Is memorization the name of the game?

Undergraduates' perceptions of the usefulness of physiology songs

Introduction

- Musical arts to teach STEM content
- Promotes student engagement
- Promotes processing and analysis of content
- Promotes retention and recall of content

Introduction

- 5 E Model of Teaching and Learning
  - Engage
  - Explore
  - Explain
  - Elaborate
  - Evaluate

Methods

- Students listened to educator-penned songs
- Candid free response to musical interventions
- Phase 1
  - exploratory phase
  - 440 students, 8 courses, two universities
- Phase 2
  - validation phase
  - confirm conclusions phase 1
  - 5 new songs, 53 new students

Methods

- Courses included a physiology component
- Science and non-science majors
- Invited to participate by instructors
- Received modest extra credit for participation

Methods

- Songs on mathematical aspects of physiology
- Various musical styles
- One parody, nine original compositions
- 17 – 54 seconds

Methods

- Instructors rated songs on a 0 to 4 scale
- Relevance to the course

Methods

- Students asked if they would use song as part of their studying
- Free form WHY

Methods

- First two authors sorted through responses to identify themes
  - Beat
  - Catchiness
  - Instruments
  - Learning
  - Length
  - Lyrics
  - Melody
  - Memory
  - Relevance
  - Other

Results

- Each song provoked wide range of usefulness
- Most-used category was memory
- Second-most catchiness

Results

- Phase 2 to confirm results
- More than half catchiness and/or memory

Results

- Designed for research rather than pedagogical effectiveness
- Students were shown music videos emphasizing fact-delivery aspects
- Did not formally assess learning

Further Thoughts

- Utilizing as a way to learn rather than memorize
- Study further for possible value
- Involving students in writing of songs
- Memorization as a central task of science