International Review of Economics Education 17 (2014) 74–84

Contents lists available at ScienceDirect

International Review of Economics Education

journal homepage: www.elsevier.com/locate/iree

Student perceptions toward flipped learning: New methods to increase interaction and active learning in economics

Travis Roach [a,b,*]

[a] Department of Economics, Texas Tech University, United States
[b] Teaching, Learning, and Professional Development Center, Texas Tech University, United States

ARTICLE INFO

Article history:
Received 21 January 2014
Received in revised form 13 August 2014
Accepted 22 August 2014
Available online 6 September 2014

JEL classification:
A22
A23
A29

Keywords:
Flipped learning
Active learning

ABSTRACT

The "flipped classroom" has begun to revolutionize the way that students receive information from their teachers and is ushering in a new era of active and creative thinkers. Although flipping the classroom has gained popular attention, very little research has focused on flipping the classroom at the collegiate level. This paper documents the implementation of a "partially-flipped" class over one semester of a large enrollment microeconomics course, as well as presents results of students' perception toward flipped learning. I find that students respond positively to flipped learning, and that it is an instructional design that is beneficial across student groups.
Published by Elsevier Ltd.

1. "Flipping" the classroom

In order to motivate the entirety of this paper consider one of the first lessons learned in an economics course, the production possibilities frontier. Within a class period there are many ways in which time can be allocated between lecturing and using active-learning exercises, but we are bounded by the amount of time available. Thus, let's consider a "teaching PPF" in which there are two

* Correspondence to: Department of Economics, P.O. Box 41014, Lubbock, TX 79409, United States. Tel.: +1 806 742 0133; fax: +1 806 742 1137.
E-mail address: travis.roach@ttu.edu.

http://dx.doi.org/10.1016/j.iree.2014.08.003
1477-3880/Published by Elsevier Ltd.

choices the teacher has – lecturing and using active-learning activities. Some teachers choose to allocate their time mostly toward lecture, others toward activities and discussion, but in each case there is an opportunity cost of switching between the methods of teaching. Now, usually within the same class period that the PPF is introduced instructors discuss the role technology plays in shifting the PPF outwards from the origin. Technology can play as important of a role in this simple illustration as it does in any other example. By utilizing technology in an appropriate way, it is entirely possible to shift the teaching PPF outwards from the origin. The aim of this paper is to show one way in which the teaching PPF can be shifted outwards through the use of flipped learning.

A flipped classroom is named as such because the learning process is "flipped" from its traditional scheme. Instead of spending entire periods watching a lecture, students watch lectures online outside of class time and use class time to do activities. The notion of flipping the classroom, and its popularity, can largely be attributed to Salman Kahn, founder of the *Kahn Academy* which is a free online system that has videos covering a multitude of topics and subjects, including economics. Since the launch of the Kahn Academy, flipped learning has received quite a wide spectrum of attention ranging from news articles in The Economist (Economist, 2011) to an entire new branch of the TED organization, TEDEd. Too, flipped learning has been a hot topic on "less academic" media such as blog posts. While there has been a fair amount of fervor surrounding the concept, flipped learning must still be researched to gauge student perceptions of learning, as well as actual efficacy. This paper is a first attempt at motivating the further use and research of flipped-learning within the economics classroom, though previous research on the use of lecture videos in teaching economics is widely applicable to the present paper. In the early stages of development and wider scale adoption of flipped learning as a pedagogical tool it is very important to gather student reactions and feedback. To that end, this paper gauges students' beliefs and attitudes toward flipped learning by using a ten question Likert-type inventory, as well as responses to open-ended questions taken at mid-semester. Although this paper discusses flipped learning in the context of an economics classroom, this research is useful to the education literature at large because research on flipped learning has been left mostly to news media and the "blogosphere." The rest of the paper continues accordingly: Section 2 describes the potential benefits and pitfalls of flipped learning; Section 3 discusses the instructional design used in this course specifically, and also describes some of the active and collaborative learning techniques that were used; Section 4 presents data on how students have responded to flipped learning; Section 5 concludes.

2. Why flip the classroom?

The flipped paradigm is one that comprises many potential benefits including: more one on one time with students, opportunities for active and collaborative learning, missed lectures, self-paced learning, and "just-in-time" type instruction. Indeed, flipped learning can be considered more of a complement, rather than a substitute, to the traditional collegiate classroom because it allows classroom time to be geared more toward active and collaborative learning. Lage et al. (2000) were among the first researchers to discuss the benefits that could accrue when "inverting" the economics classroom. It is surprising, though, that flipped learning has not taken hold in the economics profession since their article was published given the wide-spread availability of technology in creating video lecture materials. Too, the astounding growth of YouTube as a learning tool has certainly lowered the barriers to entry in adapting this pedagogical practice. From an educational efficacy perspective, Chen and Line (2012) show that using videos of lecture material in a microeconomics class leads to an average increase of 4 percentage points. Flores and Savage (2007) show that not only does the use of recorded lecture material aid in student performance, students are willing to pay more for a class that makes use of recorded lectures. Pioneers in flipped learning, Bergmann et al. (2012), note that flipped learning is not "a synonym for online videos. When most people hear about the flipped class all they think about are the videos. It is the interaction and the meaningful learning activities that occur during the face-to-face time that is most important". As most economics educators are well aware, most authors cite similar "meaningful" and deep-learning aspects when discussing active and collaborative techniques. For this reason the time spent in class will be at the core of the discussion on flipped learning in what follows.