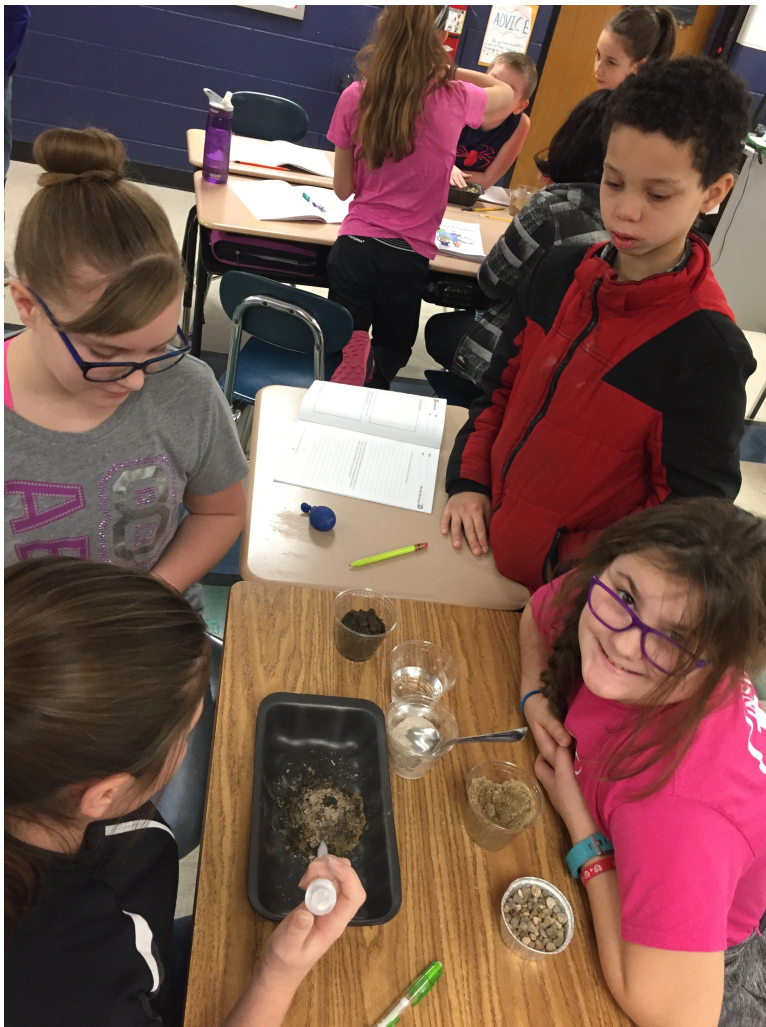


Impact of Teacher-Created Videos on Science Achievement

Amy Smith, Harper Creek Middle School, Battle Creek, Michigan

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

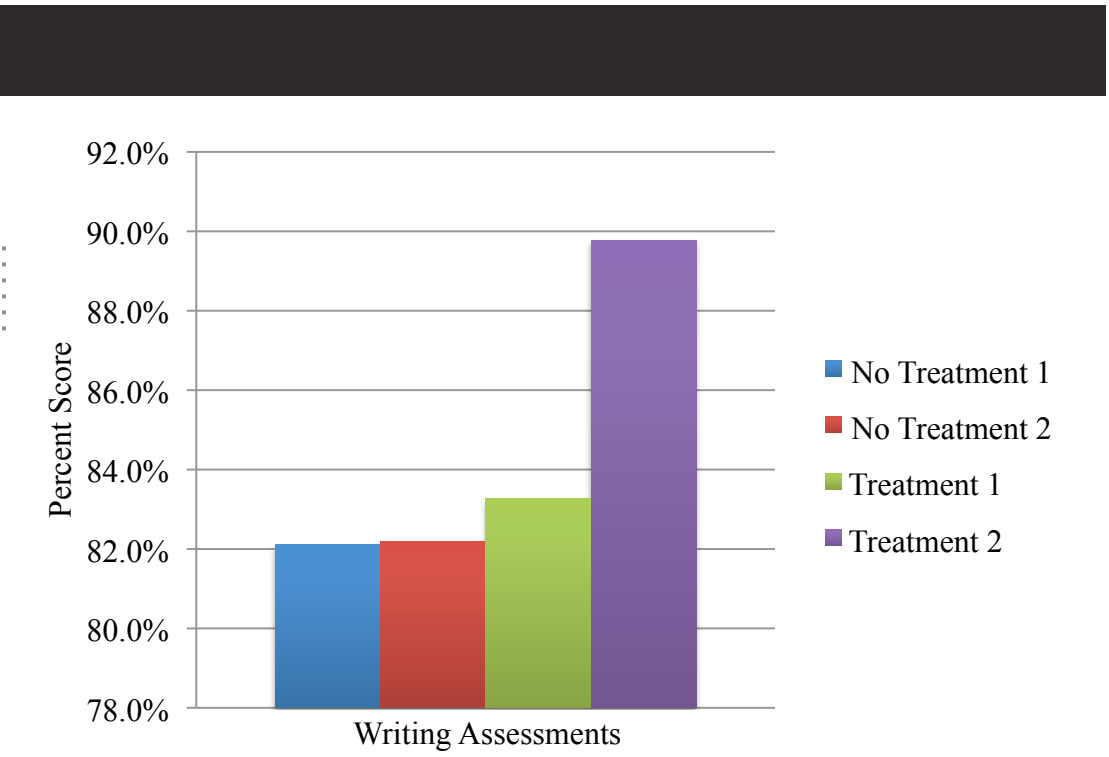
METHODOLOGY

- 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

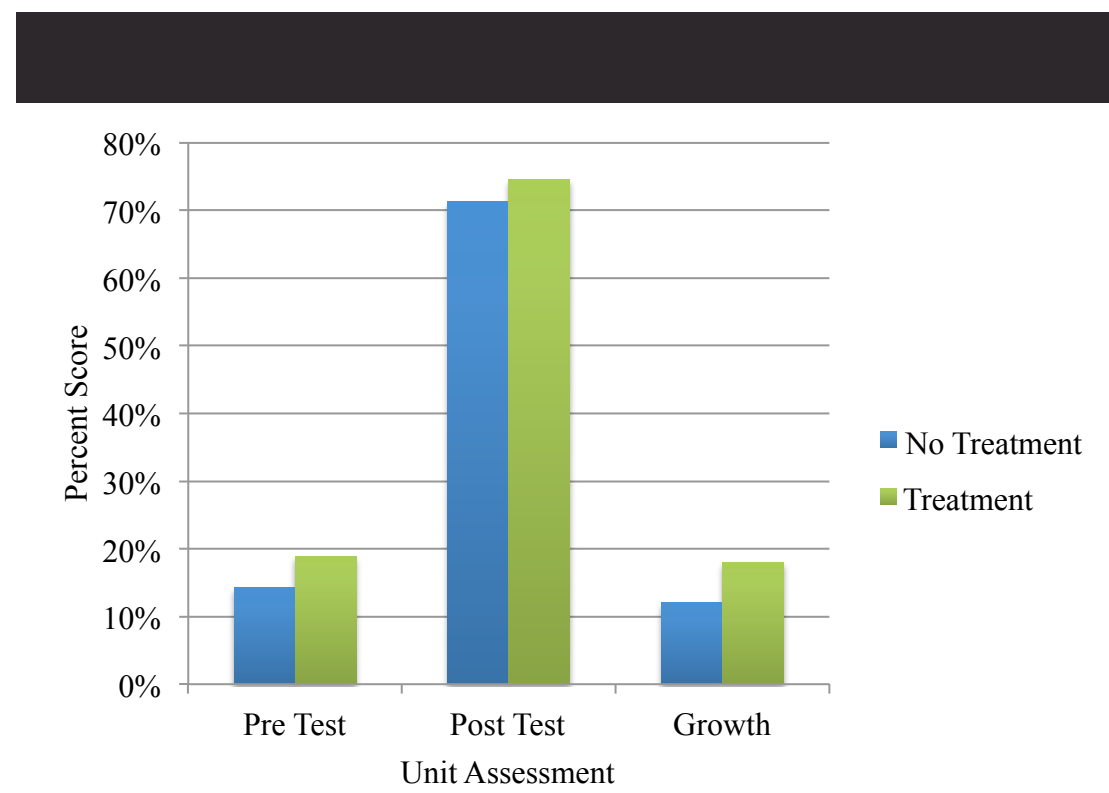
LITERARY REVIEW

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.

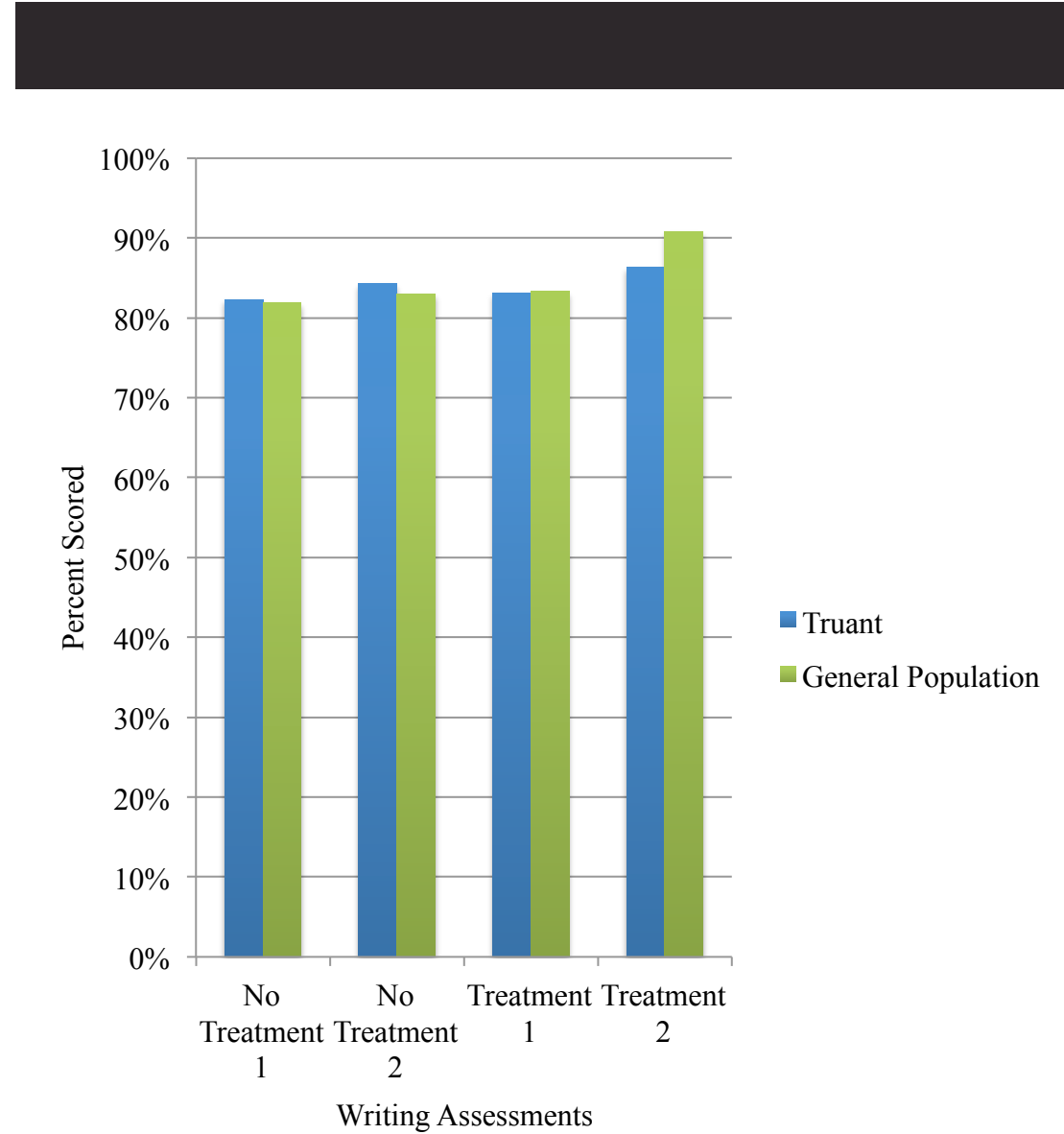
Writing Assessments



Unit Assessments

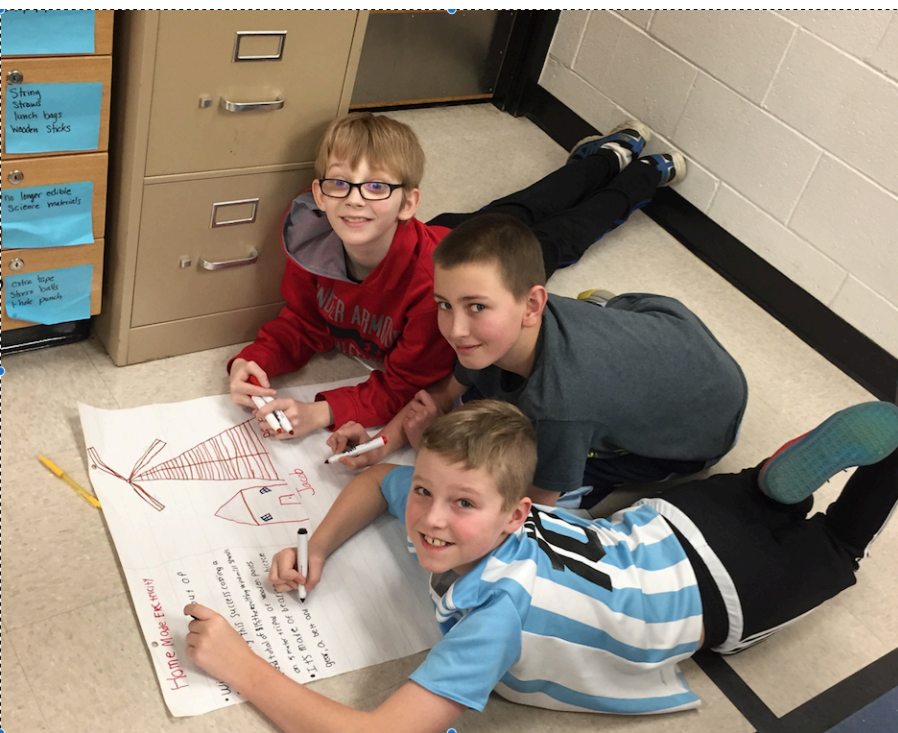


Truant Student Writing Comparison



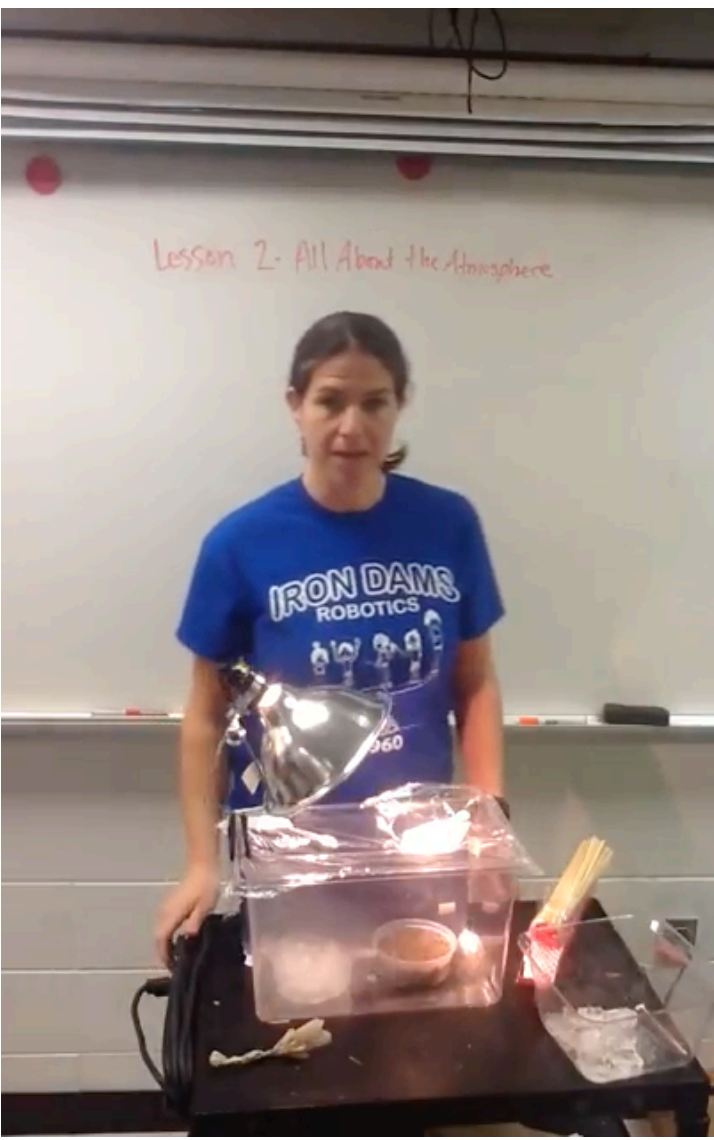
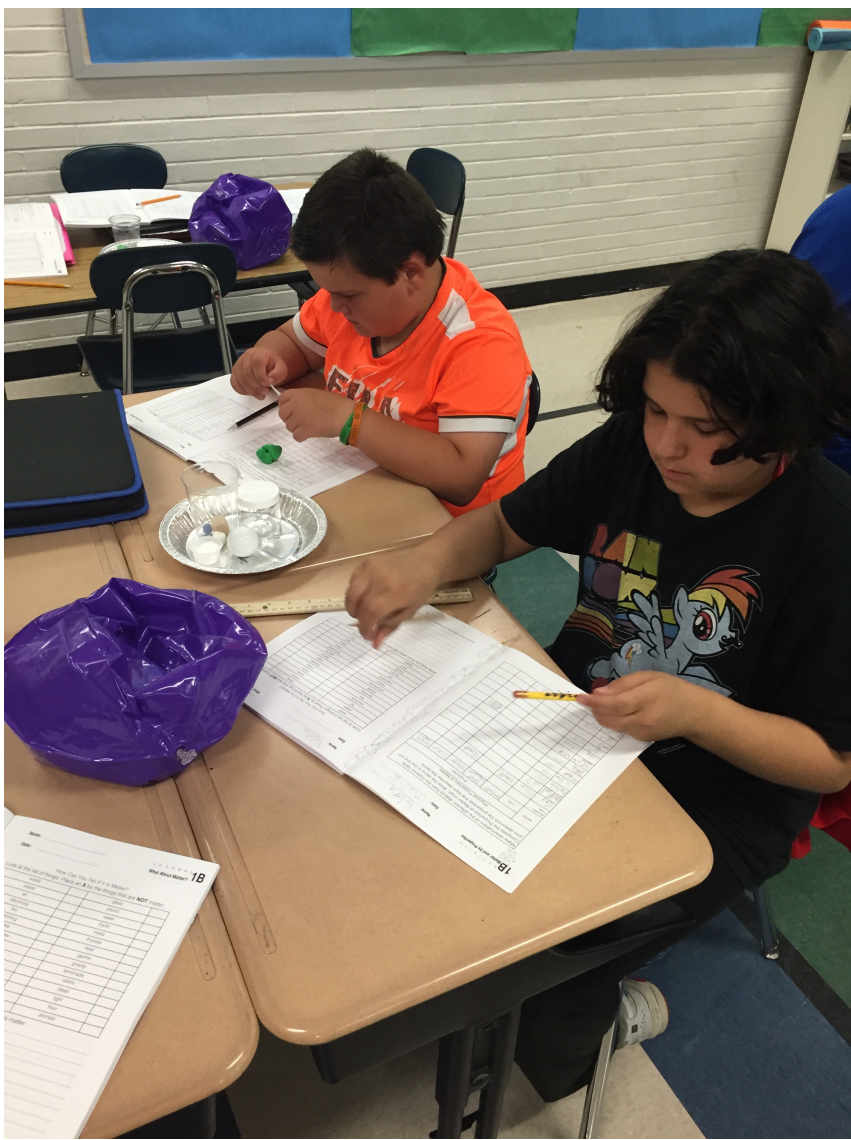
CONCLUSIONS

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.



DATA COLLECTION AND ANALYSIS METHODS

Data Triangulation Matrix				
Focus Question	Data Source 1	Data Source 2	Data Source 3	Data Source 4
Do instructor-created videos of science content increase student achievement on formative and summative assessments?	Pre Attitude Survey Post Attitude Survey	Structure and Properties of Matter Unit Test Earth and Space Systems Unit Test	Writing Prompts	Interview Questions



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