course Content	Learning Community	Control Group
Public Health Promotion Methods	81%	79%
Physiological and Biological Processes	75%	79%

Similar to the pretest analysis, 100 percent of the LC students either agreed or strongly agreed that their awareness of health issues is important in the posttest analysis. In addition, 100 percent of the students either strongly agreed or agreed that their capability of making healthy lifestyle choices increased as a result of participating in the LC (see table 4).

In terms of importance of course content, 90 percent of the control group either strongly agreed or agreed that their awareness of health issues is important to them in the posttest analysis. One person disagreed. In addition, 90 percent of the students in the control group either strongly agreed or agreed that they were capable of making healthy lifestyle choices as a result of participating in the course. One person disagreed. Further, three of the 46 students who participated in the posttest assessment did not answer the value and self-efficacy questions.

Table 4: Posttest Perceived Course Value and Self-Efficacy

Importance of Health Issues	Learning Community	Control Group
Strongly Agree	80.4%	63.8%
Agree	19.6%	26.2%
Disagree	0.0%	10.0%
Are Capable of Making healthy lifestyle choices as a result of participating in the LC or course		
Strongly Agree	78.6%	67.6%
Agree	21.4%	22.4%
Neither Agree nor Disagree	0%	0%
Disagree	0%	10.0%

Paired and independent t-tests were performed to determine whether or not there were significant gains in performance within the two groups (i.e., LC and control group) and between the two groups. The within group, LC pretest-posttest results demonstrated significant improvement ($t = 4.80$, $p < .05$). The within group, pretest-posttest, control group results also demonstrated significant improvement ($t = 2.44$, $p < .05$). In total, the two groups demonstrated significant improvement in pretest-posttest scores ($t = 5.03$, $p < .05$). The between group t-test showed a significant difference in rating strongly agree for perceived course value and self-efficacy ($t = 4.30$, $p < .05$) and ($t = 4.15$, $p < .05$).

Limitations

Since random assignment was not possible for this study, there may be differences between students who choose to be in a learning community as compared to those who choose not to be in the LC. Also, increasing the number of LC and non-LC course sections studied and performing further statistical analyses could strengthen the study's findings.

Educational Implications

The students who participated and completed the course assessment significantly increased their health competency levels. Further, the students who participated in the LC demonstrated higher rates of competency than that of the control group in terms of the their value of the course content and perceived self-efficacy to make healthy lifestyle choices as a result of participating in the LC. This research demonstrates that students who participate in a lecture and activity LC may improve their ability to acquire knowledge and increase their perceived value of the course and self-efficacy to apply the skills learned in the course. Overall, a lecture-activity LC can help to (a) demonstrate the interrelatedness of content in the learning community and (b) engage students in experiences to enrich the totality of the intellectual experience of the learning community.

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