

# Science Project Adviser Program 2018

## Front-End Evaluation

In 2018, we teamed up with Santa Barbara Partners in Education and brought a group of 36 volunteers to two middle schools in Santa Barbara. **The event was to provide opportunities to students to have conversations with real scientists and engineers about their science fair project ideas, and through these conversations students can develop their ideas into real projects.** This event provided us an opportunity to explore the needs and learn how to help students with their science projects. We collected feedback from students, teachers, and volunteers to learn about the potential impact we can bring to the students. This helps to set the direction of the next phase of the program.

### 1. Implementation Evaluation

To bring the Science Project Adviser Program to middle school students, we first need to recruit volunteers and also partner with science teachers to bring the program to schools. The implementation evaluation focuses on the effectiveness of these effort.

**Evaluation question:** How did we recruit volunteers and how successful were these recruitments?

The main source of volunteers was through the personal network that YIC founder has established over the years, both from industry and academia. Here are the qualifications and affiliations of our volunteers:

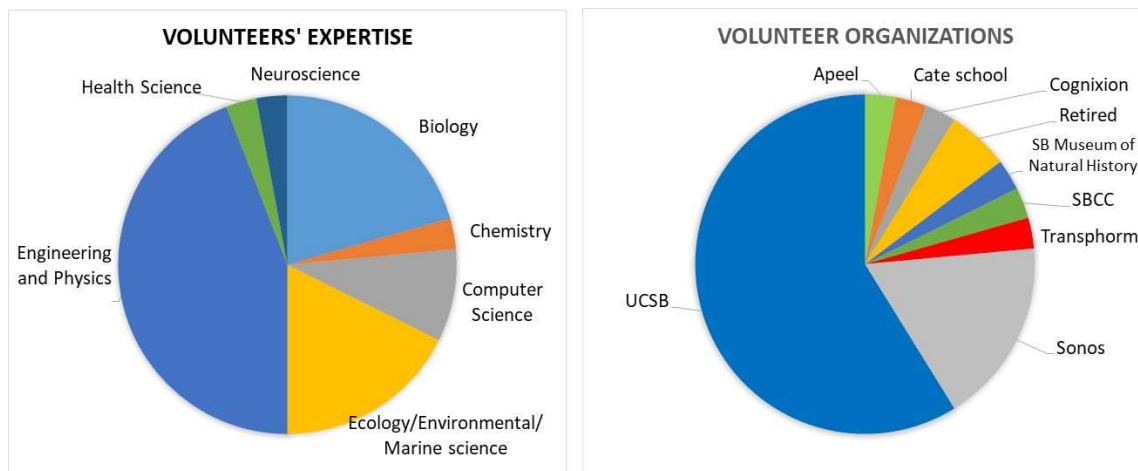


Figure 1. Volunteers' stats

Because our founder has a background in engineering, and is closely affiliated with UCSB and Sonos, this reflects in our volunteers' stat as well.

**Moving forward, we need to diversify the expertise of our mentors and expand our network so that we have adequate expertise for the wide range of topics students are interested at.**

**Evaluation question:** How did we partner with teachers to implement the mentorship program and how successful was the implementation?

We reached out to several middle school science teachers during summer time to collect inputs and gauge interest about the program. At the beginning of school year, Partners in Education also sent emails to all middle schools about the program. The only schools that have requested our program were the ones we have direct discussion with the teachers during summer.

**Evaluation question:** How was working with Partner in Education helped the program?

Although majority of the volunteers were through YIC's network, Partners in Education also conducted a level of volunteer recruitment. Well connected to the schools as a hub for volunteer and event coordination in K-12 schools, PIE provided their resources to help in organizing with schools, and scheduling and communicating with volunteers. Moving forward, we will continue to work with Partners in Education to stream line the recruiting process, as well as volunteer screening and training.

## **2. Process Evaluation**

We want to understand whether the event was effective in engaging the conversation between students and mentors. In this section, we evaluate the organizational aspect of the event.

**Evaluation question:** How is the quality and effectiveness of the activities in helping students transforming their ideas into real projects?

Based on feedbacks from students, teachers and volunteers, here are the areas that we are successful with:

- Providing one-on-one support and interaction to the students.
- The variety and quality of mentors.
- Students earn the experience of speaking to real scientists/engineers.

We also found areas that can be improved:

- A ratio of 1:3 volunteer/student would be ideal with sessions of about 20 minutes. Without a steady flow of volunteers, we couldn't achieve this ratio consistently.
- Better align expertise with students' projects.
- Mentors should be equipped with the skills to work with middle school students.
- Better match the adviser's time to students that most needed (some didn't seem to need help).
- More information about the projects and science fair guidelines for the mentors before the event.

**We envision that in the next phase, we will kick start the program with similar in-class conversations, and encourage students to sign up for monthly check-ins that will happen on campus during or after school. During these check-ins, we can help students set milestones and goals so that they have a clear path to proceed with their projects. We will also provide mentor training program prior to the event, to provide proper guidelines to the mentors about science fair and working with middle school students.**

### 3. Outcome Evaluation

Because this was the exploratory phase of our program, we focused on two specific goals for this event: To transform students’ ideas into valid science projects, and to build more confidence and excitement in students about their projects. To understand whether we succeeded in these goals, we collected surveys from students. We received 368 feedbacks out of 600 students that participated in the event. Below are the evaluation results:

**Evaluation question:** Does working with a science project adviser increase student confidence in their science project?

Based on the surveys, 78% of students feel encouraged, motivated, confident and prepared after the event.



**Figure 2. Students’ feedback about how they feel after the event**

We understand this confidence and excitement can be temporary, and for a lasting effect we will need to provide a continuous support to students to ensure the success of their projects.

**Evaluation question:** How was the event helpful?

To understand in what aspect did the students find this event helpful, we asked the students to describe the best part of the event. Some students described more than one aspect. Based on the following feedback, we believe the event helped most students to kick start their science project.

What was the best part having the Science Project Adviser?	
They helped me to setup/improve my experiment.	15%
They helped improve my project.	14%
Getting advise in general.	13%
They help me pick a project/give me new project ideas or new ideas about my project.	13%
They helped me understand my project better.	12%
To have someone to ask questions/ They answered my specific questions.	12%
They give us honest feedback/ They tell me what the limitations are for my projects.	12%
Having an expert opinion/different point of view.	12%
Having someone to talk about my project.	4%
They make me feel better about my project (encouraging)	2%
Others (positive feedback)	4%
Nothing (none or negative feedback)	2%

## Summary

Based on these evaluations, we conclude that:

- A mentorship program that targets the middle school science fair is highly desirable for both teachers and students.
- Proper training and communication with the mentors prior to the event will drastically improve the experience.
- Priority of need for phase 2:
  - a. Allocate more resources in recruiting, training, and scheduling to align students with the experts based on their topics of interest.
  - b. Provide continuous support to help students set goals and milestones to guide them through the process.

Some of our favorite quotes from students we served:

*“Before the meeting, I didn’t know what my project was going to be about. The advisor really helped me and designed a project for what I like to do most.”*

*“I got to learn more broadly about my topic and she really steered me into the right direction with where I want to go with my project.”*

*“I liked it because he gave me some ideas on how to measure my dependent variable, which was a thing that I was struggling on doing myself.”*

*“My project advisor helped me come up with an idea and lots of things I could possibly test with this idea. She was very kind and patient with all of us while we were asking questions as well.”*