

USING MYECONLAB TO ENHANCE STUDENT LEARNING IN COMMUTER COMMUNITY COLLEGE ECONOMICS CLASSES

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Abstract

Students entering college are fully accustomed to the role of technology as a communication, education, and entertainment medium. Pearson Education markets MyEconLab, which contains learning modules to explain course materials with graphics, multimedia content, and numerical calculations. Research supports the notion that increased instructional time has positive impacts on student learning when the time is used effectively. This study looked at the impact of the study plan module from MyEconLab on exam grades to determine if it was an efficient use of a student's time. Results of the study indicated learning technology, such as MyEconLab, helped students improve their exam scores by a statistically significant amount when the technology was a required course component.

Introduction

Socrates employed a method by which he suggested question and answer as an effective tool for student learning (Tredway, 1995). The Socratic method of teaching, as it is known, is a student-centered, active learning approach that challenges learners to develop their critical thinking skills and engage in analytic discussion. Since the time of Socrates, teachers have supported this type of teaching which does more than pass on knowledge and teach skills. This teaching method helps students use their knowledge and skills to cope with, appreciate, and tackle vital concepts as they develop a deep understanding of issues and questions.

Commonly, college classrooms employ the recital model of teaching. A lecturer begins a class by asking a question, a student responds, and the instructor evaluates the response. When students do respond, typically they provide only simple information recall statements. According to Mehan (1979), direct observation of the lecture reveals that teachers do most of the talking in classrooms, nearly twice as much as students. In over half of the interactions that teachers had with students, students did not talk at all (Mehan, 1979). This type of teacher limits the student's ability to engage in learning that is more complex.

Students entering college are fully accustomed to the role of technology as a communication, education, and entertainment medium. This implies a possible shift from the basics of lecture notes and printed materials to student-centered instant responses and feedback. The question becomes how to integrate the advantages of technology (convenience, accessibility, contact) with qualitative standards (ethics, discrimination, problem solving, and integration) so that the

benefits outweigh potentially harmful side effects. The college teacher must deal with rapid change to remain up-to-date with latest technological advances. Textbook publishers have recognized the opportunity for growth as instructional media content providers in addition to the traditional textbook publishing. Publishers offer instructional products aimed at instructors teaching large, introductory level classes. Two common products aimed at economics principles courses are MyEconLab and Aplia.

MyEconLab

Pearson Education markets MyEconLab. Students purchase online access to the software which matches the textbook adopted by the instructor. MyEconLab contains learning modules to explain course materials with graphics, multimedia content, and numerical calculations. MyEconLab also contains review modules, such as study plans, homework assignments, quizzes, and tests, which teach using regular practice exercises for practice as well as graded quizzes and exams. The modules provide instant feedback on student progress, which is much faster than the traditional manual marking by instructors. Instructors reported favorable experiences with MyEconLab in introductory economics courses (Dole, 2008; Kayahan, 2008; Nguyen & Trimarchi, 2010; Ryan, 2008).

Learning

Chickering and Gamson (1987) identified seven principles based on research that addressed good practice in undergraduate education. Three of principles related to student engagement. The seven principles recommended by Chickering and Gamson (1987) were (a) encourage contact between students and faculty, (b) use collaborative learning strategies, (c) use active learning strategies, (d) provide students with prompt feedback on performance, (e) emphasize time on task, (f) hold students to high expectations, and (g) respect diverse talents and ways of learning. Chickering and Gamson (1987) reported that when all the principles were present, their effects increase regardless of students' characteristics such as gender, age, ethnic background, or preparedness for class.

According to Center for Community College Student Engagement (CCCSE) (2009), student learning and student retention are strongly correlated with the student's engagement with faculty and staff, with other students, and with the subject matter being learned. The 2009 Community College Survey of Student Engagement (CCSSE) data found that students actively involved in their education learn more (CCCSE, 2009). The 2009 CCSSE data also reported students collaborating with others to solve problems or master content develop beneficial skills to help them solve problems they will encounter in the workplace. Additionally, the 2009 CCSSE data also established that instructors' use of classroom had an impact on student engagement; instructors who used classroom time mainly for lecturing had lower benchmark scores than instructors who use classroom time for in-class writing or small group activities.

Inverting the classroom means that actions which have traditionally taken place inside the classroom are moved outside the classroom while actions that have traditionally taken place outside the classroom are moved inside the classroom. The instructor focuses on the desired

outcome and the student chooses the best method to reach that outcome. At Miami University, students were expected to come to class prepared to discuss the relevant material (Lage & Treglia, 2000). Students were supposed to read about a topic in Microeconomics before the first day of discussion and were encouraged to view the videotaped lectures or narrated PowerPoint slides (Lage & Treglia, 2000).

Instructors started class by asking if there were any questions. According to Lage and Treglia (2000), if there were questions, the instructor lectured for no more than 10 minutes. If there were no questions, the instructors would not lecture. The instructor and the students would conduct an economic experiment or lab that corresponded to the topic being covered that provided students with an opportunity to see the economic principles in action (Lage & Treglia, 2000). Lage and Treglia (2000) examined students' perceptions of the class at the end of the semester using survey in all sections of microeconomics taught using the inverted classroom. The majority of students were favorably impressed by the course rating the course 3.9 on a scale of 5 (Lage & Treglia, 2000). Lage and Treglia (2000) concluded that the inverted classroom was a strategy of teaching that engaged a wide spectrum of learning styles.

Research generally supports the assumption that increased instructional time has positive impacts on student learning (Fisher, 2009; Hossler, Stage, & Gallagher, 1988; Kosanovich, Weinstein, & Goldman, 2009; Good, 1983). Increasing the time available for instruction is not enough to realize positive learning impacts. Learning takes time but providing time does not necessarily mean learning will take place. Instructional time must be suitable; e.g. delivered in a way that is effective, efficient, meaningful, and motivating to students (Good, 1983).

Problem Identification

Student engagement is the amount to which a learner is motivated and committed to learning, has a sense of belonging and accomplishment, and has relationships with teachers, peers, and family members that support learning (Chapman, 2003). In order for students to apply higher order thinking skills they need to engage with the material. Instructors encouraging or telling students to engage with the course material hardly ever sufficient. If the teacher wants engaged, motivated students it is up to the teacher to find a way to engage and motivate them.

According to Chapman (2003), three dimensions can be used to assess student engagement: intensity, breadth, and consistency. Intensity refers to the individual level of engagement of each student. Is the student taking notes or is he / she doodling during the lecture? Breadth refers to how engaged the class as a whole is with the material. Consistency refers to the length of time students are engaged throughout the class period. Do the students start out engaged at the beginning of class and drift off as the class continues?

Research Questions and Hypotheses

The purpose of this study is to discover the impact using the study plan feature of MyEconLab has on achievement of students enrolled in Principles of Microeconomics or Principles of Macroeconomics at a commuter community college. The specific research questions for this study are:

1. Does the use of MyEconLab study plans increase students' exam scores?
2. Do exam scores differ based on class, Principles of Macroeconomics or Principles of Microeconomics?
3. Is there an interaction effect between study plan use and class?

The research hypotheses for this study are:

1. Mean exam scores will be significantly higher in sections using the study plan feature in MyEconLab than in sections not using the study plan feature.
2. Mean exam scores will be significantly different in sections of Principles of Macroeconomics and Principles of Microeconomics.
3. There will be an interaction effect between study plan use and class.

The null hypotheses for this study are:

1. Mean exams scores will not differ between sections using the study plan feature in MyEconLab and sections not using the study plan feature.
2. Mean exam scores will not differ between sections of Principles of Macroeconomics and Principles of Microeconomics.
3. There will not be an interaction effect between study plan use and class.

Variables

Independent Variables

The independent variables in this study were class and the completion of a study plan in MyEconLab. Class was either Principles of Macroeconomics or Principles of Microeconomics. Completion of the study plan was either mandatory or optional.

Dependent Variable

The dependent variable in this study was score on the first exam, which covered the first three chapters of the text. Students enrolled in Principles of Macroeconomics and Principles of Microeconomics complete the first three of the text in each class. Students enrolled in the classes concurrently only completed one exam.

Methods

Sample. The classes selected for the study were Principles of Microeconomics and Principles of Macroeconomics taught at a commuter community college in the south. Each course was a semester-long, on-campus, lecture-format course. Classes met two days a week for 75 minutes per session. Eighty-three students participated in this study. Four intact sections of the classes were selected, two sections of each class. Sections were randomly assignment to treatments by flipping a coin. The textbook selected was Economics, 3rd edition by Hubbard and O'Brien (2010). For two sections of each class, study plan completion counted as 10 percent of the final

grade. For the remaining two sections of each class, study plan completion was optional and was not counted in the final grade.

Hypothesis Testing. Researchers routinely use significance tests in studies involving statistical analysis to answer research questions. Another name for significance testing is null hypothesis testing. Null hypothesis testing asks the question “if the null hypothesis is true (the variables are totally unrelated in the population) what is the probability of obtaining the relationship (or a stronger relationship) that was found in my sample” (Levine & Hullett, 2002, p. 614). In other words, significance levels measure the strength of the evidence against the null hypothesis; the smaller the P value, the stronger the evidence. Sterne and Smith (2001) claimed probability theory based tests could not provide useful evidence of the truth or falsehood of a hypothesis.

Procedures. The students in all sections of the classes had access to MyEconLab. For one section of Principles of Microeconomics and one section of Principles of Macroeconomics, the study plan feature was a mandatory, graded part of the class. These study plans were used as chapter pre-tests and were worth 10 percent of the final course grade. In the other sections, the study plans were optional. Very few students in these sections completed the optional study plans. The study plans for each chapter were divided by the objectives from the chapter. Each objective contained between one and five questions. The study plan provided instant feedback to the students. The study plan allowed the student two chances to respond with the correct answer. After the second incorrect response, the student received the correct answer.

Instrumentation. The exam consisted of 25 multiple-choice questions selected from the online test database available in MyEconLab and covered material from the first three chapters of the textbook. All participants received 75 minutes to complete the exam online. Exam questions were both static and algorithmic; however, the exams did not contain exact questions used in the study plans. Some questions required the students to use the MyEconLab graphing tools.

Risks. Research studies must ensure the protection of the rights, safety, and well-being of human subjects participating in research studies. Federal regulations (Title 45, part 46, section 101b) exempt research conducted in established or commonly accepted educational settings, involving normal educational practices from basic Health and Human Services (HHS) policy for protection of human research subjects. Examples of such research include (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods. This study involves normal educational practices. There were no financial incentives for students to participate in this study. This study did not involve the use of deception.

Data Analysis. ANOVA is a statistical methods used to determine if there is any difference in means. Unlike the t-test, ANOVA is appropriate when determining the difference in means of more than two populations (Trochim, 2000). ANOVA results will only indicate if at least two population means are significantly different. A two-factor ANOVA is used when there are two factors, or independent variables. In this study, the goal was to assess the impact class (the first factor) and study plan completion (the second factor) had on exam score, the dependent variable. In this study, the class factor could take on two levels (macroeconomics or microeconomics) and

the completion of study plan could take on two levels (yes or no); therefore, this study was a 2x2 independent group design, which means that there were four unique conditions to the study.

Results

Analysis of variance indicated there was no significant main effect for class: participants in Principles of Macroeconomics ($M = 74.6$, $N = 43$) did not score significantly different from participants in Principles of Microeconomics ($M = 73.1$, $N = 40$), $F(1, 79) = .007$, $p = .933$. There was a significant main effect for study plan: participants in classes requiring study plans ($M = 79.5$, $N = 40$) scored significantly higher than participants in classes' not requiring study plans ($M = 68.6$, $N = 43$), $F(1, 79) = 10.33$, $p = .002$, $h^2 = .116$. There were no significant class by study plan interaction: $F(1, 79) = .188$, $p = .666$.

Discussion

This study attempted to address the use of instructional media content in introductory economics classes. The results suggested that learning technology, such as MyEconLab, could make a difference in helping students improve their exam scores by a statistically significant amount if the technology is a required course component. The study plan feature of MyEconLab was the only learning module used. MyEconLab helped students improve their test scores in both Principles of Macroeconomics and Principles of Microeconomics classes. MyEconLab study plans appeared to reinforce student's knowledge of the material. Even though all students enrolled in the classes had access to MyEconLab study plans, the majority of the students took advantage of the study plans only when they were a graded component of the class.

Limitations

There are two main limitations of the study: researcher bias and confounds. First, the potential for researcher bias is present in the current study because the researcher is an instructor for the course. Even though every effort was made to equate the courses, the instructor may have unconsciously changed teaching style in subtle ways that would support the main prediction. It was impossible to hide the experimental treatment from the instructor, even if the instructor was not a member of the research team because it is obvious that there was a difference among the treatments.

Second, additional potential confounds should be considered because the treatments differ along several dimensions. Concerning student characteristics, nonrandom assignment of subjects always runs the risk that prior differences exist between the groups on variables not measured, and that these differences cause differences in the outcome variable. In this study, the researcher had no reason to suspect that the students taking the course would differ, as all students were in their first or second year.

Recommendations for Further Study

This study represents an initial look at the impacts of MyEconLab on student achievement. Future studies of the impacts of MyEconLab should include additional learning modules, such as

homework assignments and quizzes. In addition, future studies should investigate other contributing factors such as time spent with the modules, use of online video resources, and student's prior academic background. Future studies should investigate Aplia and other similar learning technologies as well as MyEconLab. The author plans to continue the research by conducting a longitudinal study with MyEconLab.

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