

HEALTH  
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# All Fun and Games? Experiences Pre- and Post-Implementation of a Flipped Classroom Model

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## Background

- Up until 2019, the residency education curriculum at the Moran Eye Center was structured around 1-hour traditional lectures 3-4 mornings per week.
- Residents and faculty shared mutual dissatisfaction with resident engagement, retention of didactic material, and attendance.
- Based on resident, faculty, and administrative input, a reimagined flipped classroom curriculum rooted in pre-work assignments and interactive learning activities was designed and implemented in July 2020.

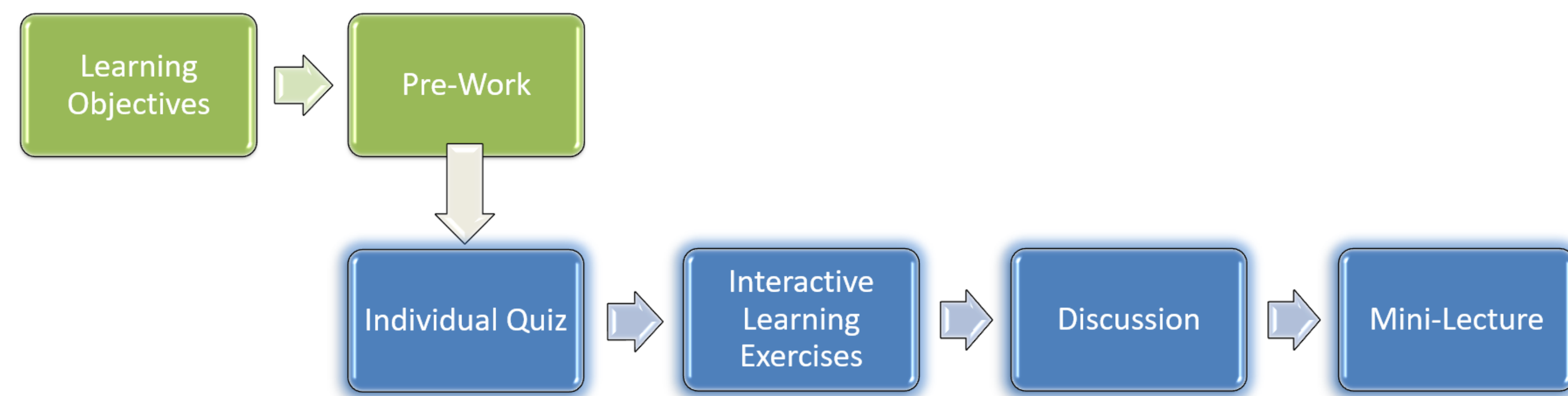


Fig 1. Development of an interactive, flipped classroom curriculum model for ophthalmology resident education.

## Purpose

- To evaluate resident and faculty satisfaction, experience, and perceived efficacy of prior traditional didactic lectures versus newly implemented flipped classroom sessions.

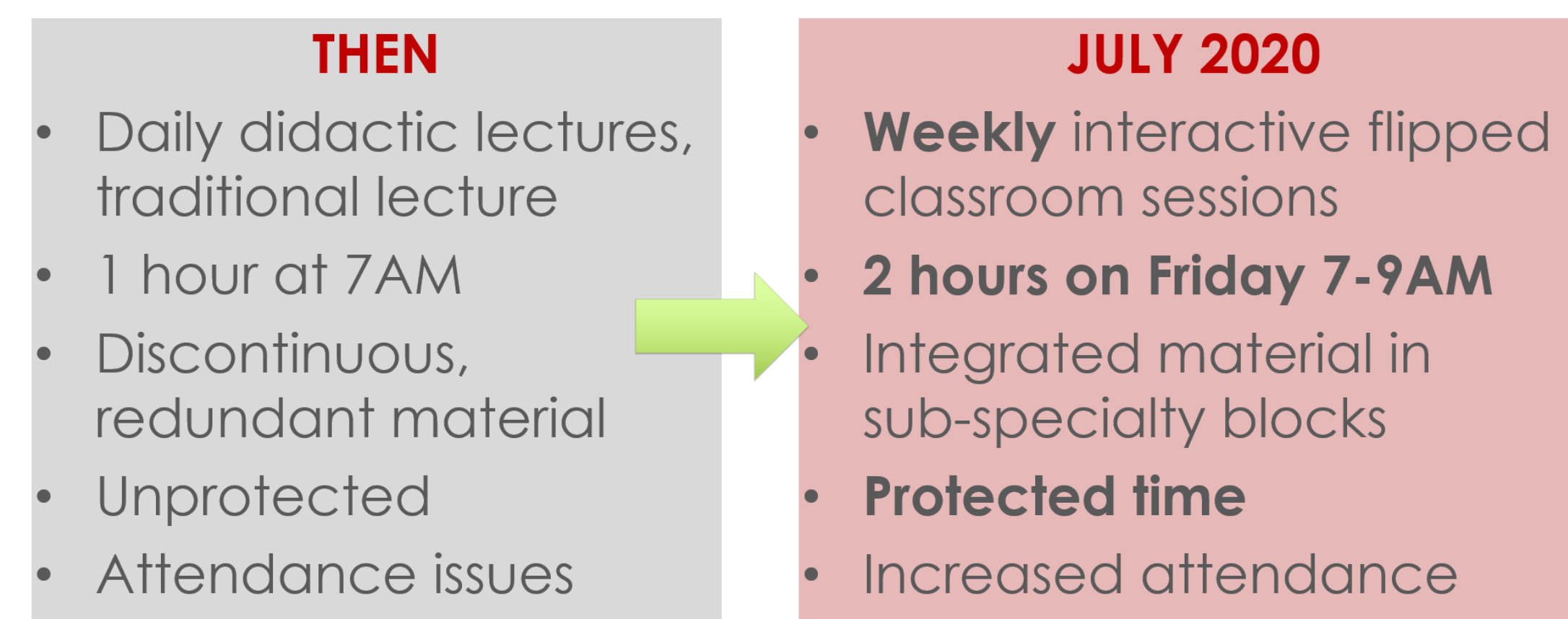


Fig 2. Curriculum changes based on QI pre-survey data to address resident and faculty dissatisfaction with engagement, retention of material, and attendance of lectures at the Moran Eye Center.

## Methods

- Faculty and residents were surveyed 6 months prior to and one year following implementation of the new curriculum.
- Topics included level of satisfaction with the current teaching model, as well as interest and familiarity with flipped classroom and active learning techniques.

## Results

- Faculty surveyed: **24** (XXX sub-specialties)
- Residents surveyed: **12** (PGY-2 to PGY-4)
- Faculty perceived that residents were better prepared for and participated more in flipped classroom sessions.
- Residents reported increased preparation for pre-session materials, and more frequently.
- Faculty and residents agreed that quizzes and case-based learning were the most effective methods of knowledge retention; residents also found oral boards style questioning highly useful.
- Most faculty and all residents reported greater satisfaction with the flipped classroom model and believed it to be a more effective learning experience.
- Yearly attendance rates increased from 61.7% to 84.2%.

### RESIDENTS: ON AVERAGE, FOR WHAT PORTION OF LECTURES DID YOU COMPLETE PRE-WORK OR PRE-READING?

PRE	20-25%
POST	76-100%

### RESIDENTS: HOW MUCH PRE-WORK OR PRE-READING DID YOU PUT IN, ON AVERAGE, TO PREPARE FOR EACH LECTURE?

PRE	<30 minutes
POST	1.5 to 2 hours

	QUIZZES	PEER-TO-PEER TEACHING WITH INDIVIDUAL OR GROUP PRESENTATIONS	TEAM-BASED LEARNING	CASE-BASED LEARNING	AUDIENCE RESPONSE SYSTEM	SOCRATIC QUESTIONING	THINK PAIR SHARE	GAMES	ROLE PLAYING	Worksheets	Drawing	Oral boards style questioning
Post faculty	4.1	4.1	3.8	4.4	3.2	3.5	2.2	3.3	3.0	Not asked	Not asked	Not asked
Post resident	4.3	3.6	4.2	4.8	4.4	3.9	4.0	4.3	3.2	4.0	3.5	4.6

5: highly effective  
4: moderately effective  
3: neutral  
2: minimally effective  
1: not at all effective  
1:1 do not use this method

	I don't know where to start in developing a flipped classroom setting.	It will take an excessive amount of time to prepare content for this new model.	I am more comfortable preparing for and delivering a lecture in the traditional format.	Designing a flipped classroom lecture takes too much creativity.	I am less comfortable using methods or technologies that may be employed in flipped classroom learning.	I will lose control of the learning environment.	The residents will not adequately prepare.	The residents will not adequately participate during in-classroom sessions.	I think there will be too little face-to-face time.
Pre faculty	5 20.8%	8 33.3%	9 37.5%	1 4.2%	4 16.7%	0 0%	9 37.5%	5 20.8%	3 12.5%
Post faculty	0 0%	7 30.4%	5 21.7%	2 8.7%	5 21.7%	0 0%	9 39.1%	5 21.7%	4 17.4%

	It will take an excessive amount of time to prepare for each didactic session	I am more comfortable attending a lecture delivered in the traditional format.	I am less comfortable with the methods that may be employed in flipped classroom learning.	Faculty will be less familiar with this new model, which may negatively impact the quality of learning at these sessions.	Residents will not adequately prepare for these sessions.	Residents will not adequately participate during in-classroom sessions.	I think there will be too little face-to-face time.	I did not feel that there was sufficient accountability for my learning	I felt that some topics were not adequately covered during these sessions	Other—see comments
Pre residents	4 33.3%	1 8.3%	2 16.7%	7 58.3%	3 25%	2 16.7%	0 0%	Not asked	Not asked	Not asked
Post residents	1 8.3%	0 0%	0 0%	5 41.7%	2 16.7%	0 0%	0 0%	1 8.3%	7 58.3%	3 25%

- Summary of concerns pre/post

## Conclusions

- A flipped classroom curriculum can improve both faculty and resident satisfaction of the ophthalmology education experience and increase learning efficacy.
- For programs motivated to implement a flipped classroom model for residency education, faculty development videos and subspecialty roadmaps can be found by scanning the QR code, or at <https://morancore.utah.edu/moran-ophthalmology-learning-experience/> (QR CODE)

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