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Positioning and Ergonomic Considerations 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

One of the more attractive features of tablets is the flexibility (because of their relative light weight and compact form factor) to position the devices in a variety of different arrangements.

In these studies, Pearson researchers sat down with students and asked them to take some sample test questions on tablets to evaluate how students positioned the tablets and how these choices of position might impact their physical comfort in a test-taking situation and, consequently, their performance on a test. In the first study (conducted in school classrooms across four states), the majority of students placed the tablets flat on the table and leaned over them to view the screen.

In the second study (conducted in conference rooms at Pearson facilities), more variety was seen in how students positioned the tablets. While laying the tablet flat on the table was still the most common position, some students propped the tablet up on its case and used it at an angle, while others propped the tablet up on one arm while using the other hand to navigate and answer questions. Yet other students sat back in the chair and held the tablet in their laps.

Students were given no specific instruction about how to position the tablets, and when asked about their choice of positions, most students reported that this is how they use a tablet at home.

Differences in the findings of the two studies are likely due to the study settings: school classroom vs. conference room. This difference may be responsible for the increased observation of flexible positioning in the second study as, within the school setting, students may have expectations about appropriate seating/materials positioning. Additionally, chairs in the conference rooms in the second study were cushioned and swiveled, which allowed greater flexibility to lean back and might have encouraged different behaviors than what would be seen in a classroom.

Implications for Testing Day

Determining policies and expectations for how students may position devices for testing purposes is an important consideration for reasons of both ergonomics and security. While most students were able to complete the study questions within a total of 30-45 minutes without significant strain or difficulty, this may become more of an issue for longer testing sessions. Some students mentioned that they would likely suffer some issue such as neck pain, thumb strain, or headache due to holding or viewing the device for a lengthy testing session. A few students also mentioned that the angle of the device in conjunction with overhead lighting or eye glasses may create a glare that would cause eye strain.
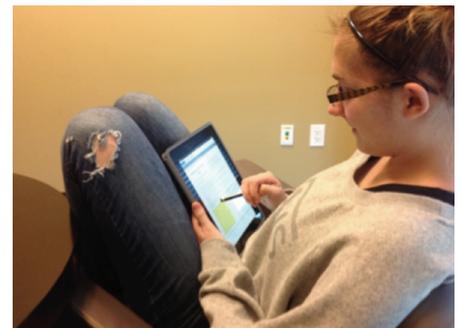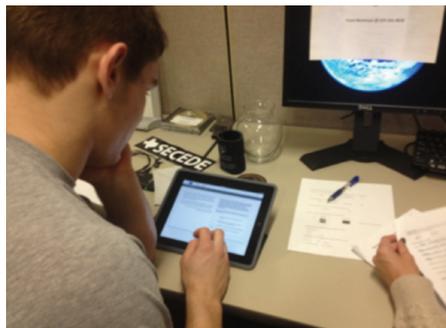
Encouraging flexibility in shifting tablets from one position to another during testing may help alleviate some of these issues. If students have the opportunity to work with tablets as part of daily classroom activities, they'll likely have a greater familiarity with the device and the ways its position can be changed for particular tasks. However, the more students are allowed to move the tablet to different positions, the more likely it is that other students in the testing room might be able to view their responses either intentionally or unintentionally.

More Questions to Answer

Further consideration should be given as to how to balance these concerns, and additional research should evaluate ergonomic impacts across longer periods of use and determine an optimal configuration for tablet use in testing scenarios. Follow-up studies to further explore ergonomics might involve a range of research questions, including:

- Do students experience discomfort, fatigue, or eye strain during long testing sessions with tablets?

- When provided with stands and external keyboards, do students prefer certain device/peripheral positioning based on task (reading, extended text entry, choice selection)?