

# Science-themed music videos boost scientific literacy, study shows

April 2 2014

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As the United States puts ever-greater emphasis on science, technology, engineering and mathematics education to keep competitive in the global economy, schools are trying to figure out how to improve student learning in science.

University of Washington researchers Katie Davis and Greg Crowther think [music](#) may be the answer for some kids. They studied the ability of music videos to enhance students' understanding of scientific concepts.

Davis will present "Sing about Science: Leveraging the Power of Music to Improve Science Education" on Friday (April 4) at the American Educational Research Association's annual conference.

Davis and Crowther aren't just talking about music as a mnemonic device to help students memorize facts. Previous research has shown that music can reduce stress and increase student engagement in the learning process, so the researchers theorized that music videos could help some students process and retain information better.

"It makes sense that we shouldn't teach all kids in the same way; we should individualize," said Davis, an assistant professor in the UW's Information School. "We need to provide multiple entry points in all subject matters. Music is a different entry point into scientific concepts."

Crowther is a biologist but is so interested in music that 10 years ago he created a website with a database of songs about science and math;

[SingAboutScience.org](http://SingAboutScience.org) now has links to more than 7,000 of them (the majority do not have video). Teachers can type in a topic and find music relevant to what they are teaching.

For their current research, they set up laptop computers at five science-related outreach events in Washington state. Most targeted students in K-12, but adults also participated. Participants in the study ranged from 3 to 76 years old, with a median age of 12. Each person sat in front of a laptop and selected a science-based [music video](#) to watch.

For instance, one video is titled "Fossil Rock Anthem," and is a parody of the hip-hop song "Party Rock Anthem." It shows a dancing archaeologist, graphics of fossils and ground striations and continental plates drifting. It's a catchy tune with fun, colorful graphics.

Participants took a pre-video quiz of four questions related to information in the video, plus a bonus question not covered by the video. They were also asked to rate their confidence in their answers. They were randomly assigned to watch either a visually-rich music video or a music video that showed only the lyrics on screen. Then they took a post-video quiz that included the same content and confidence questions.

In two-thirds of the music videos (10 out of 15), participants had more correct answers after watching the videos. Quiz scores rose by an average of one more correct answer after watching the videos. The lyrics-only music videos were as beneficial to improving quiz scores as the visually-rich videos.

Participants improved their scores not only on factoid-type questions, but also the more complex comprehension questions, which shows that the videos improved people's scientific understanding and not just memorization.

Pre- and post-quiz scores were no different for the bonus questions, which did not cover material from the videos. This finding suggests that the boost in quiz scores was due to watching the [video](#), and not by some other variable.

The researchers say everyone learns in different ways, and past research has shown that students learn best with hands-on, personally relevant tools that utilize powers of observation and audio-visuals. They also note that a person's memories can change based on an emotionally charged atmosphere. Since music is an emotional medium, it makes sense that our educational memory could be enhanced by it.

"We're not saying this is the only way you should teach science, it's just a different way," Davis said. "We're hoping it can engage a broader array of students, to help them find success and create identities as science learners."

Added Crowther, "There wasn't a teacher breathing down students' necks telling them they had to learn this for a test. People voluntarily watched these videos for fun. This is exactly the type of opportunity we should be creating more of. Students will seek it out just because it's fun and interesting."

Provided by University of Washington

Citation: Science-themed music videos boost scientific literacy, study shows (2014, April 2) retrieved 5 May 2024 from

<https://phys.org/news/2014-04-science-themed-music-videos-boost-scientific.html>

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