



Through the course of this independent science research class, I had many opportunities to go through various projects, familiarizing myself with new technologies and fields of study as I slowly approach graduation.

My first project that I worked on was the sound audit of the Robertson's dormitory. Living in the dorm with 30 other girls and boys, there are constantly sources of noises to distract one another during study hall and in morning when one desires to sleep in. I thought, what is a way in which the sound produced in the hallway could be absorbed, to create a more comfortable environment for the students? As I looked into soundproofing companies, in general it was described to be an environment that prioritizes the interaction between the person and the room acoustic comfort that contributes to the human well being. These statements generally back up the idea in which there is a correlation between

effective studying and room environment. I had a nomad and a filter placed in my dorm room for the duration of one and a half quarter, and I did a weekly analysis of the status of the dorm using the server. On top of that, I used a program called *fuzz measure*, that swiped the room's ability of sound decay as it releases a high to low decibel sound. At the end of the sound-analysis period, I re-measured the filter that had been placed in my room. The filter started out to be off-white, although by the last day it appeared to be more charcoaled colored. As the filter was placed beside my open window, it shows how much vog, dust, and other particles enter and leave the dorm rooms every day. In Japan, there is a

EEG study: Noise and concentration

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problem with the high amount of PM 2.5 that is present in the atmosphere. It causes great trouble with people's lungs and heart conditions. As we discussed about it in AP Environmental Science, in Hawaii PM 2.5 does not exist at a high frequency. However in locations such as central Asia, it is a very concerning problem. It turns out that the particles existing all over the room caused a decrease in the quality of the sound as well. It turns out that comparing the initial and the final weight of the filter, there was a 0.12g difference, presenting the accumulation of particles in the room. (This is unhealthy)



Libero purus sodales mauris, eu
vehicula lectus velit nec velit.

I was also given the opportunity to get in contact with a HI-SEAS member, in order to get a better insight into professional cognitive research. According to them, they are using a cognition application from Joggle Research in which as 8/10 research that are publicly available through the Application. The purpose of the test is to see if one is still sharp and on top of his/her game before going out and doing critical activities such as EVAs (Extravehicular Activity). Before going out on an EVA, they run through the cognition tests to ensure their judgment is not slowed or impaired in any way (i.e. Lack of sleep, illness, etc..). This information inspired me to continue my cognitive research using the NeuroSky headset, as I am familiar with the program the most. The test consisted of looking into how being conscious of your actions may make a difference in the behaviors. Starting out simple, I started with a blinking test. First, I measured the amount of time the subject blinked over a time frame of 2 minutes, without any information given to them. Then, I asked them whether they thought their act of blinking was too fast or too slow. Once they were conscious of their blinking, they will attempt their blinking to be either faster or slower than it is. In order to make sure of the effect of consciousness, I replicated the experiment multiple times. Over the course of a couple weeks of study, generally the subjects were seen to blink more in the given time frame when conscious of their action.

