



# CALIFORNIA STATE SCIENCE FAIR 2015 PROJECT SUMMARY

<b>Name(s)</b> Kirra A.L. McColl	<b>Project Number</b> <b>J0415</b>
<b>Project Title</b> <b>A Tactile Approach to the Bouba Kiki Experiment</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The bouba kiki effect is the psychological mapping of physical features with sounds. I chose this project after watching a dance performance and noticing how much the dancers' movements reflected the tone of the music. When the music was fast and sharp, the dancers' movements were abrupt and jerky. When the music was calm, the dancers' movements were fluid and smooth. This led me to think of the bouba kiki effect. The bouba kiki experiment was first conducted by German-American psychologist Wolfgang Kohler in 1929 and again by neuroscientist V.S. Ramachandran in 2001. In Ramachandran's test, subjects were shown two 2-dimensional drawings, one spiky and the other curvy, and were asked "In Martian language one of these shapes is called Bouba and one is called kiki. Which do you think is which?" 95% of subjects chose "bouba" as the round shape and "kiki" as the sharp shape. I wondered if the bouba kiki effect applied to the feel of 3-dimensional objects and would produce similar results.</p> <p><b>Methods/Materials</b> For my experiment I constructed two 3-dimensional models out of Styrofoam, a spiky one representing "kiki" and a smooth one representing "bouba". I put the models in two different opaque bags, so the subjects could not see the shapes, and instructed test subjects to feel the shapes. I then asked them the same thing that was asked in Ramachandran's experiment: "In Martian language one of these shapes is called "bouba" and one is called "kiki". Which do you think is which?" I tested 90 students in total from the fifth through eighth grades at my school.</p> <p><b>Results</b> Out of the 90 subjects I tested 81 of them made the bouba kiki association. With 92% of my subjects making the expected association, I had only a 3% difference from Ramachandran's experiment using 2-dimensional pictures.</p> <p><b>Conclusions/Discussion</b> Based on the results of my experiment, the human brain is able to associate physical shapes and sounds, whether it be 2-dimensional or 3-dimensional. The bouba kiki experiment can yield similar results whether a person is viewing an image or touching a 3-dimensional object.</p>	
<b>Summary Statement</b> My project tested the language association of physical shapes to sound when naming objects.	
<b>Help Received</b> My dad helped me cut the styrofoam for my models.	