Adjust Device Touchscreen Usability & Interaction Research Case Study

Presented by Theresa Wilkinson

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Agenda

- Project Overview
- The Problem
- Research Approach
- Key Findings
- Recommendations
- Impact

Project Overview

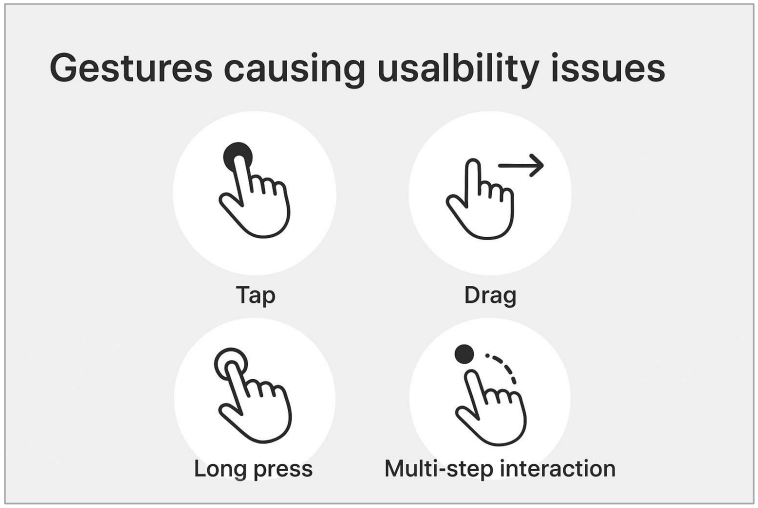
Role: Lead UX Strategy & Research
Organization: ETS
Duration: 20 months

Project Overview: The Adjust Device project evaluated how students in Grades 4, 8, and 12 interact with touchscreen devices during a digital assessment. I led all user interviews, think-aloud sessions, and behavioral observations to identify usability issues related to touch interactions, gestures, and item manipulation.

Key Contributions:

- Led UX research with internal ETS accessibility and usability experts to evaluate device-agnostic compatibility across laptops, iPads, and Chrome devices.
- Analyzed device constraints (screen size, resolution, input modalities, RAM) and how they affected accessibility, usability, and assessment integrity.

Project Overview



Key Contributions:

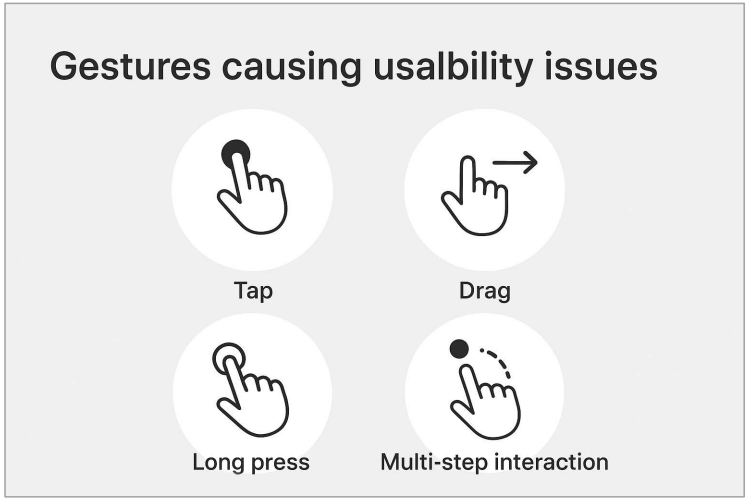
- Conducted user interviews and cognitive labs to identify barriers for students with low vision and fine motor challenges, highlighting scrolling, zooming, and touch vs. mouse interactions.
- Developed actionable recommendations to optimize gestures, content rendering, and interface layout for multiple device types, improving accessibility compliance and reducing user errors.
- Created guidelines for “letterboxing,” single-column layouts, and responsive zoom to ensure a consistent experience across devices, shared with NCES and cross-functional teams.

The Problem

Students struggled with precise touchscreen actions—especially when adjusting on-screen controls, dragging elements, or interacting with multi-step tasks. These issues created noise in assessment results and reduced confidence in item validity.

Research Approach

Research Approach



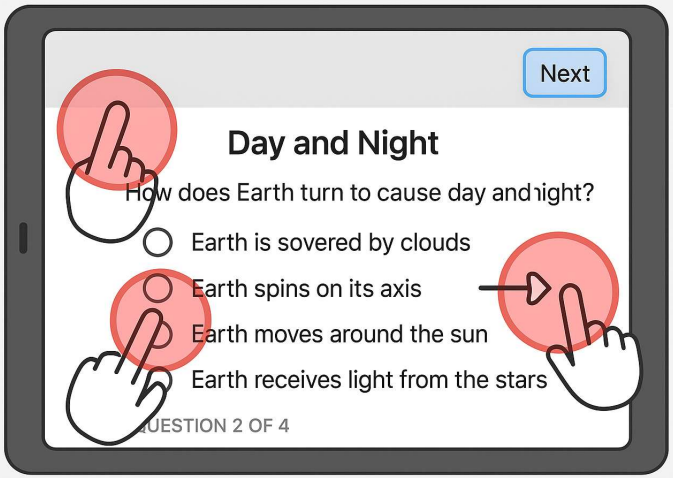
Methods Used

- One-on-one **cognitive interviews**
- **Think-aloud** task walkthroughs
- **Screen-recorded interaction logging**
- Observation of hesitation, mis-taps, repeated actions, and confusion points
- Multi-grade comparison (Grades 4, 8, 12)

What I personally led:

- Moderated all sessions
- Designed task flows
- Collected both qualitative behaviors and quantitative tap/gesture patterns
- Analyzed cross-grade differences in device interaction

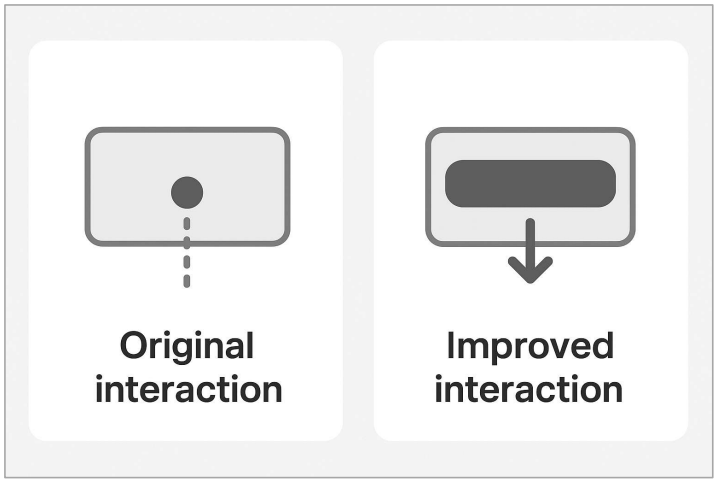
Key Findings



Household Assignment

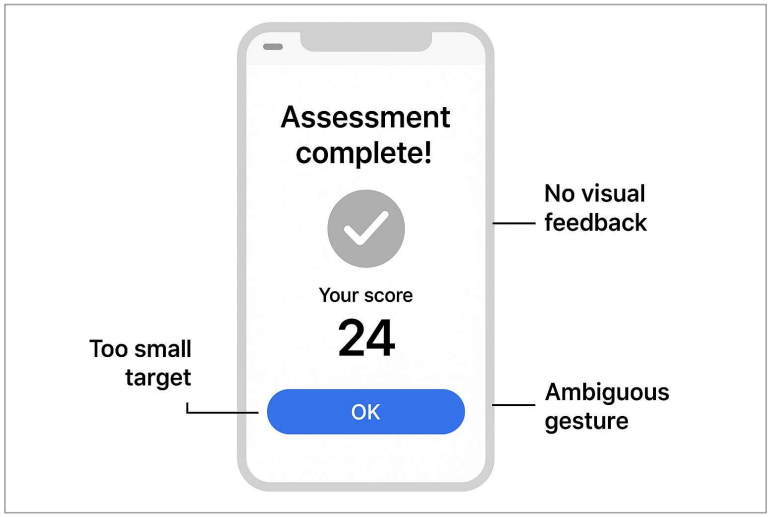
- Students frequently **mis-tapped** small targets or controls.
- **Drag gestures** were misinterpreted or dropped before reaching the final position.
- Younger students relied more on **trial-and-error**, causing repeated resets.
- Many assumed an item was broken when the interaction required **multi-step adjustments**.
- Across grades, students used **workarounds** rather than intended gesture paths.

Recommendations



- Increase **target sizes** and reduce required precision.
- Add **clear feedback** for adjustments (snap points, visual confirmation).
- Simplify multi-step interactions to **single-gesture** alternatives.
- Provide **gesture affordances** that signal drag-ability or tap-only options.
- Document expected touch behaviors to guide future item design.

Impact



- Improved clarity and interaction consistency across touchscreen items.
- Reduced user errors related to device handling and gesture complexity.
- Enabled teams to refine item designs for accessibility and reliability.
- Provided a repeatable **interaction-testing framework** for future assessments.

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