How App Development Empowers Students

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Enyi Rosa Gomez, Guest Author June 28, 2021

Math is not everyone's favorite subject. My group of fifth graders, who are the creators, designers, and builders of a math app prototype, will say that math used to be one of their least-liked subjects. With concepts of design thinking in mind, they were presented with a community education problem: help other fifth-grade students review and recall math concepts. My students decided that the best way to support their fellow students was through app development that provided student-created resources such as examples, steps, and videos.

Ideate and Prototype

The students brainstormed and ideated the best ways to reach the needs of their audience by conducting surveys and organizing data. Their findings and personal experience led them to focus on four key topics: multiplication, division, fractions, and decimals. They started by organizing the layout of their app on notecards; each card represented a page on their app, essentially mapping out the architecture.

They considered things such as accessibility, user-friendliness, appearance, and style. Students' primary resource for the content included in their app prototype was their math journal. Next, they reviewed their notes, examples, and practice problems to create the content that would help other fifth grade students through their app.

Most students decided to include videos, examples, pictures, and written steps, and some even included quizzes to ensure that their message was received. Students used the **Develop in Swift** app design workbook as a guide to building their prototype.

App Development with an iPad

The primary tool for creating their app prototype was an iPad. The Keynote app has all the necessary features to bring their ideas to life and make a presentation work precisely as an app would.

The best part about it is that they can collaborate on the same Keynote document in real time. They can insert videos, pictures, and other documents into their presentation. They use the mark-up tool and screen-record feature within the iPad to share examples and step-by-step explanations to solve sample math problems.

Additionally, iMovie is a very user-friendly app that students can use to edit their videos and make them more engaging by adding titles, images, and sound effects. Simon Pile's book, ***Why Use Keynote in the Classroom*** (2019), supports these ideas by providing many valuable ways that the Keynote app can be used to augment and redefine learning.

The Learning Experience

Currently, students are still in the development process of their fifth-grade math app prototype. It has been a long process that they are fully invested in. We knew this would not be an easy task from the start, but the more time they spend building out each feature of their app, the more excited they are about the entire project.

Students are working in groups of three to four members; the level of collaboration that has progressed throughout each session has been tremendous. In the beginning, no one wanted to take the lead, no one wanted to voice their ideas, and no one wanted to oppose anyone's decisions. As time progressed, that has changed entirely; the groups are in sync, they share thoughts and build on each others' ideas. There is a sense of belonging that has become evident as time progresses. It is incredible to see.

The interactions with me as the facilitator have also progressed. In the beginning, they wanted approval for every decision they made. Now, they are confident in their choices as a team, they have a clear vision for what their audience needs from their app, and they are not afraid to go for it.

Lastly, each student's confidence in practicing math concepts has grown immensely. By reviewing concepts to create videos, examples, and quizzes about the topics they struggled with, students have become masters in these areas. They have gained so much confidence and are now sharing new ways to solve problems. It has also enhanced their critical thinking skills.

App Showcase

The last step in their app prototype development will be their app showcase. Students will present their app prototype pitches to an audience of all fifth-grade students and teachers on our campus. This will be a way to engage students' communication skills and provide them an opportunity to test out their app with the community for which it was intended.

Have you developed apps with your students? Share your ideas in the comments!