

FLIPPED CLASSROOMS IN ORTHODONTIC RESIDENCY PROGRAMS

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DISCLAIMER

- The opinions or assertions contained herein are the private ones of the authors and are not to be construed as official or reflecting the view of the DoD or the USUHS.

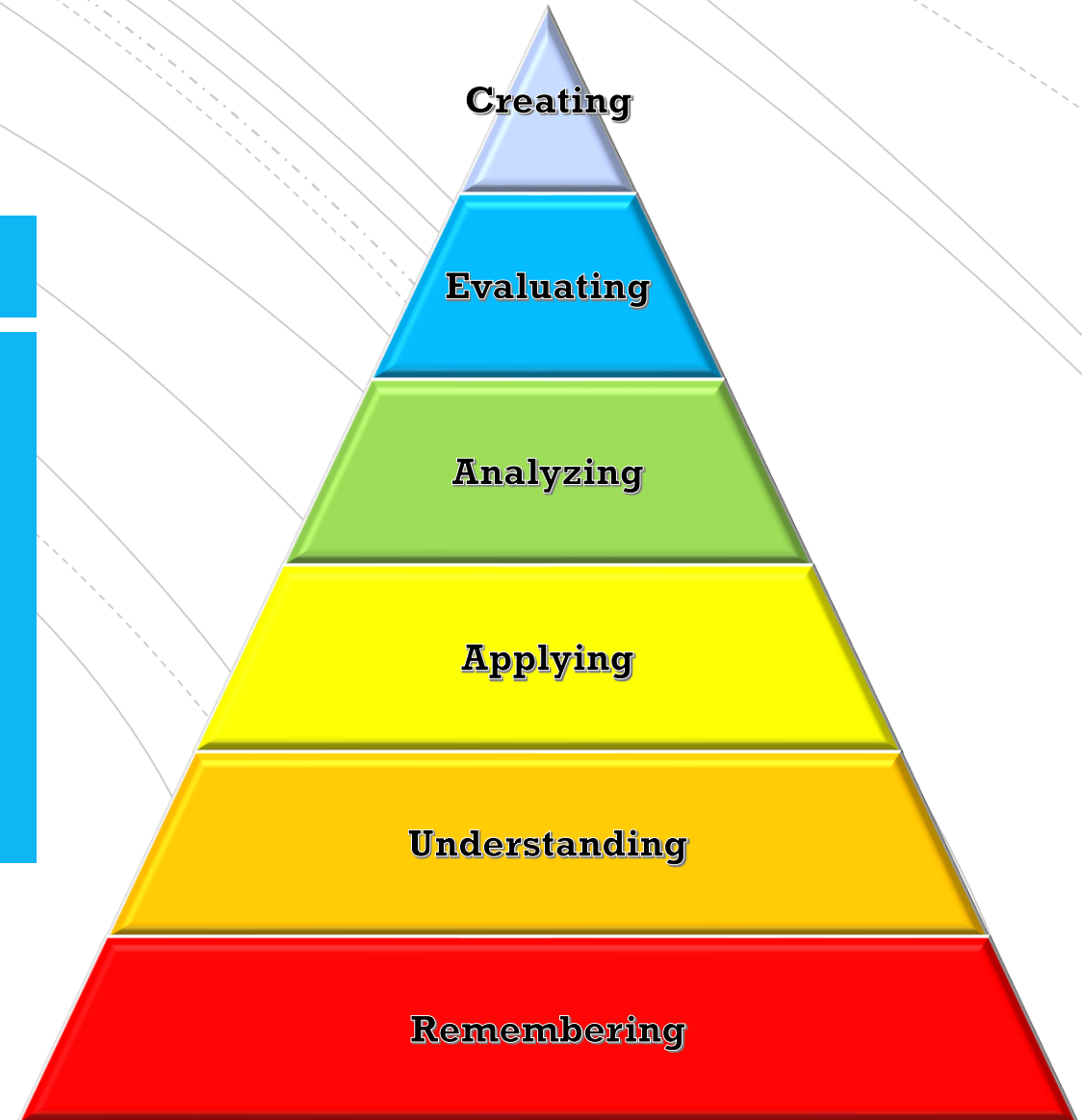
BACKGROUND

- **The Flipped Classroom (FC) is an instructional strategy and a type of blended learning that reverses, or flips, the traditional learning environment by delivering instructional content outside of the classroom. It moves activities that have traditionally been considered homework into the classroom. In a typical FC, students watch online lectures, collaborate in online discussions or carry out research at home while engaging in concepts in the classroom with the guidance of a mentor.**

Bloom's taxonomy of learning is a hierarchical model representing the levels of learning that start at the bottom with remembering and increase in complexity to creating. Using this model, we can examine the theory behind why the FC is successful.

In the traditional model the teacher introduces material in class which usually falls into the bottom categories of the model. Then, students are typically responsible for homework in the higher levels.

Now, contrast that to the FC Model. The lower rungs of the model are covered with new material being presented to students outside of the classroom. This allows the valuable class time to be used for the higher levels.



Research Question

There have been a multitude of studies on benefits of the FC Model, however, there are none examining use in orthodontic residency programs. Our goal was to examine the use, perception, incentives and barriers of use of the FC Model in orthodontic residency programs.

MATERIALS AND METHODS

- Study population - CODA accredited orthodontic program directors in the United States and Canada
- Survey generated using SurveyMonkey®
- Survey distributed via email with support from American Association of Orthodontics and the Society of Educators
- Follow up letter sent via USPS

MATERIALS AND METHODS

Questionnaire included
Flipped Classroom Perception
Instrument (FCPI)

	Strongly Disagree (1)	Somewhat Disagree (2)	Neutral (3)	Somewhat Agree (4)	Strongly Agree (5)
Online modules enhance learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learning key content prior to class sessions enhances learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The combination of online modules with in-class application improves learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interactive, applied in class activities enhance learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In-class application of core content enhances learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In-class discussion of core content enhances learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Team projects enhance learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Materials and Methods

Flipped Classroom specific questions included as well.



Please indicate how often your program utilizes flipped classroom sessions:

- Never
- Very rarely
- Somewhat rarely
- Sometime
- Somewhat often
- Very often



What do you believe are the best incentives to engage residents using the FC Model?

- Quizzes
- Peer teaching
- Instructor provided guided questions
- Student generated questions



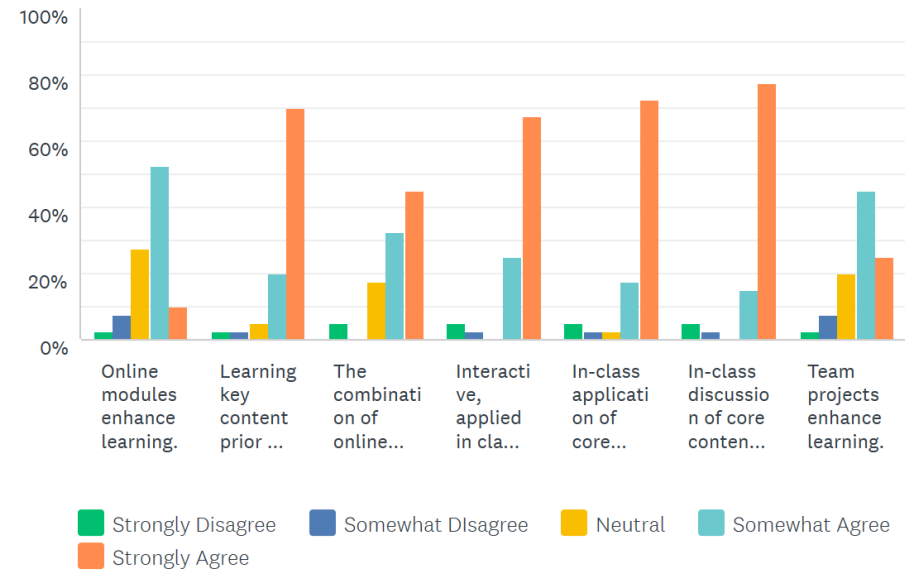
What are the barriers to implementing the FC Model into the curriculum?

- Not enough time
- Getting student "buy-in"
- Lack of instructor training
- Lack of equipment
- Lack of resources

RESULTS OF THE FCPI

Please share your sentiments regarding the following statements.

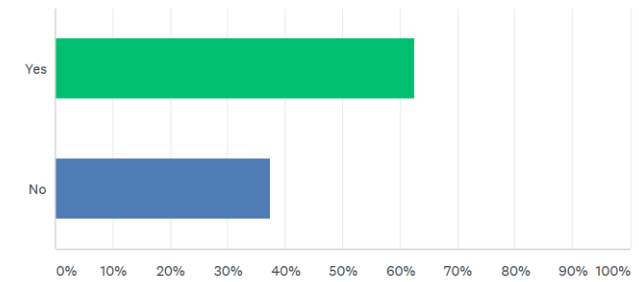
Answered: 40 Skipped: 0



RESULTS

Are you aware of an educational model known as the flipped classroom?

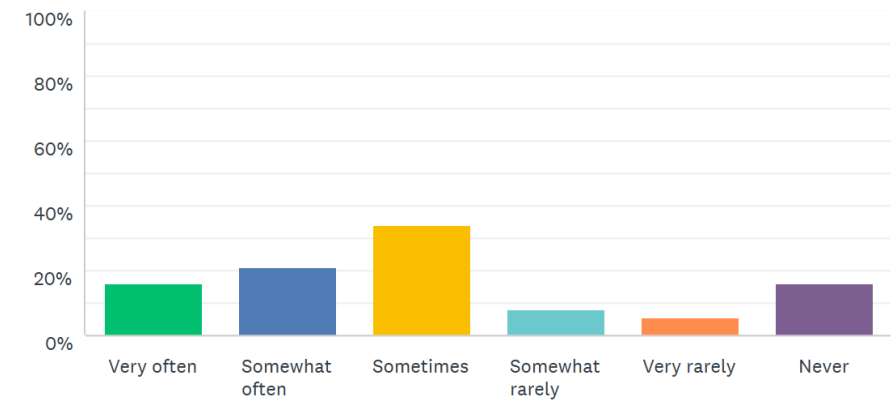
Answered: 40 Skipped: 0



ANSWER CHOICES	RESPONSES	
▼ Yes	62.50%	25
▼ No	37.50%	15
TOTAL		40

Indicate how often your program utilizes flipped classroom sessions.

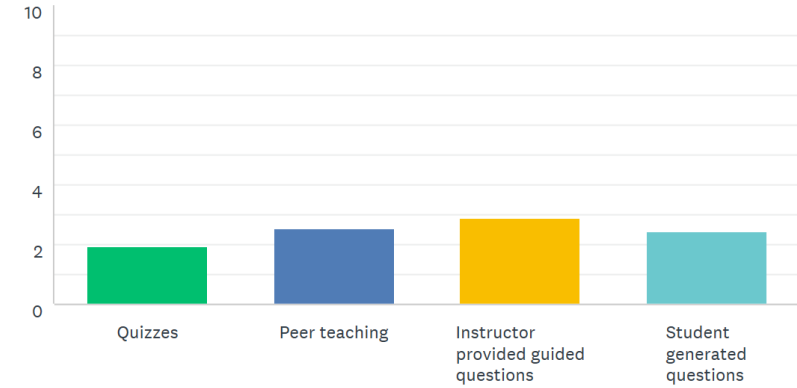
Answered: 38 Skipped: 2



RESULTS

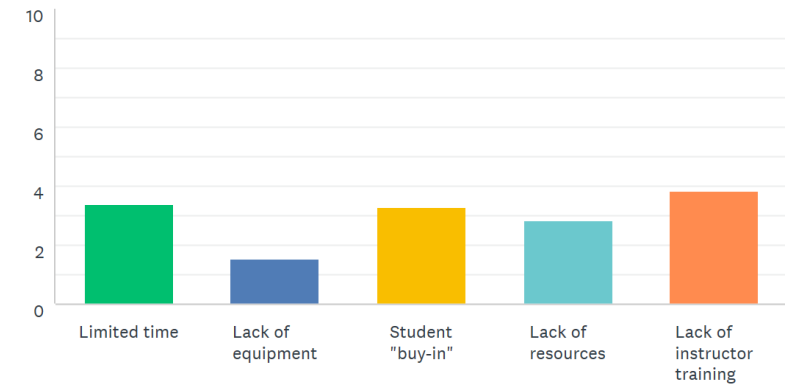
What do you believe are the best incentives to engage residents using the Flipped Classroom Model?

Answered: 38 Skipped: 2



What are the barriers to implementing the Flipped Classroom Model into the curriculum?

Answered: 37 Skipped: 3



CONCLUSION

The results of this study did not have much statistical significance due to the small sample and response size, however there is relevant information to be gained.

- Examining the responses from the FCPI, we can understand that there is an overall higher favorability of the pre-class components of the FC compared to the in class.
- The results indicate that 71% of the responding program directors use the FC at least sometimes.
- Of the responding program directors, instructor provided guided questions was regarded as the best incentive while quizzes were viewed as the least preferred.
- Regarding barriers to implementation, the responding program directors felt lack of instructor training, and limited time were the biggest impediments to utilizing the FC.