Implementing iPad Apps for Elementary Language Arts

Hanan Alkhamis

Tara Haskins

Vincent Aleccia

Department of Education
Eastern Washington University
United States of America

Abstract

The purpose of this study was to examine the effectiveness of implementing iPad applications in the elementary language arts curriculum. A literature review examined four aspects of iPad use in schools: (a) the most effective apps for use in the classroom (b) iPad technology that supports reading and writing skills; (c) the benefits of using iPads in the classroom; and (d) the challenges of using iPad technology. The study incorporated a survey which was emailed to K-6 public school teachers in Washington State. This survey addressed teachers' perceptions about the impact of iPads on student learning. Teachers responded to questions and statements about the content areas of reading and writing. The study also examined perceptions about the classroom environment when iPads were used. The researchers recommend that more study be done on students' and parents' perception of the efficacy of using iPads and iPad apps in the classroom.

Keywords: iPads, Apps, technology, education, students, teachers

iPad technology is a world unto itself. Paxhia (2011) has observed that iPads have rich media capabilities and are more "computer-like in their functionality" (p. 325). Moreover, iPads have available a number of applications that allow students to learn and discover by themselves thereby improving their academic skills. Because of these applications, using iPads in the classroom increases students' brain development and improves academic achievement in a variety of ways. For example, Small, Moody, Siddarth, and Bookheimer (2009) found that students registered twice as much activity in all parts of the brain when doing an internet search compared with reading a book. In addition, they also discovered that searching online actually helps make the brain more active.

1. Review of Literature

Using iPads, another form of technology, allows students to learn and research simultaneously. Students' cognitive development has been shown to increase because of their ability to quickly navigate and manipulate technology. Waters (2010) noted that

> hundreds of apps available for the iPad can easily replace the notebook in schools. It can also move technology use to the next level by providing a simple-to-use, long-battery-life, instant-on-instant-off device that provides access to information, online tools, and much more. (p. 40)

In addition, iPads will help students gain knowledge no matter what their current learning level is. Students who learn quickly can move on to the next level; they will not need to wait for the entire class to get the information before moving on; they will learn more and faster. Carr (2012) found that using iPads helps students increase their academic achievement, and that iPad technologies might be used to guide students to appreciate, innovate, explore, prepare, and wonder about what may lead to improved achievement. Further, Khaddage (2013) observed that "[the] iPad is now capable of making the learning environment creative, challenging, and engaging thus enhancing the learning process among students" (p. 3234).

Paxhia (2011) observed that "Next-generation digital learning products have tremendous potential to offer students to individualize a solution to their learning challenges" (p. 326). The sheer number of iPads in use is staggering. Alyahya and Gall (2012) noted that more than 1.5 million iPads are being "used specifically for education and more than 20,000 educational applications have been created" (p. 1266).

It is also interesting to note that Paxhia (2011) asserted that "the current print value proposition is not meeting the needs of students" (p. 322).

One reason iPad technology and educational applications (known hereafter as apps) are effective in enhancing student learning is because of the diverse variety of materials the apps provide such as camera, movies, audio, books, games, and web content (Chen, 2011). Because students use a variety of technology in their daily lives, implementing technology tools in the classroom is important to engage them in their academic work (Weisberg, 2011). As Adams and Chung (2013) have asserted, the iPad is an adjustable technological tool and can prove useful to any learner at any level and for any subject. This flexibility allows teachers to give students opportunities for individual learning, using methods and materials that best preserve students' confidence and keep them engaged in the learning process.

This study focuses on four aspects of implementing iPads in the elementary school language arts curriculum: (a) the most effective apps for use in the classroom; (b) iPad technology that supports reading and writing skills; (c) the benefits of using iPads in the classroom; and (d) the challenges of using iPad technology.

1.1 **Effective apps for use in the classroom.** Norris and Soloway (2012) noted that there are more than 500,000 apps in Apple's iTunes Store, many of which are useful for supporting teaching and learning. Many of these target specific skills. For example, Carr and Prater (2013) in their study involving experimental and control groups of students using iPads observed that "classrooms with the iPads involved students utilizing apps to reinforce skill acquisition of letters/sounds and sight/spelling words" (p. 3857).

One such tool is the ePub book format, an open-source outlet for students and teachers to download books and use the free Subtext app to analyze or summarize what they are reading. According to Cohen (2012), "Subtext aligns with standard 1 by allowing students to make meaning from the text and find evidence to support their arguments, claims, or thesis statements" (p. 32). Another aspect of this app is that students can look up new vocabulary and discuss the books with classmates or others.

StoryKit is a mobile app that targets students between the ages of eight and 14, allowing them to create multi-modal stories that can be shared with others, or as a way to design interesting stories for assignments (Bonsignore, 2011). In addition, Bonnstette and VanOverbeke (2012) noted that "*StoryKit* is a highly rated app where students can write a story or summarize a fieldtrip with text, illustrations, photographs, and sound effects. The story can be saved in the iPad and published on the *StoryKit* webserver" (p. 3429). More rudimentary language-arts skills are available in the iWrite Words app, which allows students to practice drawing and writing words by using their fingers (Moffet & Amend, 2011).

1.2 iPad technology that supports reading and writing skills. iPad apps provide classroom teachers a variety of instructional strategies to help students learn to read and write correctly during elementary school. According to Bonnstette and VanOverbeke (2012), "[t]he elementary classroom builds the basis for the content areas and future success of students. From writing creative stories to fact mastery in mathematics, apps provide an engaging and interactive platform for learning" (p. 3429). Moreover, iPad apps help students to work cooperatively and independently. Gasparini (2011) noted that "iPads have also worked great for independent tasks that students could practice (using a variety of apps for creativity, 3D viewing, searching or simply working with curriculum)" (p. 49). Additionally, McClanahan, Williams, Kennedy, and Tate (2012) said, "technologies have come to redefine literacy in school, work, and home" (p. 20), thereby making learning easier for students. Indeed, as Geist (2011) noted, the educational community should consider using iPad apps because they are a significant determiner in enhancing student learning.

The most effective characteristic of the iPad is the capability to adapt and produce different content by means of apps (Gasparini, 2011). McCombs and Liu (2011) believed that "understanding the impact of the iPad in the delivery of curricula will help educators develop efficient and effective course materials" (p. 522). This understanding will also help school districts to recognize what hardware they need to fund to have a high-quality technology program in their schools. Indeed, students seem to be more comfortable reading via an iPad compared with reading on a laptop or desk computer (McClanahan et al., 2012).

Geist (2011) noted that the iPad is a useful tool for elementary students because it "allows children to manipulate objects in a natural way with little adult intervention" (p. 765). Many elementary students are mobile learners who move while they are learning, so incorporating apps in their instruction encourages them to learn more, especially using apps that have animation.

1.3 Benefits of using iPads in the classroom. Elementary students are more familiar using technology than previous generations of students who had a traditional education. Ludwig and Mayrberger (2012) noted that many teachers believe that using iPads are beneficial because these "mobile devices are easy and safe to handle and can be integrated in the class without a big expenditure" (p. 2158). In addition, iPad apps engage students with the learning. According to Schachter and D'Orio (2011), game apps help students learn state capitals, geometric shapes, and a variety of nicknames in a creative way. Several studies (Ludwig & Mayrberger, 2012; Norris & Soloway, 2012) also noted that iPads engage students by connecting them to other students collaboratively. They also observed that one of the most positive features of the iPad is the speed of touch-screen technology which allows students to research information quickly. Further, they asserted that students who use new technology devices in the classroom have more positive attitudes toward learning.

But affective benefits are not the only positive point of using iPads in the classroom. Rogers, Connelly, Hazlewood, and Tedesco (2010) have demonstrated that "mobile technologies can be used to facilitate the switching between task-based and sensemaking activities" (p. 122). Geist (2011) has also asserted that students will become active learners by using iPad technology as they will feel more successful and in control of their own learning. One final benefit of incorporating the iPad into the classroom is the effect is has on students' organizational skills. Students make their own library of apps, organize them for easy access, and store data in logical patterns. As Alyahya and Gall (2012) have noted, "students feels confident carrying their iPad with them because it organized everything: planner, articles, notes, emails, appointments, etc." (1269).

1.4 Challenges of using iPad technology. One obvious challenge facing schools and school districts that wish to incorporate the use of iPads in their instructional programs is cost. In 2014, the cost of the iPad Mini, which Apple touts as an educational tool, started at $299 for 16GB with internet connection over Wi-Fi networks (Apple, Inc., 2014). But just as crucial as allocating funds for iPads is the necessity for staff training. It is imperative that teachers be trained to use iPads and iPad-related apps in the classroom to maximize the instructional effectiveness of this technology. Thus, schools and districts that purchase iPads for student use must also commit to thorough training of instructional staff; otherwise, the investment will be less than optimal (Omiteru. 2012).

2. Method

The purpose of this study was to examine the implementation of iPads and iPad apps in elementary language arts classrooms and ascertain if the use of iPad technology improved students' learning. To address the four research questions, a two-part survey for elementary teachers was designed, which included 21 demographic items as well as 29 items that asked participants to respond on a four-point Likert scale with their level of agreement or disagreement. The second part contained two sections. The first section asked respondents about their perception whether the use of iPads made a difference in student motivation, collaboration, engagement, organization, student learning, performance, independence, and behavior. Specifically, respondents were asked to indicate their perceptions about how iPads supported students' reading and writing skills. The second part of the survey addressed teachers' beliefs about iPad use in the classroom. This part of the survey provided items to determine if using iPads in the classroom is an effective learning tool, if it helps student collaboration, if it provides encouragement for students, if it improves teachers' skills, if it holds the attention of students, if it changes student attitudes toward learning, and if it affects student achievement. This section also had items asking teachers if they felt iPads would replace textbooks, whether technology decreased or increased classroom-management issues, and if they needed more professional development to use iPads effectively in the classroom.

2.1 Participants. The participants in the survey ($N = 81$) were public-school elementary teachers (K-6) in Washington State. Permission was sought from 317 superintendents in the state; 46 (14.5%) responded. All of the schools participating in the survey had internet access.

Among the 81 participants, 76 (93.8%) indicated their gender; not surprisingly, 67 (88.2%) were female while 9 (11.8%) were male. In terms of distribution, more than half of the participants (41 or 57%) were located in a rural setting. Nearly a third (22 or 31%) were in a suburban setting, and nine (12%) were in an urban setting. Of 77 participants who reported the grade level they taught, there were nearly twice as many primary teachers compared to upper-elementary teachers, with several specialist teachers (music, art, physical education) teaching multiple grades.

2.2 Data analysis. The items in Table 1 addressed the use of iPads in the classroom (see Appendix). Interestingly, when the two columns of *strongly agree* and *agree* were combined, all but one of the 56 participants (98.22%) thought students were more motivated when using iPads in the classroom. In addition, the item dealing with student learning increasing as a result of the use of iPads was notable. Of 54 respondents, 47 (87.03%) indicated either *strongly agree* or *agree*. The results of two crucial items, "Reading skills improve" and "Writing skills improve," are an eye-opener. For reading skills, 35 of 47 respondents (74.47%) indicated *strongly agree* or *agree*. For writing skills, 22 of 48 respondents (45.83%) indicated *strongly agree* or *agree*.

The items in Table 2 addressed the beliefs of teachers about the efficacy of using iPads in the classroom (see Appendix). While 45 of 57 respondents (78.94%) indicated that they strongly agreed or agreed that the cost of supplying iPads to all students was prohibitive, an overwhelming 44 of 53 respondents (83.01%) strongly agreed or agreed that the iPad has affected student achievement at school positively. Moreover, 38 of 55 respondents (69.09%) strongly agreed or agreed that the use of iPads in the classroom has improved their teaching skills. One note of concern, however, is that 45 of 57 respondents (78.94%) strongly agreed or agreed that they needed additional professional development to maximize the effective use of iPads in the classroom.

3. Discussion

The analysis of the data indicates that many of the participants believed implementing iPads in the class has a positive effect on a teacher's skills as well as on student learning. In addition, 41 of 57 respondents (71.92%) indicated that they believe that the use of iPads in the classroom leads to more whole-class participation in discussions.

The majority of teacher respondents believed iPad apps improve their teaching skills, encourage more whole-class participation among students, change students' attitudes toward learning, affect student achievement at school positively, hold the attention of students, improve their motivation, and improve student behavior in the classroom.

3.1 Recommendations

This was an initial study on the use of iPads in the elementary classroom. More research is needed on students' and parents' perceptions of the efficacy of using iPads and iPad apps in the classroom. In addition, the effectiveness of the development of skills and concepts for students when they use iPads in the classroom—that is, the positive academic effects of using iPads in the classroom—needs to be studied.

If, as some respondents indicated, iPads are becoming the new textbook, research on instructional strategies and assessment regarding this technology would be useful. This would help teachers be more intentional in implementing iPads both for teaching and assessment. If iPads become commonplace technology in the classroom in the near future, we must face the question: will the reliance on this technology cause student skills in communicating with others to atrophy?

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Table 1: Using iPads in the Classroom

When using iPads in the Classroom….					
Item Prompt	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**	**Response Count**
Students are more motivated.	55.36% 31	42.86% 24	1.79% 1	0% 0	56
Students are more collaborative.	27.78% 15	48.15% 26	24.07% 13	0% 0	54
Students exhibit good behavior in the classroom.	30.19% 16	58.49% 31	11.32% 6	0% 0	53
Students learn and perform better.	20.75% 11	58.49% 31	20.75% 11	0% 0	53
Students' learning is increased.	25.93% 14	61.11% 33	12.96% 7	0% 0	54
Students are allowed to explore independently.	32.08% 17	49.06% 26	18.87% 10	0% 0	53
Students are more engaged.	48.15% 26	44.44% 24	7.41% 4	0% 0	54
The classroom is more organized.	13.73% 7	39.22% 20	45.10% 23	1.96% 1	51
Learning is more enjoyable.	30.19% 16	50.94% 27	18.87% 10	0% 0	53
The teacher is more effective.	15.38% 8	48.08% 25	32.69% 17	3.85% 2	52
Students seem more willing to do their work in the classroom.	29.09% 16	54.55% 30	14.55% 8	1.82% 1	55
Reading and writing skills are more supported.	19.23% 10	53.85% 28	25.00% 13	1.92% 1	52
Reading skills improve.	17.02% 8	57.45% 27	23.40% 11	2.13% 1	47
Writing skills improve.	12.50% 6	33.33% 16	47.92% 23	6.25% 3	48
Students score higher on assessments (State, District)	18.18% 8	36.36% 16	43.18% 19	2.27% 1	44
Students are provided with more choices in their learning.	26.92% 14	67.31% 35	3.85% 2	1.92% 1	52
Answered items					**56**
Skipped items					**25**

Table 2: Participants' Beliefs about iPads in the Classroom

I believe….					
Item Prompt	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**	**Response Count**
iPads are good tools for learning.	39.06% 25	59.38% 38	1.56% 0	0% 0	64
iPads encourage more whole-class participation.	31.58% 18	40.35% 23	22.81% 13	5.26% 3	57
iPads will displace textbooks.	15.25% 9	42.37% 25	32.20% 19	10.17% 6	59
iPads improve my teaching skills.	16.36% 9	52.73% 29	18.18% 10	12.73% 7	55
iPads help hold the attention of class.	22.41% 13	65.52% 38	10.34% 6	1.72% 1	58
iPads have changed students' attitudes toward learning.	17.86% 10	53.57% 30	17.86% 10	10.71% 6	56
Students are distracted by iPads.	10.71% 6	37.50% 21	35.71% 20	16.07% 9	56
The iPad is a good tool to help students collaborate.	20.69% 12	53.45% 31	18.97% 11	6.90% 4	58
The iPad has affected students' achievement at school positively.	16.98% 9	66.04% 35	11.32% 6	5.66% 3	53
The cost of supplying iPads for all students is prohibitive.	29.82% 17	49.12% 28	12.28% 7	8.77% 5	57
I need more professional development to use iPads in the classroom.	29.82% 17	49.12% 28	12.28% 7	8.77% 5	57
Students' behaviors are difficult to manage when using iPads in the classroom.	1.85% 1	16.67% 9	44.44% 24	37.04% 20	54
More reliable internet access is needed to effectively use iPads in the classroom.	26.23% 16	32.79% 20	27.87% 17	13.11% 8	61
Answered items					**65**
Skipped items					**16**