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Successful Implementation of PLTL for CMCE 1110
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Abstract

Peer Led Team Learning (PLTL) involves students working in small groups under the guidance of a Peer leader. Peer Leaders are current students who have successfully completed the course. The goal of PLTL is to enable students to gain confidence and critical problem solving skills that will help them master the course content thereby improving their ability to succeed in successive design courses. PLTL is currently in its first semester of implementation and data indicates that the students in the PLTL inclusive Statics classes are performing better than those in sections without PLTL.

Introduction

The Department of Construction Management and Civil Engineering Technology (CMCE) of New York City College of Technology (City Tech) offers associate degree programs in Civil Engineering Technology (CV) and Construction Management Technology (CM). The CMCE Curriculum includes Statics and Strength of Materials 1 and 2 taken in the first and second semesters, and Elements of Structural Design for Steel and Concrete taken in the third and fourth semester. Statics and Strength of Materials 1, CMCE1104, provides an introduction to the basic theory necessary for structural analysis and design, including the concepts of force, stress, strain and equilibrium. Statics and Strength of Materials 2, CMCE1204, covers engineering concepts of shear and bending moment diagrams, section properties, beam analysis, and truss analysis (College Catalog, 2011-2013).

Student performance in 1104 is directly related to performance in 1204 and subsequently in Steel and Concrete Design. Grade distributions in the department over the past decade indicate that only about 53% of students pass 1104 with a grade of C or better; about 62% of students pass 1204 with a grade of C or better. One-Year Retention Rates of First-time, Full-time, Degree-seeking freshman dropped from 60% in 2008 to 37% in 2010 for the CV major and from 50% in 2008 to 36% in 2010 for the CM major (AIR, 2012). Poor performance in 1104 and struggles with math are contributing factors to students leaving the CMCE program.

Peer-Led Team Learning is an innovative learning technique whereby students participate in weekly workshops. Workshop modules are created by faculty and consist of challenging problems based on the weekly lectures. Workshops consist of students working in small groups under the guidance of a Peer Leader to complete the modules. Successful implementation of PLTL requires active participation of the faculty, students, and peer leaders (Roth, Goldstein, & Marcus, 2001).

Peer leaders are students who have successfully completed the course and have decided to take on a mentoring role for their peers. At City Tech, Peer Leaders complete a one credit course in Peer Leader Training as well as attending weekly leadership seminars. Peer leaders learn to lead a

group of students by focusing on communication, group dynamics, motivation, learning styles, and other process issues in order to help participants actively engage with course material (College Catalog, 2011-2013).

Method

PLTL was implemented in CMCE 1104 Section 9002 in the spring of 2012; CMCE 1104 Section 9000 served as the Control. The PLTL section was offered on Tuesday mornings from 10-11:40AM. Twenty Nine students enrolled and twenty students completed the course. The Control section was offered on Thursday mornings from 10-11:40AM. Thirty students enrolled and twenty students completed the course. A pre-assessment survey was completed by both sections and the results indicate that there was a uniform level of knowledge in college math among the students.

Results

The final grade average for students in the PLTL section was 78.9 or a C+ as opposed to 72.6 or a C for the Control Group. PLTL student participants completed a pre and post survey which reflects their confidence level in the class. Overall, the students in the PLTL section developed a sense of confidence in their ability to understand the course material and performed better than those in the Control section.

References

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