On Moving a Face-to-Face Flipped Classroom to a Remote Setting

Autar Kaw
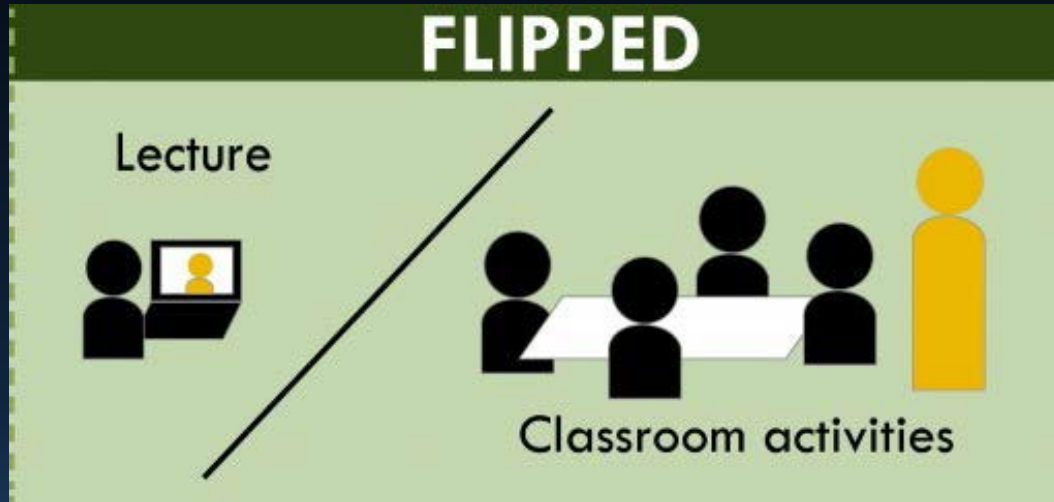
http://AutarKaw.com

University of South Florida

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What is a Flipped Classroom?

"Flipped Learning is a pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter" – flippedlearning.org

F2F Flipped Classroom

Pre-class

- Introductory video and textbook content, graded online LMS quizzes

In-class

- Clickers, TPS activities, minilectures

Post-class

- Assigned problems from book, projects

Duplicating Clicker Questions

Using Microsoft forms as clicker questions

Go to forms.office.com to make your own

Use this bitly url for details: bit.ly/2Jr3ZGd

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A function (not known in advance) is being integrated from a lower limit of 2 to an upper limit of 10. A person is willing to only give you the value of the function at only two points. Which two points would you choose? Give the answer in the form of two decimal numbers separated by a comma.

Enter your answer

Duplicating Think-Pair-Share

Using Blackboard Ultra

Give the procedural exercises as a pdf file link in the chat box.

Students do the exercises themselves for 10-15 minutes

Use randomly assigned breakout rooms for 10-15 minutes.

Discuss the exercises given to them for 10-15 minutes.

Stay online for 15 minutes after class is over.

How to Make Breakout Rooms Work Better
https://www.chronicle.com/newsletter/teaching/2020-12-10

Comparing F2F with Online

F2F – Fall 2014/Fall 2015   Online- Fall 2020

Comparison of Final Exam

	F2F Flipped Modality	Online Flipped Modality
Average (M)	76.5%	78.6%
Standard Dev (SD)	10.5	12.2
Sample size (n)	98	89

Classroom Environment

(College and University Classroom Environment Inventory- CUCEI)

Dimension	Meaning
Cohesiveness	Students know & help one another
Individualization	Students treated individually/differentially & can make decisions
Innovation	Novel class activities or teaching techniques
Involvement	Active student participation in class activities
Personalization	Interaction w/ instructor & concern for student welfare
Satisfaction	Enjoyment of classes
Task orientation	Organization and clarity of class activities

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Classroom Environment Comparison

Dimension	Mean (s)		Univariate p	Effect Size D
	F2F	**Online**		
Cohesiveness	2.77 (0.81)	2.15 (0.77)	<0.0005	-0.79
Innovation	2.94 (0.63)	2.71 (0.56)	0.01	-0.38
Task Orientation	3.84 (0.69)	4.03 (0.61)	0.06	0.29

Main Conclusions

1. The overall grades were similar in the F2F and online flipped modalities, while recognizing that the resources allowed were different.

2. The classroom environment lowered in the online modality for cohesiveness, innovation, and increased for task orientation.

3. Lessons learned involved how to improve breakout rooms such as by make them shorter but more frequent.

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Questions

Autar Kaw

http://AutarKaw.com

University of South Florida

@numericalguy

kaw@usf.edu