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A Hybrid Approach to Teaching Managerial Economics

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ABSTRACT

Many institutions in higher education are experimenting with hybrid teaching approaches to undergraduate courses. Online resources may provide a number of advantages to students as compared to in-class approaches. Research regarding the effectiveness of hybrid approaches is mixed and still accumulating. This paper discusses the use of a hybrid teaching approach for a Managerial Economics class. Identical multiple-choice questions from previous semesters are used to compare student performance in hybrid classes versus traditionally taught classes. Results suggest that student performance is lower in hybrid classes as compared to traditional classes. The differing student performance suggests that the complexity of material in some courses may not be suitable for a hybrid approach.

Keywords: Economics, business, teaching, flipped instruction, hybrid instruction

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Introduction

There has been an increasing use of technology in higher education. Many institutions have experimented with "hybrid" or "flipped" courses which substitute online exercises and resources for class time. Overall, such hybrid approaches have generally shown mixed results (Akkoyunlu & Soylu, 2008; Ginns & Ellis, 2007; Love, Hodge, Grandgenett, & Swift, 2014).

Online resources may present several advantages over traditional lecture and discussion. First, students can utilize online resources at a time of their choosing. Second, online assignments often have multiple attempts. Third, online assignments are by default open-book. Fourth, students can engage in discussion with other students for online assignments.

If the online resources work as predicted, a hybrid approach could increase student learning at the same time that it decreases instructor time for delivering lecture in the classroom. Thus, this approach could be beneficial for both parties. The hybrid approach may also reduce cost if more students could be served with this approach. The primary Research Question is whether a hybrid teaching approach could improve student learning in a Managerial Economics class. The method for evaluating this question is to compare student performance on identical multiple-choice questions from previous semesters (taught by the same instructor). Other secondary topics of interest are overall student satisfaction with a hybrid course, and the potential increased load on the instructor for preparation and administration. This paper discusses the results of this trial.

Literature Review

Hybrid or blended learning seeks to improve learning through a combination of face-to-face instructional time and online instructional time (Garrison & Kanuka, 2004). Blended learning can take a number of forms but relies on basic educational principles (Garrison & Vaughan, 2008). Effective practices in blended learning have also been identified (Mortera-Gutiérrez, 2006).

Hybrid or blended approaches have been used in a variety of business courses, including graduate business courses (Chen & Jones, 2007). As mentioned above, the overall results from hybrid or blended courses have been mixed as far as student performance, and that is the case in the field of business as well. A hybrid approach for an undergraduate accounting course improved student performance (Dowling, Godfrey, & Gyles, 2003). A hybrid approach to introductory economics showed no change in student performance (Olitsky, & Cosgrove, 2014). In an undergraduate microeconomics course, student performance was weaker in a hybrid section as compared to a face-to-face section (Verhoeven, & Rudchenko, 2013).

Other studies have looked at student perception and satisfaction with hybrid courses. In the study of a hybrid marketing planning course versus the traditional, students preferred the traditional course (Haytko, 2001). A study in undergraduate economics showed the availability of online tools in a blended course improved student motivation (Van Der Merwe, 2007). Other research suggests that once business students have a positive experience in a hybrid course, they are more likely to prefer hybrid courses in the future (Gutierrez & Russo, 2011).

Overall, the literature shows mixed results from hybrid courses for both student performance and student engagement. This holds true for the domain of business education as well. This suggests the need for more future research to clarify the

effectiveness of hybrid or blended learning approaches in business (Arbaugh et al, 2009).

Background

This experiment took place at a large Southern public university in the United States. Managerial Economics is a junior-level course required of all business majors in the College of Business. The hybrid approach was tested across 3 sections of roughly 80 students each in the Spring 2014 semester. The instructor has previously taught this course a number of times.

Since the online resources were of paramount importance in this teaching approach, a great deal of time was invested in selecting the appropriate online platform. Online platforms from all the major publishers were reviewed. Ultimately, the MyEconLab product from Pearson was selected for the course (Pearson Education 2014). The purchase of the software license was combined with the purchase of an e-textbook for the course.

Student assessment was performed in four general categories:

- Online Homework, Online Quizzes, & Study Plan thru MyEconLab
- Group Performance Tasks
- In-Class Clicker Questions
- Exams

The online portion of the course totaled 30% of the course grade.

The online resources were set up in a way as to promote multiple opportunities for learning the material. The Online Homework had unlimited attempts. The Online Quizzes had two attempts each. The Study Plan consisted of extra practice problems with unlimited attempts to show mastery of the material (> 80% correct). Additionally, screencasts were recorded by the instructor for all the material and were made available online for student use.

Class time was reduced from two 75-minute periods per week to one 75-minute period. Class time focused on any questions from the homework and quizzes for the first 10 to 15 minutes of class. The rest of the class time was devoted to reviewing concepts. "Clicker" questions were used throughout the class to measure student learning.

Exam questions were written in a similar style to the online homework and quiz questions. There were also three group performance tasks due throughout the semester to enhance learning. The amount of material covered in the semester was the same as in previous semesters.

Case Objective

Given the strong potential of a hybrid approach, the objective was to increase student learning above levels found with the traditional approach. This objective was tested in two ways. First, a number of identical in-class clicker questions from previous semesters were used in the hybrid approach and compared to previous traditional classes. Second, identical exam questions from previous semesters were used in the hybrid class exams and compared to previous traditional classes. It was hypothesized that the hybrid approach would produce higher levels of learning.

Assessment Method

As mentioned above, identical clicker and exam questions from previous semesters were used as a benchmark. Here are two sample clicker questions followed by two sample exam questions:

Sample Clicker Questions

1. If the production function is q = 2L + 5K , then the associated isoquants are:
a. Curved
b. Linear
c. L-shaped
d. Horizontal

2. A company's production function is
Q = 5 L + 20 K – 0.4 K2
The company's input prices are PL = $25 and PK = $40.
Find the profit maximizing value of capital (K).
Enter as a value.
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Sample Exam Questions

1. Assume Q = 2L + K , and that K is fixed at K=10 in the short run.
Does this production function exhibit diminishing returns to labor?
a. Yes
b. No

2. For q = 5L + K , what is the returns to scale?
a. Constant
b. Increasing
c. Decreasing

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Exams were taken via clicker in class under normal conditions. Over the course of the semester, a number of these exam questions from previous semesters were used on exams to test student knowledge. All questions were scored either correct or incorrect with no partial credit.

Results and Discussion

This case study was not designed for a full statistical comparison of the hybrid approach to the traditional approach. Adjustments were not made for potential differences in student characteristics. Both the hybrid classes and previous traditional classes were taught by the same instructor, covering the same material. However, since these events were over time, this is not a true controlled study of a hybrid approach. Nevertheless, important differences emerged between the hybrid approach as compared to prior traditional classes.

Here are the differences in the sample clicker questions and exam questions mentioned in the previous section.

TABLE 1:

Question	***Percentage Correct – Hybrid Classes***	***Percentage Correct – Traditional Classes***
Sample Clicker Question #1	35%	71%
Sample Clicker Question #2	42%	78%
Sample Exam Question #1	58%	76%
Sample Exam Question #2	75%	82%

While these four questions are just a sample, there are in general representative of the results witnessed by the instructor across the semester. While previous classes would often score 70 – 80% correct on a given clicker question in class, the hybrid classes would often score between 30 – 60%. There was a much larger variance, but the average percentage correct was markedly lower.

There were similar results on the exams, though the differences were smaller between the hybrid and the previous traditional classes. Whereas previous classes would often score between 70 – 80% on these identical exam questions, they hybrid classes would score more in the 60 – 70% range.

It became apparent after only a few weeks into the course that many students, perhaps the majority of students, could not adequately learn this complex material via online resources. Several students stated that even after completing the online homework and quizzes, they had no real grasp of the material. This became obvious to the instructor in class with the poor results on the in-class clicker questions. With the reduced class time available, there was only limited time for the instructor to explain the concepts that the students weren't grasping from the online resources. This led to a frustrating sequence where students would spend a great deal of time online, but then come to the limited class time with a low initial understanding of the material.

In terms of the instructor workload, the hybrid approach actually resulted in an increase in the amount of total hours devoted to the class. While class time was reduced from two 75-minute periods to one per week, many additional hours were spent on computer-related tasks. There were a number of software "glitches" that required a large amount of instructor intervention.

The number of student emails was also very high compared to previous semesters. This may have been due to the hybrid setup which encouraged more online activity in general. Students may be more inclined to email instructors in a hybrid approach since there is less in-person interaction.

Student evaluations for the course were approximately 0.3 lower (on a scale of 1 to 5) on most questions as compared to past results. Students were also asked in class about their general assessment of the hybrid course. The results are presented in Table 2.

Survey Question:

1. Was the hybrid approach effective/enjoyable for you?

a. Yes
b. No
c. Maybe

Table 2:

Answer	Percentage
A. Yes	**48.5%**
B. No	**38.2%**
C. Maybe	**13.3%**

These mixed results illustrate how this approach did not appeal to the majority of students.

In talking about the course with various students, it did seem that a small sub-group very much enjoyed and benefited from the hybrid approach. This group, which the instructor estimates at 10 – 20% of the class, seemed to be very self-motivated and competent at the subject. The hybrid approach allowed these high-performing students to learn the material on their own in a shorter amount of time than a typical class.

Conclusion

The goal of this paper was to test student learning under a hybrid teaching approach to Managerial Economics. The result of identical questions from previous semesters shows a decrease in student learning. Student evaluations of the course were also lower than historical norms. Survey results show that this method was not appealing for the majority of students.

This study showed that hybrid approach did not increase student learning as hypothesized. One potential reason for this outcome could be the complexity of the material. Hybrid approaches are often used in principles-level large classes. This particular course, Managerial Economics, is an upper-level course which has a significant quantitative component. While it may be possible to learn items such as definitions and simple formulas from online resources, it may not be as efficient to learn material with longer complex problems in this way.

Given the results of this paper, the instructor has returned to a traditional approach in teaching this course. Differing combinations of online resources and in-class teaching may lead to different results. Some courses may be more suitable to hybrid approaches, while other classes may require more in-class teaching. Future research is needed to determine which types of classes are best suited for hybrid teaching approaches.

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