



CALIFORNIA STATE SCIENCE FAIR 2016 PROJECT SUMMARY

Name(s) William D. Thornton	Project Number J0726
Project Title Did You See What You Heard? How Musical Tones Affect Visual Perception	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of this experiment is to change viewers' perceptions of events in a video scene by changing the soundtrack from atonal to melodic tones.</p> <p>Methods/Materials This experiment tested 32 (16 male and 16 female) subject's perceptions of events in a video scene using either an atonal or a melodic soundtrack. After viewing the video, the subjects filled out a questionnaire indicating whether various statements about the actors were true or false. A computer showing a video of two actors interacting with exaggerated facial expressions and paper were used.</p> <p>Results There is a clear correlation between the tonality of the soundtrack and the subjects' perceptions of what the actors are doing on the screen. Differences in answers to the true/false questionnaire ranged from 12.5% to 65%. For instance, 75% of the subjects who listened to a melodic soundtrack thought the actors in the video were friends. However, only 19% of the subjects who listened to an atonal soundtrack thought the actors were friends. 56% of the subjects who listened to melodic music said that the actors had not seen each other for a long time and were thrilled to find each other, whereas only 19% of subjects who listened to atonal music thought the same.</p> <p>Conclusions/Discussion Music has been considered a mood enhancer for a long time, but this experiment shows that it can actually change people's perceptions of what they see happening. A melodic soundtrack will change a viewer's perceptions of actions in the scene for the positive, whereas an atonal soundtrack will affect the viewer's perceptions of actions in the same scene towards the negative.</p> <p>Interestingly, there were some disparities based on gender which may provide areas for further research. Females showed less correlation than males between perceiving positive actions with a melodic soundtrack. Females generally thought the actors were enemies regardless of the music. Conducting further studies examining gender differences regarding atonal vs. melodic soundtracks could possibly yield positive results.</p>	
Summary Statement Melodic or atonal soundtracks significantly change viewers' perceptions of what is actually happening in a video scene.	
Help Received I developed the project idea, found the video sample, music clips, and designed the questionnaire myself, my science teacher assisted in setting up the data tables, my mother assisted in proofreading my paper.	