# CALIFORNIA SCIENCE & ENGINEERING FAIR
## 2019 PROJECT SUMMARY

**Name(s)**

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**Project Number**

**J0703**

**Project Title**

# Effects of Auditory Cues on Recall of Visual Materials

**Abstract**

**Objectives**

Our project was inspired by the idea of the bouba/kiki effect, a non-arbitrary mapping between speech sounds and the visual shape of objects. The purpose of this project was to demonstrate that when the subjects rely on the sound to shape correspondence learning method they will be able to recall the shapes more efficiently than when relying on memorizing the order of the shapes.

**Methods**

For our control test two videos were shown, a video with ten shapes each with corresponding sounds, and the second a video with just the sounds of the ten shapes in order. The students were asked to memorize the order of the shapes using the sounds and the shapes to convey an image. For the experimental group, the video with the 10 shapes and the sounds was shown, and then a video with only the ten sounds but in a mixed up order. In this test the subjects focused on relying on sound correlation to recall the shapes to prevent memorization.

**Results**

We tested approximately 130 students in grades 5, 6, 7, and 8. Our overall results showed that when the subjects relied on sound association they scored higher. The overall control average group score was 77.19%. The overall experimental average group score was 85.07%. The control group s standard deviation was 23.33%, and the experimental groups standard deviation 13.72%. There was no noticeable difference between the averages of the female and male test groups and also no difference in comparing the averages of the ages.

**Conclusions**

In conclusion, our results supported our hypothesis. When test subjects relied on using the sound to shape correspondence learning method rather than relying on memorizing the order of the shapes they they would be better able to recall the shapes. Scientists who did the study on the Bouba Kiki effect found that damage to an area of the brain important for language called the angular gyrus resulted in a person not being as able to match shapes to sounds. For the future, we believe our method of learning can be applied to students who have learning disabilities like dyslexia and ADHD to improve learning, speaking, and communication skills. Our methods can also be applied to students and teachers everywhere for learning and teaching techniques. Our discoveries are interesting because it helps us to shed light on the potential evolutionary origins of language.

**Summary Statement**

The purpose of this project was to demonstrate that relying on a sound to recall a visual image was an effective tool.

**Help Received**

We would like to thank our parents for driving us to Staples to get the supplies we needed for our project and our science teacher for guiding us in our project.