

iReading: A Design Research Project Using iPads to Support 1st and 3rd Grade Students Creating, Sharing and Evaluating Books for Classroom Reading

Purpose

Education researchers have the unique opportunity and responsibility to consider and develop ways in which new technologies can improve the quality of public education (Adams, 2011). Developments in mobile technology—laptops, tablet computers and handheld devices—represent an intriguing new frontier where public education can shed its all too frequent reputation as outdated and irrelevant and take on a position of leadership in how technology is used to support issues ranging from intellectual development to broader issues of justice and equity in terms of access to technology. In order to support education researchers in these goals, this paper allows researchers an inside look at an on-going design research study using iPads to support literacy development in grades K – 5 at a urban, public elementary school. Data from a specific two month long project where a class of 1st grade students and a class of 3rd grade students created, shared and evaluated texts on iPads provide an opportunity to analyze the affordances and challenges of adapting the traditional, research-based instructional practice of creating, revising and sharing texts to a new technological format. Initial results indicate that while mobile technology is not the “silver bullet” for all of education’s current struggles, it can serve as a powerful tool to support creativity and dissemination and that carefully structured activities can transform both the experience of learning and working as well as the actual outcomes produced. More specifically, students spent significant amounts of time composing text, reading text, and evaluating the merits and shortcomings of different texts, in ways that clearly indicate a depth of thoughtfulness, engagement and conceptual development that is far beyond the typical motivational bump from getting to play on a computer. Additionally, adapting the activity from a paper-based medium to an iPad-based medium made possible a set of practices and a model of sharing and distribution that would have otherwise been unfeasible.

Theoretical framework/Perspective

Education researchers consistently, albeit cautiously, affirm that new technology creates new opportunities both to improve current educational practices as well as innovate entirely new interactions (Adams, 2011; Gee, 2007). Based on my experience and interest in early literacy development and educational technology, I began a design research study looking at how iPads could support literacy development in a public, urban elementary school. While decodable texts and work sheets could be replicated on an iPad, several trials of this strategy revealed an equal mix of greater interest and greater distractibility but no discernible differences in learning outcomes. Since there is little to no research discussing let alone supporting the specific use of decodable texts for beginning readers (Hiebert, 2009) and moderately decodable, controlled texts have been shown to provide significant benefit (Hiebert, Martin & Menon, 2005; Juel & Roper-Schnieder, 1985), I decided to focus on students creating texts of their own and sharing these texts with other students to use as reading materials in their classrooms. This activity of text design and dissemination fits with Vygotsky (1978) and Cole & Griffin’s (1983) argument that the issues of purposefulness and audience are critical yet often neglected perspectives in traditional public education. Pearson (2002) describes how writing and reading are mutually interdependent and supportive activities and Shanahan (2008) argues that teaching writing and reading simultaneously helps students develop conceptual and analytical tools that align closely with current emphases on common core standards and demands for increasing text complexity. Kervin & Mantei (2009) look specifically at the affordances and challenges of technology use for instructional activities linking reading and writing.

Methodology/Data Sources

This presentation is based on an ongoing design research study looking at ways in which iPads could be used to support elementary school literacy development. As a design researcher first and foremost, I start

from Brown's (1982) classic formulation of the methodology as the intersection of research and teaching. Design research is by its nature an attempt to act effectively and reflectively on what we know—a stance that echoes powerfully with the mission statement of this conference. Schwartz, Chang and Martin's (2008) focus on the role of carefully designed interventions that lead to uniquely informative results pushed me to move from generally interesting and fun educational activities on iPads to a carefully designed project looking at 1st and 3rd grade students creating, sharing and evaluating each other's books. A detailed analysis of this two month long project highlights the adaptation of a research-based instructional activity with a history of tools and techniques for assessment (Shanahan, 2008) onto a new platform that supports both old and new tools and techniques for evaluating student learning, engagement and work produced. Analysis of student texts, drafts and recorded oral notes during writing sessions help document the writing process. Recordings of students reading created texts, data on books selected and time spent with each book as well as oral recordings of feedback students leave as responses to texts shed light on reading development and the broader process of students engaging in the constructive cycle of creation, evaluation and revision.

Results/Conclusions

Most traditional educational activities get a motivational boost when implemented on a computer. Even the most basic worksheet transported to a color screen with attractive graphics and sound effects can be a motivating alternative for kids who spend much of their day slogging through workbooks (Egenfeldt-Nielsen, 2007). iPads have the additional advantage of being easy to learn, currently fashionable, they appear more like a play device (e.g. Nintendo DS or Sony Game Boy) and they work especially well for the task of designing books, as well as reading and evaluating them. Beyond the issue of motivation, however, the first clear finding was that students' design practices were clearly affected by the medium. Editing and revising their books was done frequently, seen as important and enjoyable and repeatedly lead to meaningful discoveries and changes. Secondly, students exhibited an interesting range of behaviors related to which books they read, which books they reread, how long they spent with different books and the types of comments they made about different books. The clear take home is that a well structured activity designed specifically to take advantage of an iPad's strengths shows students to be capable of a much more engaged stance in relation to curriculum—moving from passive consumers to actively engaged designers and critics and that such a stance transforms the way students think about learning to read and write. While much of the transformation clearly happened within the students, the transformation of the medium—from paper-based activity to iPad-based, radically changed all aspects of the design/revision process and made possible a model of reading and interacting with each other's books that would have been practically impossible otherwise.

Scientific contribution

The beauty of design research is that it allows researchers to engage in a theory-based, iterative exploration of ideas while developing them sufficiently to warrant more thorough experimental investigation. As parents, teachers and administrators struggle to understand how recent technological developments affect students and might potentially benefit public education, the research community has the unique opportunity to help lead and shape the process of discovery rather than serve primarily to assess the results after the fact from commercially driven projects and programs. As the conference mission statement powerfully states, "Education must become the agent rather than the object of change". The model of research exemplified in this project and the specific project itself puts researchers at the forefront of educational innovation, paves the way for others to undertake similar explorations and sets the stage for the research community to have a significant voice in how technological innovations impact public education. This is critical both from the perspective of improving the quality of public education as well as from the broader perspective of equity and justice in relation to access to technology.

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