Impact of Teacher-Created Videos on Science Achievement

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BACKGROUND
I conducted my Capstone project at Harper Creek Middle School in Battle Creek, Michigan. I chose my topic after noticing the lack of science review materials in place for students. After research into flipping classrooms and using video to support student learning, I wanted to investigate the impact of teacher-created videos on student success and learning in the science classroom.

TREATMENT
I created short videos of science experiments and the explanations that accompany the science concepts. I also made videos of summaries of class discussions. These videos were made available through my classroom webpage and on my YouTube channel. Students were encouraged to watch the videos if they were struggling with a concept, if they had been absent for an experiment, or to review previous lessons.

STUDENT SAMPLE
• 89 fifth grade students participated in the study
• 41% qualify for free/reduced lunch program
• 47 boys and 42 girls
• 23% have identified learning disabilities or emotional impairments and qualify for Individualized Education Plans

LITERARY REVIEW
Students found themselves more apt to pay attention if the information given was offered one time, in a short, concise explanation according to studies. Combining the aspects of research of online or blended learning to determine the most beneficial presentation of learning goals is now the subject of many pedagogical studies. The Cognitive Theory of Multimedia Learning suggests that using multimedia allows for optimal use of working memory therefore allowing more availability for more mental effort to create more connections and hence more new knowledge.

METHODOLOGY
• First, students were taught a Physical Science unit with out the review videos being available
• The Earth Science unit was taught using the videos as a resource
• Growth was measured through formative writing assessments and summative unit assessments
• Students were frequently reminded to use the videos as review outside of class times and for make-up assignments when absent

DATA COLLECTION AND ANALYSIS METHODS

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<th>Data Triangulation Matrix</th>
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<td>Focus Question</td>
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<td>Do instructor-created videos of science content increase student achievement on formative and summative assessments?</td>
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Writing Assessments

Unit Assessments

Truant Student Writing Comparison

CONCLUSIONS
While assessment scores during the unit with the video supports did not increase, I believe the benefit of having the videos available is significant to student growth. I will continue to utilize the videos in the future in a more targeted manner with dedicated class time to become more comfortable with the resources. Through student interviews, I found many students did not use the videos as they forgot or did not have access to the internet. Moving forward, I will incorporate teacher made videos as a form of instruction and not only for reviewing information. I look forward to seeing potential increases in student achievement with these modifications.

BIBLIOGRAPHY