Learning with the iPad in Early Childhood

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Abstract. Young children typically learn skills and knowledge through play and the exploration of their environment. In the last few years, many preschool children have also had the experience of playing on their parent's smart phone and/or tablet. Although, there is some research that indicates that exploration that includes the use of digital technologies can support the development of preschool children, research looking specifically at learning with the iPad for preschool children is just beginning to emerge. The focus of this study was to look at the use of the iPad by preschool children with special needs over a 6 week period of time.

Keywords: Mobile Technology, Special Needs, Preschool, iPad.

1 Introduction

Young children typically learn through skills and knowledge through play activities and active exploration of their environment. In the last few years, many preschool children have also experienced play activities on their parent's smart phone and/or tablet. There is some research that indicates that play exploration that includes the use of digital technologies can support the development of preschool children, but research looking at learning with the iPad for preschool children is just beginning to emerge. The focus of this study was to look at the use of the iPad by preschool children with special needs over a 6 week period time. The study examined the applications the children chose to use, parent perceptions of the use of the iPad by the child, parent/child interactions while using the iPad, and the supports that the parents felt that they needed to use the iPad effectively with their children.

2 Background

The use of the digital technologies for learning with preschool children is an area that has received some attention in the literature. Wang et al [1] looked at the value of interactive games and educational software in early childhood education, and the computer has become a common place learning tool in the education of young children [2]. Roschell, Pea, Hodley, Godin, and Means [3] found that activities on the computer could be stimulating and motivating for young children, and instructional activities on the computer can result in improved skills [4]. In other studies, Johnson, Perry, and Shamir [5] found that preschool and kindergarten children demonstrated

many positive skills changes as the result of computer-assisted instruction, and Li and Atkins [6] reported an association between early computer use and the development of concepts and cognition during the preschool years.

Digital technologies may also be very helpful for preschool children with special needs. Digital activities may provide stimulating activities that interest and motivate children with special needs. They may also support active exploration for young children who might be less able to explore or learning in typical ways because of their disability [7].

Although the research identified above demonstrates that computer assisted instruction can be beneficial for young children, research on the use of the iPad with preschoolers is just beginning to appear. The iPad offers the ability to explore and play in a new way. With its simple touch screen with multi touch finger gesture controls, engaging multimedia capabilities, access to thousands of early learning applications, and reasonable cost, the iPad has great potential as an early learning digital tool. However, little information exists on how this digital tool can be utilized effectively with preschool children with special needs. The focus of this exploratory study was on the use of iPads by preschool children with a range of mild to severe special needs.

3   Methodology

This research project explored the use of iPads by 6 preschool children with special needs over a 6 week period of time. The children demonstrated a range of special needs including: speech and language delays, attention difficulties, poor social skills, fine and gross motor problems, and so on. All the children were enrolled in a community based preschool program that provided educational support in a rural community.

The children received an iPad loaded with a range of early learning applications to play with for 6 weeks. The applications included apps for early math and counting, pre-reading, tracing, learning early concepts, printing, puzzles, coloring, and so on. Prior to beginning the study, a parent of each child was interviewed to determine the current skill level of the child and the child's previous experiences with technology. Each child was provided with an introduction to the iPad to ensure that they were able to figure out how to navigate the device. Several apps were introduced that provided practice with the basic navigation skills of tapping, swiping, and drag and drop. Once the child could demonstrate the skills to a reasonable degree, the child was introduced to a number of apps on the iPad. The parents also received basic information on how to use the iPad if they were not already familiar with the device.

The data collection for this qualitative study primarily included: a pre and post interview with a parent, a journal kept by the parents of the iPad of the apps used by the child, and observations of the child using the iPad at the beginning of, and at the conclusion of the research.

4   Results

At the beginning of this study, none of the children had difficulties learning how to navigate the iPad and use the apps provided. Most of the children picked up on how to

tap the screen quite quickly and were able to use the tool within about 20 minutes. Two of the children needed more support and had not quite figured out how to use the iPad without prompting by the end of the first 20 minute session. The parents of these children indicated that they needed an additional 2 o 3 practice sessions to become fully independent. Throughout the remainder of the 6 weeks, the parents indicated that the children used the iPad completely independently, finding and using the apps that they wanted to play with.

Throughout the six weeks of the study the majority of the children participating found the early learning apps on the iPad to be engaging and entertaining. The parents reported that the children were engaged in learning activities for extended periods of time and often practiced skills over and over. Even skills such as tracing and coloring, that many of the children did not normally like to do, seemed to capture the children's interest. All of the children involved in the study evidenced some learning gains throughout the six weeks in 1 or more areas. The majority of the children learned to print their name. Several of the children learned to print a number of letters of the alphabet and were even printing the letters on paper. One little boy had progressed to doing complex puzzles on the iPad. Several parents also reported that they thought that their child's language skills had improved during the 6 week time period. They were able to give examples of words that their child was now using and saying correctly that were directly related to an app that the child was very interested in.

A few issues arose during the course of the study. Some of the children wanted to play on the iPad more than the parents wanted them to. A number of parents indicated that they had to monitor the use of the iPad. One parent indicated that she just let the child play on the iPad because it was better than television in her mind. There were also a couple of children that were not that interested in using the iPad, preferring instead more active play or access to other technologies.

5   Conclusion

Overall, the results of this initial exploratory study of preschool children and the iPad are quite positive. All of the children, regardless of their special needs, learned how to use this device very quickly. The majority of the children learned how to tap and navigate within 15-20 minutes. Throughout the 6 weeks of the study, these children were also able to use this device independently to learn. This result indicates quite a departure from the use of computer assisted learning where children often experienced difficulties learning how to use the technology and required continual supervision to use the technology successfully. This technology provides preschool children with special needs an opportunity to engage in independent play and learning.

All of the parents indicated that their child demonstrated learning gains during the six week period that they attributed directly to specific apps on the iPad. Some of the parents indicated that the skills that their child practiced and learned were skills they had worked on for some time with not success. So why were so many learning gains evidenced during the 6 weeks. Several explanations come to mind. First, the students were interested and motivated to play games on the iPad. They were paying attention to what was happening on the screen and were highly motivated to "win" the game or "earn" a reinforcement. Second, the games provided an environment rich in verbal,

visual, and tactile feedback that is very attractive to young children. Finally, the children were motivated to practice skills over and over again because they were fun and reinforcing.

This exploratory study is the first of a number of studies that will be conducted that will look at the of the iPad with preschool children with special needs. Due to the very limited scope of the study, and the small number of preschool children participating in the study, it is a bit early to make any earth shattering conclusion regarding the use of tool to support preschool students with special needs. However, very positive results were reported by the parents indicating that this device may be an excellent early learning tool. Further research in this area is imperative.

References

1. Wang, F., Kinzie, M., McGuire, P., Pan, E.: Applying Technology to Inquiry-based Learning in Early Childhood Education. Early Childhood Education Journal 37, 381–389 (2009)
2. Nikolopoulou, K.: Early Childhood Educational Software: Specific Features and Issues of Localization. Early Childhood Educational Journal 35, 173–179 (2007)
3. Roschelle, J., Pea, D., Hoadley, C., Gordin, D., Means, B.: Changing How and What Children Learn in School With Compute Based Technologies. Children and Computer Technology 10, 76–101 (2013)
4. Hitchcock, C., Noonan, M.: Computer-assisted Instruction of Early Academic Skills. Topics in Early Childhood Education 20, 159–173 (2000)
5. Johnson, E., Perry, J., Shamir, H.: Variability on Reading Ability Gains as a Function of Computer-Assisted Instruction Method of Presentation. Computers and Education 55, 209–217 (2010)
6. Li, X., Atkins, M.: Early Childhood Computer Experience and Cognitive and Motor Development. Pediatrics 113, 1715–1722 (2004)
7. Primavera, J., Wiedelight, P., DiGiacomo, T.: Technology Access for Low-Income Preschoolers: Bridging the Digital Divide. In: Proceedings of the American Psychological Association, pp. 1–26 (August 2001)