Addition of Survey Instrument: “Debugging Activity”

Description

A new instrument, the Debugging Activity, is an in-classroom, supervised activity where students are given a pre-made project in App Inventor, where that project has intentional errors and flaws. The students are instructed to identify and correct the errors and flaws. Students may work individually or in small groups. In all grouping cases, the work products are be collected for analysis, pursuant with permission requested by the informed consent form previously approved.

Activity Detail

The flawed project to be given to students will be a variant of the “Talk to Me” app, which will have been part of the curriculum early in the camp, and was part of the curriculum during the school year. The corrections students are expected to identify and execute include changing button-press and phone-shaking behavior, updating functionality to use a different variable, and updating text on the screen as a variable. These concepts are consistent with the scope of the introductory portion of the camp curriculum.

Consent

Research participation parent permission and student assent will be collected before the start of the camp. This new instrument falls under that permission and assent.

Relevant request from the parent Summer Research Permission Form:

> *... we would like to ask your child about her or his experiences in programming, and give a programming problem to solve while we observe and talk to your child.*
>
> *We are asking your permission to use your child’s survey responses and work products in our research. The study has minimal risk of revealing these data. We will not publish your child’s name or anything that could identify him or her in any publications of research results.*

Alternative for Non-Participating Students

Students without research participation permission and assent will perform the same activity, with no discrimination, but their work product not be collected, and any experiences they share with researchers not be included for analysis. Work product collection will not be visible to the

students, so there will be no difference in experience between students participating in the research and those not.

Data De-identification

Work products will be automatically de-identified at the time collection, and assigned a unique and random ID code by the collection software. To allow later addition of data, an identity table relating student user names to the random ID code will be maintained and kept on a secure server hosted at UMass Lowell. This table is internal to the data collection software and only accessible by researchers Mark Sherman and Fred Martin. This identity table is separate from the de-identified data storage, and the table will never be copied outside of the secure server.