MONTANA STATE UNIVERSITY

Master of Science in Science Education

ENHANCING CHEMISTRY EDUCATION THROUGH MICRO-CONTENT VIDEOS

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INTRODUCTION

This research examines the potential of short, engaging videos, resembling those on social media, to enrich learning about the periodic table. Motivated by students' digital preferences, the study explores whether these videos can promote inquiry and drive classroom discussions. It aims to bridge the gap between digital interests and educational goals, offering insights into the effectiveness of digital-friendly educational content for pedagogy.

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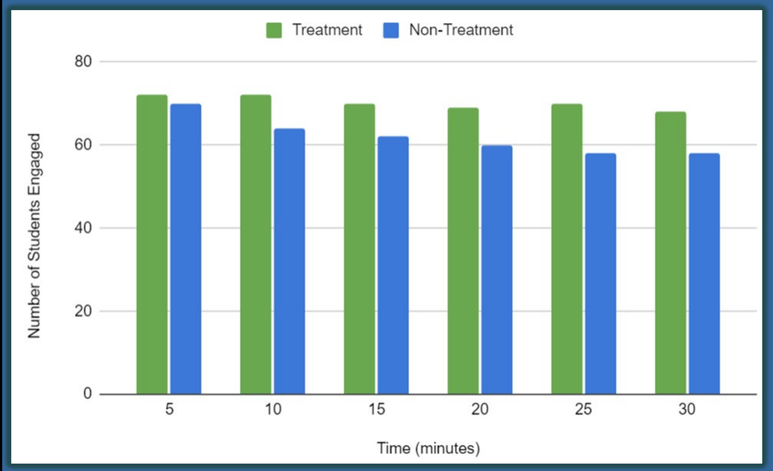
RESEARCH DESIGN

Classroom Observations:
- Assess microcontent impact on engagement by observing student interactions during microcontent sessions.

Student Interviews:
- Gather qualitative insights on microcontent experiences by conducting structured interviews on preferences and comprehension.

Surveys:
- Collect pre/post-quantitative data on perceptions by administering Likert scale surveys before and after microcontent.

Pre and Post Tests:
- Evaluate microcontent impact on knowledge by administering knowledge assessments pre/post microcontent



Observational Engagement Tally Chart showed students were more engaged over time with the use of micro-content videos. (*N*=73)

RESEARCH QUESTIONS AND SUB-QUESTIONS

Primary Research Question :
In what ways does incorporating micro-content into high school chemistry curriculum promote inquiry-based learning?

Secondary Research Questions:

- How does the use of micro-content videos affect student participation in the classroom?
- What impact does micro-content videos have on students' retention of course material?
- How does student's attitude about science change based on micro-content instruction?
- How does the information from this study affect my teaching practices?

CONCLUSIONS

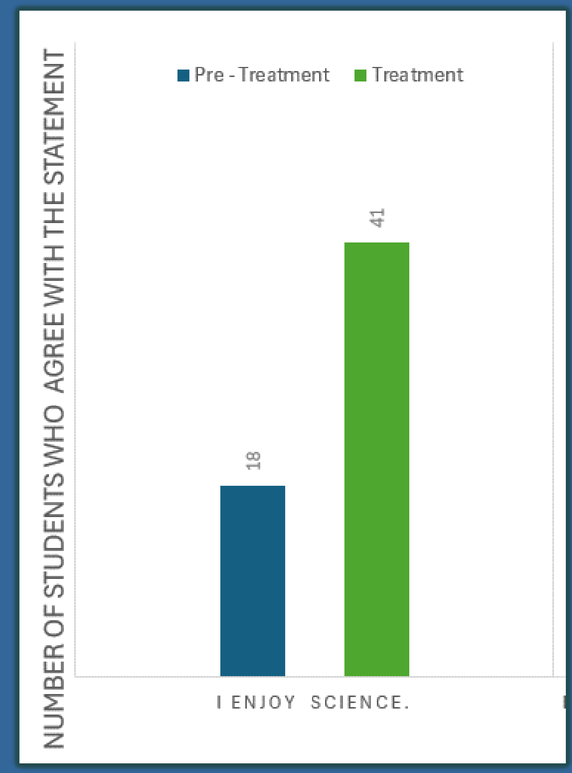
This study showcases how the integration of micro-content videos in the classroom substantially boosts student engagement and fosters discussion. Although pre and post-test results show similar retention rates, qualitative feedback strongly suggests that students find enjoyment and derive benefits from micro-content.

"I get a different perspective and a **better** grasp on how the periodic table works after watching videos"

- Chemistry Student after watching micro-content videos

KEY FINDINGS

The chi-squared test analysis indicates notable improvements in student engagement, enjoyment, and motivation after incorporating micro-content videos into science education. This improvement is reflected in increased participation, confidence and engagement. Likert surveys and interviews also indicated positive results in areas of motivation, participation and enjoyment. Overall, the findings emphasize the beneficial impact of micro-content on enhancing the learning experience.



Likert survey showed improved enjoyment of science. (*N*=73)