KNOWLEDGE CO-CONSTRUCTION IN YOUTUBE COMMENTS ON SCIENCE VIDEOS: EMBEDDING POPULAR CULTURE IN STEM

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THEME:

STEM education in diverse contexts, Engaging students in STEM education

BACKGROUND AND AIMS

Popular culture (e.g., movies) used in lessons, may increase student interest in science. We examine how YouTube science videos incorporating popular culture might facilitate informal STEM learning. In the emerging participatory culture where people interact socially in asynchronous discussions, there comes an opportunity for cognitive engagement often associated with knowledge construction. This research considers learning beyond video viewing, examining how YouTube educational videos might transcend the transmission model of instruction. In particular, we compare post-video comments between YouTube science videos that incorporate and do not incorporate popular culture:

1. What are the differences in the types of comments?
2. What levels of knowledge co-construction are observed?
3. How do justifications of knowledge claims vary between these videos?

The answers to these questions will be valuable to both science video-content creators who incorporate popular culture and teachers who use YouTube. Examining post-video comments and YouTube video features will evaluate the social construction of science knowledge through social media. Strategic approach in video creation may help facilitate learning after video viewing, without the constant need for moderating thousands of video comments.
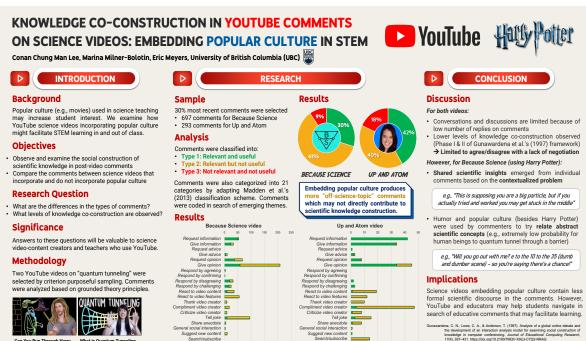
METHODOLOGY

To establish a dataset, we selected two YouTube videos on the same science topic: quantum tunneling. One video is from 'Because Science', a channel which uses popular culture to explain STEM concepts, and another is from 'Up and Atom' which aims to make STEM concepts more transparent without the use of popular culture. We adapt the classification scheme by Madden et al. (2013) and categorize the types of comments on both videos. After identifying comments that exceed the social nature of interaction and engage cognitively with science, we code them for different levels of knowledge co-construction using Gunawardena et al.'s (1997) framework. We also examine how commenters justify their own knowledge claims. By evaluating comments' accuracy and quality, we can gain insight into how embedding popular culture might influence viewers' uses of YouTube comments as a STEM learning space.

ANALYSIS

We will complete the analysis over the summer prior to the Conference**.**

REFERENCES

Gunawardena, C. N., Lowe, C. A., & Anderson, T. (1997). Analysis of a global online debate and the development of an interaction analysis model for examining social construction of knowledge in computer conferencing. *Journal of Educational Computing Research*, *17*(4), 397–431. https://doi.org/10.2190/7MQV-X9UJ-C7Q3-NRAG

Madden, A., Ruthven, I., & McMenemy, D. (2013). A classification scheme for content analyses of YouTube video comments. *Journal of Documentation*, *69*(5), 693–714. https://doi.org/10.1108/JD-06-2012-0078