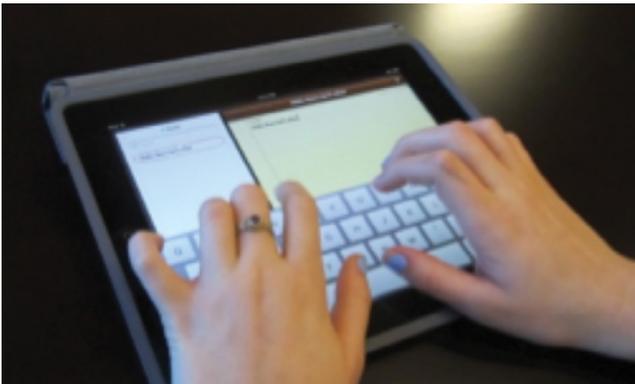




Pearson

Keyboard Interactions for Tablet Assessments

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At Pearson, we're committed to supporting student assessment on tablet devices in ways that optimize student experience and enhance measurement. In doing so it is important to consider the specific assessment goals, the uses of the test scores, and issues of fairness when students will be using different types of computers and tablets to take tests. The following recommendations are based on a series of research studies conducted by Pearson researchers to evaluate the usability of tablet devices as tools for assessment. Read the complete white paper from our November 2012 study [on the research hub at Pearson.com](#).

Student Experience

In these studies, Pearson researchers sat down with students and asked them to take some sample test questions that asked for either a short text response (like a fill-in-the-blank question) or a longer, extended text response (like an essay).

Students were first asked to answer the questions using the onscreen keyboard and were then offered a wireless external keyboard to use. Touch-screen or onscreen keyboards do not allow students to rest their fingers on the characters without activating the keys, which makes it difficult for students to use keyboarding skills. Most students either did not attempt keyboarding or quickly abandoned it in favor of a one- or two-finger "hunt-and-peck" approach to typing. While less of an issue for short-text-response questions, this phenomenon is cause for concern with longer text-entry questions.

For most students, typing speed and accuracy decrease and fatigue increases over longer periods of time with use of the onscreen keyboard, since it takes longer to convey their thoughts. The observations of students in these studies also reveal that students tend to write less under these circumstances than they do with an external keyboard.

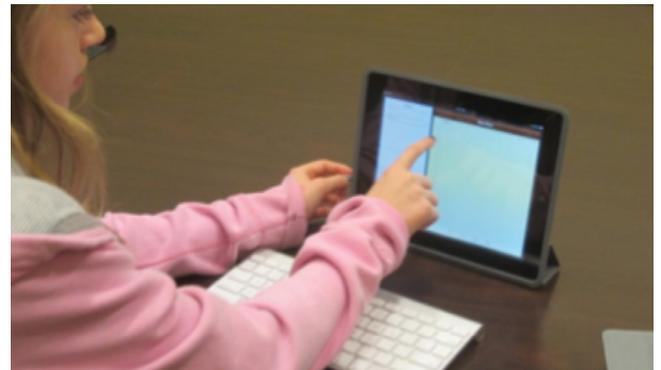
It should be noted, however, that many students (especially younger ones who have not yet perfected keyboarding skills) expressed a preference for the onscreen keyboard and some even theorized that it might be faster for them than an external keyboard.

Understanding Challenges

In addition to the basic text-entry issues, onscreen keyboards represent a different set of challenges than external keyboards:

- **Students must know how to open and close them.** While most students in these studies had no problems opening the onscreen keyboard, it was not always clear to them how to close it when they were done typing and ready to move on.
- **When open, the keyboard takes up screen real estate** and often pushes content off the screen, forcing students in these studies to scroll up to locate information they wanted to reference in answering the question. Previous research with computers has shown that when students have to scroll to read content, they are less likely to do so. Further research should evaluate whether this impact holds for students using tablets.
- **Not all keys are visible when the onscreen keyboard opens,** and students must know how to toggle between alpha and numeric keyboards. This is an issue when students need to use numeric characters or specific punctuation in their responses.

However, external keyboards are not necessarily the magic bullet solution to these challenges. To begin with, there is a lot of variability in the types of external keyboards available for tablets, and not all will offer an experience that is similar to that of using a laptop or desktop keyboard. Additionally, while students appeared to be comfortable working



with the tablet flat on the table when using the on-screen keyboard, the addition of the external keyboard caused observable awkwardness for students. Some students lifted the tablet at an angle and propped the tablet up on the cover or other nearby objects. Some students also appeared to find it difficult to switch between using the external keyboard to type and using their finger to select text and place the cursor. One student characterized this drawback as “everything not being in one place.” Lastly, use of the student’s finger to place the cursor in the proper spot for editing text provided additional challenge as many students had trouble getting the cursor to the right spot. Further research should consider whether peripherals such as a stylus might help to address these issues.

Practice Required

At a minimum, students should have an opportunity to work with tablets as part of their daily classroom activities to become familiar with the onscreen or external keyboards before tablets should be considered for use in a high-stakes assessment which would require text entry.