WearTec Students’ Preferences and Perceptions of Formal vs. Informal Education

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Students who participated in the WearTec study regarding interest in STEM programs were able to work on their projects during both the normal school day (formal environment) as well as after-school (informal environment). The students who had experience at both programs were asked Likert-style questions to gauge their perceptions between formal and informal educational systems within the WearTec study. From these responses, students were then interviewed with open-ended questions to probe for further information clarify their responses.

Discussion

In the qualitative results, the things that stood out the most to students in the formal school environment were coding and setting up Arduinos. This aligns with the curriculum which focused on the basics of coding. Some students (33.3%) felt that they learned more in the formal school environment because there were more people in attendance, and others felt that they were actually more hands on and self-guided. The students who preferred to learn in the after-school program (66.7%) thought that they learned more in the after-school program because of various reasons, but primarily because it was more challenging, they were able to spend more time on the material, it was more fun because there was less pressure, and because they got to catch up on work. The students who preferred to learn in the after-school program (33.3%) did so because they felt it was more hands on and self-guided, and even more "more and less strict." Students enjoyed the fact that after-school programs were able to have more attention, time, and freedom to do what they wanted in regards to the WearTec study. They were also able to focus on troubleshooting and problem solving on the material learned in the formal classroom if needed.

Overall, there seemed to be a slight preference for learning in the after-school program, but not enough to highly affect the way the program was run. Students said that they would have preferred to learn a variety of things in the after-school program instead of the formal school environment like coding andartistic or also more programming. Some students also said that they would have liked the material to stay the same or plug and the majority of the material in the after-school program so they are still able to dedicate the time given in the formal classroom to their primary studies.

Limitations

This is a very limited scale and results cannot be generalized with all formal and informal school settings. These students are not representative of 11-14 year old students as this group was comprised of primarily highly gifted students in an affluent suburban school district participating in the larger WearTec study. The small sample size of this study does not allow for generalizability to the general population.