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Elementary Students' Perceptions of their Authentic Engagement When Using iPads

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Abstract
The purpose of this study was to examine the impact of a 1:1 iPad initiative on student engagement in the classroom. This case study consisted of six 5th grade participants from a suburban elementary school. Thematic analysis of data indicated that the 1:1 iPad initiative provided participants with (1) engaging and meaningful learning, and (2) personalized learning experiences. Implications include the need for: (1) schools to be informed of best practices for the implementation of iPads; (2) teacher education to provide future teachers with coursework on how students learn with iPads; and (3) professional development for teachers to use iPads.

Keywords
Elementary students, Engagement, iPads, Perceptions

INTRODUCTION

The iPad has been the device of choice in K-12 classrooms since it was introduced in 2010. Schools have been utilizing iPads to foster creativity and active learning that makes learning more impactful for students (Apple, 2016). Schools jumped on the opportunity to purchase this latest technology and to quickly get it into the hands of their students. This hurried acquisition and implementation of iPads alarmed educators and researchers alike, due to the fact that no knowledge on how iPads impacted student learning existed (Walters & Baum, 2011). The 2016 iPad in Education Results Report put out by Apple (2016) highlighted success stories from across the country in areas such as increased academic achievement, increase in student engagement and motivation, and a cohesive concentration on content and lesson design. While Apple did not participate in the collection or analysis of the data contained in the report, trends and outcomes from individual schools using iPads were self-reported to highlight the positive impact being observed in the classroom (Apple, 2016).

Similarly, the literature on studies of iPad use in educational settings also highlight the positive impact of iPads. For example, Walters and Baum (2011) claim that there are three benefits from having iPads in the classroom. First, they state that teachers will be able to transition from long-term assignments to smaller scale, apt-based academic tasks. Second, they claim the iPad will allow teachers to easily try out technology. Lastly, they claim that the iPad permits portability and the kinesthetic interactions which are not possible with laptop and desktop computers. Apart from Walters and Baum (2011), others like Clark and Luckin (2013) state that, "the research on iPad use and adoption overwhelmingly reported that tablet devices have a positive impact on student's engagement with learning" (p.4). In a similar study, Diemer, et al. (2012) found that the implementation of the iPads in the classroom increased students' awareness of their engagement, which had a positive impact on students' functional and collaborative learning. Hargis et al. (2014) also report that students who used iPads increased their empowerment, as they became researchers and more independent thinkers. In yet another study, Swan et al. (2007) indicate that there was increased student motivation and engagement in classrooms using iPads in comparison with students who were not given iPads. They also discovered that instruction in the 1:1iPad classes was more "student-centered, collaborative, project-oriented, constructivist, and flexible" (p. 509). Rice

(2011) also conveyed the effect of iPads on teaching and learning stating that "…students in the iPad classes moved around the classroom more and seemed to be more engaged in the material…iPads increase engagement and collaboration, acting as a facilitator for more easily sharing information" (para. 3-4). When utilizing iPads in the classroom, students themselves have stated that they perceived their level of engagement to be greater and to also have a positive bearing on their learning overall (Bebell & O'Dwyer, 2010; Bennett, 2011-12; Diemer et al., 2012; Underwood, 2014).

Based on the review of the extant literature it is evident that student engagement is one of the more accepted indicators of learning within the research stream on iPad use in classrooms; however, there is no clear definition of engagement within the research stream on iPad use in classrooms, especially from the students' perspective. While many districts and schools have initiated the purchasing and integration of iPads or other mobile technologies into their classrooms, research continues to be sparse on the effects of their use at the elementary level. Most importantly, the studies in this research stream are based in higher education settings (Bebell & O'Dwyer, 2010; Brand & Kinash, 2010; Diemer et al., 2012; Underwood, 2014) and there are limited studies on the use of iPads in elementary classrooms.

In line with gap in the literature and the limited studies on iPad use in elementary classrooms, this study attempted to ascertain if ubiquitous access to the technology impacted students' authentic engagement with learning and instruction in elementary classrooms. The following research question guided the study: *How do elementary school students perceive they are authentically engaged when using iPads in the classroom*? Next, the significance of the study is presented and this is followed by a discussion of the literature on student perceptions. In this study, the literature on student perceptions assisted in constructing elementary school students' authentic engagement with iPad use in the classroom.

THEORETICAL FRAMEWORK

To ensure that students are provided the opportunities to utilize iPads, teachers and schools alike must be informed of best practices for the implementation of iPads into the classroom. Schools must develop a clear vision as to how the implementation will occur and what it will look like in all classrooms. One commonly used model for technology integration the TPACK (Technological Pedagogical Content Knowledge) framework attempts to identify the nature of knowledge required by teachers for technology integration in their teaching and goes beyond seeing these three bases of knowledge as separate entities. This framework acknowledges that effective technology integration for pedagogy around specific subject matter requires developing understanding of the changing transactional associations between the components of teachers, students and knowledge positioned in unique contexts (Koehler et al., 2013). Adopting this framework can help teachers and schools develop a clear vision and the best practices needed for effective classroom implementation and development of engaging learning experiences for students, the phenomenon under study. Teachers and schools should always be cognizant of the ways in which students are using iPads when conducting research, completing projects, and in just everyday assignments. The intention of providing iPads or other technology through 1:1 program is to bolster student creativity, problem-solving and decision-making skills, as well as provide learning experiences where students are not solely consumers of information, they have retrieved using their iPad, but rather producers who create products from the cognitive processes they have gone through because of the research they have conducted with the iPad. The potential for the iPad to be a distraction is also something of which teachers and schools should be aware. Student self-regulation and self-control will be a necessary skill for students to have before integrating 1:1 iPad in the classroom and to prevent them becoming a classroom management issue for teachers.

SIGNIFICANCE OF THE RESEARCH

The significance of this study was threefold: First, this study adds to the small but growing body of literature on iPad use in classrooms and its impact on students' perceptions of authentic engagement. The assessment of students' perceptions, in regard to learning and engagement, has usually been utilized to measure the effectiveness of new technology devices and programs (Diemer et al., 2012). Recent studies have shown students reporting positive experiences with the use of technology; however, it should be noted that these studies investigated students' comfort level with technology use (Armstrong, 2011; Shuler et al., 2010) instead of students' perceptions of authentic engagement. Thus, there is a gap in the literature on students' perceptions of authentic engagement in relation to the use of technologies like iPads. Second, the study is rooted within the context of the necessity to prepare students with 21st century skills and STEM-related skills in order to remain globally competitive. Lastly, the study is also significant in that it informs educators, administrators, and districts about the possible benefits of investing in 1:1 initiative in regard to students' perceptions of authentic engagement with 1:1 initiatives.

STUDENT PERCEPTIONS

Perception is comprised of the way one sees the world around them and is a distinctively personal experience (McDonald, 2012). From an educational standpoint, a student's perception of learning is a significant factor in determining student success. Kuh et al. (2006) postulates that students' perceptions influence their fulfillment and the way in which they manage their academics in regard to the time and energy they put forth on educationally relevant tasks, which therefore directly impacts their education and individual growth. According to Patrick et al. (2007), "perceptions of the classroom influence students' beliefs about themselves and their schoolwork, and these beliefs, in turn, influence the nature and

extent of their engagement in academic tasks" (p. 83). Students' perceptions of the scope of their classroom environment, including affiliation, unity, equality, mutual respect, and support from both teachers and peers, are associated consistently with motivational and achievement behaviors (Ryan, & Patrick, 2001).

Research by Greene et al. (2004) suggests that perceptions of classroom assignments as significant, relevant, and stimulating also affect the degree to which students perceive their present learning as influential to their future success. Similarly, Miller and Brickman (2004) assert that perceptions impact student cognitive engagement because of the incentive worth of individually valued future goals. It is important to remember that perception is never objective. As McDonald (2012) states "it is an individual's or group's unique way of viewing a phenomenon that involves processing of stimuli and incorporates memories and experiences in the process of understanding. (p. 8). Therefore, the perceptions of students regarding technology and 1:1 initiative will be personally exclusive.

SITE AND PARTICIPANTS

The site of this descriptive case study was a 5th grade classroom in a suburban school district in North Central Texas. The district encompasses 127-square miles and serves more than 53,000 students from 13 municipalities. The school is in the 4th year of the district's 1: X initiative, a groundbreaking and transformative installation of a flexible learning environment that provides students with tools to access, create and collaborate as thriving, 21st century digital citizens. At the elementary level, the initiative encompasses providing an iPad to every fourth-grade student. Since it was the 4th year of the initiative, both fourth and fifth grade students had iPads and had experience using them in their learning. Prior to deciding which classroom to choose, the researchers reflected on Zhao and Frank's (2003) research on computer use in the classroom. Zhao and Frank (2003) found that the level of computer use was based on how supportive teachers were of technology use in the classroom. Therefore, the researchers looked for a teacher and classroom that embraced technology use in the classroom and one who was cognizant of the educational benefits of implementing it in their classroom.

Potential participants were selected using purposeful, criterion sampling and administered an initial survey. After a thorough review of survey responses, six participants were chosen. Individual, semi-structured interviews with each student-participant followed. Methods were in place to protect participant confidentiality as stated in the university approved Institutional Review Board consent forms signed by participants and their parents/guardians. Additionally, participants were given pseudonyms.

DATA COLLECTION

Multiple sources of data were used in this study to provide a more thorough understanding of the phenomenon. Collecting data from multiple sources allows for intersecting lines of inquiry that triangulate and validate the data (Yin, 2009). Data collection consisted of student interviews, focus group discussions, and classroom observations. Interviews for this study were semi-structured and questions were open-ended and designed as conversation starters in order to gather as much information as possible from students. In addition, the interviews conducted were comprehensive and asked students to expound on the use of the iPad in the classroom and its impact on their authentic engagement, if any. A focus group discussion was also employed as a data collection method. A focus group is defined as "a group of individuals selected and assembled by researchers to discuss and comment on, from personal experience, the topic that is the subject of the research" (Powell & Single, 1996, p. 499). It provides verbal data via group interaction. Therefore, in this study, a focus group discussion was used to complement the individual interview data. Data was also collected through observations since this study was focused on student perceptions, which required data to see what was occurring within the classroom with participants' use of iPads in their respective elementary classrooms.

DATA ANALYSIS

The data collected via interviews, focus groups, observations, and recordings was analyzed using thematic analysis, with the purpose of identifying patterns and themes of participant perceptions of their engagement from within the data. Braun and Clarke (2006) define thematic analysis as, "a method for identifying, analyzing and reporting patterns (themes) within data" (p. 79). In accordance with the protocol recommended by Braun and Clarke (2006), transcribed interviews were read and re-read and compared with the original recordings for accuracy. After checking for accuracy, transcripts were read several more times and preliminary themes were noted, and these included the following: (1) Participants consistently mentioned their dislike of worksheets vs. using the iPad. (2) The iPad allows for more individualized learning opportunities. (3) Participants enjoy projects that promote collaboration and interaction with their peers. (4) Participants prefer having choice when it comes to their learning. (5) The iPad is used more in science and math class than in the other subject areas. (6) Using the iPad made learning more interesting and helped participants be more engaged in their learning

The second step in the analysis process required examining the transcribed interviews to identify potentially meaningful pieces of data in order to verify preliminary themes. Each subsequent data extract was checked to see if it fit within an already existing preliminary theme or if it required a new preliminary theme to be generated. After creating the initial thematic map, a set of candidate themes evolved, which led into the next phase of analysis. This analysis involved reviewing and refining the candidate themes on two separate levels. First, all data extracts related to each theme were read again to determine if a clear pattern existed. Those that fit into a pattern were then reviewed at the second level. If an extract didn't fit, it was either placed under another theme, put to the side to possibly be included under a newly created theme, or discarded from the analysis (Braun & Clarke, 2006). Level two of the review entailed comparing the initial

thematic map and candidate themes with the data set as a whole to determine not only the validity of the themes, but also whether the thematic map correctly portrayed the meanings present in the data set (Braun & Clark, 2006). As stated by Braun and Clark (2006), the two main purposes for re-reading the entire data set was to determine whether the themes 'worked' in regard to the data set and to also code any additional data that was possibly missed.

This process allowed for the combining, removal, and/or renaming of themes when deemed necessary, resulting in a developed thematic map of this process. Further reviewing and refining of the developed themes occurred within this second level with three main themes ultimately being identified.

FINDINGS

Two main themes surfaced from the thematic analysis of data. In the first theme, "*Assignments/Schoolwork*," participant responses centered on the types of tasks given and the participants' enjoyment of and interest in learning because of these tasks. The second theme, "*Personalized Learning*," participant responses focused on the ways in which the iPad allowed for content and/or assignments to be individualized and the participants' engagement in learning as a result.

Assignments/Schoolwork

Within this theme, all participants shared responses during interviews in regard to assignments and schoolwork that expressed the type of tasks that they found meaningful, interesting, and enjoyable. Participants stated their preference of assignments that involved research, projects, and the use of various websites, programs, and apps.

Research

Using the iPad for research was mentioned by participants in both individual interviews and within the focus group discussion. The iPad's role in research was described by Layne as, "… instead of doing research in our book we can just do research on our iPad instead." Blake similarly stated, "…we do a lot more digital stuff, like you could go to a website and research this instead of looking it up in a book." Both participants concurred on the ease of using the iPad for research rather than an actual book. Other participants simply mentioned research in the context of how much and for what purpose research was done. When asked if the iPad as used more for research or creating, Margaret responded with, "I'd say probably equal because most of the stuff that we have to create we have to research about before we create it. So, it's probably about even since every activity on here requires both." Sylvia added, "And when we do the projects, we also learn a lot of information."

During the focus group discussion, most of the students mentioned the Animal Wars project and the research that accompanied it. Lily stated, "…the more research you do, the better you'll do in Animal Wars." When asked to elaborate, she explained that researching various animal adaptations and determining which ones would be best to deter potential opponents in an animal war helped when creating an original animal for battle. Layne added, "We were battling with them to see which animal had the best adaptations…," followed by Blake stating, "We win with our adaptations and traits."

Projects

Most of the participants stated that they used their iPads for multiple projects in their classes. Of the projects mentioned, they spanned a range of subjects and involved a variety of different apps available on the iPad. Layne described a food web project and Evelyn a geographical region project that both involved research on the iPad. As described by Layne, the food web project involved looking up different species of animals to use in the web. The region project Evelyn mentioned required research to gather information about the chosen region, such as climate and culture of the area. Blake was able to describe several projects that were completed using the iPad. Creating a Google Slide presentation to show the classification of objects in science, researching and writing about a woman who changed the world, and researching a historical figure and creating a presentation in Google Apps for the living museum were a few that were mentioned. Additionally, Margaret described a project from math class that was consistently assigned by the teacher that involved filming a video in iMovie. She stated, "He has us make a lot of videos about like teaching the stuff that we've learned so that he can know that we've comprehended it because if you learn something you can definitely teach it."

Also, during the group discussion, Blake described an additional project from his learning enrichment class in which he used his iPad. The project involved creating a play to present in which students were given two options for the presentation – a live performance of the play or creating a video of the performance. Blake explained how choosing the live performance required all the parts to be memorized by the participants, whereas choosing to video the performance allowed more flexibility since the play could be broken down into parts. He stated, "…with the video, you can take it in different parts, and you only need to memorize that one part, or you can go over your lines between shots of filming."

Programs/Websites/Apps

During the individual interviews and also the focus group discussion, participants mentioned multiple programs, websites, and/or apps that their teacher used to assign work or that they used to produce or complete work. Consistently stated by all participants were the various apps available through Google. Google Classroom was mentioned as a tool that was frequently used by the teacher who taught Science and Math. When asked to explain Google Classroom, Lily stated, "Classroom is like when Mr. Wendorf assigns something, and you can go on that assignment and do it and you can also

send something to the whole class and Mr. Wendorf." Margaret added that not only did the teacher post assignments on Google Classroom, but instructions and other resources were included as well. She stated:

> … if there's ever something I'm not quite sure about, I can look if Mr. Wendorf has posted something on Google Classroom that might help, or just as a resource I know I can go to for extra help if I need it.

Google Slides was another app within Google Apps that students said they frequently used. Half of the participants mentioned an assignment in Reading that involved using Google Slides. Upon finishing a novel in their respective book clubs, students created a slideshow in Google Slides that detailed all the story elements from their specific novel. Sylvia explained how before using the iPad, this assignment consisted of filling in information on worksheets, gluing them into file folders to make a portfolio, and then illustrating. With the iPad, she said, "…instead of making a portfolio, we can make a slideshow…. We took information from the book, and it's basically like a big summary of it using different parts like the setting, characters, stuff like that."

In the subject area of math, participants mentioned various websites and apps to which they had access, either for instruction, practice, or enrichment. Several of the participants stated that Pearson Realize, the online component of the math textbook, was frequently utilized. Sylvia described Pearson Realize as a platform where students can watch videos that help explain math concepts and take assessments, both formative and summative, assigned by the teacher. Layne stated that Pearson was the resource that was accessed most frequently when learning math concepts. He also mentioned the programs Education Galaxy and Reflex Math and indicated that he believed they helped him learn because, "…instead of thinking of doing – being stressed about doing Math, you can be playing games, but also not knowing that you're learning Math, but you actually do learn Math." Other participants described their use of Education Galaxy and Reflex Math as resources for practicing skills or as an option for when they completed their assigned work.

Personalized Learning

Another theme that surfaced was that of personalized learning. The basis of this theme centered on participant responses that included how utilizing the iPad allowed them to have more choice in their learning, allowed for collaboration, and encouraged interactive learning. This theme identified both how the iPad made their learning interesting and meaningful, its influence on their engagement, and how the iPad made their learning experience more personalized.

Choice

The participants all expressed choice as being a benefit of the iPad when it came to individualized learning. During the individual interviews, Layne stated:

> We have more options to use instead of just one option. We have more and multiple options. Because you'd have more options in the iPad than to do in others. You could do it on the book, but you could also look up your iPad.

Choice was discussed more frequently during the focus group conversation. Several participants mentioned the selection of apps from which they had to choose. One participant expressed how the iPad provided more variety and more things for participants to choose and use, such as apps and websites, making learning easier and more fun. Another way that iPads allowed participants choice was explained by Blake. During an assignment that required participants to create a play, he stated, "…you had two options. You could video it and or do a live performance." Without the iPad, making a video would not have been an option for participants. Participants also mentioned how the iPad gave them the option of accessing content according to their skill level. Margaret stated:

> …if a teacher is just talking about a topic that you already understand, if you're on the iPad, you could move on to the next topic and you can get like more out of it, individually, because somebody might like still not understand what the teacher is saying, so they could go back and re-learn it. But if you're already a step ahead, you can keep going and learn more than you would with the teacher talking about something and kind of holding you back.

Sylvia agreed with this and added that being able to move on also helped her from getting bored. She said that listening to the teacher talk at the board, focusing on just one topic, was when she found herself really starting to get bored. She went on to explain that with the iPad, "if you get bored with one thing, then you can move on to another thing." Margaret also mentioned that the iPad provided students, "a lot more freedom and that like really helps student learn."

Collaboration

Collaboration was mentioned minimally during the individual interviews; however, it surfaced often in the focus group discussion. Individual discussions revealed participants voicing their enjoyment of collaborating with their peers when making videos in class. The focus group discussion expanded somewhat on the videos, but also further explained how and why the iPad fostered collaboration. Being able to use the iPad and the apps and other available resources, participants had the opportunity to participate in more group projects which involved, "collaborating to make something creative or fun," and not having to do worksheets. All participants agreed that their most memorable work using the iPad was a project called 'Animal Wars,' which involved students collaborating with a partner or small group to create an animal that could survive a war against another animal. Participants had to research the adaptations of different animals to determine which ones they would use for their animal to withstand a battle. Then, participants searched for pictures of the different adaptations they chose and put them together to form their animal using the app Pic Collage. One participant explained, "…so if you wanted like a head of a lion and the body of an alligator, so you could clip all those." Researching the

different adaptations and picking the ones to create their animal entailed collaboration among partners and group members. Additionally, some participants commented that they utilized several of the apps in Google so that all group members had access to whatever was being worked on so that the project was truly a collaborative effort.

Interactive

Participant responses from the focus group indicated that the interactive nature of the iPad was something that participants embraced and found engaging. Margaret started the conversation by stating, "...I find things interesting when you're like actively doing something and not just like sitting and taking notes and like listening to the teacher talk, like that's good to learn stuff, but it's also good to do things like actively." When asked to elaborate on what actively looked like in the classroom, Margaret described working in groups and collaborating with classmates to do something fun and creative. Blake continued by adding that students could do more things when they had technology. He stated:

> …while your teaching is worksheets, and the teacher stands up at the smart board or whiteboard and walks you through, which is good and all. But if you have technology, it's better because you can take photos and videos and like interactive websites and stuff like that. And so it becomes a lot more interactive.

In a follow-up comment, Blake added that his work was, "…a lot more interactive and it's a lot more personal" when the iPad was utilized. Layne mentioned the interactive component of making videos using the iPad. He said that he, along with whomever he was working, had the freedom to do whatever they chose with the video, including adding sound effects. According to him, being actively involved in an activity is what engaged him the most. When addressing videos, Margaret had a similar response. She stated, "Like when we we're doing videos, I was always like really like having fun with it because it's more of an active kind of thing than just sitting down and listening to a teacher talk." Additionally, she added that when creating videos, there is always something to be done, such as filming or editing or writing a script. With a part of the video creation process always keeping her actively involved, she said she finds this the most engaging.

In summary, the theme of Assignments/Schoolwork surfaced as significant, as it seemed to be one of the factors that influenced the engagement of the participants. Additionally, the specific type of assignments or schoolwork played a role in their level of interest as well as their enjoyment of the subject area. Personalized learning developed as a second theme as participants expressed how having an iPad allowed more opportunity for individualization of work. Learning that was collaborative, interactive, and provided choice was more interesting and engaging to participants.

DISCUSSION

Findings from this study revealed that participants were more engaged in class when utilizing iPads for learning which cohered with the literature on iPads and student engagement (Bebell & O'Dwyer, 2010; Diemer et al., 2012). Participants mentioned that being able to use the iPad in class made the content more interesting, enjoyable, and not boring. Additionally, participants stated that the type of work or assignment utilizing iPads played a part in how engaged they were. Examples of such work specified by participants included individual or group projects, creation of videos, research, and the use of a variety of apps and websites such as Google Docs and Slides. Work that was interactive, collaborative, and provided choice was described by participants as the most engaging. Participants expressed that this allowed their learning to be more personalized to their individual needs and learning styles.

As previously stated in the literature review, teachers and students from some of the nation's larger 1:1 programs largely agreed that having access to laptops increased student engagement (Argueta et al., 2011). Evaluation reports from these initiatives also reflected greater student engagement after the implementation of the 1:1 technology. Studies of these programs revealed that students found school more interesting and enjoyed school more when teachers incorporated technology in the classroom (Corn & Mollette, 2011). Findings from this study also supported the findings of Argueta et al. (2011) and Corn and Mollette (2011), especially the finding that that 1:1 technology like iPads increased opportunities for interesting lessons and instruction and thus, enabling more students to be engaged.

The findings of the study also support the idea that 1:1 iPads in the classroom increase the engagement levels of the students. As stated by Bebell and O'Dwyer (2010), teaching and learning practices are often transformed when 1:1 technology is implemented in classrooms. Participants in this study reported that they were more engaged in their work when they had the opportunity to work on specific types of assignments, for example collaborative projects. Research and assignments where participants utilized various apps, programs, or websites to practice skills, or to create or complete work were ones reported to be the most engaging. Participants' perceptions of worksheets were negative, and participants agreed that their preference was to use iPads over completing a worksheet to show their understanding of a concept. The finding from this study coheres with Sandholtz et al.'s (1997) claim that when given a choice, students picked assignments that involved technology over paper and pencil assignments almost every time.

Also consistent with the literature review were participants' perceptions of the ability of iPads to make their learning more individual and personalized (Bennett, 2011-12; Diemer et al., 2012; Underwood, 2014). Additionally, the use of the iPad in the classroom was perceived by participants as addressing their various learning styles (visual and kinesthetic learning). This cohered with Bennett's (2011-12) emphasis that the use of iPads encourages active student participation especially for kinesthetic learners. It is evident from this study that technological devices like iPads facilitate routine engagement in a broad range of activities, encourage exploration of different forms of schoolwork, and increase opportunities for collaboration and student expression (Underwood, 2014).

Another perception several participants mentioned in individual interviews or focus group discussions was the potential for the iPad to be a distraction. Due to the ease of being able to access games and other websites, participants stated they were distracted from the work they were doing. This is consistent with the literature review which described that in one of the larger 1:1 programs in the nation, evaluation reports revealed that while technology positively impacted student engagement, the devices also had the potential to be a distraction (Corn & Mollette, 2011).

CONCLUSION

As of 2011, there were approximately 2,000 1:1 programs across the country, with the number growing every day. The rate at which 1:1 programs are being implemented to enhance student learning warrants a study on how 1:1 programs like the utilization of iPads impacts student engagement. This study of elementary students' perceptions of utilizing a 1:1 iPad in the classroom provided an understanding of how having access to a 1:1 iPad in the classroom impacted their authentic engagement. The findings from this study add to the research literature that indicates that 1:1 initiatives can foster engaging learning experiences that are meaningful to students. The findings of this study also revealed that the iPad provided students with a more personalized learning experience which had a positive effect on their engagement. Additional findings disclosed that the type of assignments and schoolwork that students were able to do with the iPad also positively impacted their engagement and interest in the content they were learning. Most importantly, the findings of the study, that is, authentic engagement when using iPads as pathways for assignments/schoolwork, and personalized student learning acknowledges the changing transactional associations between the components of teachers, students and knowledge positioned in unique contexts (Koehler et al., 2013). An area of research that requires more in depth and nuanced focus seeking the effectiveness of technology integration for pedagogy around specific subject matter for developing student understanding in classrooms.

Research continues to be sparse on the effects of iPad use in classrooms at the elementary level. Most studies have focused on their use at the secondary or collegiate level. While the findings of this study supplement the current body of literature on students' perceptions of their engagement using iPads and it contributes to the small, but growing body of research on the use of iPads in elementary classrooms.

IMPLICATIONS

For Teachers and Schools

To ensure that students are provided the opportunities to utilize iPads, teachers and schools alike must develop a clear vision as to how the implementation of iPads will occur and what it will look like in all classrooms. Having a clear vision and the knowledge of best practices for classroom implementation can assist teachers in developing engaging learning experiences for students.

For Teacher Education/Teacher Educators

Teacher education programs would benefit from providing future teachers with coursework, not only in the 'how-tos' of many of the programs and apps that today's students use, but also coursework for teachers on how these students think and learn differently with new technology being implemented in classrooms.

For Professional Development

Providing teachers the training needed to be able to utilize technology, as well as the devices students are provided with would help teachers become more comfortable with the technology and hopefully lead to an increase in technology integration in all subject areas. Professional development in the form of technologically savvy teachers providing campus-based learning sessions for their peers would also allow teachers to learn in a setting where they may be more inclined to take risks and disclose what they know and don't know.

LIMITATIONS

Two limitations were evident in the study. (1) Researcher bias: The study was conducted in the same school where one of the researchers was the principal and thus, the possibility existed that the students were influenced by their affiliation with the researcher. To reduce the researcher bias we purposefully sought the collection of multiple data sets (interviews, focus groups, and classroom observations) and triangulation of the data sets to study the phenomenon of iPads and students' perception of authentic engagement. (2) Small sample size: Data was collected from small purposeful sample, one 5th grade classroom. Five students were selected from the class to participate in semi-structured interviews and focus group sessions. While the sample size was small, purposeful sampling was intentionally chosen for the ability to focus on specific characteristics of the chosen population, which best assisted the researcher in answering the proposed research questions.

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