Real-Time Lecture Engagement Measurement Tools and Techniques

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The Existing Problem

With the rise of remote classrooms and use of laptops in physical classrooms, professors can no longer rely on nonverbal communication to measure how engaged students are.

Hypothesis

The experiment and survey results sought to determine the validity of the following:

H1: The feedback format is significant in measuring student engagement for lectures and providing professors insight into where improvements can be made

H2: The frequency of engagement measurements is significant for pinpointing where improvements in can be made.

Video Feedback Measurement Methodology
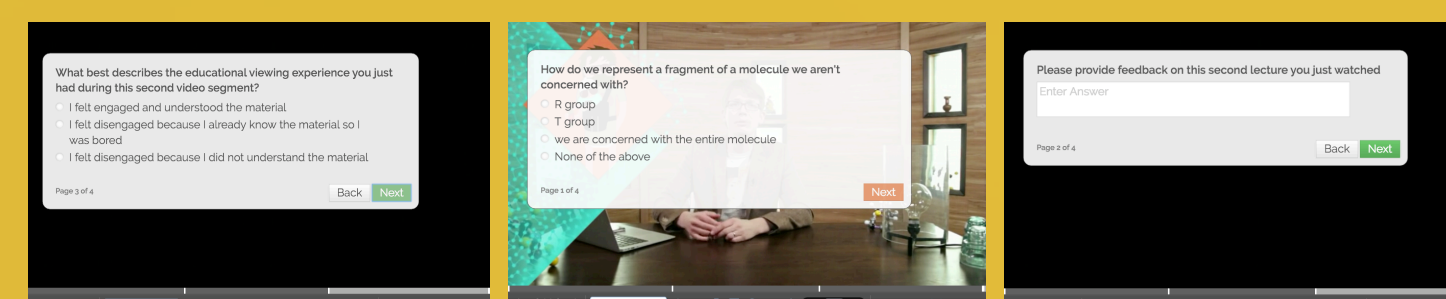
3 different feedback forms to measure engagement were used:
- free form feedback
- multiple choice on academic content
- multiple choice on viewing experience

41 Northeastern students were asked to watch a lecture video and provide feedback after each of the three segments of the video. Each video segment is an independent learning module with different academic content and quality.
The three segments varied with 'easy', 'medium' and 'hard' lecture academic content difficulty and lecture quality.
1 of 6 videos were randomly served to participants, to ensure all permutations of the 3 segments were studied.
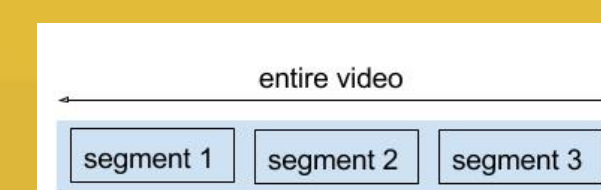
Surveying Clicker Use

With the help of Northeastern Academic Technology Services, all professors who have used Turning Point clickers in their class were asked to fill out a survey.

Undergraduate students at Northeastern University were also asked to fill out a survey on their clicker use in class.

Both surveys were distributed electronically using Google Forms

Conclusions

We can accept H1: Feedback format is significant in measuring student engagement for lectures and H2: The frequency of engagement measurements is significant for improving lecture quality. Free form feedback is preferred by students, but multiple choice related to academic content is preferred by teachers. Both students and professors felt indifferent about grading engagement feedback

Recommendations

While 100% of professors disagreed that clickers should just be used for attendance purposes, yet 3 professors only used it for attendance. Follow up interviews with those 3 professors should be conducted to find out why this is.
Follow up on ways to quantify free form feedback, such as word frequency count, and see professors prefer this over feedback forms.

Video Feedback Measurement Results
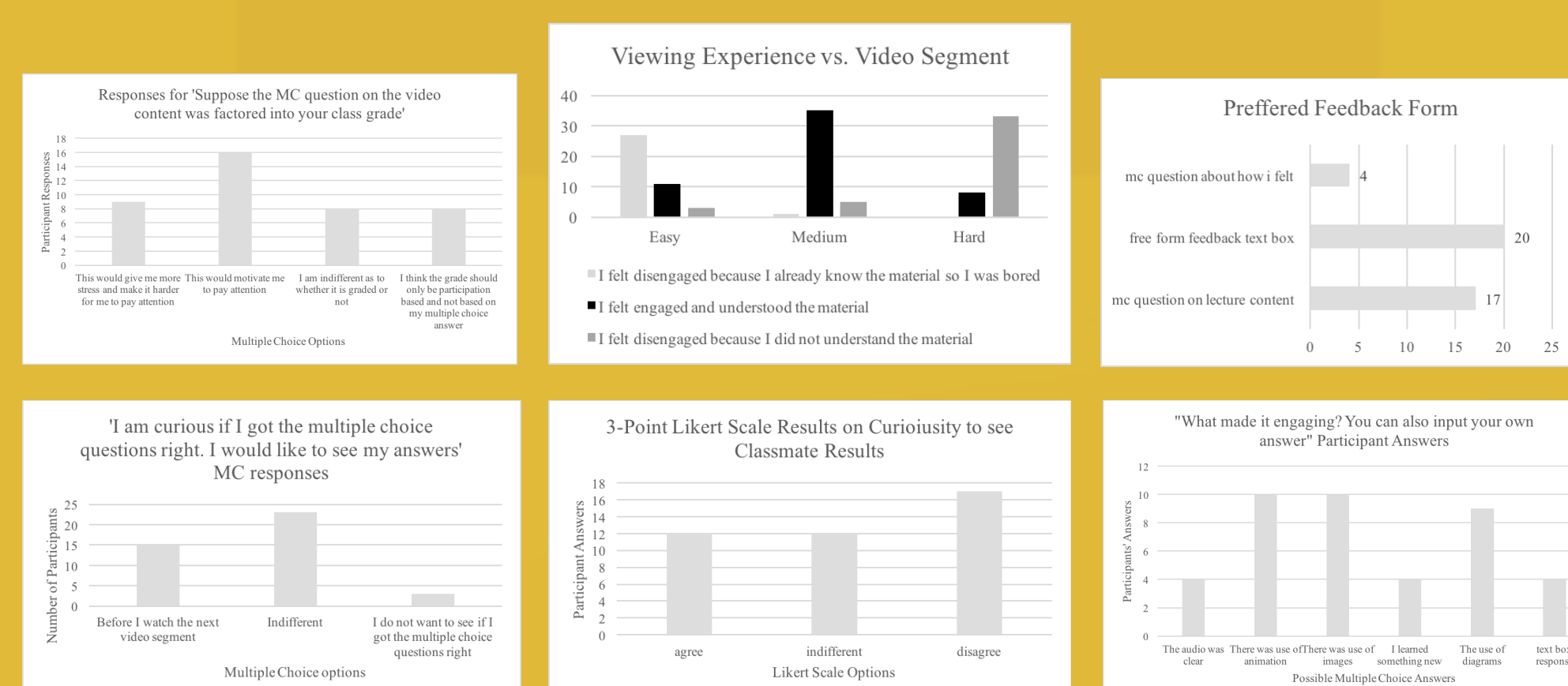
Clicker Use Survey Results

Majority of the professors saw engagement and attendance increase from using clickers. Multiple choice questions were found to be the most effective, and free form answers were found to be the least effective. 7 out of 9 professors believe that clicker quizzes should be administered more than 3 times in a class, at the beginning of class, and at the end of class.