Using Visual, Block-Based, Event-Driven Language to Teach Coding Skills

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Study Target/Focus/Purpose

The purpose of this study is to introduce kids to technology and the capabilities of hardware and show off what can be done in programming through the Scratch technology. Our focus is to expose how technology works and how fun it is to learn create something using technology.

Regarding related work, in Software Development 2, my team and I transferred an application that was originally written in basic HTML/JavaScript into React.JS. The application was a counter system for Magic the Gathering card game. It was designed to track health points, and other counters. In Software Development 1, my team and I created a text-based adventure game from scratch.

# Description of TAP program

The Technology Ambassadors Program is a program that offers students opportunities to learn more about technology, and help them develop creativity, leadership, communication, and teamwork skills. It also gives them the opportunity to do outreach with their projects so that children of all ages can get interested in different technologies. The outreach will help TAP students build their leadership skills and make them gain public speaking confidence.

# Methods

We used Scratch and MaKey MaKey Classic in our project. Scratch is an interactive programming language that allows users to create interactive stories, games, and animations. MaKey MaKey is an academic and artistic project. The Classic version of MaKey MaKey is a circuit board that allows you to create a computer keyboard out of anything. We are trying to teach the students coding skills using “if-statements”, “while loops” and building blocks with Scratch. The coding structure will show the students how certain actions can be executed based on certain decisions. They will also use MaKey MaKey as well.

We will conduct outreach events of many kinds. The TAP Expo is an event where everyone demonstrates their finished projects to the entire college. Super Saturday Series (also known as S3) is where middle school and high school girls come to learn about technology. The girls would watch a demonstration of the finished project and then create their own version. The classroom event is where we would go to the “Introduction to ITEC” classes and present our project to the students. Afterwards, they would create their own version of our project. At the Workshop Research Symposium and Conference, we will be demonstrating our project to other students and teachers throughout the college. For each event, we will have a pre-survey and a post-survey for the students to fill out. The data collected from the surveys will help us make any changes to the way we present information.

# Results

For all outreach events, we are going to be developing projects with unique setups, so that students can participate and have fun with it. We are going to have the participants fill out survey forms and get them involved in the project. With the survey forms, we will be able to analyze whether we were able to effectively teach the participants coding skills. Based on our results, we will know what to keep the same and what to change in our future presentations.

# Discussion and Conclusion

In conclusion, we hope to successfully be able to teach our target audience (students of all ages) the importance of learning new coding skills, and we want to demonstrate how using technology can be fun. Through our various outreach events, we will help our participants feel involved by letting them ask us questions about the technologies and the process of making the game, making them participate in the making of the game, and we will have presentation slides that explain our process of creating the game. After that we are going to let them play it and make some changes to the code.

In conclusion, we were able to successfully teach our target audience (students of all ages) the importance of learning new coding skills, and we also demonstrated how using technology can be fun. Through our various outreach events, we were able help our participants feel involved by letting them ask us questions about the technologies and the process of making the game. We also let them make some changes to the code. We had presentation slides that explained the game and what they were going to learn that day.

# References

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