TapIn: An Outreach Activity to Create a Digital Business Card

Anonymous Authors
Anonymous College

1. Introduction

The PP Program (PPP - Anonymized) seeks to increase interest and retention in IT programs and technology among middle school, high school, and college students, particularly in underrepresented groups [1]. To appeal to students ranging from middle school to college, PPP has their students create interesting projects that teach programming fundamentals in a creative and engaging workshop. For example, some projects are games that help teach concepts like loops and if-statements while others demonstrate physical technology like NFC chips [2] or VR headsets. PPP has a unique benefit of being one of the few programs at Anonymous College (AC) that encourages students to explore and build a project they want to make. This helps get the students motivated to try and accomplish something they are proud of and would want to share with other students. As a result, we created an outreach workshop that was presented to 46 non-IT major undergraduate students. We found that the participants engaged well and successfully learned concepts of HTML, CSS, JavaScript, and Near Field Communications (NFC) thanks to our project, TapIn.

2. Methods

TapIn is a digital business card that is created by modifying code in an HTML file we provide to the students. Inside of the HTML file, there are five sections that students will fill out. The first section is the "Courses Completed" section where the students will populate a JavaScript array with some of the courses they have completed specific to their major. The second section is the "About Me" section where the student provides information about themselves for other people to see. The third section is the "Work/Project Experience" section where students can provide work or project experience they have. The fourth section is the Goals section where students highlight the goals they want to accomplish by the end of college. Finally, there is the "My Contact Information" section where the student can provide links to social media or their email for users to visit. Once the HTML file is complete, the students can modify the background colors for each section in the CSS file. While the workshop is in progress, we program the NFC chips to link to each students website (Figure 1). This allows them to share what they create with somebody they meet. Since the audience we were working with may not have a lot of information to share, we designed the HTML file to be easy to follow, allowing them to come back and add to it whenever they want.

Figure 1: TapIn workshop in the classroom.

Results

Before and after our 3 workshops, we asked the students to complete a survey to help us gauge how well we were able to teach the programming concepts. One data set we wanted to know is the number of students with programming experience. Based on data shown in Figure 2, seventy percent of students in our workshops had no prior experience in programming, while only thirty percent of students did. When creating the technical questions asked in the surveys, we ensured to prioritized the most important aspects.

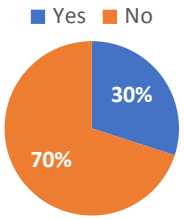

Figure 2: Do you have any programming experience?

Figure 3a shows an example question asked in both surveys. When asked if a student knew what type of technology NFC chips are, only thirteen percent of students answer correctly before the workshop.

Figure 2b shows after the workshop, there was a fifty-three percent increase in students who knew NFC chips are an RFI technology. This trend is consistent with the other questions asked in our survey.

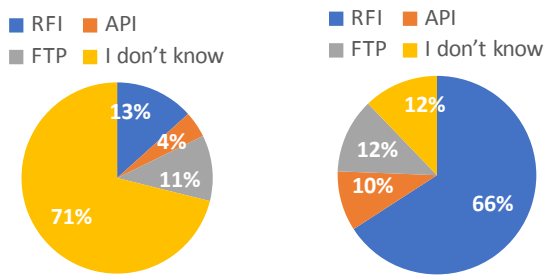

Figure 3: An NFC chip is an example of which type of technology? (Pre-survey on left and post-survey on right)

As a team, we feel this project was successful in engaging students and potentially making them consider taking more IT course at AC. When asked if they enjoyed learning the technology, eighty-one percent of students answered yes, as seen in figure 4.

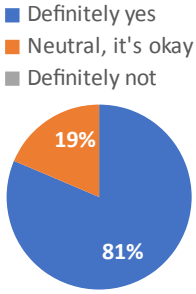

Figure 4 Did you enjoy learning this new technology?

Conclusions

One problem we ran into with this project is that we ran into time constraints which limited the amount of information we could teach. When reviewing feedback from the survey submissions, one student said, "Time management." The solution to this problem was to omit those concepts and introduce something in line with the content we could teach. For example, we had questions about for-loops in JavaScript, but we never had the time to teach this concept. So, we removed these types of questions and replaced them with questions pertaining to HTML. Another submission from the survey stated, "Not sure but overall the presentation was, but it didn't change my mind in regards to taking another technology class." Even though most of the students understood the purpose of the assignment, there may have been of few who did not. As a team, we need to be sure we explain the purpose of this project in a way that all participants can follow along. Other than these two observations, the students who partook in the workshop enjoyed what they learned. For example, one student said, "Loved this! I learned a little more about coding it's so cool and I'm going to be using it more than ever." Something our team has considered is instead of only teaching to students at an entry-level, we could also teach to middle and upper-level students. Since we are building a business card, we feel these students could also benefit from this workshop since they are close to completing their college education. It would also give us the potential to see how in-depth students would get into the HTML. Since our participants did not have a lot of information to provide in each of the sections, most of the students only wrote small amounts of information. We believe if we work with upper-level classmen, we could see students engage more with the code to showcase what they have accomplished.

Acknowledgments

We would like to thank PPP for giving us an outreach opportunity. We all feel like this is one of the more fun courses to take at AC and it helped us become better students and teammates. AC School of XYZ also provided us with the NFC chips that we needed for the workshops . We would also like to thank all the participants, from the PPP Expo and the PPP workshops, for participating in our project and providing feedback in the surveys.

References

[1] Anonymous

[2] Anonymous