Instructing Early Literacy through Mobile Applications

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Abstract

With overcrowded classrooms leading to distractions, teachers are in need of a way to provide instruction outside the classroom. A readily available, inexpensive tool to supplement the teacher’s instruction is the smartphone. In this project, we use the ubiquitous Android platform for smartphones to create a mobile application that augments the teacher’s classroom instruction in early literacy. The application uses voice recognition software to test students on pronunciation, spelling, and recognition of words and sentences. The application also lets teachers choose which words, chosen from a pedagogically sound vocabulary, students will learn through the device. Students are rewarded as they achieve higher levels of vocabulary. Use of the application is intended for all students in first through sixth grades.

Results

The four pictures to the left are screen shots of the ELA application. The top-left picture is the home screen, where the student chooses a grade level. The top-right picture is the screen prompt for the user vocal input “bag”. The bottom-right screen displays the phone processing user vocal input. The bottom-left screen shows that the user has said the word “bag” correctly.

Future Directions

ELA will be tested on students (after “human subjects” approval) to determine if it will be an effective supplement to the teacher’s in-class instruction with outside-class learning. Students will be tested on how well they do on class work and class activities compared to students without help from the ELA application.

ELA will be converted to other mobile operating systems so that there is a greater chance it will reach more students at a more affordable price. Also, ELA will be modified for use on tablets.

New features to be added include:

• Ability for more than one student to practice on one phone
• Enhanced teacher control:
  • Customize the ELA vocabulary database
  • Monitor student progress to recognize problem areas
  • Improved graphics and user-interface components
• Additional rewards for student progress
• New challenges for students:
  • Reading comprehension
  • Penmanship challenges for tablet use
  • Head-to-head student competitions

Methods & Materials

Methods

• Sketched each view (screen)
• Created user interface
• Checked user interface for functionality and debugged
• Researched speech input software to determine operation parameters
• Created database
• Implemented speech recognition software
• Implemented game like features
• Tested

Materials

• Motorola Droid
• Google Android Mobile Operation System
• Home Learning Educational Database
• Eclipse with Android ADT
• Android Pico speech input recognizer
• Macintosh MacBook Pro Laptop

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