THE IMPACT OF FLIPPED CLASSROOM ON STUDENTS' LEARNING PERFORMANCE

Distance Education

- Distance education is one of the fastest growing trends in educational uses of technology.

- 29.7% of all students in higher education are taking at least one distance education course (Distance Education Enrollment Report)

- More than 6 million students in the U.S. are now enrolled in higher education distance education courses.

Flipped Classroom

- Flipped Classroom, an emerging type of blended instructions, has become a popular class structure in the last few years.

- A pedagogical model in which the lecture and homework elements of a course are reversed.

- The results from an analysis conducted by the Department of Education showed that instruction combining online and face-to-face elements had a larger advantage relative to purely face-to-face instruction.

Flipped Classroom - Advantages

- Gives students control of the prerecorded lectures.

- Allows instructors to devote more class time to application of the lectured content, hands-on activities, discussion and interaction.

- Allows institutions to strategically increase capacity to serve additional students.

Literature

- The flipped classroom has a positive impact on student learning and the educational experience (Beapler et al. 2014).

- No evidence is found that flipped learning has improved students' grades (Kim et al., 2014; Davies et al., 2013; Strayer, 2012).

- Student self-reported data shows that students preferred the flipped method compared with traditional pedagogical strategies (Roach, 2014; Gilboy et al., 2016).

Background

- Principles of Macroeconomics, a general education course, was selected for the study.
  - *The department offers around 15 sections on average every semester.*
  - *Students are from different majors with different learning styles and pathways.*

Method

- Two sections of Principles of Macroeconomics courses that taught by the same instructor during one semester
  - *one section: flipped class*
  - *one section: face-to-face class*

- The two sections had the exact same coverage and evaluation policy

- We examine students' performance from the two sections.

Results

	Face-to-face Class	Flipped Class
Business Major	26	30
Non-Business Major	10	7

Results

	Exam #1		Exam #2		Exam #3		Final Grade	
	Face-to-face	Flipped	Face-to-face	Flipped	Face-to-face	Flipped	Face-to-face	Flipped
Observation	36	37	35	36	35	36	36	37
Mean	84.6	83.2	82.1	77.3	73.3	74.1	81.2	81.1
T-statistics	0.598		1.488		-0.332		0.039	
P-value	0.552		0.141		0.741		0.969	

Conclusions

- There is no statistically significant difference of students' grades between the two sections.

- There is a learning curve for students to adapt the flipped classroom format.