

The Benefits of Asynchronous Discussion in a Hybrid Class: An Empirical Analysis

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Abstract: As improvements in technology continue to be integrated within the collegiate classroom it is important to study the benefits, or costs, that are associated with adopting new pedagogical practices. This paper focuses on the role that asynchronous discussion can play in furthering student development within a hybrid course. Specifically, this paper finds that encouraging online discussion of articles and podcasts that are related to course material results in better academic performance.

Keywords: *blended-learning, asynchronous-learning, active-learning, hybrid course*

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Section I. Introduction

The prestigious ivory towers that come to mind when one thinks of taking and attending college classes are slowly being replaced by their digital counterparts. While there is still a place for the time honored tradition of lecturing and traditional face-to-face teaching methods, pedagogical research has begun to highlight the very interesting world of technology in the classroom. To add to this burgeoning literature, this paper addresses the benefits to learning when asynchronous discussion is adopted in the hybrid course format.

The term “hybrid course” has been adopted by many authors to distinguish courses that use both face-to-face and distributed (distance) learning tactics. For the purpose of this paper a hybrid course is one in which combines face-to-face instruction with computer-mediated instruction (Graham, 2006; Reay, 2001; Rooney, 2003; Sands, 2002; Young 2002). The practice of using technology in the classroom has been the study of many authors (Lin, 2007; Martyn, 2003; Massoud et al, 2011). In this learning environment, learner-centered and active-learning techniques are more commonly used (Graham, 2006; Hartman, Dziuban, and Moskal, 1999). The increased use of active-learning is a boon to cognitive development *a la* Bloom (1956). Bloom’s taxonomy, as it is popularly referred to, is a theory of cognitive development when learning. Most simply put, there are six different categories of cognition: Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation.²

Figure 1.

Recently, Bloom’s taxonomy and it’s applications to active and cooperative learning have been discussed in the context of technology-rich environments (Kenney and Newcombe, 2011; Chang and Fisher, 2003). In fact, Kausar et al (2003) developed a study that rated computer assisted learning against lecture based learning in terms of Bloom’s taxonomy. The authors found that computer assisted learning was indeed superior to traditional lecture based teaching. The blended learning environment that these, and many other authors, describe are intended to reach the upper tiers of Bloom’s taxonomy by fostering online interaction and allowing students to connect with learning materials and each other.

A key to the success of a hybrid course is the integration of online materials within the lecture. Without any integration students are apt to view the online part of the course as busy work or worse. The proposed solution to this problem is to focus online activities to examples that can be used within the classroom, or for classroom discussion. Allowing students to apply the stories they read or hear to classroom concepts during a discussion certainly approaches the top tiers of Bloom’s taxonomy - synthesis and evaluation. For an excellent source regarding classroom discussion I direct the reader to Brookfield (2005).

² Instead of any further exposition on Bloom’s taxonomy I direct the reader to figure 1 and the following sources,

In addition to classroom discussion, which is regarded by Brookfield as a tool for fostering critical thinking skills, online discussion is an excellent way to develop critical thinking skills and include different learning styles and personalities. Online discussions which progress at the pace that students post to a forum or discussion board is often referred to as asynchronous learning. Many authors have noted that knowledge sharing in an online discussion has the potential to improve student learning (Brewer, and Brewer 2010; Kienle, 2009). Miyazoe and Anderson (2011) found that “online writing assignments using pseudonyms can be an effective teaching strategy that induces higher online participation, especially among students who are hesitant to participate in a traditional classroom setting.” The potential for attracting students who would normally not participate in a classroom setting helps ensure that multiple learning styles and personality traits are reached. Similarly, Gerbic (2010) finds that timid students who may not want to discuss in a classroom setting are less inhibited when discussing online. Gerbic also points out that international students view online discussion as a safer environment to participate. Bassett (2011) studies how students view asynchronous learning and finds that “the collaborative nature of the online discussions facilitated an inclusive learning experience for all students.”

To test whether or not asynchronous discussion is useful in the context of a hybrid course an empirical model is developed that uses data on 324 students over two semesters. This is admittedly to answer, “Does online discussion truly further student learning?” The data show that asynchronous learning has in fact improved student cognition when test grades are considered as the dependent variable. A more detailed discussion of the empirical model can be found in section III.

Section II. Course and Online Component Design

This study was conducted using students in an introductory-level principles of microeconomics courses. The course design is such that students receive face-to-face instruction for three hours a week, but also use online resources outside of class in the form of “current events”. Specifically, the online resources are used to compliment course reading by linking various news articles, podcasts, and videos to the material currently being discussed. For brevity’s sake, I will refer to the various different media that students use as “stories” here forward. In fact, designating articles, podcasts, and videos as stories truly describes my aim of using outside resources to compliment the teaching a concept. Creating a narrative to accompany complex theories or concepts is a form of experiential learning (Dalton, 2011). Itin (1999) defines experiential learning as any instance in which an individual derives meaning from personal direct experience. The hybrid-course variant to this definition that I propose is that experiential learning occurs when an individual derives meaning from indirect experience through online media.

The online stories that are used are not to be viewed as homework in the traditional sense because they are introduced to students in such a way that online instruction occurs. Each story can be found on a blog that is prepared by the instructor. Along with the link to the story, each

post is accompanied with a short discussion of the story and a few open-ended questions that are intended to help start online discussions or direct the student's attention. The following is an example of a current events post from the second semester that received numerous comments:

"This is a great podcast from Planet Money, an offshoot of This American Life on NPR. In this podcast they provide a brief description of life in communist China and discuss the development of capitalism in China's economy. Pay specific attention to why the farmers in this story decided to meet, what solution they came up with to solve their hunger problems, and what the reaction was by Chinese government officials.

*In your opinion, could the farmers plan be applied to any other industry but farming? Can a system like that developed by the farmers in this story truly exist within a communist economy long term?"*³

Section III. Asynchronous Learning Outcomes

Data for the empirical analysis that follows comes from students in principles of microeconomics over two semesters. The first semester of students were allowed but not required to make comments on the articles and podcasts that were posted as part of the current events component. Second semester students, though, were required to post at least twice between current events quizzes. To motivate students to fulfill this requirement a total of 10 points were allocated toward the making comments. In other words, if students failed to make comments the best grade that could be received on the current events quiz was a 90. A priori, it is expected that more interaction and discussion of the course and its concepts via asynchronous discussion will translate to higher grades on tests. To test this hypothesis the following linear regression model is considered,

Where: \bar{y}_i is the average grade for individual i on the first three tests of the semester;
 d_i represents if the student participated in the online discussion;
 x_i are all dummy variables reflecting various educational attainments. In order to correct for potential omitted variable bias, proxies for student motivation and prior knowledge of the subject material z_i and w_i are included. The former variable measures a student's attendance in the class as a percentage and the latter variable is a dummy variable for whether or not the student has taken an economics class while in college (1 if an economics course has been taken at the collegiate level, 0 otherwise). All students in the study had previously taken an economics course as part of their high school education and hence it is assumed that the excluded group has the same background knowledge. Summary statistics for all variables can be seen in table 1.

³ Permanent link to the podcast referenced: <http://www.npr.org/blogs/money/2012/01/13/145184551/the-friday-podcast-the-secret-document-that-transformed-china>

Table 1. Summary Statistics

The course is one of a few options in the core curriculum for arts and sciences majors and is mandatory for all business majors. Hence, the concentration of business majors in the class is high. Also, because the course is an introductory level course the composition of freshmen and sophomores is very high.

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