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Latham Science Communication Project

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pH Paper Drawing with Chemistry

Tianyi Li
University of Iowa

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Project Narrative

My project is connecting science with visual art via pH drawing. I believe that projecting science through visual art is an interesting way for the public to appreciate and communicate with science. The combination of art and science in this project can help people understand how their behavior affects the pH of an environment. Chemistry is a subject that tells the essence of everything, but sometimes it can be hard to digest, so as science as a whole. Therefore, I want to use art as a carrier to deliver scientific messages. In this way, people can understand the messages without the limitation of the science background and maybe even care more about science. My goal is to create a new way for people to connect with science by bonding science with art and bring excitement and interest for the general public.

I have to say that the final performance of my project (what's you see here) is very different than what I expected originally. I have adapted my project so many times and there are still so many things that I can improve. Originally I was thinking use the universal pH testing paper for the face to face activities because they can test both acidic and basic solution and shows different color. I think it should be nice to have different pH solutions that shows different colors for people to draw on the paper. But the universal pH testing 8x10'' paper is so hard to find since we usually use them as strips. After digging from the internet, I finally find the right one, but it is so expensive that I can't afford it. Therefore, I changed my mind to litmus paper and Goldenrod paper. However, the two testing papers only changes their color when they react with basic solutions. After experiment on the paper, I found that if I put an acidic solution on a colored place, it can change back to its original color.

There were two part in my project. For the first project, I used the pH indicator paper (Goldenrod paper) to simulate a natural environment, such as ocean, soil or even human body,

and draw on it with backing soda solution and vinegar. I had my showcase on Linn County STEAM Fair and mainly target on primary school kids. For the face to face interaction, we kept talking for total 3 hours without a break. Then, I put all of the paintings in the Iowa City Public Library. This painting displacement was open to the public, especially the local community within all ages and without science background. Art expresses the feelings and paintings that can enlighten people universally without languages. I also ask Tim, one of our Latham fellow, to advertise my project on his social media, which is his project.

Just as I mentioned earlier, Linn County STEAM Fair and the Iowa City Public Library are my project partner. Base on the statistical data at Linn County STEAM Fair provided, there were 993 registered attendees (both children and their parents). The gender distribution for attendees is about 1:1. 20% of the attendees is kid from grades 3 to 5. Over 60% of them got referral about this stem fair on social media.

Although this is not a perfect project, I still learned a lot from it. I noticed that STEM fair like this would not be the best way to present this activity. It is too busy for an event like this because painting need sometime and a little patient. So for future direction of this project, it would be better if it can be a class room activity when students have enough time to understand the demonstration and paint.

Preforming on a STEM fair is easy, but designing one is hard. The lesson that I learned from this project is that I have to think every possible thing can happen, especially challenges, and think about the solutions. It is definitely a unique experience in my life. If at the end of the day, someone tells me that they learned anything from my project or they starts to interest in science because of my project, my work is meaningful.