The pace of digital media development and academic research

Research must change its pace to adapt to evolving technologies

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How can researchers generate findings about digital media before the technology passes us by? How can research change its pace to adapt to ever-evolving technologies? I examine these questions in the following case study of conducting academic research regarding children’s use of digital media.

Young children are consuming digital media at rapidly increasing rates. And yet, as described in previous posts on this blog, research is still unpacking how digital platforms affect adult–child interactions and literacy skills, in particular. For instance, some research suggests that the introduction of electronic books (e-books) has negative consequences for interactions during shared book reading as well as story comprehension while other research show that book reading behaviors and outcomes remain similar across platforms.

In light of this contradictory evidence, I, along with my colleagues, sought to explore how e-reading applications might encourage invaluable parent-child dialogue, with the goal of creating a book reading experience that is effective at promoting later reading success. However, along the way, the app we used changed, and it marked a critical challenge for the project. Here, I share some preliminary findings from that study and then make suggestions for how research needs to change to align with the digital landscape.

Everything started out strong...

In 2013, we began by selecting three books that existed in traditional paper form and were also featured as e-books on the Scholastic Storia app platform. We asked which features of traditional and e-books differ (e.g., the identity of the voice reading the story, distracting or story-enhancing sounds, the presence of activities) and how these differences change parent-child interaction and child story comprehension. To do so, we randomly assigned parent-child pairs to either read one of the three books in paper form, as an activities e-book (featuring interactive activities), as an unembellished e-book (without interactive activities), or as an audio e-book (audio track read the book). Two of my colleagues designed the child story content assessment, featuring character identification, event identification, and story content questions. In addition, we used a coding system for parent language during book reading.

After 100 pairs completed the study, the preliminary results were in. Older children outperformed younger children on story content knowledge, which was expected. However, there were no significant condition differences or interactions on that assessment. That means that children scored equally well on story content regardless of whether or not they read one of the e-book
types or the traditional paper book.

To some degree, parent speech was influenced by platform; although there was no clear pattern that emerged. Yet, the most interesting finding was that a critical element of book reading might be the type of parent speech used, regardless of platform. There was a (thus far non-significant) trend for children whose parents used the most distancing talk to demonstrate the most story content knowledge, regardless of condition or age. Distancing talk—language that relates the story to children’s own lives—has been shown to help children connect with stories and make inferences.

This trend in our study mapped on to research that shows children learn best in meaningful contexts, or when they can place new content within contexts with which they are already familiar. We also found this finding to be particularly encouraging, because it aligns with our understanding of how critical parent-child back and forth conversations—or conversational duets—are for language development. Our findings suggested that these benefits are also present in learning from storybook reading.

A fly in the ointment...

We were excited to continue the study to determine the final results. However, in 2014, Scholastic shifted its app platform Storia from a home- to a school-based product. This led to the discontinuation of the app with which we had been conducting our research. It might seem like there should have been no issues; after all, we did test over 100 children! However, due to the presence of two age groups within the study (3- and 5-year-olds) in conjunction with four book-reading conditions, we did not have enough participants to publish our findings in a peer-reviewed journal. We have shared this work at various conferences to try to get the word out about what we did preliminarily, but it does not have the same potential reach and weight as that of a published paper.

Moving forward...

The case of the Storia e-book study presents both the benefits and pitfalls of conducting research with digital media. On the one hand, this is an ever-growing field that impacts families’ lives on a daily basis. At the same time, rigorous empirical research is often unable to keep with the rapid pace of technological development. It simply takes too long to collect enough data to present confident findings before the technology has moved on.

As a result, I want to call for more rapid cycle studies in this area. Frontiers of Innovation, the research and development platform of the Center on the Developing Child at Harvard University, provides a wonderful model for what this type of research might look like. For example, the Frontiers of Innovation Learning Through Play research group has been studying how games and play coaching can improve children’s executive functioning outcomes. Silvia Bunge from UC Berkeley along with Childhaven and the Children’s Home Society of Washington in Seattle have teamed up to undertake rapid cycle studies grounded in the science of learning.

The Frontiers of Innovation model allows for the team to (1) develop a theory of change; (2) create intervention strategies and materials; (3) use shared measures and add findings to a group database; (4) focus on understanding what works for different populations and why; (5) test using a rapid cycle of innovation; and (6) connect to a network of other pilot projects.
By taking similar approaches to conducting research on digital media use, we may be able to generate findings before technology has passed us by, thus allowing us to make evidence-based recommendations for parents, educators, and policy makers. The case of the Storia e-book study serves as a cautionary tale—research must change its pace to adapt to evolving technologies.

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