



*Tap in, Swipe Through, Pinch Out: Understanding the Role of Context, Content
and Child in Apps for Children*

F.L. Broekman

English Summary

Dissertation Francette Broekman

The digital revolution has brought forth smartphones and touch screen tablets, and fundamentally changed our experiences with media. Rather than an asset to daily life, digital media are becoming a part of daily life. In particular, among the youngest of our society, the popularity of these devices and accompanying software (i.e., apps) has risen explosively. Seemingly overnight, apps have become a multi-billion dollar business with the potential to shape the learning and entertainment experiences of our children. Although apps for children are received with both optimistic and pessimistic expectations, research is shifting towards a more positive perspective with researchers asking about the possibilities that apps offer and how they may differ compared to more traditional (analogue) media.

While this emphasis towards apps' potential for children is a valuable direction for the field, presently, the existing scholarship has tended to focus on the very youngest audiences (under 2s) with far less attention to preschoolers (i.e., children aged 3-7). This is a notable gap as these children are not only the most frequent young users of touch screen devices, but are also the most frequently targeted group in the children's app market. Moreover, when this group has been studied, the available work has primarily focused on storybooks— asking how and whether apps performed better or worse than traditional book reading. However, as new media technologies bring forward new opportunities unavailable with prior technologies (Guernsey, 2012), instead of looking “across” media (comparing new media to more traditional ones), it may be more relevant – or at least, as relevant - to look “within” the medium in order to understand its own unique features. These two broad gaps – namely, a lack of attention to the preschool audience and an inferior understanding of apps themselves – served as a core motivator of the work presented in this dissertation.

The three C's – content, context, and child – are frequently argued to be key aspects to consider when understanding children's relationship with technology. Guided by these three C's, this dissertation aimed to: (1) provide insight into how parents select apps for their children and how different styles of parenting influence their considerations [context], (2) investigate how the child's characteristics influence parents' selection of apps [child], and (3) evaluate how design features in apps influence children's experiences with apps [content]. In doing so, this work sheds light on the preschoolers' app environment in terms of the processes used to select apps, the characteristics commonly attributed to children's apps, and the influence of these apps on this young audience.

Chapter 2 focuses on the perspective of parents. As with other media, parents play a key role in young children's app selection and use. However, to date, we know little about how parents select apps for their children. Guided by Uses and Gratification theory, a survey was conducted with 591 Dutch parents who had at least one child between three and seven years old. Across two studies, parents' most important needs that drive selection of

children's apps as well as how these needs may differ by parenting style were investigated. Results indicated five overarching parental needs: a need for independent entertainment, coeducation, familiarity, a tailored challenge, and a need to pass time. These needs indeed varied by parenting style (authoritative, authoritarian and permissive parenting).

Delving more deeply, Chapter 3 addresses how the expressed parental needs might be fulfilled through features in apps. Current theory predicts that specific features of apps can fulfill needs, but empirical evidence regarding the types of features that fulfill these needs is non-existent. A multi-methodological design was used in order to obtain insight into the types of features that parents identified, how they might fulfill certain needs, and the role that the child's individual characteristics may play in that need-feature relationship. Qualitative interviews (n=20) revealed 23 features in children's apps that parents indicated as important. A subsequent survey (n=591) showed that parents are looking for apps with: a clear design, tailorable, controllable, educational content, challenges and rewards, and technological innovation. Consistent with theory, analyses revealed that parents' needs relate to these app features, but child's age and gender play a key role in this relationship.

Chapter 4 focuses on the design of apps and investigates how particular visual and tactile design features affect children's usability and learning from an app designed to support vocabulary skills. Guided by predictions of the Capacity Model and Cognitive Load Theory, cognitively-easier features were hypothesized to support vocabulary learning via app usability. To investigate this, an experiment was conducted among 128 children aged 4-5. Although children were able to learn 4,7 words from the app in a relatively short time (approximately 5 minutes), the manipulation of both features did not lead to any differences in vocabulary learning. The findings did reveal that cognitively-easier visual (salient or non-salient hotspots) as well as tactile (tapping and dragging) features affected different attributes of usability.

In all, through these studies, this dissertation reveals that parents, children, and design all shape the understanding of children's relationship with apps – both independently and conjointly. Thus, when studying children's apps, it is not only vital to consider the content of the app but it is equally imperative to investigate differences in the child user and the context of the use. And indeed, perhaps one of the most important and valuable takeaways from this dissertation is built upon the 3 C's (content, context and child) – there is no such thing as a one size fits all when it comes to apps for children. This not only opens new doors for future scholarship, but also reveals the complexity of our existing and evolving digital media landscape. As the children's app market continues to increase in size and complexity, vying for time in young children's hands, this dissertation will hopefully serve as a stepping-stone towards understanding what this new technology brings. There are certainly many challenges ahead, but given the potential ways that apps may enrich young children's lives, efforts to delve deeper into this complex field will be well worth.