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The Digital Transition from Textbooks to Tablets in Saudi Arabia

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THE DIGITAL TRANSITION FROM TEXTBOOKS TO TABLETS IN SAUDI ARABIA

by

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DEDICATION

This dissertation is dedicated to:

The memory of my beloved parents, Ali Alhamed and Nora Alotaibi,

May Allah have mercy on their souls;

My husband Waleed Alsuhaibani;

My beloved boys Khalid and Abdulrahman.

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ABSTRACT

Technology has greatly impacted education around the world, including in Saudi Arabia. Educational technology supports teaching and learning processes, and its integration into schools supports successful initiatives to improve learning in the classroom. Introducing a new technology resource, such as computer tablets, into learning settings is crucial in the delivery of more varied and more interactive instructional content at all student levels.

This qualitative research study concerns the digital transition from textbooks to tablets in Saudi Arabian schools. The goal of the study was to examine the use of tablets by current teachers and to investigate their perceptions of and feelings towards tablets. This study also helped to identify benefits and disadvantages of using digital technology devices in schools. The researcher used a purposive sampling technique for an in-depth understanding of the phenomenon. The data was collected through semi-structured interviews and observations. Six Saudi teachers who use tablet devices in their classrooms agreed to be interviewed and observed and to participate in follow-up interviews.

The data were analyzed using thematic analysis, which emphasizes the important themes across the collected data. The findings indicate a persistent dilemma of which participants were not aware: the intent of transitioning to tablets is not matched by what takes place in classrooms. This study found that teachers use tablets as supplemental instruction, but books are still the primary method of instruction. The major problems with tablet implementation in this school were inadequate teacher input into the transition process, training, and ongoing support.

CHAPTER 1: INTRODUCTION

Technology has affected many of the things that humans do, from the ways in which we interact, communicate, and meet to the ways in which we work, learn, and teach. Devices initially meant for communication have become central instruments of entertainment but also play a part in almost every element of our lives. Technology has greatly impacted education sectors around the world, including in Saudi Arabia (Gorhan, Oncu, & Senturk, 2014). Technology is an important resource for the development of positive learning environments in various educational institutions, ranging from elementary schools to universities. Educational technology supports teaching and learning processes, and its integration into schools helps in the creation successful learning initiatives in the classroom. As a result, installing new technology resources such as tablets into learning settings is crucial in the delivery of instructional content at all student levels (Al-Lily, 2013; Mirriahi & Alonzo, 2015). The use of tablets in classrooms allows a teacher to combine software and computer technologies, including information technology, to support optimal student learning.

Tablets have gained immense popularity for their ability to accommodate customizable content which fits most basic requirements of the user (Herold, 2016). A tablet is a convenient, wireless, and portable computer device that does not involve the use of a mouse or trackpad to operate because it includes a touchscreen interface (Mang & Wardley, 2012). Usually, these devices are smaller than computer laptops and larger than smartphones. They come in different brands such as Apple iPad, Samsung Galaxy Tab, Kindle Fire, and Microsoft Windows tablets.

The digital transition from textbooks to tablets is characterized by the benefit of the efficient use of space and time (Mirriahi & Alonzo, 2015). According to the U.S. Department of

Education and studies conducted by the National Training and Simulation Association, technology-based instruction can reduce the amount of time students use to achieve their learning objectives by 30% to 80% (Digital Textbook Playbook, 2015).

The use of tablets has greatly impacted the achievement of students since the start of their use for instructional purposes (Alzannan, 2015). Students' attitudes regarding the use of smart devices in the educational environment as an alternative medium of content delivery were documented by Bouhnik and Yom-Tov (2016). The researcher found that students enjoyed using tablets for study and to prepare homework assignments. Students expressed the desire to use educational videos, animation, and digital books to access course content. In this study, students also wanted access to academic sources so as to make more use of their devices at home. Students' preference for tablets was further reinforced by Rockinson-Szapkiw, Courduff, Carter and Bennett (2013), who observed that high school students prefer to access text in electronic form as opposed to hard copy or textbooks.

Tablets have improved students' cognitive skills, hence performance in handling cognitive exercises, as compared to students who have experienced traditional instruction methods (Nassuora, 2012). The reading ability of SA students who used tablets was also greatly enhanced (Alzannan, 2015). Similarly, a study at Monterrey University in Mexico investigated whether the integration of e-books increased students' motivation to study (Martinez-Estrada & Conaway, 2012). The study found a significant difference in reading speed between learners who used tablets and others who used; both sets of children were more enthusiastic about using tablets than textbooks. These positive results could be due to the interface of the tablet, which attracts students to use it more often for reading.

This study focuses on how tablets help teachers convey knowledge to students. This research topic is important because SA has a government plan to drop all print books from schools and replace them with digital books (Alshaya, 2017). Compared with other countries, SA invests heavily in education, allocating about 25 percent of its annual budget to schools (Pennington, 2017). The Education Ministry in SA has plans to make all its 30,000 schools go digital (Connell, Bayliss, & Farmer, 2012). The change process is being facilitated by the launch of the “Tatweer" initiative, a 2015 initiative that aims to train 50,000 teachers in science and technology (Tatweer Company for Educational Services, 2018). Established in 2012, Tatweer is working with the Ministry to develop the Saudi educational system by introducing more technology into classrooms. Among the technologies offered are computer tablets. In 2018 the Ministry of Education introduced a new program called Future Gate to promote digital learning in schools (Future Gate, n.d.). The program aims to create a new learning environment based on technology in the delivery of knowledge to students. Saudi teachers were encouraged to use technology in their teaching practices (Albiladi & Alshareef, 2018). Schools were each provided with 150 iPads for students and teachers, the first step of the government’s goal to eliminate all printed books in K-12 classrooms. Based on information from the SA Department of Education, and in partnership with the US, UK, and Finland, SA started a six-month training program for teachers and principals from schools in Riyadh city. This program aimed to improve the quality use of technology in the classroom and train participants on how to use tablets in teaching (Ministry of Education, 2016).

Statement of the Problem

In recent years, there has been continuous development of computer technology that enhances transfer of data, ease of communication, reduction of paperwork, and even improved

research and teaching in schools through the adoption of electronic devices in the teaching process. One of the critical features of effective teaching is the selection of material for instructional purposes (Triona & Klahr, 2003). The growing need for education stakeholders to stimulate learning through the use of audio-visual devices such as projectors, whiteboards, and microphones has culminated in teachers using tablets in their teaching (Triona & Klahr, 2003).

Adoption of technology in the teaching process has several advantages, both to teachers and students. In choosing tablets as the instructional medium, teachers can make sure that the materials in the tablets are consistent with both the needs and the strengths of the students (Mang & Wardley, 2012). Due to their interactive nature, tablets enable students to learn more material in a short span of time because they are more accessible and deliver more current information than other materials such as computers and textbooks (Enriquez, 2010; Chou, Block, & Jesness, 2012). With tablets, students can search for information, independently or in teams, participate in small group discussion, and work on a worksheet, all at the same time. With tablets, both teachers and students have access to more teaching and learning materials since a tablet can hold many textbooks, thus eliminating the need for physical storage of books and other classroom materials (Mang & Wardley, 2012). Similarly, tablets reduce the need for students and teachers to carry multiple heavy print books (Rockinson-Szapkiw et al., 2013). The use of tablets promotes the use of e-textbooks, which are less expensive than print textbooks (Woody, Daniel, & Baker, 2010). E-textbooks have useful technological features such as the ability to highlight and edit text and add notes without ruining the book (Harper, 2018). Teachers can also consider the interests and choices of individual students, the length of the materials in the tablet, as well as the background knowledge students have with respect to the content in the tablet (Baporikar, 2015). Teachers have to make sure that the material they select allows their students to

comprehend meaning as they make use of their learning strengths (Mirriahi, Alonzo, & Fox, 2015). The use of digital materials tends to challenge the mindset of children, each of whom has a different capacity to comprehend the usability of and content in each tablet. Therefore, as with any educational materials, the responsibility rests upon teachers to understand the capabilities of their students while using the materials in class.

Despite its numerous advantages, the transition from print textbooks to tablets also has challenges and disadvantages. First, although e-textbooks are cheaper, the tablets themselves are more expensive than print textbooks (Cheek & Hartel, 2012). Along with other handheld electronic gadgets, tablets have also been associated with adverse health effects such as visual problems (Rosenfield, 2011). Tablets may experience technological glitches and failures that disrupt the progress of the class, especially as more applications are installed (Rockinson-Szapkiw et al., 2013). Also, tablets can incur damage, like being broken or hacked, which does not happen with printed materials (Woody et al., 2010). Tablets are more likely to be stolen than printed textbooks (Alvarez, 2013). Finally, some textbooks are not available in digital formats; therefore, total adoption of tablets would make it impossible for teachers and students to access all published materials (Woody et al., 2010).

According to Alharbi, Alotebi, Masmali, and Alreshidi (2017), and as confirmed by my own literature search, there is little research available about tablet use in SA. Therefore, an in-depth study is required to discover the experiences of teachers in using such technology in their classrooms and to expand the limited research on the use of tablets for educational purposes in SA. This study also helps to identify various benefits and disadvantages of using digital platforms in schools.

Purpose of the Study

The lack of available research on the use of tablet computers in classroom settings in SA motivated the researcher to investigate this topic. The goals of the study are to examine the use of tablets by current teachers in SA and to investigate their perceptions of and feelings towards tablets. This study seeks to explain and identify the different ways that teachers can use tablets as an educational tool to improve the education process and student outcomes.

Research Questions

This research study explores the following questions:

1) How do teachers in SA use tablets?
2) What are teacher perspectives on using tablets in SA schools?

Theoretical Framework

School administrators and principals practice educational leadership by working together with teachers to improve the educational process (Hallinger, 2003). The role of educational leaders goes above and beyond just managing tasks. They need skills in decision-making, creativity, and vision to improve educational systems and develop policies (Fullan, 2002).

The transition from textbooks to tablets requires effort from school administrators. To make sure this change occurs, they need to discover new strategies that work well with teachers and students. John Kotter (1996) offered eight steps to organizations to implement successful and powerful change: make a sense of urgency, create a powerful coalition, build a clear vision and strategy, communicate the vision of change, remove obstacles, generate short-term wins, build on the change, and establish the changes in organization culture (Kotter, 1996). The first step in Kotter's framework for the digital transition from textbooks to tablets is to create a sense of urgency by engaging in discussions with teachers to create awareness of the current problem and

how it can be solved by using tablets. The second step, creating a coalition, requires teacher leaders to become involved, including building teamwork among teachers to help and support each other. The third step needs school leaders to articulate a clear vision for teachers of the overall aim of the transition, and of how using tablets in classrooms can support that vision. The fourth step needs administrators to communicate the vision throughout the school frequently and powerfully in all their meetings with teachers. The fifth step is to anticipate and remove obstacles, for example creating a system of technical support in the school, providing adequate internet access, and encouraging and supporting teachers to move away from traditional ways of teaching and use creative ideas and activities. The sixth step occurs when leaders create short-term wins for teachers to recognize and reward, frequently and promptly, those who have worked to make change happen. The seventh step is to ensure that the change will persist by continuing to look for improvements to using tablets and to support and reward improvement among teachers. The eighth step requires the change to become an essential part of the culture of the school, by the school providing the Ministry of Education with regular updates and encouraging new teachers to be part of the change.

The use of tablets in classrooms has led to changes in the culture of schools. Students experience more educational democracy in the sense that they have more freedom to make educational decisions and choose the appropriate specialization for them, which develops independent learning as early as 6 years of age (Milman, Carlson-Bancroft, & Boogart, 2014). Tablet use in classrooms increases student interaction, ease of obtaining information, and sharing with classmates. Tablets have changed the dynamics of classrooms in the direction of student-centered learning, shifting the focus from teachers to students (Lieberman, 2019). In SA, students must stand up to participate in classroom discussion, a requirement which wastes time

and distracts students (Nather, 2014). With tablets, students can keep their communication consistent and demonstrate their learning using applications such as Google Classroom and Edmodo.

The developmental journey to using tablets instead of textbooks will allow leaders to support teachers and students to use tablets, not only for consuming information but also for processing, creating, and connecting it (Daccord & Reich, 2015). Initially, however, teachers must recognize the changes that need to occur in their approach to teaching before they even start applying the change.

Significance of the Study

Based on recent technological advances, it is important to introduce technology into various aspects of our daily lives, including the education sector (Tondeur, Van Braak, Sang, Voogt, Fisser, & Ottenbreit-Leftwich, 2012). A digital transition is occurring from textbooks to tablets in SA schools as a means of improving student achievement (Alzannan, 2015). However, empirical research is limited on the impact of using tablets instead of textbooks on both teachers and students in the classroom setting.

Understanding the perceptions and experiences of teachers in using tablets will provide valuable information that can inform the tablet initiative going forward and help ensure its success. The results of this study will be useful to the Ministry of Education, to school administrators, and to teachers.

Chapter Summary

In sum, there is a need for research on how tablets are utilized in SA classrooms. The purpose of the study is to identify the different ways that teachers can use tablets as an educational tool to improve the education process and to explore teacher perspectives on using tablets in SA

schools. The chapter includes the model of change by John Kotter (1996) to explain the 8 steps of a successful change in an organization. Chapter 2 provides a literature review on the use of tablets in education.

CHAPTER 2: REVIEW OF LITERATURE

This study focused on SA's process of transitioning from traditional printed textbooks to digital textbooks. To set the context, this chapter discusses relevant literature in several important threads, all of which provide information about the classroom use of tablets and are relevant to the research question in this study: the Saudi K-12 educational system; enhancement of learning experiences with tablets; how tablets accommodate special needs; instructional benefits of tablets: teachers and students transitioning from textbooks to tablets; and educational applications of tablets..

The Saudi K-12 Educational System

The Ministry of Education, established in 1954, controls education in SA (Ministry of Education, 2019). The government provides free education at the primary, intermediate, secondary, and university levels. SA has both public and private schools, all segregated by gender, and all follow the same curriculum and use the same textbooks (Oyaid, 2009). Students enroll in first grade at the age of six and continue in primary school for six years, followed by three years of intermediate and then three years of secondary education (Ministry of Education, 2019). At the end of each educational level, students take an exam to evaluate their knowledge and establish their eligibility for the next level. The primary level curriculum includes Islamic education, Arabic language, mathematics, science, geography, history, and English. Public primary schools introduce English in 4th grade, whereas private schools begin English in 1st grade (Ministry of Education, 2019). Instead of teaching degrees, teachers in SA have degrees in content areas that allow them to teach that content area. For instance, an individual with a bachelor's degree in history would teach only history, and an Arabic subject graduate would

teach only Arabic subjects.

Educational Technology in SA

SA is a developed nation with a stable economy. It is ranked 9th among 14 countries in the Middle East and North Africa (Saudi Arabia, n.d.). Its economy is driven by oil production and tourism. The SA government has invested substantial resources in improving the education system, in part by embracing technology (Pennington, 2017). The Ministry of Education made technology part of the Saudi curriculum in 1991 (Oyaid, 2009). Children are introduced to information technology at an early age in order to build a foundation for academic success. The rapid adoption of technology worldwide adds to the urgency for SA to integrate technology into its classrooms (Farooq & Soomro, 2018).

Technology has an important part in the education sector in SA, enhancing the learning potential of students and empowering educators with classroom management systems and presentation tools (Albiladi & Alshareef, 2018). From preschools to institutions of higher learning, a plethora of devices--smartphones, laptops, smart boards, and tablets--has opened access to a vast amount of information for both teachers and students (Faisal, Ahmad, & Ansari, 2015). Public schools have encountered many implementation challenges such as lack of professional development, opposition to change, and failure to understand the significance of digital literacy (Faisal et al., 2015). While public schools have lagged in the implementation of these technologies, private schools have adopted them and are looking for ways to improve their use of them.

Types of Technology Used in SA *Schools*

The use of technology in classrooms provide teachers and students with alternative ways of teaching and learning. Teachers in SA use different technologies such as interactive

whiteboards, blogs, social media groups, mobile devices, computers, and LCD projectors to enhance the learning process (Isman, Abanmy, Hussein, & Al Saadany, 2012).

Interactive whiteboards, known as smartboards, are widely used in Saudi schools and universities. Smartboards have a sensitive electronic display that can be manipulated by touch. A smartboard can be connected to a computer, either directly or remotely, to interact with computer or internet applications. The computer can be in turn connected to a digital projector display (Halasa, 2016).

Teachers in Saudi schools use blogs to distribute articles, supplementary information about new concepts, and media that support the study plan. Blogs allow students to add comments, post new blogs, and share educational pages. Social media such as Twitter play a similar role as blogs and are widely used by students and teachers. Teachers can easily and quickly share information about assignments and include links to different sources or pages, and students can share, forward, or respond to the information on the social media platform (Norman, 2016).

Mobile devices such as tablets, smartphones, and laptops are widely used and desired by teachers and students. In order to be effectively used, these devices must be connected to a wireless network. What makes mobile devices different from other types of technology is the ability to use the devices anywhere and anytime (Al-Faleh, 2012). Mobile devices can use a variety of applications to enhance and support the learning process. They enable teachers to develop lessons using free online materials in selected apps.

Computers are considered one of the most important elements of development and progress in education because of their benefits such as the ability to handle a large amount of data that can be retrieved at any time. Computer science was introduced as a course in the Saudi

school curriculum in 1999. Most schools in SA have computer labs for students and teachers to use. Computer labs allow a group of students to perform activities at the same time. The most used computer programs utilized are Microsoft Word and simulation programs (Al-Dahmash, 2007; Al-Hassan, 2004).

LCD projectors that can be connected to computers or any other device are widely used in Saudi schools as well. Teachers use LCD projectors as a teaching tool to bring real life situations to the classroom by displaying PowerPoint presentations and playing relevant movies, video, and animated stories. One of the benefits of LCD projectors is engaging students in web-based content during the lesson (Reedy, 2008; Sundeen & Sundeen, 2013).

Objectives of Introducing Tablets to the Saudi Educational System

The Saudi government seeks to develop its educational process and transition from its traditional image to a new image by using technology in delivering educational materials (Ministry of Education, 2019). By introducing tablets in the classroom, the Ministry seeks to achieve the following objectives:

- Create a student-centered classroom, which will allow students to be responsible for their own learning process;
- Minimize the carrying of heavy books, particularly by primary school students;
- Prepare students for their future working environment where tablets are widely used in many professions; and
- Improve students' mental skills, such as critical thinking and problem solving.

Enhanced Learning Experiences

In modern-day learning environments such as in the U.S., more than half of the students usually prefer technology-based courses in schools or universities (Beckman, Bennett, &

Lockyer, 2014). Surveys conducted at one Australian higher education institution in 2013 indicated that most students have strong feelings that digital materials have greatly impacted their schoolwork. More than 93% indicated that technology helps them learn new concepts, 58% indicated that technology helps improve grades, and 60% agreed that technology increases their engagement with course materials (Mirriahi & Alonzo, 2015). The technology resources needed for student learning can take several forms, often including specialized tools such as computers, scanners, printers, and other hardware.

The introduction of mobile devices has led to an increase in technology-based learning at all education levels (Montrieux, Vanderlinde, Schellens, & De Marez, 2015). Such resources often take the form of tablets, which can promote valuable classroom discussion by stimulating students to think critically, connect with other students, generate ideas, and articulate them clearly (Bannister, 2015). The portability of tablets with their touch screen and simple controls makes them appropriate for in-class work. Additionally, tablets tend to have social media platforms or apps such as WhatsApp that can be used for information sharing in the classroom (Gorder, 2008).

Generally, tablets are easy to use; offer a personal approach, direct communication, and quick visualization; and most importantly, are more cost-effective than textbooks (Beal & Rosenblum, 2018). A school in Wisconsin saved $13,000 ($60 per book) by replacing 80 biology textbooks and 137 science textbooks with tablets (Moore, 2017). When using tablets, teachers can design a wide range of classroom activities and outcomes-based learning materials (Habler, Major, & Hennessy, 2015). Therefore, tablets help and support teachers in designing relevant course materials. They can also assist teachers with their evaluation processes. Using apps, teachers can track each student’s performance and thereby enhance the individual approach to

teaching and learning (Young, 2016). For example, the applications GoFormative and MasteryConnect help teachers track every student's progress and identify the level of their understanding (Lane, 2018).

Elmahdi, Al-Hattami, and Fawzi (2018) conducted a study in Bahrain, which borders SA, on the use of technology to improve student learning. They found that that using devices such as tablets and computers in delivering learning materials increased equal participation opportunities while creating a fun and exciting learning environment. For instance, one student said "…I think that it's a very useful method to engage all students to participate even if they are shy or quiet…" (p. 185). Many programs, such as Blackboard, facilitate communication inside and outside of class. Teachers can use the calendar tool to remind students of due dates of assignments or notify them of changes, while the conference tool is useful for meetings with off-campus students. The discussion tool allows those who are too shy to speak in class to share their opinions, communicate with other students, and post their questions to their teacher (Sneller, 2007).

Additionally, tablets make it easier for teachers to organize and manage classroom work. However, during the time when tablets are in use, teachers make sure that all activity choices that students make in using their tablets are appropriate and that they enhance students' learning. Teachers should also consider the background knowledge students bring with respect to the content in the tablet (Blagojevic, Brumer, Chevalier, O'Clair, & Thomes, 2012). Teachers need to make sure that the material they select allows their students to comprehend meaning as they make use of their learning strengths.

The integrated classroom settings that are facilitated by the use of tablets are important in motivating students to engage in active learning, as well as increasing the amount of feedback for both teachers and students (Suárez-Guerrero, Lloret-Catalá, & Mengual-Andrés, 2016). Tablets

enable students to take charge of their own learning, which helps increase their academic achievement. For example, tablets offer personalized lessons in which each student can set his or her own goals (ChanLin, 2017). Students can structure their own lessons in order to better understand the concepts taught in class and therefore finish their assignments in a shorter time than expected by their teachers. With tablets, students tend to grasp finer details of concepts more easily because they have access to the internet to either retrieve information or use specific tools such as wikis and blogs (Gokcearslan, 2017).

Thus, tablets both broaden students' sense of responsibility and influence their decision-making processes (Fisher, Gonzalez, & Frey, 2013). With tablets, students have access to research and are able to use recommended resources to do their homework. They do not need to visit a library or access a computer, as they can use the tablet anywhere there is access to the internet. Tablets also encourage students' creativity through providing tools for drawing, composing music, or creating films (Corbeil & Corbeil, 2011). Tablets are a vital source for making learning fun and exciting, thus encouraging and motivating (Ciampa, 2014).

Studies show that the quality of education compared with traditional learning and teaching methods improves with the introduction of tablets. For example, Zhang, Trussell, Gallegos and Asam (2015) studied a fourth-grade classroom at a public elementary school in an urban environment in the southwestern US to answer the following question: "Can selected math applications improve student learning of math, particularly for struggling students?" (p. 34). Three mathematics apps that utilized various strategies to help in performing multiplication and decimals were presented to students. Twenty students each completed nine assignments, with each student using three different apps. The results showed that use of such mathematical apps

could improve students' performance in math and reduce the achievement gap between struggling students and those with higher scores (Zhang et al., 2015).

The use of tablets as instructional materials in SA has been shown to improve reading skills and lessen the time within which students' complete educational tasks (Alzannan, 2015). Tablets have enhanced the information processing speed of students, hence, affecting their achievement in class work (Al-Mansour & Al-Shorman, 2011). The use of tablets has also increased the accuracy with which students perform writing-related tasks. All of this works toward improving educational achievement (Al-Mansour & Al-Shorman, 2011).

Accommodate Special Needs

According to Battal (2016), in SA, education for people with special needs must be one of the priorities of educational reform in order to ensure that this group is integrated into society. The continuous interest in developing education and learning has motivated stakeholders to search for solutions for students with special needs that can compensate for the scarcity of educational resources, whether traditional or digital, that have made the task of teachers difficult and complex. Tablets can be among those solutions, by supporting and helping students with learning disabilities (Beal & Rosenblum, 2018).

Tablets have many features that accommodate students with special needs (Shah, 2011). For instance, students with fine motor difficulties prefer using tablets over pen and paper or a point-and-click mouse to take notes or track their assignments (Lin, 2019). The ability to enlarge text and choose different fonts and colors gives some students the ability to read text that is inaccessible in print form (Shah, 2011). Students with hearing impairments could find the personal audio function of tablets an important resource (Liu, Chou, Liu, & Yang, 2006). Indeed, the list of ways that students with special needs could and would benefit from the application of

tablets in the classroom is endless. From the research conducted at Taiwan Junior High School, it is evident that technology-based learning can enhance students' learning activities, participation, and experiences (Liu et al., 2006).

Accommodating students with special needs in the digital transition from traditional textbook-based methods to tablets involves using diverse approaches aimed at increasing their academic engagement and achievement (Parette, Blum, & Quesenberry, 2013). The majority of students with disabilities need minimal accommodations in order to participate fully in the learning process (Howard, Phu, & Lan, 2012). For instance, students with disabilities may require changes in schedule or learning environment, use of assistive technology, or individualized support from instructors, rather than technology devices, to improve their access to learning materials (Howard et al., 2012). Some students who are unable to put pencil to paper as a result of impaired motor skills may be able to overcome their motor skills deficits through the use of tablets that are designed for easy operation (Beal & Rosenblum, 2018).

Many students with learning and physical disabilities prefer using text in electronic rather than printed form. Cavanaugh (2002) pointed out that students with physical disabilities have many options to manipulate digital text, such as controlling text size and style, changing the contrast of screen colors, and using the text-to-speech feature. Studies on students with impaired reading ability found that applications such as text-to-speech improve students' comprehension and vocabulary (Beal & Rosenblum, 2018). Retter, Anderson, and Kieran (2013) studied 13 9thgrade students with reading disabilities in a midwestern US high school. The study aimed to measure the impact of iPad reading applications on students' reading skills as measured by the Stanford Diagnostic Reading Test. The study showed that students gained significant reading comprehension and vocabulary by using iPad reading applications.

Instructional Benefits of Tablets

A digital transition is critical for supplementing available teaching tools (Gabriel, 2011). Besides serving as important learning resources for students, digital educational resources, including tablets and audiovisual interactive platforms, are important teaching tools for teachers (Gorder, 2008). In Habler, Major, and Hennessy's (2015) study, more than 75 percent of teachers gave positive feedback on the application of digital devices to their teaching activities. For instance, tablets allow educators to develop lesson plans and graphical content needed to foster improved learning for all students (Pringle, Dawson, & Ritzhaupt, 2015). Research findings indicate that a transition to digital educational materials is necessary for enhancing students' engagement in learning, besides simply keeping the lesson fresh (Habler et al., 2015).

The use of tablets in classrooms helps to improve students' academic achievement (Kareem, 2015). However, tablets themselves are not the primary reason for success, rather the integration of tablets to improve existing learning methods to increase student creativity (O'Malley, Lewis, & Donehower, 2013). For instance, a middle school teacher used the Einstein tablet, an Android tablet with eight built-in sensors that are commonly used in most science curricula, in a science program called Weather Watch to answer this question: why are southern regions of the U.S. warmer than northern regions? Students ran a simulation to judge differences in the intensity of light in the various regions. During the experiments, students were able to observe and gather quantitative and qualitative data. When students had all the data, they exported it to a spreadsheet app to use in their journals or/and email the journals to their classmates and teacher. Students can also connect their devices to a digital projector and present their findings to the class (Laura, 2014).

Teachers Transitioning from Textbooks to Tablets

Benefits

Teachers use tablets to support their teaching and provide them with more resources to deliver learning materials in different styles to fit all students' needs. Teachers have many ways to use tablets in classrooms, including reading and listening to e-books, researching any topic without the students having to leave the classroom, creating and sharing multimedia projects and comics, creating a note-taking page on the web and encouraging students to contribute ideas, and using apps such as multiple-choice quizzes to evaluate students and receive immediate results (Lynch, 2018).

Increase Motivation and Enjoyment. Apart from increasing enjoyment while teaching, there is increased motivation as the teachers find it easy to teach and transfer knowledge to the students (Wu et al., 2012). The new teaching techniques that tablets bring with them change the atmosphere in the classroom. For instance, tablets enable teachers to act as collaborators, managers, and facilitators rather than experts in the learning process. Moreover, tablets have reduced the workload for teachers as they can assign and assess class work remotely (Husbye & Elsener, 2013). Such devices can assist teachers to introduce real-world examples and offer scaffolding when delivering the school curriculum. In addition, instead of students having to wait for the teachers' input, tablets offer feedback on student performance; report progress; give students the opportunity to reflect and pose ideas; and assist in testing and revising students' understanding (Baran, 2014). Teachers can also use tablets to communicate and explain concepts to their students (Oyaid, 2009).

Increase Efficiency and Save Time. A benefit of computer tablets in educational settings is that they increase efficiency and save time (Husbye & Elsener, 2013). Teachers are able to

achieve these advantages by, for example, pre-assigning work for their students using the institution's web portal or email well before students attend actual classes. With the use of tablets, teachers can provide interactive education to students through the quick survey, mathematical simulation, web-based science, and quiz applications. These tablet applications are enjoyable while at the same time conveying knowledge. Tablets can help teachers present required information in a way that can be easily understood (Baran, 2014). For example, teachers can make use of multimedia applications or show students how to include side notes and interactive annotations, which will assist them later when they are reviewing the content (Ali, 2013).

The integration of tablets into classroom settings is linked to the objectives of enhancing the delivery of course material and improving access to educational services and to advanced activities (Hutchison, Beschorner, & Schmidt-Crawford, 2012). For instance, a study on how teachers use technology in their classrooms by Purcell, Heaps, Buchanan, and Friedrich (2014) found that teachers frequently ask students to conduct research, submit their assignments, develop wikis, and engage in online discussions.

Customize Students' Learning. Typically, using tablets enables teachers to personalize the learning experience, particularly when they involve various modules that are suitable to different levels of skills, language, and learning styles. In support of this argument, the State Educational Technology Directors Association showed how teachers can have greater flexibility when delivering instructions using digital contents (Fletcher, Schaffhauser, & Levin, 2012). Overall, a major reason to encourage the use of tablets in the classroom is so that teachers can immediately assess an individual student's work.

Change the Dynamics of the Classroom. It is also relevant to discuss how the replacement of textbooks with tablets will change the dynamics of the classroom. The focus of learning will shift from hard copy to the digital world; hence students will collaborate through various applications. Apps such as Google Docs, an improved active learning system, can result in increased participation and enhancement of personal research (Gabriel, 2011). The teacher's assessment role will change since more frequent examinations can be administered to each student, and their weaknesses addressed at a more personal level through the use of apps such as Paperless Teacher, TeacherKit and Teacher's Assistant Pro, which monitor student behavior (Gabriel, 2011). The ongoing assessment of transitioning to tablets has already pointed to a marked difference in the way students learn and how the classroom environment has changed: tablets are gradually being regarded as a powerful and important tool in changing the learning environment (Hocanın & Iscioglu, 2014). As Enriquez states, the potential of tablets in schools will offer "a more effective teaching pedagogy in problem-solving intensive courses compared with traditional instructor-centered teaching environments" (Enriquez, 2010, p. 26).

Disadvantages and Challenges

Despite all of these advantages, notable challenges are associated with the application of tablets in learning.

Connectivity. Tablet use in classrooms depends on the wi-fi connection at the school. Teachers complain about having a slow server or sometimes being disconnected, which ruins the whole lesson. Another challenge is charging; students can lose access to learning materials if they don't have a charged tablet (Catapano, n.d.). A survey of 302 teachers and 6,057 students from grades 6 to 10 in Quebec, Canada, found that many students and teachers agreed that some

online textbooks were unsuitable because they require continuous internet access in order to navigate the resource (Karsenti & Fievez, 2013).

Quality of Content. Using digital textbooks housed in tablets can make it difficult for the educators to engage students in critical reading (Nishizaki, 2015). That is, the kind of reading supported by electronic devices is more suited to leisure than to academic reading (Blazer, 2013). Also, unlike printed textbooks, it may be difficult for teachers to gauge the accuracy and determine the quality of the content of digital textbooks (Embong et al., 2012). Karsenti and Fievez (2013) claimed that digital materials are inferior in quality given that their content changes are not closely vetted or monitored by relevant authorities, as is the case with textbooks.

Lack of Technical Knowledge. Another challenge of tablets is that educators may find it difficult to help students transfer different formats of content between different types of devices that do not support each other, a situation that can slow the learning process (Lohr, 2014). Not all teachers have the needed technical knowledge to help students in the use of tablets in school (Embong et al., 2012). According to a Chinese study in K-12 schools, some educators hesitate to use this technology due to their limited knowledge of the device (Liang, Yu, & Long, 2013). This lack of knowledge affects teacher productivity. The same study found that only 27.2 percent of teachers reported the experience of being involved in or observing class activities that are supported by tablets, and only 36.2 percent reported having had experience in applying this device (Liang et al., 2013).

Students Transitioning from Textbooks to Tablets

Benefits

Tablets are easy to use, use a living knowledge base in which the emphasis lies on what the knowledge does compared to how it is configured, offer direct communication, include a

personal touch, and increase creativity as well as enhance computer skills (Technology Adaption, n.d). At Crescent Girl School and Catholic High School in Singapore, teachers and students have positive attitudes toward the application of tablet-related technologies (Cao, 2014).

Access. With tablets, students have access to a variety of e-books and document files that can be shared with the teacher and other students. Students can add their notes and change the format of the text to suit their needs. These files help to keep all their documents in one place and available electronically, reducing the likelihood of their being lost or destroyed.

The use of tablets enables students to access a variety of learning materials, such as videos that give instructions on several topics at different skill levels (Ally, Balaji, Abdelbaki, & Cheng, 2017). Through applications such as real-time video conferencing, tablets offer students connections to teachers who are located elsewhere (Jacob, 2016). These instructors, whom they would otherwise never meet, can increase students' exposure to new ideas. Using tablets makes it easier to distribute different assignments to different groups or different students, thereby enabling teachers to personalize learning (Husbye & Elsener, 2013). In this way, the students can move at their own pace for better understanding of concepts.

The use of devices like tablets exposes students to various technologies, such as touch-screen technology, that enable them to participate in technology-aided instruction even at young ages (Pellerin, 2014). Many applications contained in tablets present the students with platforms for learning numeracy and literacy skills (Digital Textbook Playbook, 2015). Because of the artificial intelligence technology in electronic devices as compared to textbooks, students are exposed to developmentally appropriate materials and provided with extra support that enables many to surpass the skills and knowledge of their grade level (Rossing, Miller, Cecil, & Stamper, 2012). "Intelligent" tutoring systems that make use of electronic devices like tablets enable the

assessment of individual student weaknesses and help in diagnosing why some learners are more likely to make certain errors (Jacob, 2016). In this way, teachers and students can find a faster and less frustrating route to success.

Motivation. Most students believe that devices such as tablets make learning more motivating and enjoyable. Subjects that students consider challenging can become more interesting with virtual lessons when using a tablet (Cox, n.d). The virtual environment helps students to discover what forms of learning are available. In a survey of 560 university engineering students, Amelink, Scales, and Tront (2012) found that using programs on the tablet increased students' motivation for applying course concepts. A survey by the US Public Broadcasting System also found that the use of technology in the classrooms increased student motivation (PBS, 2012). According to Wilson and Corpus (2005) students' motivation is a contributing factor to academic success.

Autio, Hietanoro, and Ruismaki (2011) conducted a qualitative study to investigate the impact of tablets on the motivation of four 15 to 16-year-old students. The study found that students who were using tablets were more motivated in the classroom because they had greater freedom of choice and immediate feedback from their teachers. In this study, students also agreed that tablets enhanced their motivation because of the different stimuli used to challenge them. Students enjoy the challenge of programs and problem solving that can be presented by tablets. Tablets give students the opportunity to complete hands-on activities instead of simply listening to lectures or taking notes (Saine, 2012).

The use of tablets in classrooms allows students more flexibility in achieving their goals and making choices, thereby increasing students' independence and self-determination. With

tablets, students can take ownership of their learning and become motivated to solve problems and apply new concepts.

Interaction. Lentz, Seo, & Gruner (2014) affirmed that using tablets and other touchpad devices in a classroom enhances children's communication and teamwork. While working on their individual tablets, students can share ideas, work collaboratively, and ask questions instead of working individually. For instance, students and teachers can use Google Drive, Skype and other cloud-based platforms to relate to each other, share their work, and carry out projects together. This interactivity between teachers and students does not stop at the end of the class and may last beyond the school day (Hayes, 2017). Tablets allow students to use the ePals website to connect with other students from different countries (Jackson, 2013). Through this website, students can send emails to each other, work collaboratively on projects, practice languages, and learn about various cultures through a secure system with teacher supervision. Tablets also enable classroom interaction by offering drawing tools and digital ink for drawing, sketching, and writing. Students and teachers can naturally interact with minimal wasted time when performing vital procedures such as note taking.

Disadvantages and Challenges

One of the disadvantages of using tablets in education is the increasing time that students spend in front of screens while using tablets, which could hurt children's eyesight (Welch, 2018).

Lack of Focus. The use of tablets may reduce students' focus on the main mission of performing and succeeding academically. For example, the student can be distracted by social media and games, thus misusing time and resources meant for learning. According to a case study of a school in United Arab Emirates that involved technology staff, teachers, and the school administrator, it is possible for students to waste valuable class time on social media and

online games (Ali, 2013). In a survey of schools in Northern Ireland, 76 percent of respondents said that the use of tablets for homework could negatively affect the writing skills of students (Fawcett, 2016). Students who use tablets in writing believe that tablets such as iPads make it harder for them to write lengthy passages, and they are not as convenient as a pencil and paper (Smith, 2017).

Similarly, the use of tablets can reduce oversight by teachers and parents, which may be dangerous for those students who don't have self-control or educational support and are less motivated. Tablets can provide a chance for students to cheat by searching for answers on the internet or passages in an e-textbook (Levey, 2012; Pandolfo, 2012; Six in 10 Pupils Admit, 2009). According to Fawcett's report, 54 percent of respondents supposed that the use of tablets for homework gives students more opportunities to copy the answers.

Lack of Technical Support. Tablet devices require a fast internet connection. Most classrooms have at least twenty students who all must access their tablets at once, which can result in slowing or interrupting the connection, thus disrupting the lesson flow. Other challenges may include charging issues, other wi-fi or internet connection problems, and technical limitations of the device. In a study of 29 public and private intermediate and secondary schools in SA, Al-Showaye (2002) identified lack of training, outdated computer facilities, lack of technical support, and lack of time as the main challenges of technology use.

Educational Applications

Benefits

With the advance of technology, educational techniques are evolving quickly, influencing schooling patterns and learning procedures. The use of tablets and the internet is enabling students to study and their teachers to discover information no matter the time and place they

find themselves in. Arguably the use of tablets and other electronic devices makes it possible to broaden teaching strategies to help achieve 21st-century students' learning needs, such as creativity, digital culture, and job skills (Algoufi, 2016). In classrooms, any age group can use tablets to study any educational material.

The transition from printed books to tablets plays a central role in supporting educational experiences that help in the enrichment and improvement of learning (Al-Lily, 2013). Many educational applications provide learning content for all ages and various knowledge domains (Winstead, 2016). For instance, Apple App Store has over 15,000 educational apps, and over 20 million students use Google apps for educational purposes. Mathematics and literacy apps were found to be the most popular applications among elementary students (Papadakis & Kalogiannakis, 2017). Churchill, Lu, Chiu, and Fox (2016) categorized educational applications into four groups:

- knowledge and skill building apps such as Khan Academy and reading apps;
- collaboration apps such as Dropbox and Google Docs apps;
- learning and teaching support apps such as flashcards and timetable apps; and
- communication apps such as Skype and WhatsApp.

The use of tablets gives students the chance to connect with various areas of learning. Learners, for example, can develop skills in several languages using apps installed on tablets. Given the numerous benefits of tablets, there is no doubt that their use will increase. The Association of American Publishers conducted research that indicated an increase of 46 percent in digital products between 2008 and 2010, with the total revenue hitting $640 million (Reynolds, 2012). Research on reviews of the use of digital textbooks in school districts concluded that their use is rising at an annual rate of 100 percent (Blazer, 2013).

By using tablets, teachers and learners can communicate and collaborate to expand the capabilities for learning. Tablets can support project-based learning by giving students more access to materials and at the same time familiarizing them with doing class work in the absence of their instructor (Smit, 2018). For instance, students help prepare digital material or watch a video that will be used in class. This means that students will be in possession of prior information and be able to offer their suggestions and ideas. Before the introduction of electronic devices like tablets in classrooms, it was difficult for teachers to meet the individual needs of their students (Bannister & Wilden, 2013). This is because some students take a long time while others take a short time to learn, making it nearly impossible for teachers to balance everyone's needs. The application of tablets in learning can provide more differentiated and personalized learning (Molenaar & van Campen, 2016).

Most tablets used in school contain a large amount of educational content, such as videos, apps, and e-books, thus offering a wealth of resources for learning. These additional resources mean that teachers will not have to be in front of the class teaching quite so often, as the classroom will consist more of small group instruction (Bannister & Wilden, 2013).

Teachers and students alike are reaping the benefits of using tablets in their new environments, and this is not only helping them to save time but also resources and energy (Gorder, 2008). Students who are hospitalized are now able to study together with other students, thus strengthening their cooperation and interactions as they advance their studies (Lentz et al., 2014).

Digital learning such as that facilitated by tablets is an experience that recognizes and addresses each student’s learning needs and can fit their interests at anytime and anywhere (Digital Textbook Playbook, 2015). It is evident that many schools in SA are introducing new

technology such as computer tablets in their school environment (Ministry of Education, 2019). The use of tablets among other information and communication technologies is giving teachers and students different possibilities from those offered by textbooks, such as sharing and searching for information, flexibility in space and time, and motivation and collaboration among students (Kearney & Maher, 2013). The use of tablets that have access to the internet allows students to use e-books with ease (Embong et al., 2012), and unlike textbooks that are usually expensive to buy (approximately $70 for a K-12 print textbook), e-books are inexpensive or free. Just like any other technology, it is the way the tablet is used that is crucial and not the device itself (Bannister & Wilden, 2013).

Challenges

The use of tablets in learning can pose challenges. As previously discussed, students may encounter technical issues related including maintenance and battery charging. In SA, not all schools are connected to the internet, which may limit tablet use. While using the device, students may be distracted by social networking sites and games, thus wasting time and resources (Ali, 2013). The implementation of tablets that have user interfaces developed in a foreign language may be difficult, particularly in SA where most schools teach in Arabic. Other challenges include limited technological knowledge on the part of, and training, for teachers, and technical problems with the device.

Chapter Summary

Tablet use changes the learning process—quick and individualized feedback, higher motivation, more flexibility in designing engaging lessons that promote deeper thinking and skills development. The Saudi government is promoting the integration of technology in education by introducing the use of tablets in classrooms. The challenges of tablet use need to be

taken into account in any implementation, but overall, their benefits surpass their disadvantages, and therefore tablets need to be embraced, albeit with caution. Chapter 3 describes data collection methods, participants, and data analysis.

CHAPTER 3: METHODOLOGY

The goal of this study is to understand the lived experience of teachers and students from the teacher's perspective (Kawulich, 2005). Additionally, this research investigates the benefits, challenges, and contextual issues associated with using tablets in place of textbooks in a school in SA. In this qualitative study, data was collected through semi-structured interviews and observations. The qualitative design requires the researcher to be the main instrument (Creswell, 2014 Patton, 2015).

Participants

This study focused on a school in Riyadh, SA that has transitioned from the use of textbooks to tablets. The transition from using printed books to tablets applies only to primary schools (Alkaid, 2014). Therefore, the researcher sought primary school teachers who were using tablets as an educational tool.

In this study, a purposive sampling technique was used (Creswell & Poth, 2017). This technique entails studying specific individuals for an in-depth understanding of a phenomenon. Six teachers were selected based on the considerations that the researcher must have enough participants to understand how tablets are implemented across the school culture, but at the same time collect enough data on each participant to come to a deep understanding of their teaching practice using tablets (Marshall, 1996). Therefore, the researcher was able to spend significant time with each teacher in order to draw out as much information as possible regarding their use of tablets.

Six teachers who are using tablet devices in their classrooms for educational purposes agreed to be interviewed, observed, and provide their contact information for follow-up interviews. The selection of participants was based on their years of experience in using tablets

in teaching and on the research need to investigate a range of subjects and grade levels. All participant teachers have certification in the areas they teach (Table 3.1).

Table 3.1. Participant Teachers

Name	Age	Teaching Experience (yr)	Experience using Tablets (yr)	Grade	Subject Area
Amany	33	9	4	1st	Arabic
Hanadi	40	19	6	4th	Arabic
Lina	33	7	6	6th	English
Majida	35	10	6	2nd	Arabic
Rihab	28	6	4	4th	Math
Shadia	41	17	5	4th	Islamic

Amany teaches Arabic language in 1st grade. She is 33 years old and earned a bachelor's degree in Arts from King Saud University in 2010. Amany has been using tablets in teaching for about four years and has nine years of teaching experience.

Hanadi teaches Arabic language to 4th graders. She graduated from King Saud University with a bachelor's degree in Arabic Language. She is 40 years old and has been a teacher since 2001. Hanadi is a mother who took time off to have a family. She has six years of experience in using tablets.

Lina teaches English language in 6th grade. She earned a bachelor's degree in Arts from King Faisal University in 2010. She took a few years off when she got married and she traveled from her home city to Riyadh. In 2014, she began to use tablets in her classroom. Lina is 33 years old and has seven years of teaching experience.

Majida is a 35-year-old Arabic teacher. She has 10 years of experience teaching Arabic language in 2nd grade. Majida has been a teacher since she graduated with a bachelor's degree in Arts from Prince Sultan University in 2010. She has been using tablets in teaching since 2014.

Rihab is a 28-year-old math teacher. When she graduated from Arab Open University in 2014, she taught math in the 7th and 8th grades for two years. Later, she decided to switch to math at the 4th grade level. Rihab has been teaching 4th grade since 2016, when she first used tablets in teaching.

Shadia is 41 years old. She has a bachelor's degree in Islamic Studies from Imam Muhammad bin Saud Islamic University and teaches Islamic studies for 4th grade. Shadia has 17 years of experience in teaching. She implemented tablets in her teaching since 2015.

About the School

The school was founded in 1970. Its campus has two separate buildings for boys and girls from kindergarten through 12th grade and it follows the Ministry of Education curriculums. The school has 700-750 female students (300-350 in elementary school, 200-250 in middle school, 120-150 in high school), and each classroom contains 20 to 25 students. The number of female teachers ranges from 30 to 35. This school is considered to be one of the schools that keeps pace with developments in education by using educational technology in its classrooms.

The school aims to create classroom learning environments that improve student engagement and achievement by implementing the latest educational technology tools such as interactive whiteboards, projectors, computers, and tablets or computers for each and every student. In accordance with the government plan to replace print books with digital books, the school implemented tablets in the 1st through 6th grades, whereas middle and high school levels use laptops and/or computers. The school has been using tablets since 2011; however, initially

they were being used only by some interested teachers on some class activities. The tablet used in this school is Apple's iPad, running the iOS operating system. The school has an IT department, located in the in boys' building, to assist with technology issues. Each school year, parents receive a letter from the school that includes instructions for creating email accounts for new students and a list of educational applications that will be used in some subjects.

Data Collection

Interviews help in exploring the assumptions, thinking, perceptions, emotions, and attitudes of the participants. In contrast to questionnaires, interviews help to gain an in-depth understanding of the issue of concern (Rossman & Rallis, 2016). In this case, interviews offered teachers an opportunity to share their ideas on the digital transition from textbooks to tablets in the educational setting as well as share their perspectives on how this transition has influenced their teaching practice and student learning.

In this study, there were two rounds of interviews. The initial interview, before conducting the observations, explored the teachers' experiences in general. The follow-up interview was conducted after each classroom observation to clarify points resulting from the observation. Both interviews utilized a semi-structured approach (Rossman & Rallis, 2016). Semi-structured initial interviews allowed each respondent to respond to similar questions that are pre-determined yet flexible (Creswell & Poth, 2017). They provided the researcher ample time for preparation since the questions were organized in advance, ensuring that all important topics were covered (Creswell & Poth, 2017). A second benefit of using a semi-structured interview process is that it allows the researcher to adjust questions based on participants' responses (Patton, 2015). Therefore, semi-structured interviews are flexible enough to allow the researcher to capture the lived experiences of the participants. The interviewer guided the

teachers by asking them questions concerning the transition from textbooks to tablets. The questions didn't limit participants to yes or no answers, but rather gave them an opportunity to share their own insights on the transition.

Interviews and observations were conducted during academic terms to avoid delays during school holidays.

Initial Interviews

Initial interviews entailed individual face-to-face discussions with teachers. The reason for interviewing teachers up front was to learn their general perspectives the textbook to tablet transition and their use of tablets in teaching.

The initial interview was conducted in Arabic, which is the first language for both interviewer and interviewee. Interviews were recorded using the Voice Recorder application on the iPhone Xr device. The researcher transcribed interviews and analyzed the transcripts using Creswell's (2014) coding strategy. Transcription took place immediately after each interview to make sure that all the details were captured in the transcript (Merriam & Tisdell, 2015). The researcher began by writing the time and date of the interview and then transcribed each word including the nonverbal or background sounds (Merriam & Tisdell, 2015). After writing down the interview, the researcher listened to the audio-recorded interview while reading the transcript and made corrections when needed.

Observations

The second data collection method was classroom observation. Observation is a data collection method whereby the researcher uses all her senses to examine people in a natural setting (Jamshed, 2014). That means it entails prolonged engagement in a setting to observe teachers and students using tablets. This method was selected because in the classroom, the

researcher could identify nonverbal expression of emotions and feelings, how teachers and students interacted with the tablets, and how much time was spent in different activities with the tablets (Rossman & Rallis, 2016). Observation is important and relevant to this study because it helps the researcher gain a rich and in-depth understanding of the class environment and the various interactions that take place within the classroom (Rossman & Rallis, 2016).

In this study, observations were in the form of participant observation, whereby the researcher gained a depth of knowledge on the subject and had deep understanding and familiarity with how students and teachers used tablets in classroom activities (Kawulich, 2005). The researcher established a bond within the classroom so that teachers and students acted naturally during the observation. During participant observation, the researcher immersed herself in the classroom experience in order to understand what was going on, which allowed her to analyze the collected data later on (Kawulich, 2005). According to Bernard (1994), participant observation includes not only observing the community of the study, but also natural conversations and questions in order to blend into the community. It is important to note that the role of the participant observer during the observation is to analyze while participating (Merriam & Tisdell, 2015).

In this study, the researcher observed teachers and students as they interacted with tablets during class time. The researcher first observed how well teachers oriented students on tablet use for that particular activity. Further, the researcher observed the ability of a teacher to guide students on their use of tablets. After orientation, the observer observed the time taken by students to learn how to use tablets on their own, and for challenges and any contextual issues associated with using tablets. In addition, the researcher observed how each student interacted with her tablet to carry out the assignment without the help of their teacher.

Tablets were used for various activities in the classrooms observed. Thus, the researcher keenly observed how much time was spent by different students in carrying out specific activities. For instance, if an activity entailed drawing, the researcher observed the ability of students to use tablets in drawing. Through observation, the researcher witnessed the students using tablets compared to textbooks. In sum, the researcher observed both students and teachers using their tablets in a real-world situation.

The researcher conducted three observations per teacher. Each observation lasted about 45 minutes, which is roughly equivalent to a single lesson. Each observation was followed by a follow-up interview to capture information from the teacher's perspective of the lesson that was observed (Rossman & Rallis, 2016). Observations helped reveal how teachers perceived the transition from textbooks to tablets, and the follow up interviews focused on what occurred during each observation. Due to the personal interactions that occurred during the observation, the researcher gained insight into details that the participants would not otherwise have shared during the follow-up interviews.

Field Notes and Reflective Journal

During both interviews and observation, the researcher took field notes on the key events and behaviors of the participants. Field notes are a qualitative data collection method that goes hand in hand with observation. Field notes help a researcher remember and record the behaviors, events, activities, and other features observed in a study (Creswell & Poth, 2017). For this study, the researcher used field notes to produce meaning and understanding of the perception among teachers and students concerning the transition from textbooks to tablets (Creswell & Poth, 2017). Further, field notes supplemented the follow-up semi-structured interviews.

During field note taking, the researcher provided descriptive information and reflective information. In the field notes the researcher documented factual data such as the date and time, as well as the actions, setting, behaviors, and conversation that were observed (Jamshed, 2014). The field notes included a description of the physical setting, participants and their roles in the setting, what was observed from the perspectives of the participants, comments that related directly to the purpose of the study, and patterns of specific behavioral events such as decision-making, collaboration, or conflicts. The researcher also gathered and recorded reflective information including her own thoughts, emotional reactions, comments, and questions from each observation (Rossman & Rallis, 2016). These detailed field notes enabled the researcher to record everything she heard and saw, including her own thoughts and impressions (Rossman & Rallis, 2016). The field notes were transcribed after observation to ensure that all important information was written down. Field notes were important in this study because they formed part of the data through which conclusions were made. The field note thoughts, ideas, and questions were the basis for the follow-up interview questions.

After each observation, the researcher unpacked her thoughts in a researcher's journal that expanded on the field notes and was useful in analyzing the data. It is very important, at this point, to keep and use reflective journals because they help the researcher to avoid any messiness that might occur in the research process (Ortlipp, 2008). These reflective journals, as a qualitative research technique, allowed the researcher's opinion, inner thoughts, and feelings to be visible and part of the research findings (Janesick, 1999).

Follow-Up Interviews

During each observation, the researcher developed a list of questions based on behaviors of participants during the observations. For example, the researcher asked a teacher the reason

for using the tablet for a certain activity, which prompted the participant to elaborate on the topic of this study (Drabble, Trocki, Salcedo, Walker, & Korcha, 2016). The follow-up interviews helped the researcher to clarify each teacher's perspectives on what happened during each observation. The nature of the interviews depended on time and the availability of research participants; its aim was to increase the effectiveness of the research by unpacking what occurred in each observation from the teachers' point of view. Follow-up interviews allowed interviewees to clarify and elaborate small details, which took data collection to a deeper level, as well as to share their point of view about what transpired during the observation (Rossman & Rallis, 2016). More importantly, the follow-up interviews gave the researcher an in-depth understanding of teacher attitudes about actions that occurred during the observation. This type of interview is also called a dialogical interview (Rossman & Rallis, 2016), in which both the participant and the researcher are interested in one topic, and they develop a complex understanding of what transpired for the purpose of exchanging their own perspectives. Follow-up interviews were therefore critical in this study because the main focus was to develop a sense of the lived experience from the participant's viewpoint.

Data Analysis

The sources of data for this study were the transcripts from the initial interviews, field notes collected by the researcher during each of three observations of each teacher, and transcripts from follow-up interviews following each observation. These data collection methods ensured that there was a one-to-one interaction between the researcher and each respondent, thus confirming that the data collected was relevant to the study.

During data analysis, thematic analysis was employed to accommodate the qualitative aspects of the study (Clarke & Braun, 2017). Thematic analysis is one of the most popular

methods for analysis of qualitative data (Rossman & Rallis, 2016). It underlines the important patterns or themes across the collected data that are related to the research question. Therefore, thematic analysis requires a full and deep understanding of the topic in order to categorize data according to the purpose of the study (Rossman & Rallis, 2016). Thematic analysis tends to be more flexible in most social science studies because the researcher is not limited to a particular theoretical prospective (Maguire & Delahunt, 2017). Additionally, thematic analysis allows the researcher flexibility to modify the analysis during the study to ensure the perspectives of the participants are displayed in findings. In sum, thematic analysis is applicable to this study because it enables identification, analysis, and reporting of the themes about the use of tablets in education on the part of students and teachers.

Braun and Clarke (2006) developed a process of six phases for thematic analysis. The first step was to get to know the data very well by re-reading all the data from interviews, observations, and field notes (Clarke & Braun, 2013). While reading, the researcher jotted down relevant notes and comments (Merriam & Tisdell, 2015).

The second step was to open code the data. Doing so helps to reduce the data to small chunks of meaning (Clarke & Braun, 2013). The researcher listed all the interesting notes that answered the research questions and created relevant labels. The researcher looked for patterns in ideas or behaviors and then developed and assigned codes to create tentative labels, which made the data easier to organize and retrieve (Creswell & Poth, 2017).

The third step entailed searching for themes by grouping the open codes into patterns or themes (Merriam & Tisdell, 2015). For instance, the researcher looked for themes that could answer one of the research questions, such as how tablets help both teachers and students in their classwork or how teachers choose their instructional materials.

The fourth step was to review the collected themes. At this stage, the researcher created comprehensive categories by combining two or more themes into one theme and discarding themes that were not connected to the other themes (Creswell, 2014; Merriam & Tisdell, 2015). For example, the researcher felt that one of the themes did not really work as a theme because not much data supported it, and some of its codes were related to a different issue.

The fifth step was to define the theme by writing a full and complete analysis of each theme and how each theme relates to the study (Clarke & Braun, 2013). The goal of this step is to "identify the 'essence' of what each theme is about" (Braun & Clarke, 2006, p.92). During this step, the researcher made sure to answer questions such as what is the theme about? How do the themes relate to each other? If one of the themes had subthemes, the researcher had to make sure they were related to the main theme (Maguire & Delahunt, 2017).

The sixth and final step was to compare the themes of the study, the literature review, and the results of the study in measuring the credibility of the findings (Roberts, Dowell, & Nie, 2019; Rossman & Rallis, 2016). The researcher reviewed the interview transcriptions and field notes to ensure that the major intention of the study was achieved by the results (Creswell, 2014).

Trustworthiness

The researcher ensured that the research findings were trustworthy by following strategies such as triangulation and member checking (Merriam & Tisdell, 2015). The use of triangulation and member checking in a single study ensures that the shortcomings of one method are compensated for by the other method.

According to Patton (2015), triangulation uses multiple methods or sources to provide and understand different views of a phenomenon. There are four types of triangulation: method triangulation, theory triangulation, investigator triangulation, and data source triangulation

(Carter, Bryant-Lukosius, DiCenso, Blythe, & Neville, 2014). In this study, the researcher used method and data source triangulation. Method triangulation refers to using multiple data collection methods, in this case interviews, observations, and field notes (Carter et al., 2014). Data source triangulation occurs in different forms such as collecting the data by doing multiple observations at different times, interviewing a number of people with different perspectives, or doing follow-up interviews after each observation. Triangulation is important in this study because it provides different views of the phenomenon, the use of tablets in a classroom setting (Patton, 2015). It added more value to the output of the study because it explained different aspects of the topic (Carvalho & White, 1997).

The researcher conducted member checking by sharing the findings with the participants to see if the results held true for them. Member checking can be done after each interview with participants or at the conclusion of the study, or both. In this study, the researcher shared the findings of the study with the teachers at the end of the data analysis phase, to ensure that they had the chance to review what they had said and edit if they wished. It is important to ensure credibility in the study by including participants' feedback (Creswell & Poth, 2017). This accrues by sharing the collected data, analysis, and results of the study with the participants to seek their feedback, opinions, or critiques of the analysis.

Chapter Summary

This chapter presented the methodology and design of the research. The researcher conducted two rounds of interviews - the initial interviews and the follow-up interviews. Both types of interviews were conducted in Arabic. This chapter also presented data analysis by using thematic analysis method. The researcher ensured trustworthiness by triangulation and member checking. The next chapter will present the findings of the study.

CHAPTER 4: STUDY FINDINGS

This study used a qualitative research design to examine Saudi female teachers' perceptions of using tablet devices in teaching and to discover the different uses of tablets in a classroom setting. The qualitative design requires the researcher to be the main instrument (Creswell, 2014 Patton, 2015). As described in Chapter 3, the data was collected through semi-structured interviews and observations. Six teachers who were using tablet devices in their classrooms for educational purposes agreed to be interviewed, observed, and provide their contact information for follow-up interviews.

This study sought to answer the following research questions:

1) How do teachers in SA use tablets?
2) What are teacher perspectives on using tablets in SA schools?

The next section presents the themes and subthemes that were developed from analysis of the data. The first research question, how teachers in SA use tablets in their teaching practice, is answered in the first theme. The second research question, teachers' perspectives on using tablets, is answered in the second theme.

Teachers' Use of Tablets in Teaching

Although tablets have been implemented in this school since 2011, most teachers considered tablets in their classroom as an emerging technology. This section discusses the teachers' expectations for tablet use in their classrooms and their use of tablets for supporting the learning process, evaluating students' progress, and communicating with parents.

Teachers` Expectations for Tablet Use in their Classrooms

Face-to-face interview and observation data revealed that teachers used iPads differently based on their perceptions and their technological inclinations. For example, Majida and Rihab

were ambitious and provided examples of their use of iPads in their teaching practice. Majida shared her experience:

> I am very keen to use iPads in teaching throughout the lesson. In fact, I involved myself in continuously researching educational applications that support Arabic language and benefit students. I like to watch my students become independent and search for information by themselves without the help of others.

Rihab shared the same point related to using tablet devices:

> Classrooms now are totally different than the classrooms that I grew up in. iPads are a fantastic educational tool and has completely transformed my teaching. iPads allow students to share their ideas in the same time not to consume the limited time we have in our class. As a math teacher, we use different educational apps to support learning and we rarely use books.

However, participants also felt forced by school management to use tablets in their teaching. For example, Rihab said "I'm using iPads because it is part of my lesson plan and teachers must use iPads in classrooms because our school is considered as 'transition school.'" A transition school is a school that uses tablets, computers, and/or smartboards instead of printed books in most of classroom activities in accordance with the digital transformation plan implemented by the Ministry of Education. These schools must provide free on-campus internet connection to students and teachers. Transition schools aim to enable students and teachers to prepare and train on an ongoing basis to use technology in education.

Teachers have set expectations for students for using their devices, such as limiting the amount of time tablets are used, allowing research only with permission from the teacher, and restricting student use to particular applications related to the lesson. Hanadi explained:

> My use of iPads is by selecting one or two apps per week, train students on them, and put special rules for their use that each student must follow. Teachers must put rules for using iPads in classroom at the beginning of the school year so that students can benefit from this tool positively.

She continued "I use iPads for a maximum 10 minutes. During that time, I have to check students' use and if they are not following the rules than I will have to take away their iPads for the day."

Similarly, Lina said:

> I remind my students before each lesson about the rules of using iPads. I have to remind them all the time that this is not home and they have to use specific applications for each activity and not allowed to use iPad except for educational purposes. I have to be firm in using iPad inside the classroom because if I'm not, kids will do whatever they want with their devices.

The use of the iPad differed between teachers based on their experience and their technological inclinations. Teachers reported setting and enforcing clear expectations for student use of their devices. Some teachers chose to use tablets in teaching, which is evident from their constant search for educational apps that enhance the lesson, while others consider it an obligation due to the pressures of the school administration on teachers to use tablets in their daily teaching.

Support the Learning Process

Teachers used tablet devices differently, however, all of them reported using tablets as a supportive tool for 10 to 15 minutes of their instructional time. For example, some teachers used tablets in the first 10-15 minutes of class to prepare students for the current lesson by playing or sharing related videos or websites to introduce the new lesson. Other teachers used tablets to review the previous lesson. For example, Hanadi said:

> My use of iPad is at the beginning of the lesson for about 5 minutes to review the previous lesson through an application called Sway in which the answers of students appear on my iPad screen.

She explained further:

> After that they have a guided practice part in which I share with them a Sway link of the topic we are discussing. Students can add whatever they want and share their answers with me and with their friends in the classroom.

In the interviews. teachers mentioned various applications that they used; the most frequently mentioned were Classera, Sway, and Ein. Classera is an educational application that aims to involve parents in the educational process. Through this application, students can review their lessons and do their homework anytime from anywhere. Sway is a Microsoft Office tool that allows teachers and students to share and create presentations, articles, and videos. It provides learning activities in math, science, English/language arts, and others. Ein is an Arabic educational application that teachers use for grading, creating lesson plans and quizzes, and organizing their work. Students use Ein to share their homework, download and browse some K-

12 textbooks, and communicate with teachers. Shadia, an Islamic studies teacher, shared her experience in using special apps:

> I use iPads in my classroom for reading and listening to Quran, taking notes, writing comments on pictures related to our lesson. For example, I use the Quran app in my classroom to let students read along or put on their headphones and listen /read a chapter of Quran. Another example is when we use an application called Rasolna that includes pictures and videos to teach students how to pray.

In the observations the researcher noticed that teachers utilized “smart classrooms” by using multiple technological media such as projectors and whiteboards coupled with iPads. Teachers believed that “smart classrooms” support and enrich the teaching and learning process, which helps both teachers and students present and display the curriculum in a dynamic way, instead of the traditional method of teaching and learning. For instance, Amany said, “I consider my classroom so-called "smart classroom" because it allows students to access educational resources and materials when needed at any time and in an accessible and easy way, through the use of technological resources that meet those needs.”

Hanadi believed that students can benefit from iPads mostly by searching the unlimited free library database. Tablet devices such as iPads have e-reader software that enables students to download as many e-books as they need from the iBook store. The app can access millions of books and resources. Hanadi also believed that iPads offer educational activities that are both beneficial and fun:

> Our school subscribes to programs of interest to all students and encourages them to use these programs at home and benefit from them. For example, an application called “I read Arabic” has different reading levels and an option to be a listener or a reader.

Participant teachers believe that tablets are a good source of many educational resources that support the learning process. They recognize that tablets contain thousands of free resources to use and that they can access many options (reading from an iBook, using educational applications, and playing educational games) with only one device.

Evaluate Students' Progress and Provide Feedback

All participants agreed that they use data from specific apps to keep up with students' progress and evaluate them easily. Teachers said that with iPads, they were able to evaluate their students with little effort and in short time by using apps such as Classkick, Classera, ClassDojo, Socrative, and Nearpod. Applications such as Mathletics, Classera, Sway, and Kaizena assist teachers in providing students with immediate feedback and comments. These applications have multiple tools for teachers, such as creating and sharing lessons that suit their students, viewing students' reports, and playing and showing interactive videos. Through these applications, teachers can post assignments for students and provide them with feedback after submission, and students can monitor their progress. For instance, the Kaizena app allows teachers to attach voice feedback either to specific highlighted parts of the student work or to the whole document as a summary comment. Students also can reply to teachers' feedback and record their comments as well. When the researcher asked teachers about the process of evaluating students' progress, Rihab said, "iPads are really taking learning to a new level. I'm able now to evaluate my students with little effort in short time by using apps such as Classkick and Socrative." She explained:

> In the classroom, when it's time to review the lesson, I put a question on Socrative for older students and Kahoot for younger ones then all students begin to answer. Their answers are being evaluated immediately, once they write/choose their answers. Then I provide them with my feedback or comments.

Hanadi uses iPads differently when it comes to keeping up with her students' progress:

> Most of my use of iPad as an evaluation tool would be at the end of the session to evaluate students' skills and gain of knowledge at that day. Once a month, I publish an exam to all students and ask them to grade themselves to check their performance among other participants. Their final grades are sent to me via email. Then I share my comments and explain what is missing from their answers, if they have any.

Hanadi, the 4th grade Arabic teacher, described this teaching method as building a sense of responsibility and independence among students. Students can peer review another student's work and evaluate their own work. Her strategy includes involving students in the learning process and encouraging them to be self-learners. Lina added:

> I create customized questions according to our lesson of the day then students start answering the questions and I can see their answers in my iPad. When they all are done, their answers will appear on the smartboard so they all can see the answers without their names. Finally, I can use the results that presented in graphs as a reference when it's time for grading.

All teachers believed that tablet devices are more convenient than having students complete worksheets and grading students' tests or quizzes manually. They agreed that iPads help them get everything done in terms of grading students and evaluating their work. For instance, Shadia shared her experience with grading her 4th grade students:

> Even though a teacher's work is never really done, I feel that my iPad helped me a lot. Grading now become much faster in a matter of time all grades are posted for review. I can tell that I totally rely on iPad for student assessment.

Teachers are using iPads to evaluate students' progress. The device allows teachers to collect information and monitor students' learning. Teachers use apps such as Socrative to post tests to students and grade them, and students can see grades immediately with teacher feedback.

Communicate with Parents

Teachers use tablets to connect major stakeholders, students, parents, and teachers. In interviews, teachers expressed their delight at being able to communicate with parents and share their child's work. Teachers don't use handwritten notes because they are likely to be lost, intentionally or accidentally. Therefore, teachers choose data that is stored electronically for further reference, to ensure that notes about feedback or concerns will not be lost. Shadia said. "I believe that iPads are very convenient regarding quick communication with parents. I also use Ein to send a weekly lesson plan and assignments at the same time to all students."

Lina added:

> It is very difficult for some parents to leave their work and come to school to talk about their child's progress. So, I use Classera very frequently to reach out to parents and communicate easily with them whenever I have some concerns on a student's behavior or when I need to keep parents updated with their child's learning development.

Similarly, Majida used tablet applications as a personalized tool to communicate student progress. On a weekly basis she sends individual e-notes to parents with overviews of their child's progress. She also asks parents regularly to let students practice at home and do their homework using iPads. She believes that using tablet applications helps her to easily share students' quiz results with parents, who in return communicate with her regarding their concerns.

Some teachers believed that digital photographs in iPads are great communication tool because it captures and disseminates children participating in classroom activities. The

photograph tool in tablets allows parents to have a better sense of the classroom learning environment and learning goals. Amany shared her views:

> I totally enjoy taking striking pictures of my 1st graders' achievements because I believe that pictures are great shorthand to communicate details about the school day. Parents are very happy to see the improvement of their child for themselves and they believe that sharing pictures with them are valuable for showing improvement.

Like photographs, videos are shared on iPads. Teachers found creative ways to use videos to support learning and communicate with parents. For instance, Rihab said:

> I use digital video recording in my classroom to record student presentations and share the recorded video with parents via Classera. Parents were delighted to see their child's video and they send me encouraging words such as "good use of iPad application" or "I love to see what my child is up to in real time, thank you."

One of the beneficial uses of tablets in schools in SA is to help female teachers communicate more effectively with fathers. Saudi society segregates females from males, thus it would be inappropriate for a father to visit his daughter's school. Majida shared her experience in this regard:

> I have couple of students who lost their mothers and live with their fathers. Before we used the iPad, we used to have to ask the father to send any relative female to talk with teachers about the student progress. This has changed since we began use the iPads in school. It makes it easy for us to communicate with male parents without requiring their physical appearance in the school.

Data from this study revealed that tablet use has taken communication between teachers and parents to a new level. It becomes very easy for teachers to send notes or student work to their parents via videos, digital photographs, or e-notes. Tablets also reduce the burden on parents to physically come to the school for a conference with teachers. Teachers and parents can participate in on-line video conferencing to follow up with their kids' school progress.

Teachers' Perspectives on Tablet Usage

This section answers the second research question, Saudi teachers' perspectives on using tablets in their teaching. In the content analysis to answer this question, two main themes showed up, facilitators and inhibitors.

Facilitators

Most teachers reflected on the many positive aspects of using tablets and believed that there is a benefit to using this technology with students. Teachers perceived tablets as an effective, useful, and supportive educational tool that changes the experience of education. Facilitator sub-themes included motivating students, students' independence, increased collaboration, organization and management of the classroom, and using different resources.

Motivation. Teachers felt that students' motivation is the backbone of learning and leads to better performance. Some teachers were eager to use educational apps that encourage their students' learning. Shadia said that her students get very excited and motivated when working on activities on iPads. She continued: "Using the iPads is easy and motivates students, especially if it's used only in one stage of the lesson, for example used for a particular activity to clarify a new idea."

Amany, the 1st grade teacher, said that she used iPads to motivate students to listen, explain a paragraph, or tell a story that supports the subject, at the student's learning level. She

said that the touch screen on the iPad encourages students to practice writing more than does using pencil and paper. She explained: “I noticed that students focus more when I play an educational video. This is more fun for them than the traditional teaching…students become more engaged with the lesson and having fun in learning.”

Similarly, Hanadi said:

> iPads are great tools to engage all students in class and motivate them in learning… My students become less motivated when I’m not using iPad… sometimes at the beginning of class, if tablets are not part of my learning plan of the day, I just said okay class we are device-free today, and you can tell that they are disappointed when you hear their “Boos.”

The researcher observed Hanadi, who teaches 4th-grade Arabic, using an interesting app called Book Creator in which students create their own iBook. Book Creator supports Arabic language development and helps students to create picture books that can be read and added to the iBook store. The app motivates students to express their understanding by creating a book that can be shared with their classmates and downloaded by other kids around the world. Students are excited when they have the opportunity to work on their own book as they can add photos, videos, music, or their own voice to their iBook.

Rihab believed that engagement improves when students are motivated. She shared that “Students are more engaged in classroom activities; they participate more and focus a lot more than when we don’t use iPads.” Rihab teaches 4th grade math and was observed using Ein for math activities. During the observation, students were playing a math game which required them to answer sets of questions that were added previously by the teacher. Students must answer the

questions correctly to win and go to the next level. During this time, students were actively engaged and seemed having fun with the activity.

Lina stated that sometimes she uses only the textbook and does not use the iPad in her lesson plan, thus she believed that her students became less focused because the tablet was not part of the lesson. She said: “Keeping students focused, while not using iPad, is very difficult, so sometimes I tried to cut the routine during the lesson and use the iPad for some required activities.” She noticed that students became eager to learn and were on task while using their devices.

The size of tablets, the ability to move the device when students change their position in the classroom, and the many features including touch screens and educational apps make the iPad an interesting learning tool for students and increase motivation and engagement during the learning process.

Independence. Teachers noted that tablets help students become more independent and take more responsibility for their own learning. Lina said: “Students now are working independently in searching for information by themselves without the help of teachers.” In Lina’s class, the researcher observed 6th grade students using the voice note app to record their notes. Students also were observed writing down their homework assignment and marking a due date on the calendar for their next English project. A couple of students got a little support from Lina while writing down their next assignment. Lina said that iPads give students the opportunity to monitor and evaluate their own progress and development. In Lina's class, students were observed practicing assessing their own work using assessment criteria given by their teacher and they were observed grading their own work independently.

The researcher also observed that tablets encouraged independent thinking among 4th grade students in Shadia's class. Students were searching for an article interpretation. Students were observed in groups discussing an article and each student discussed the findings of her research with her group, then each recorded her results with a voice note recorder to use as they write a report later on.

Teachers believed that classrooms now are different than before. No longer do students sit in class and listen only to teachers. Classrooms are more active, and one goal is to teach students to think independently. Teachers believed that the use of tablets reinforced this active learning among students. Rihab stated:

> My students now depend on themselves in searching for information and work on their own. I mean…when we do math activities in classroom, I saw my students work independently to solve math problems and not waiting to hear the right answer, they actually engaged, worked individually, and mostly have fun.

Similarly, Hanadi shared her experience: "Some of my students face a language barrier in terms of using English applications. They have Google Translator application in their devices and use it whenever they encounter unfamiliar words that need to be translated into Arabic."

Teachers believed in the importance of giving students the space of freedom but with an emphasis on guiding and supervising them. They agreed that tablets have the potential to increase students' self-confidence. For instance, Shadia said:

> I see my students have self-confidence and self-awareness. They know their limitations and they really have the ability to manage that by working on tasks while not crossing the

> limitation of using iPad in school, such as using the iPad at times that exceed the use time, using game applications, and watching videos.

Shadia further articulated:

> At the beginning of school year, I told my students the rules of using tablets in our classroom include not using apps that are not in lesson plan of the day and bring the iPad fully charged from home. I noticed later on that my students were self-reliant and responsible, which give them self-confidence.

Furthermore, primary grade teachers said that the goal of using tablets in teaching is to improve student's independence. Amany, a 1st grade Arabic teacher, said:

> …using this kind of technology allows kids to become self-learners at an early age, 6 and 7 years old, rather than predominantly rely on the teacher. Students independently can access the lesson, do their homework and/or class activities, and share their work with me.

Majida taught her students to work independently and encouraged self-coaching and self-learning. The researcher observed a phonics lesson in Majida's 2nd grade Arabic class. Students were matching words written on the smartboard with what appeared in their iPads, then they colored the correct word and took pictures of words on the smartboard to include it in their answers as a source.

Another observation occurred during a 2nd grade reading class. At the beginning of class, students used the Ein app to set a reading goal for themselves based on their reading ability. One of the activities was to choose a goal number of words, create a story in an easy to read text, then share the story with teacher and classmates.

Observation and interview data revealed that the use of iPads allowed students to depend on themselves in learning and become independent learners. Teachers agreed that iPads provided students the opportunity to evaluate their work and take ownership of their learning.

Collaboration. Interview data revealed collaboration among students as one of the benefits of tablet use. Teachers in this study noted many examples of students who coach and collaborate with fellow students without the teacher's assistance. For instance, Majida believed that the iPad increases collaboration among her students. She said: "Students who don't know how to use the device are being helped by other students. My students now work in groups instead of individuals." During the observation, the researcher noticed some students who worked in groups of peers while others worked individually on the same task. The teacher informed the researcher that some new students who don't have the same level of English language as others and who don't have background knowledge on iPads need more help, whether from the teacher or their classmates. Majida commented on this situation:

> If we work on Arabic applications such as Ein, we don't face problems with the English language barrier, students would be working individually or in groups depending on the activity, but when it comes to English apps some students need guidance.

Hanadi agreed with this statement and added: "In our Arabic class, students have to solve word puzzles in a collaborative way, which I strongly believe that working collaboratively in groups increase students' learning experiences and have positive result on their social relations as well."

Teachers believed that teaching with iPads increased collaborative learning among students which led to the eagerness of those students to not leave their peers behind. They also discussed how iPads are an excellent way to foster collaboration skills among students when

doing group projects in or out of the classroom. For example, Lina, a 6th grade English teacher, shared her experience:

> I assigned a monthly group project for my students because I believe this helps to foster collaboration skills among students and improve their academic performance. So, all of students used their iPad devices and worked collaboratively to make this project work and the students created a group on WhatsApp to help them communicate outside of the classroom. The app also allows all group participants to create media, add notes, or other elements to their group project… and in less than a week the project was done with the participation and collaboration of all students.

Shadia ensured that tablets are effective tools to make group work function smoothly in her classroom. For instance, in a reading Quran class, Shadia assigned peer groups to read, listen to, and evaluate each other using their iPads. Students logged into their accounts on Ein, opened the current lesson, and began to read and listen to each other. Then, on the same app, they evaluated each other and shared the result with their teacher. Shadia also asserted that, with tablets, students became more enthusiastic and actively engaged in collaborative work. Rihab added that tablets allow for a dynamic learning experience among students, including communicating ideas, receiving feedback, and sharing learning objectives. For instance, Rihab stated that she sends students a weekly math theme/topic to discuss before class. All students should participate in this theme by sharing their background knowledge with classmates, who in turn send comments on others' answers. When students came to class, the researcher observed that they were working in small groups to answer the teacher's questions. When the teacher called a group name, each member of the group was expected to participate in the answer. This

encouraged all members to help each other understand the math problem so that they would all have the same level of understanding.

In all, teachers perceived that tablets in the classroom provided students with opportunities to work in small groups to express their ideas and gain self-esteem, which improves students' learning outcomes. Working in groups encouraged students to learn from each other and share ideas instead of waiting for answers from the teacher.

Classroom Organization and Management. Another sub-theme centered on how iPad integration positively impacted how teachers organized and managed their classrooms. For example, Lina said: "I believe that iPad is a very good tool to organize my work such as taking notes supported by images, create assignments, and follow up with students' grades." Lina explained that she uses Sway to keep track of students' progress. The Sway app allows her to see a snapshot of students' performance and their progress in all activities. During the observation, Lina assigned an activity to students, then she took notes on her iPad about each student and took pictures while walking around the class. Lina explained later that she keeps notes organized in one place for each student, which allows her to evaluate students' progress efficiently. Majida also shared her experience with how the iPad helps her organize her classroom work. She said:

> I send my students a lot of worksheets to cover all concepts that they are learning in Arabic class including letter coloring pages and letter-sounds relationships. So, instead of going through a long process from printing out and passing those worksheets to students, students easily can access those worksheets from their iPad devices, do the activity, and share it with me.

Hanadi agreed and added:

> I like the idea of using technology to organize my work in classroom… I mean the workload on teachers is huge and educational applications such as Ein and Sway make it easier for us to manage our work and save time, from creating daily lesson plans to testing students' understanding and grading.

She further said:

> Teaching with iPads makes my work easier and more organized. Educational apps in my iPad are flexible enough to contain almost anything from educational website links, sharable documents, to students' activities… those devices are helpful to use as reminders or broadcasting as well. I can easily connect the iPad to auxiliary devices such as projector or external speakers to display a lesson.

The researcher observed some teachers displaying the screen of their iPad on the classroom projector. Hanadi explained:

> Once in a while, I connect my iPad to a projector to share with the class some pictures…mostly, we have activities on the whiteboard, so I use my iPad to display the activity on the whiteboard and allow students to participate in the activity.

In terms of saving time and effort, Hanadi also said: "iPads help me to save time and effort in printing and scanning papers. I rarely need to print or scan papers…I just use email or any other application to send or receive documents."

Teachers said that iPads helped them go almost paperless, eliminating the need to walk around with lots of papers in their hands, cutting down on paper expenses and saving time going back and forth to the school printer. For instance, Shadia said:

> I'm not running out of time in classroom as it used to be. I mean tablets are really saving my time. I have my lesson in my device and I can send it to all students with one click. What I like the most is using Google Forms in my device to create a test that is self-grading. I just send the test and it will be graded by itself with an automatic feedback.

Teachers mentioned time and effort saving as an advantage of using tablets in their teaching, enabling teachers to devote more time to teaching. For example, Majida stated that using iPads allowed her to save and manage her time. Majida explained further: "…these portable devices can be easily carried around. I'm able to check my schedule, reach out to students or/ and parents, and grade and deliver teaching materials using only one device."

Lina agreed with Shadia's and Majida's statements and added: "iPads allow me to finish my lesson in shorter time. I can teach students the lesson with different methods by tablets such as educational games, e-books, and playing videos."

Moreover, Amany explained that the search feature in iPads was beneficial when students had questions, allowing the teacher to save time and effort because students did not have to wait until another day to have the answer from the teacher. For example, she said: "My 1st graders always have questions that are off of our topic. Sometimes I don't have the right answer, so I open the web search and look up the information to explain it to them."

Rihab concurred:

> When it comes to saving time while using iPads, I would say that teachers are contacted easily now. We don't need to set appointments for parents'/teachers' meetings unless it is

important for the meeting, we just communicate through many social applications such as Classera. We communicate with parents and talk about their child's progress.

In terms of classroom management, teachers believed that tablets are a good management tool because they can use their devices as a reward. For instance, Amany said: "…when my 1st graders follow the classroom rules such as listen to teacher and raise hand before answer, I allow them to use the iPad for a little longer than usual."

Teachers were observed using classroom management apps, however the primary grades used these apps to help control the noise from their students more often than other grades. For instance, Majida, a 2nd grade teacher, was observed repeatedly using a feature of the Ein app that allows teachers to control students' behavior with a reward system. Students receive points when they follow the classroom rules such respecting teacher and friends, finishing work on time, and being polite. Points are taken off when students do not follow teachers' rules. Majida said that she calculates students' points weekly and shares a report with each student and her parents.

However, while teachers discussed the benefits, they also had concerns about their workload and how at times they become anxious and overwhelmed in terms of managing their time and organizing their work. For instance, Lina and Majida felt that although tablets helped them to organize their work and save some of their time, they still believe that they experience unmanageable overload. They emphasized the volume of tasks they were assigned by the administration.

Variety of Resources. Tablets provide students and teachers endless learning possibilities and allow them to use a variety of resources. For example, Amany said: "Through tablets, we can get any information we need at any time. Students have a tremendous knowledge

base available at their fingertips." She further continued, "As a teacher I am able to deliver engaging material to all students by playing videos related to the subjects, animations, music that allow students to relax and focus…I think that playing music also provides students with listening skills."

Lina's opinion was like Amany's, who said: "I think for students, using different resources in the classroom extends their perceptions and allows them to keep pace with technology." Majida was one of the teachers who was fascinated with tablet devices and mentioned the ease of use of this educational tool in how it provides the user with a variety of free resources in one click. For example, she said: "With tablets in my classroom, students and I have an unlimited resource of articles, videos, and e-books in just a quick search." Shadia supported the idea that the iPad provides student with different sources of education:

> Students can have a free library of knowledge by searching… this generation is considered the generation of technology; I believe that students learn faster when teachers provide different sources of learning…We are in front of a generation that always aspires to change and no longer suffices with the usual methods of learning, so technology was food for their spirit and ambitions. Now with iPad, students can access many educational recourses that suited their ages.

All teachers stated that the implementation of tablets in classrooms facilitates access to different resources by all students, which enhances the learning environment. For example, Hanadi, the Arabic 4th grade teacher, said:

> When I use my iPad in the classroom, I am able to innovate multiple methods of instructions. I use Qamoosi app for spelling, grammar, and reading activities. Students are able to use their fingers to write, which allows them to improve their handwriting and

spelling errors instead of only typing…iPads allow me to present different multimedia and presentations to students to enrich their knowledge.

Teachers believed that using different resources in teaching reinforces the lesson. They said that when a teacher uses multiple resources, students concentrate with all their senses and will never forget what they learn. For example, Rihab reported that when she uses math games, videos, and apps to teach 4th grade mathematics she finds that students understand the lesson faster than teaching using only books. She further said, "When I use different resources, students link all the resources together, which assist them to recall the information when needed."

One of the important benefits of tablets in classrooms is the different free resources that are available to both teachers and students. Tablets are able to shift the learning process from using one source to a variety of resources. Teachers are able to deliver a variety of engaging materials to students with one tool.

Inhibitors

Although teachers believed that tablets are an effective and useful educational tool, they stated that they were troubled by a number of issues. Among these problems were teacher preparedness, technical issues, limited Arabic educational applications, and distractibility of students.

Teacher Preparedness. The teachers in this study complained of a lack of training for using technology in the classroom. The government and school mandates were an issue as the teachers were thrust into this technology initiative without the professional development or support they needed up front to implement tablet use effectively. They stated that the school administration provided them with iPads and requested them to use these devices as an

educational tool. However, the school administration didn't provide teachers with technological training. For instance, Shadia said:

> I am not worried about students because this new generation has already used this type of technology and if not for few of those students who didn't use iPad before, they learn fast from their classmates or can practice at home…either way students will ask parents or teacher to help in fixing their devices when they have a technical issue. Mostly, however, I am worried about some teachers including me who find teaching with iPads challenging.

Similarly, Hanadi said:

> As one of the first teachers who used iPad in classroom without providing any instructions on how to use it, I spent a great time and effort to prepare myself for using the iPad and train my students at the same time on every application we are required to use…In the beginning, the idea of using iPad in teaching and deducting time from the class did not have the support from the majority of teachers. They resisted the idea. However, this wasn't their choice…they had to implement this device into their teaching plan. Yet, there was some facilitation from school administration to give teachers extra time before each session to discover the new applications.

Lina asserted that it is the responsibility of school leadership to provide teachers with an annual training program that includes updated topics on the conscious use of iPads and basics technical support. For instance, she said: "For myself I have enough knowledge on implementing iPad in teaching. However, the school gave me applications for teaching that I was not familiar with and these applications supposedly should carry out my lesson."

She further explained that:

> Our school offers training on a regular basis to all teachers. These sessions cover important teaching subjects such as preparing lesson plans and classroom management but there are no training programs to gain technology skills including the use of tablet devices.

Teachers were very clear about their concerns that they believe hindered their tablet use. When asked all teachers whether they attended training programs on tablet use, they all answered: "No, I didn't." Teachers complained about the lack of school support in terms of providing teachers with professional development. Some of the teachers indicated their willingness to attend professional development to help them understand the use of tablets in teaching. They said that they are willing to attend training programs provided by the Ministry of Education or school administration whether these were held during school time or in the evening. Rihab said: "Although that I have a very busy schedule between my personal life and schoolwork, I offered many times to the associate principal to provide us training sessions in order to learn more about using iPad in school."

Also, teachers claimed that one of the difficulties they faced while teaching with tablets was training students on using some applications. For instance, Amany said:

> One of my responsibilities as a teacher that teaches with tablets was to train students to use apps to do activity or submit a homework… I used to take additional time from class for training students and making sure they applied it before giving tasks.

All teachers agreed with Amany's statement. They added that students did not know how to work with iPads either because they were new to the school or they had a language barrier with the English-based apps. Hanadi said:

> It is not a big problem when students work in groups because they can help each other…we have been using the same apps for a long time now, so students can help new students to use the apps in class or at home...The problem is when students work independently and there are 3 or 4 students who do not know how to work with iPad…so because they are more than one, I have to put them in one group to assist them in a way that doesn't affect the other students in class.

Unfortunately, teachers were pushed into the tablet initiative without any support up front. However, teachers in this study have put a lot of effort into using tablets effectively without holding students back from accomplishing their educational goals. Teachers faced many difficulties, and first and foremost was their lack of technology skills and knowledge.

Technical Issues. The teachers voiced concerns about technical issues with the tablet transition. The greatest challenge for teachers was wireless network limitations. For example, Majida and Amany said:

> We came prepared to teach the lesson by using couple of different resources in iPad and then found out that the wireless network is very weak and it would take longer than usual to teach the lesson… this is a waste of time without any benefit for kids and without obtaining the information that is supposedly given to the students.

Both Majida and Amany stated that the entire school is using one wi-fi connection which at times is slow and weak. Majida noted that when the wi-fi server was slow, the entire lesson

could be ruined. Amany added that on many occasions the school lost their internet connection for couple of days without solving the problem. All teachers complained of losing the internet connection during school day which affected their teaching and caused delays in delivering the lesson materials properly as planned by teachers. When asked about her concerns about using tablets in teaching, Lina said that her biggest fear was losing the wi-fi connection in the middle of the lesson. She explained: "Kids go wild and get frustrated when they lose the wi-fi connection while working on an activity… so this also will distract the focus of all students."

Moreover, teachers said that some kids do not have access to the internet at home which makes them fall behind other students because doing homework on the iPad needs an internet connection. Regarding this issue, Rihab said:

> Some students do not turn in their homework on time, others would not participate in class discussion online because of the same issue…they do not have access to internet. I have been actually contacted by parents because their kids are not able to do quizzes at home…it is impossible for those students who do not have internet access at home to do all of their homework at school and use the school's wi-fi because it is time-consuming and it's not practical.

In addition to all these issues, Shadia reported that there is insufficient technical support at school for hardware and software problems that occur with the iPads. During the observation, the researcher noticed that the IT department is located in the boys' school, which means that girls' schoolteachers cannot go to the other building without principal approval. Therefore, teachers must give their devices to the management team in the girls' school, so they can give it to the management team in the boys' school, who in turn will deliver the device to the IT

department. It is a very long and complicated process that teachers go through when they have a technical issue. Shadia explained: “I had problems several times with my iPad that needed the department of technical support at school to solve…unfortunately, I stayed off of tablet for weeks and that is also happening for students when they have a technical issue.”

Hanadi expressed a similar opinion:

> The problem of the maintenance and technical support department at school is that they are not available for technical support by phone, so a teacher first has to have permission from the principal so she can schedule an appointment to solve a technical issue in person, which took days and sometimes weeks to solve a simple issue.

Technical issues can take valuable classroom time when teachers try to troubleshoot issues. Teachers also become frustrated when they encounter technical problems during their lessons because they do not have the technological ability required to solve these problems. The lack of support in the girls’ school is problematic and participants highlighted the need for change.

Teachers added that students sometimes brought their devices to school uncharged. For instance, Majida said that although her classroom is equipped with a charger cabinet, she always asked her students to bring their devices charged from home. She further explained:

> Despite all of this, students are still bringing their devices uncharged. So, when I see one student doesn’t have a charged iPad, I send her to the corner where I put the charger cabinet and asked her to work from there.

When Lina was asked about charging issues, she said:

> Unfortunately, some students don't bring their devices fully charged. By the time we use it in class, students complain of their devices out of battery…basically because of their young age, they forgot about the usage rules that were established at the beginning of the school year for example bringing their iPads without charging.

Teachers were concerned about technical issues encountered during their teaching with tablets, issues which hindered their ability to deliver the lesson. Specifically, participants mentioned wireless network limitations and charging issues.

Limited Arabic Educational Applications. Very few apps are available in Arabic that students can use as an educational resource. Teachers argued that using English-based educational apps is not practical. While using the iPad for class activities, students and teachers need to continuously use the translation app to translate words they encounter in some of the English apps. Teachers stated that this process frustrated students and overwhelmed teachers. Majida believed that it's the teacher responsibility to search for educational apps that support the lesson of the day. She said:

> When I couldn't find an Arabic application that support my lesson, I have to look up for English-based apps that have a variety of options for students and definitely support my lesson. Along with these apps, I asked my students to open translation app to support the learning process.

On the other hand, Amani said that when she used English-based applications, her students held back from completing their activities with their tablets because they became confused on what to do next or which icon to choose. She said: "I have the educational resources to support my lesson. But the language barrier holds us back…"

Moreover, teachers complained that educational apps that they currently use in teaching do not meet the requirements of the lesson. For instance, Shadia shared her opinion: “The applications that we already use and provided by our school management would support some lessons only…not all lessons…so we have to use our books or any other resource, depends on the nature of the lesson.”

When she asked to explain more, she said:

> Because I’m teaching Islamic studies, I have to use multiple applications to teach different subjects such as Hadeeth, Feeqah, Tawheed, and Quran Tajweed. Not all chapters are included in the apps that we have. These apps cover only 3 to 4 chapters of each subject. Only Quran Tajweed is fully supported in these apps. So, I have to use my book for the other ones that are not supported in the applications that I have.

This issue confronts head on the purpose of the tablet initiative to replace books with tablets. All teachers said that there are not enough Arabic educational resources and sometimes the limited applications do not have any suitable content for teaching the lesson. When Hanadi was asked about the available Arabic applications, she stated: “There is a deficiency in Arabic applications…the available Arabic apps do not have enough resources for every subject I teach…they might support one subject but not the entire curriculum.”

During the observation, Hanadi shared with the researcher the e-book she uses instead of the printed text. Although the e-book is supported by the Ministry and supposed to cover the whole curriculum, there were some chapters missing from the e-book. Therefore, this required Hanadi to shift between the printed book and the e-book if she wanted to cover the required content.

The lack of Arabic resources put teachers in a bind where they are continuously searching for Arabic educational apps that can support their lesson. Teachers are overwhelmed with the workload they have and adding this responsibility of searching for suitable Arabic apps that they can work with was extremely problematic.

Misuse by Students. While all teachers agreed that using tablets in classrooms can improve some students' attention, they also stressed that students can easily be distracted when using their devices. For instance, Lina said:

> We cannot ignore the distraction factor because when students are supposed to be working on their devices, they can access a game or app that they shouldn't be using at that time…On many occasions, I found my students playing games on their devices while I am teaching. They use apps for playing games and fun rather not for learning.

Amany similarly explained her experience with teaching Arabic in 1st grade. She said:

> Students get distracted when we don't use iPad as well…I believe that the device itself can cause distractions because students would be looking all the time to their iPads and waiting to do activities on their devices and not focusing on the lesson I'm teaching.

Shadia also shared her experiences with distraction. She stated that she prefers not to use iPads in her lessons for longer than 15 minutes because she believes that iPads will harm students' eyesight and lower their focus. She further said, "Those devices prevent students from concentrating and distract their attention as well." A similar opinion was held by Majida:

> Using tablets for a longer period of time is considered to be waste of time because students will be searching and looking for information that will lead to an unnecessary distraction…iPads for students are a very attractive tool and students show interest while

using this device. However, younger students get bored sometimes because they are using the same applications for a long time.

Moreover, teachers assumed that the ease of accessing information while using tablets made students lazier in terms of depending on technology in the learning process. Students can choose the easy way and use the internet to search for the right answers, which also can open opportunities for cheating. For instance, Shadia suggested that tablets should only be used as a supportive learning device and not as an alternative to textbooks because the more students use tablets, the more they become dependent on technology. She explained:

> When it comes to Quran, e-books are mainly used because they provide listening and reading along. However, I don't like the idea that students depend mostly on iPads in their learning especially because they became more dependent on technology…students should read by themselves and not depend on audible books.

Teachers also believed that using educational games can cause addiction. Rihab said:

> I believe that using iPad for a long time will cause addiction even if it doesn't show now on students, I believe that students will be addicted to games in the long term...
> In my class, we do math activities that include math games on iPads…We play for a certain amount of time because we have limited time at school. However, lots of parents have reported that their children became addicted to their devices because they spend a large amount of time at home playing games.

In Majida's class, some students were very attached to their devices and refused to move to the next activity. The teacher had to talk with each student individually to be able to move on with the lesson. Majida explained:

> This happens a lot when we use some games…students become frustrated when they know it's time to move to another activity…sometimes I talk with them and most of times I take off points from the reward system to make them pay attention to what I said.

The obstacles that teachers faced led to them to limit and at times avoid use tablets in teaching. The biggest concern was teachers' preparedness, followed by their lack of technology knowledge. Other difficulties including technical issues, limited Arabic apps, and misuse of tablets by students.

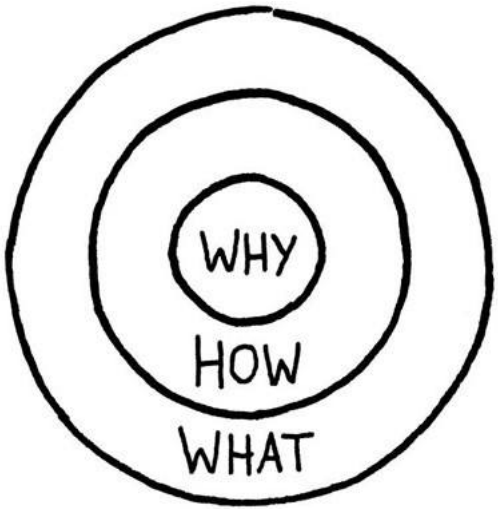
Emergent Dilemma of the Tablet Initiative

This qualitative study assisted the researcher to understand the thoughts and feelings of participants, which helped to develop a full understanding of teachers' experiences of the textbook to tablet transition phenomenon. The interviews and observations enabled the researcher to understand the meaning that people ascribe to their experiences (Sutton & Austin, 2015). It became evident during the study that many teachers faced a persistent dilemma that they were not aware of. This issue is that teachers do not really understand the importance and purpose of implementing tablets in their teaching. Teachers were focusing on "what" they are using in teaching and "how" to use it and they didn't give attention to the real problem, which is that they use tablets as a supplemental tool, not as a primary tool to replace textbooks as recommended by the Ministry of Education. There is a clear plan from the Ministry to use tablets instead of textbooks, and based on this plan, schools were provided with tablet devices. However, according to observation data, teachers used tablets for supplemental instruction; books are still used as the primary method of instruction. Teachers were given the devices without explanation of why they needed to use them and how to do so successfully. Upfront professional development was lacking, and the switch to tablets was mandated in a top-down

approach that did not permit teachers to either buy in to the change or voice concerns. On the one hand, teachers said “we enjoy using technology,” but during observations and follow-up interviews they revealed that they prefer to use books and are not comfortable or confident with teaching using their devices.

Some teachers were not convinced that what they were doing while working with tablets was effective. For example, in follow-up interviews, when asked about their indifferent reactions to tablets, some teachers said: “No matter how advanced the technology is, people shouldn’t depend on technology use only”. This statement shows that teachers who are working with tablets do not know why they are using technology in their teaching. This situation can be clarified by Simon Sinek’s (2009a) Golden Circle model (Figure 4.1). The Golden Circle explains why some people and organizations are successful and inspire others.

Figure 4.1. The Golden Circle



Source: Sinek, 2009b, p. 37

Three questions make up the Golden Circle: why, how, and what. Sinek observed that people almost always start with “what”, which means they always know what they do, and they know the purpose of their specific job. Some people know “how” to do their job, that is they are

motivated to do the job differently in a better way and become distinguished from others. However, very few people know exactly "why" they do what they do. The "why" stage is guided by the organization's beliefs, purpose, and cause. A lot of people do not know the purpose, often all they care about is the result and how to accomplish their job (Sinek, 2009b). Sinek's suggestion is that to succeed in work people need to flip their thinking and act from the inside out (Figure 4.1), which mean always start with "why" instead of "what" (Sinek, 2009a).

For instance, all participants know what they need to do; they are supposed to be teaching with tablets. However, many teachers think that they know how to effectively use tablet devices but in reality, they do not. Many teachers are using the same applications and the same teaching activities they have since tablets were introduced four years ago, yet they have not made any changes to the way they are using the devices in teaching. For example, Hanadi and Majida, who have the most years of experience in working with tablets, said that they have been using Classera and Ein since they began teaching with iPads in 2014, practicing the same activities with students and using these applications for the same reasons including communicating with parents and students. Hanadi, Majida, and the other participant teachers believed that they are using their tablets in teaching the way they are supposed to. The reason behind this belief is that teachers are comparing their current situation in teaching with technology to other teachers who do not use any type of technology, which results in some teachers believing that they are using tablets the way they are intended to be used. It is very obvious that teachers do not know "why" they are using tablet in teaching. Ongoing job-embedded professional development would be helpful in addressing this persistent dilemma (Pacchiano, Klein, & Hawley, 2016).

In another example, all teachers stated that they set usage rules for iPads, including limiting time to 10-15 minutes per lesson as well as not allowing students to use games in the

classroom. However, they are not focusing on the main issue which is, according to Sinek's model, to define "why" they are teaching with tablets to identify the true purpose of the initiative and then "how" they can use tablets to enrich the learning process. They also stated that they need education and training about using educational technologies, particularly iPads. It appears that teachers were trying to solve the wrong problem, the one that concentrated only on the rules of using tables and the lack of training and not focusing on how to improve students' learning with tablets. While teachers recognized many benefits of using tablets, including moving to more student-centered classrooms and improving student independence, they have not understood the purpose of the tablet initiative. Teachers need first to understand and embrace the purpose and the goals of teaching with tablets, such as giving students the opportunity to work and excel at their own level (Mareco, 2013). Once teachers understand "why" they should be motivated to use tablets as an educational tool, the focus can shift to "how" to use the tablets as they become aware of different methods and techniques to teach with tablets. Then they have to think about how to achieve the goal of effective teaching with tablets and look for research-based strategies to succeed and improve student learning.

Chapter Summary

In summary, the interview and observation data described here presented the different uses of tablets and revealed teacher's perspectives on using tablet instead of textbooks. Observation data revealed a persistent dilemma of which participant teachers were unaware. Although the school is one of the transition schools that uses tablets instead of textbooks, the reality is that teachers lack understanding of why tablets should replace textbooks, and instead use tablets as a supplement tool not as a primary tool. The interpretation and implications of the findings are discussed in the next chapter.

CHAPTER 5: DISCUSSION AND CONCLUSION

This qualitative research study aims to examine and identify the different ways that Saudi teachers use tablets in classroom and to investigate their perceptions and feelings about tablet use. The data was collected through semi-structured interviews and observations. The study focused on six primary teachers in a school in Riyadh, SA that adopted tablets to replace books.

The research questions for this study were:

1) How do teachers in SA use tablets?
2) What are teacher perspectives on using tablets in SA schools?

Two main themes emerged from the interview and observation findings. The first theme answered the first question about how teachers use tablets in teaching and is comprised of three subthemes: support the learning process, evaluate and provide feedback on students' progress, and communicate with parents. The second theme answered the second research question about teachers' perspectives on using tablets and it includes two subthemes, facilitators and inhibitors, each containing a number of sub-sub-themes.

The results confirm that the intent of moving to tablets does not match what takes place in classrooms. Teachers used tablets for supplemental instruction; books are still used as the primary method of instruction. Further, teachers did not understand the purpose of implementing tablets in their teaching.

Interpretation of the Findings

The use of tablets differed among teachers based on their experience and their technological inclinations. Teachers with some technology competence tended, often, to use technology in their teaching, as evident in their constant search for educational apps to enhance lessons and engage students. However, other teachers who were less skilled in using tablets

considered integrating tablets in classroom instruction as an obligation due to the pressures of the school administration on teachers to use tablets in their daily teaching.

Teachers' Use of Tablets in Teaching

The study found that teachers used tablet devices differently, however, they primarily use tablets as a supplemental tool to enhance classroom instruction and the student learning experience. The results of this study align with previous studies that showed that the ease of use of tablets and the ability to carry them around encourage learning anywhere and at any time, which allows teachers to change their pedagogy from teacher-centered to student-centered (Arpaci, 2014; Hutchison et al., 2012; Pruet, Ang, & Farzin, 2016). Teacher-centered classrooms use a traditional teaching style in which teachers at the center of the classroom lecture students, who exclusively listen to the knowledge that is transferred by their teachers. In contrast, in student-centered classrooms, students interact with teachers, work actively, and collaborate with each other. Teachers in these student-centered classrooms become coaches or/and facilitators who provide feedback and answer questions (Lathan, 2020; Varatta, 2017).

Participants in this study believed that their use of tablets in their teaching *supported the learning process.* For instance, some teachers used their devices to prepare students for the current lesson by playing or sharing related videos or websites to introduce the new lesson, while other teachers used tablets to review the previous lesson. These uses are similar to those found in other studies. For example, Alsanosi, Aharbi, & Alhebaishi (2019) studied how mobile devices enable communicative language practice for learning a second language. Students in the study by Alsanosi et al. used tablets to watch videos about English idioms during class, and then completed an activity about the idioms they learned. The study concluded that tablets provide learners with resources that enhance and support the learning process. The current research

aligns with Alsanosi's data, confirming the use of different apps such as I Read Arabic to enhance students' literacy and foster successful reading practices. For instance, Hanadi explained that the I Read Arabic app has different reading levels and an option to be a listener or a reader.

Participants also used their devices to *evaluate students' progress and provide feedback*. Each teacher used data from specific apps to keep up with students' progress and evaluate them easily. This is similar to reports from other studies (Albiladi & Alshareef, 2018; Ferguson & Oigara, 2017; Johns, 2015) that found that using technology and apps improved student engagement, as students responded positively when teachers used apps such as Kahoot to provide them with immediate feedback.

In addition to using tablets in teaching, participants used their devices to *communicate with parents* via email or apps such as Classera and Ein. It is important to note that participants believed that the ability of tablets to transform communication with parents was a benefit of the tablet initiative. Students' learning outcomes can be affected by the level of involvement their parents have with school. Emerging literature highlights how technology may lead to improved communication between parents and teachers that improves students' educational achievement (Blau & Hameiri, 2017; Oostdam & Hooge, 2013; Zhu, Yang, MacLeod, Shi, & Wu, 2018). Although it is difficult to schedule a meeting that is convenient for teachers and parents, using technology and tablet apps helped overcome this issue. When parents are able to video conference, teachers can use their tablets to converse with parents without their having to come to school (Beschorner & Hutchison, 2013; Kraft & Rogers, 2014; Patrikakou, 2016).

Communication between students and/or teachers and parents while using apps is enabled by third party educational technology vendors (Gallagher, Magid, & Pruitt, 2018). However, participants should pay attention to the protection of children's privacy. This researcher noted

that teachers took pictures of students in the classroom and shared the images with all parents without having parents' permission to include their students in videos or images. School polices and processes addressing this privacy concern need to be developed and articulated to all stakeholders. Additionally, in communicating digitally with parents, teachers must consider parents' lack of access. Many low-income parents do not have access to digital technology, own computers or iPads, or have internet access in their homes (Beschorner & Hutchison, 2013; Rideout & Katz, 2016). Exploring ways to improve access for low income families would be critical to the successful implementation of the tablet initiative.

Literature cites different options for teachers to successfully use digital communication tools with parents. One of the options is to survey all parents at the beginning of school year about the best and most convenient communication method (O'Brien, 2011; Walker, 2018). Studies suggest that teachers should offer different methods of communication for parents to choose per their convenience. For example, parents who do not have internet access can be communicated with via text, phone, or written note. Another option would be email or social media for parents who are able to use digital communication (Bosch et al., 2017; Wairimu, Macharia, & Muiru, 2016).

Teachers' Perspectives on Tablet Use in Teaching

The teachers in this study had positive opinions as well as concerns about using tablets in their teaching. Participants pointed out that tablets *motivate students* and engage them in the learning material. This is similar to the results of Aksu's (2014) research that math teachers noticed that their students enjoy math classes more when they use visuals and animations on iPads to do math activities, and that students gain a clearer understanding of math concepts. Most importantly, in order to motivate students and engage them in classroom activities, teachers need

to choose the right application that supports the teaching method in an easy and fun way (Al-Mashaqbeh, 2016). For instance, Rihab was observed using math games with her students via the Ein app. During this time, students were actively engaged and seemed to be having fun with the activity, as well as practicing their math skills at an appropriate level.

Additionally, teachers believed that students, while working on tablets, became more *independent* and took more responsibility for their own learning. Participants believed in the importance of giving students the space of freedom with an emphasis on guiding and supervising them. Further, participants agreed that tablets have the potential to increase students' self-confidence. These assertions align with research. For instance, Strollo (2015) affirmed that the ease of use of individualized tablets allows students to work at their own pace. This research showed how Hanadi's students created books with the Book Creator app and then printed them out so as to have personal books on different subjects. Students' confidence rose and they were proud of themselves (Strollo, 2015). Other participants, in contrast, used tablets for a limited time only. Kids were given only 10 minutes a day per lesson to use tablets, which really does not allow any improvement in independence and responsibility.

Data also showed that tablets *encourage collaboration* among students. Students were coaching and collaborating with fellow students without the teacher's assistance. Learning collaboratively allows students to brainstorm and develop new ideas. Previous studies stated that a collaborative environment in the classroom builds teamwork skills among students and extends classroom boundaries (Avery et al., 2010; Hayes, 2017; Janitschke, 2014). For instance, Google Docs has been famously identified in different studies as an app that encourages collaboration in classroom. Students can work simultaneously on the same document with one another (Gates,

2018; Janitschke, 2014; Wylie, 2013). Teachers should encourage students to respond to each other, get involved in the conversation, and be part of the teamwork.

Tablets were also found to be an *organizing tool* in which teachers were able to take notes, create assignments, and follow up with students' grades. Participants stated that with iPads, they were able to evaluate their students with little effort and in short time. Teachers referred to staying organized with tablets because of the mobility of these devices, which can be carried around throughout the day. Similarly, studies stated that teachers like to use built-in apps such as the calendar, to-do-list, and notes to organize their tasks (Ballad, n.d.; Isci & Demir, 2015; Molenaar & van Schaik, 2017; Thinley, Geva & Reye, 2014).

Participants affirmed that tablets provide students and teachers endless learning possibilities and allow them to use a variety of resources such as videos and e-books, which enhance the learning process. Many studies have found that tablets are widely used in schools because of their features such as the memory of the device and the capability to store, upload, and download documents (Burnett, 2017; Gentile, 2012; Gokcearslan, 2017; Kumi-Yeboah & Campbell, 2015). Users are able to browse the web, play games, and take pictures with only one device. iPads, in particular, have been used and implemented in schools faster than any other educational technology tool or device, such as notebooks and computers. Educational apps allow students to review their lessons and do their homework at anytime from anywhere. Additionally, some teachers prefer to use a voice recorder notes app to send individual notes to each student (Alsanosi et al., 2019; Campbell, 2016; Johnson, Smith, Willis, Levine & Haywood, 2011; Nield, 2016; Vu, McIntyre, & Cepero, 2014).

Teachers reported negative incidents that they experienced in teaching using tablets. The most important concern mentioned was *teacher preparedness*. Teachers were thrust into this

technology initiative without any upfront support. Participants stated that the school administration provided them with iPads and requested them to use these devices as an educational tool. However, the school administration didn't provide teachers with technological training. Studies suggested that teachers who implement technology in their teaching need more professional development to keep up with technology growth and also to tap into teacher coaching literature that helps teachers infuse innovations into their teaching practices (Hyndman, 2020; Pacchiano et al., 2016; Selwyn, 2020).

The deficiency in technology skills among participants was responsible in part for teachers' misconceptions about how to integrate tablets into classroom instruction. Therefore, the Ministry of Education as well as local schools need to provide teachers not only with the rationale for moving to using tablets but also ongoing, intensive professional development to improve their skills in using tablets and educational applications in their teaching. Likewise, school leadership should cooperate with teachers in terms of providing them with convenient times to attend professional development programs provided by the Ministry of Education.

Teachers should know earning a degree is not sufficient or the only source of teaching knowledge. Teachers need to continually improve their skills to develop their performance and become more proficient in their teaching. Research shows that effective and successful professional development is an important factor to increase student achievement (Further, 2010; Mizell, 2010; Yoon, Duncan, Lee, Scarloss & Shapley, 2007). Professional development provides teachers with strategies that can be implemented in their teaching to improve students' outcomes and become better educators.

Issues related to *technical problems* such as internet connection and tablet charging were also revealed by the current data. Participants experienced problems with maintenance and

scheduling appointments with the IT department at school. Teachers had to go through a lot of procedures including permission from the administration prior to scheduling an appointment with IT because the IT department is in the boys' building. Unfortunately, the school marginalizes women, which is problematic. Female teachers have the right to be provided with professional technology experts in the same building they are working in so they can use tablets efficiently and effectively. The Ministry of Education is obligated to provide transition schools with in-school maintenance equally in girls' and boys' buildings. Further, studies suggest that schools must have a support team that can be flexible and available to teachers when they face technical issues, such as providing teachers with a single hour-long meeting with technical support trained team at the beginning of the term or before the school day begins (Johnson, Jacovina, Russell, & Soto, 2016; Selwyn, 2020; Terada, 2020).

Further, *limited availability of Arabic educational applications* was one of participants' primary concerns. Teachers argued that using English-based educational apps is not practical. While using some English apps, students as well as teachers must continuously use the translation app. The results of this study align with similar studies that raised an argument regarding this issue (Oyaid, 2009; Qahmash, 2016). Most educational applications are in English, which most Saudis do not speak or understand. Therefore, the Ministry of Education should provide resources to develop apps in Arabic to overcome this issue.

Additionally, *student misuse* of tablets was frequently mentioned as a hindering factor. Some participants stressed the fact that students can easily be distracted while using tablets and they believed that tablets open opportunities for cheating. I believe that the teachers who complained about this were less proficient in using tablets, and this constitutes a combination that allows tablet use to take a back seat to traditional instruction using books. Previous studies

suggested that teachers use the Classroom app to control how each student use their iPad in the classroom (Baby & Saeed, 2020; Keller & Sargent, 2018; Sondgeroth, 2017). When students log into their accounts, the screens of their tablets appear on the teacher's screen. Teachers can monitor what each student is working on and can block apps, websites, or books to control students' misuse.

As presented in Chapter 4, not all participants believed in implementing tablets in their teaching. The reasons included lack of teachers' technology knowledge, lack of training, and the fact that tablets are not aligned with teachers' belief systems. However, the most important reason is the fact that the switch to tablets was mandated using a top-down approach that did not permit teachers to either buy in to the change or voice concerns. Participants were forced to use iPads, but they were not convinced that what they were doing in the classroom was effective. Previous studies have shown that if teachers do not believe in the positive effect of technology in teaching, they will fail to integrate it successfully and the learning process will be negatively impacted (Herold, 2019; Hyndman, 2020; Johnson et al., 2016; Selwyn, 2020). The systematic use of apps and tablets as the primary tool to replace textbooks emerged as a persistent challenge evident in the study. Using tablets in teaching is not effective without knowing exactly why and how to effectively integrate them into teaching.

Leadership's Contribution to Developing New Skills

Before implementing tablets in schools, the importance of educating teachers on why and how to use tablets in teaching should be taken into consideration. It is the school administration's responsibility to provide teachers with opportunities to develop the knowledge and skills needed to teach with tablets that will maximize the benefits for students. In fact, even before this, they need to understand how the change process plays out (Kotter, 1996). The digital transition from

textbooks to tablets is a major change in schools in SA. It will not happen easily for a variety of reasons including a lack of leadership and collaboration. In order for schools to successfully implement tablets, leaders of schools must understand Kotter's eight stages of the change process.

Kotter (1996) affirmed that the eight-step process of creating major change begins with creating a sense of urgency. Administrators in a school that is undergoing the transition from textbooks to tablets should have regularly scheduled meetings with teachers to talk about the proposed change and set high standards for teachers to teach with tablets. Make it clear for teachers that using tablets for 10-15 minutes at a time is not enough to achieve the desired goal of taking advantage of technology to improve learning. These meetings should also address the potential challenges of this change, such as technical issues, and how the school will overcome these problems. During these meetings teachers should have the chance to share their thoughts, questions, and concerns without risk.

The second step is creating a team of stakeholders to lead change. The team should involve teacher leaders such as Majida, Lina, and Hanadi who have experience teaching with tablets to help and support teachers who have less experience with tablets.

The third step is to develop a clear vision for change. The leadership team should understand why they need to transform teaching from textbooks to tablets and develop strategies that allow teachers to achieve that vision. As a result of this step, teachers should have a clear mental image of the teaching process while using tablets.

The fourth step is communicating the vision by talking frequently with teachers about replacing books with tablets and addressing their concerns. It is important that the leadership team understand how to develop an implementation plan that is realistic and can accomplish this

vision and link it to work in classrooms. Providing teachers with iPads and allowing teachers to discover how to use them does not go far enough. Communicating the vision will set expectations and lower the teachers' anxiety about using the new device in teaching.

The fifth step is helping teachers implement tablets by removing obstacles. For example, when Lina was asked about the obstacles that she encountered with tablet use, she stated that losing wi-fi connectivity in the middle of the lesson is her biggest fear because she will lose students' attention as well as her own train of thought. Schools must figure out how to address the ongoing problem of poor wireless connections. Most importantly, the administration must offer training courses for teachers that are easily available for them to attend. All teachers stated that training is missing. Most of the teachers expressed their desire to attend training programs to learn more about using tablets in teaching and to learn to avoid and troubleshoot complications and obstacles.

The sixth step is creating short-term wins for teachers. In this stage teachers will see that their hard work has not been wasted. Teachers should be rewarded for making changes in their teaching techniques. For instance, Majida and Amany discussed in the follow-up interview the marginalization of their efforts. They said that the administration is not aware of teachers' struggles. From the teacher's point of view, the school administration currently shows limited interest in listening to teachers' worries and concerns. Therefore, it is important to not only recognize teachers' hard work and reward them at every available opportunity, but also to provide them with a space to discuss their ongoing questions and concerns.

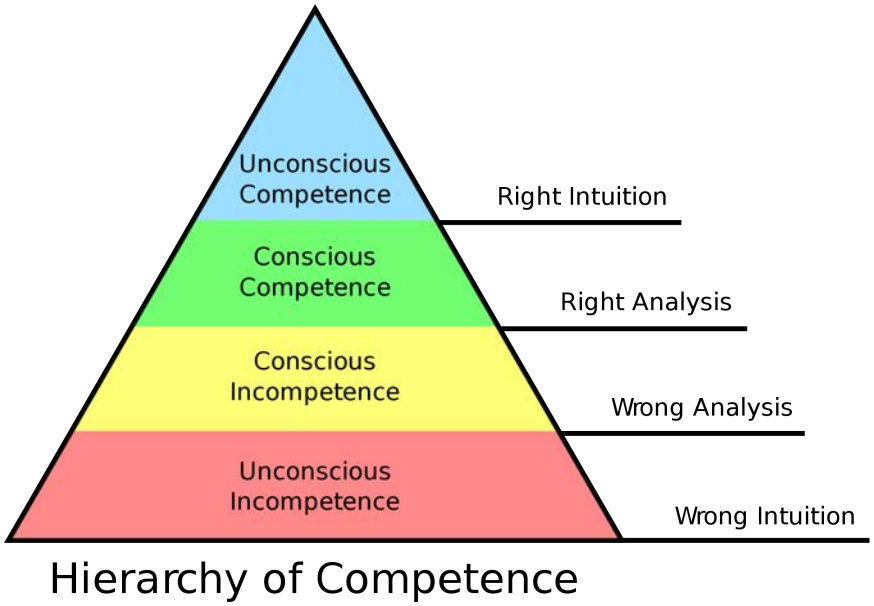
The seventh step is to build on the change and make sure that the previous efforts will not fail. As Kotter (1996) argued, goals that are initially achieved may ultimately fail if individuals do not build on the change. Failure may happen even when teachers feel satisfaction about the

progress they have achieved and after they observe the improvements that they have made when they use tablets proficiently. However, teachers must pay attention to an important point, which is to keep setting goals, continuing professional development, and always keeping ideas fresh. This means that teachers need to be actively learning all the time. For example, they must keep searching for educational apps to enhance the lesson, keep up with aspects of educational technology, and attend up-to-date training programs.

The eighth step emphasizes maintaining the stability of the change. Once the change has taken place and teachers have enough knowledge to use tablets in their classrooms, the school must sustain this change by anchoring the change in school culture, for example by sharing achievement stories about the change process within all school departments. Leaders and administrators should continue to support teachers' progress in change.

Participants in this study were unaware of their lack of skills that created obstacles to their ability to successfully teach with tablets, and that unawareness led them to ignore the Ministry instructions to replace textbooks with tablets, and to limit usage to 10-15 minutes per lesson. Teachers believed that they were using tablets in teaching as they should in order to benefit students. But in reality, they do not have the knowledge and skills to efficiently use tablets as an educational tool. The teachers in this study need to overhaul their current approach and seek to become competent using tablets. According to Burch (1970), people go through four stages of competence in gaining a new skill (Figure 5.1).

Figure 5.1. The Hierarchy of Competence



Source: Four stages of competence (n.d.)

The first stage is unconscious incompetence. People in this stage are unaware of their ignorance of the subject; they believe that they are doing their tasks the right way. For example, when Majida was asked how she use the iPad in teaching she said with confidence that she uses it throughout different stages of the lecture time: in advance, to prepare students for the current lesson; during the lesson; and at the end of the lesson. However, in fact she was observed using only one app (Ein) for all of her activities. People in this stage may also deny the usefulness of the skill. For instance, Majida and Shadia said that they do not like the idea of students using iPad in learning because students will be addicted to the technology and will not gain knowledge the way they will be when they use the traditional way of learning with books. Therefore, they were satisfied with their basic use of tablets in their teaching and did not wish to participate in any further training.

The second stage is conscious incompetence. People in this stage are aware of their lack of knowledge. For instance, Lina and Amany were observed uncomfortably teaching with iPads

because of their fear of showing their limitations in front of the researcher. In follow-up interviews, Lina and Amany admitted their deficits and their limited knowledge in technology use. The difference is that people in stage one are unaware of their shortcomings so they work as if they are doing their job proficiently. They also deny the need for the new skill. However, in the second stage, people realize that they need to learn a new skill. They discover that there is a gap and there are other individuals who are more competent than themselves. They understand the importance of learning a new skill and being willing to learn. Lina and Amany were among those individuals who were keen to attend after-school training programs to learn more about tablet use in school.

The third stage is conscious competence. People in this stage have the required knowledge but they need to hone their skills to accomplish the job. Individuals should be determined to not go back and give up because learning often comes after many failures. As when learning any new skill, people need to practice regularly to gain confidence and experience. Once participant teachers reach this stage of learning, they have to practice more, which means using tablets daily for increased lengths of time. They should also show their full understanding by using a variety of educational apps for different purposes such as giving assignments or creating projects.

The fourth stage is unconscious competence. People in this stage practice their mastery of the skills naturally--they become so good in this skill that they do not need to think about the process before the required activity. The competence in this stage follows mostly from the third stage (conscious competence); the more effort they invest in learning and practice, the more people perform the new skill easily and effortlessly.

Recommendations for Organizations

A pressing need for the digital transition in SA is to monitor and assess the education infrastructure that impacts tablet implementation and usage. This infrastructure should be able to support transition schools with respect to bandwidth, technical support (particularly at girls' schools), and educational applications that support the curriculum. Transition schools in SA should have an integrated electronic infrastructure. Students and teachers should be able to access the internet, comprehensively and sustainably, everywhere, at reasonable cost, which requires the development and strengthening of broadband network infrastructure as well.

The Ministry of Education should develop a task force for girls' schools that includes female teachers, school leaders, and leading female experts on infusing technology into instruction to help bridge the gaps that are revealed by this study. The Ministry of Education and transition schools should engage in ongoing monitoring and program evaluation of the tablet initiative. The program evaluation should entail assessing the benefits, challenges, outcomes, and resources needed to successfully implement tablets from a variety of stakeholders' perspectives (e.g., school administrators, teachers, students, parents, and Ministry leaders). Part of the evaluation should be to have each participating school conduct a gap analysis of the tablet project.

This study reveals that teachers need a regular program of professional development to enhance their teaching skills. Hence, the Ministry of Education should ensure that all teachers (male and female) receive adequate training and enroll all teachers in professional development programs that focus not only on basic teaching skills but also on methods to successfully integrate tablets in their teaching practice. Effective initial and ongoing professional

development should support teachers in the following areas (McAleavy, Hall-Chen, Horrocks, & Riggall, 2018):

- having a well-defined image of teaching with tablets;
- adopting new teaching strategies;
- taking leadership roles;
- asking for support when needed; and
- continual improvement.

Teachers stated the need for developing Arabic educational apps. Therefore, policy makers should address this concern and create applications that can achieve the curriculum objectives.

At the beginning of the study, teachers were conservative and careful with providing the researcher with their viewpoints on the transition. In fact, at times participants hid their insights and ideas about tablet use when the researcher asked about their concerns and fears toward the transition. This indicates their difficulty in sharing their beliefs and ideas about tablet use as they were obligated to implement tablets without having been asked for their opinions. Therefore, educational policy makers and school administrators need to listen to teachers, consider their opinions, and involve teachers in planning and decision making. Leadership teams at the school level should link teachers with policy makers at the Ministry of Education by providing regular dialogue meetings in which teachers can explain their opinions and concerns to ensure the effectiveness of the transition from textbooks to tablets.

Limitations of the Study

The study was limited to six female primary school teachers with experience in teaching with tablets. The findings lacked diversity of participants as male teachers' perspectives were not

included in the study. Because of the researcher's limited time and resources, the study was limited to observing and interviewing teachers from one school. Therefore, the research does not include other schools that have not replaced textbooks with tablets. This study was contextually bound to SA, but other cultures have different school structures and traditions which may have affected the results. Future studies could expand to include male students and teachers, other grade levels, and multiple schools in rural and urban areas in order to compare and contrast different perspectives and explore different uses of tablets among schools.

Suggestions for Further Research

This study was conducted in Riyadh, the capital of SA. There are forty-five cities in the country, of which three, Dammam, Jeddah, and Abha, are the largest and contain transition schools that have implemented tablets in classroom. Research should be conducted in these schools to discover how the perspectives of teachers and their use of tablets varies. There is a need for research on how the tablet initiative impacts cross gender communication between female teachers and male parents. There is a need to interview policy makers in the Ministry of Education to understand their opinions and what they have to offer for teachers in transition schools. Since participants in this study indicated that tablets enhanced students' learning, another angle to explore is to examine how tablets impact students' school performance, Quantitative research designs could provide deeper insight into students' outcomes and compare and contrast students' performance with and without tablet use in classroom.

Conclusion

This study examined the use of tablets by a group of Saudi teachers and investigated their perceptions and feelings towards the transition to using tablets in the classroom. The researcher conducted multiple interviews with and observations of each teachers and immersed herself in

the data to understand what was going on. The study explored the different usage of tablet devices as an educational tool include support learning process, evaluate students' progress, and communicate with parents. Most teachers have reflected on the many positive aspects of using tablets and believed that there is beneficial of using this technology with students. However, teachers were troubled with number of issues during their teaching while using tablets. Among these problems were teachers' preparedness, technical issues, limitation of Arabic educational apps, and students misused of tablets. This study revealed that teachers need a regular program of professional development to enhance their teaching skills. The effective initial and ongoing professional development should support teachers in adopting new teaching strategies, taking leadership roles, and continual improvement. The digital transition in SA can be effective in improving learning if such improvements are made.

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APPENDICES

Appendix 1: Interview Consent Form (English Version)

You are invited to participate in a research study. You may choose not to participate in this study, and you may choose to withdraw at any time. Your decision not to participate in the study, or to withdraw from it at a later date, will not result in any penal or loss of privileges owed to you.

Before you agree to participate in the study, the researcher will summarize the important information that will allow you to decide whether or not to participate. The researcher will then give you details of the study including:

1. Why the researcher is doing this study
2. Sample size that will participate in the study
3. Procedure of the study

4 Any potential risks or benefits

5. How you will be informed of the new results

If you have any questions about the study, please contact me at:

Name: Nehaya Alhamed

Phone number: Redacted

Email:Redacted

For more information about your rights as a participant in this study, or to discuss any problems, complaints, or concerns about the research, please contact the University of North Florida Research Review Board at 904-620-2498 or email irb@unf.edu

Title of Research Study:

The Digital Transition from Textbooks to Tablets in Saudi Arabia

The purpose of the study:

The aim of this research is to examine the use of tablets by current teachers and explore their perceptions and feelings towards tablets. This study seeks to explain and identify the different ways in which teachers can use tablets as an educational tool to improve the learning process.

Number of people participating in the study:

Participants are 6 teachers who are using tablets in the classroom. Teachers from the following classrooms: fourth, fifth, and sixth primary classrooms.

What is the procedure of the study?

The researcher will use semi-structured questions during the interviews to provide information on the experience of the teachers before the observations. Examples of the questions are below:

1. Can you describe how you use the tablet in your classroom?
2. For what purpose do you use the tablet in your classroom?
3. What do you think of your tablet as a learning tool in your classroom settings?
4. In your opinion, what are the benefits of using the tablet? For teachers? For students?

5. In your opinion, what are the difficulties of using the tablet? For teachers? For students?

The place for interviews will be at your school. During interviews, the researcher will record the interviews for later analysis. Later, the researcher will make observations in the classroom to observe teachers and students as they interact with tablets during class time. The number of observations will vary between 3 to 4 times and each observation will be approximately half an hour.

Then there will be a follow-up interview for about 5 to 10 minutes after each observation.

Potential of any risks or benefits:

There will be no risks to the participants or benefits.

How will you be informed of the new results?

The researcher will share the results of the study with participants at the end of the analysis phase.

Thank you for participating in my study.

Nehaya Alhamed

November 7, 2019

___ Agree to participate in the study

___ Disagree to participate in the study

Appendix 2: Interview Consent Form (Arabic Version)

يطلب منك بموجب هذا النموذج المشاركة في دراسة بحثيه.

يجوز لك عدم المشاركة في هذه الدراسة، كما يجوز لك الانسحاب في أي وقت كان. لن يؤدي قرارك بعدم المشاركة في الدراسة، او قرارك في الانسحاب منها في وقت لاحق، الى أي تدبير جزائي او الى فقدان امتيازات مستحقه لك.

قبل موافقتك على المشاركة بالدراسة، سيقوم الباحث بتلخيص المعلومات المهمة التي ستسمح لك باتخاذ قرار المشاركة او عدمه. بعد ذلك سيطلعك الباحث على تفاصيل الدراسة ومنها:

١. لماذا يقوم الباحث بالدراسة

٢. عدد الاشخاص المشاركين بالدراسة

٣. ماذا سيحدث خلال الدراسة

٤. وجود اي مخاطر او فوائد محتمله

٥. كيف سيتم اخبارك بالنتائج الجديدة

في حال كان لديك أسئلة حول الدراسة، يرجى الاتصال:

الاسم: نهاية على الحامد

ر

Redacted

لبريد الالكتروني:R
e

لمزيد من المعلومات عن الحقوق التي تتمتع بها بصفتك مشارك بدراسة بحثيه، او لمناقشه أي مشاكل او شكاوى او مخاوف حول الدراسة البحثية، او للحصول على معلومات، او للمساهمة بأرائك، يرجى الاتصال على مجلس مراجعة الابحاث في جامعة شمال فلوريدا على الرقم ٩٠٤٦٢٠٢٤٩٨ او على البريد الالكتروني irb@unf.edu

عنوان الدراسة:

الانتقال الرقمي من الكتب المدرسية الى الأجهزة اللوحية في المملكة العربية السعودية

الهدف من البحث:

الهدف من هذا البحث هو دراسة استخدام الاجهزة اللوحية من قبل المعلمين الحاليين واستكشاف تصوراتهم ومشاعرهم تجاه الأجهزة اللوحية. تسعى هذه الدراسة الى شرح وتحديد الطرق المختلفة التي يمكن للمدرسين من خلالها استخدام الأجهزة اللوحية كأداة تعليميه لتحسين العملية التعليمية ونتائج الطلاب.

عدد الاشخاص المشاركين في الدراسة:

المشاركين هم معلمات استخدموا الأجهزة اللوحية في الفصول الدراسية وهم مجموع ست معلمات من الفصول الدراسية التالية: الفصل الرابع، الخامس، والسادس الابتدائي.

ماذا سيحدث اثناء الدراسة:

ستقوم الباحثة باستخدام أسئلة شبه منظمه خلال المقابلات وذلك لتزويدها بمعلومات عن تجربة المعلمات قبل القيام بالملاحظة مثال:

١. هل يمكنك وصف كيفية استخدامك للوح الالكتروني في فصلك الدراسي؟

٢. لآي غرض تستخدمين الجهاز اللوحي في فصلك الدراسي؟

٣. مارآيك في الجهاز اللوحي كأداة تعليميه في إعدادات الفصل الدراسي؟

٤. في رأيك، ماهي فوائد استخدام اللوح الالكتروني؟ للمعلمين؟ للطلاب؟

٥. في رأيك، ماهي صعوبات استخدام اللوح الالكتروني؟ للمعلمين؟ للطلاب؟

٦. ماهي مخاوفك بشآن الإنتقال الى استخدام اللوح الالكتروني بدلاً من استخدام الكتب الدراسيه المطبوعه؟ هل يمكنك تقديم بعض من الأمثله؟

سيكون المكان المحدد للمقابلات هو المدرسه التي يعمل بها المعلمون. خلال المقابلات، سيقوم الباحث بتسجيل المقابلات ليتم تحليلها لاحقا. فيما بعد ستقوم الباحثه بعمل المراقبات في الفصول الدراسيه لاسكتشاف ومراقبة المعلمين والطلاب اثناء تفاعلهم مع استخدام الاجهزة اللوحيه اثناء وقت الفصل الدراسي. عدد الملاحظات سيتفاوت بيت ٣ الى ٤ ملاحظات وكل ملاحظه ستكون مدتها نصف ساعه تقريبا.

وبعد ذلك سيكون هناك مقابله متابعه لمدة ٥ الى ١٠ دقايق بعد كل مراقبه.

وجود اي مخاطر او فوائد محتمله:

لن يكون هناك اي مخاطر على المشاركين او فوائد محتمله.

كيف سيتم اخبارك بالنتائج الجديده:

ستقوم الباحثه بمشاركة نتائج الدراسة مع المعلمات في نهاية مرحلة التحليل.

اسم الباحثه: نهايه علي الحامد

التاريخ: ٧ نوفمبر ٢٠١٩

ـــ اوافق على المشاركه في الدراسه

ـــ لا اوافق على المشاركه في الدراسه

Appendix 3: Interview Guide (English Version)

1. Before your school transitioned to using tablets in place of textbooks, what type of technology did you use?
    - Probing question - What technology did you use in your teaching?
2. Can you describe how you use tablets in your classroom?
    - Probing question - For what purpose do you use your tablet in the classroom?
3. What do you think about the tablet as a learning tool in classroom settings?
4. In your opinion, what are the benefits of tablet usage? For teachers? For students?
5. In your opinion, what are the challenges of tablet usage? For teachers? For students?
6. What are your concerns regarding the transition to using tablet instead of printed books? Can you provide some examples?
7. What are some problems you experienced during your teaching while using tablet? Can you provide some examples?
8. What can you say about ease of use of tablets based on their features?
    - Features?
9. What kind of instructional contributions do tablets provide for learners and teachers?
10. If you do not use a tablet to support your work in lessons, are there specific materials you prefer to use than tablets in certain situations? Can you provide an example?

Appendix 4: Interview Guide (Arabic Version)

١. قبل انتقال مدرستك لاستخدام اللوح الالكتروني، مانوع التكنلوجيا التي استخدمتها؟ ماهي التكنلوجيا التي استخدمتها في التدريس؟

٢. هل يمكنك وصف كيفية استخدامك للوح الالكتروني في فصلك الدراسي؟

٣. لآي غرض تستخدمين الجهاز اللوحي في فصلك الدراسي؟

٤. مارآيك في الجهاز اللوحي كأداة تعليميه في إعدادات الفصل الدراسي؟

٥. في رأيك، ماهي فوائد استخدام اللوح الالكتروني؟ للمعلمين؟ للطلاب؟

٦. في رأيك، ماهي صعوبات استخدام اللوح الالكتروني؟ للمعلمين؟ للطلاب؟

٧. ماهي مخاوفك بشآن الإنتقال الى استخدام اللوح الالكتروني بدلاً من استخدام الكتب الدراسيه المطبوعه؟ هل يمكنك تقديم بعض من الأمثله؟

٨. ماهي بعض المشاكل التي واجهتها اثناء التدريس باستخدام اللوح الالكتروني؟ هل يمكنك تقديم بعض الأمثله؟

٩. ماذا يمكنك ان تقولي بشأن سهولة استخدام اللوح الالكتروني على اساس ميزتها؟

١٠. ماهي ميزات اللوح الالكتروني برأيك؟ مانوع المساهمات التعليميه التي توفرها الأجهزه اللوحيه للمعلمين و الطلاب؟

١١. اذا كنت لا تستخدمين الجهاز اللوحي لدعم عملك للدروس، فهل هناك ادوات محدده تفضل استخدامها عن استخدام الاجهزه اللوحيه في مواقف معينه؟ هل يمكنك تقديم مثال؟

Appendix 5: IRB Approval

UNF
UNIVERSITY of NORTH FLORIDA.

Office of Research and Sponsored Programs
1 UNF Drive
Jacksonville, FL 32224-2665
904-620-2455 FAX 904-620-2457
Equal Opportunity/Equal Access/Affirmative Action Institution

MEMORANDUM

UNF IRB Number: 1487699-1
Exemption Date: 12-03-2019
Processed on behalf of UNF's IRB

DATE: December 3, 2019

TO: Ms. Nehaya Alhamed

VIA: Dr. David Hoppey
Exceptional, Deaf, and Interpreter Education

FROM: Dr. Jennifer Wesely, Chairperson
On behalf of the UNF Institutional Review Board

RE: Declaration of Exempt Status for IRB#1487699-1
"The Digital Transition from Textbooks to Tablets in Saudi Arabia"

Your research study, "The Digital Transition from Textbooks to Tablets in Saudi Arabia" was reviewed on behalf of the UNF Institutional Review Board has been declared "Exempt" under category 2.

Please be advised that any subject complaints, unanticipated problems, or adverse events that occur are to be reported to the IRB as soon as practicable, but no later than 3 business days following the occurrence. Please use the Event Report Form to submit information about such events.

While the exempt status is effective for the life of the study, any substantive changes must be submitted to the IRB for prospective review. In some circumstances, changes to the protocol may result in alteration of the IRB review classification.

To submit an amendment to your approved protocol, please complete an Amendment Request Document and upload it along with any updated materials affected by the changes via a new package in IRBNet. For additional guidance on submitting an amendment, please contact the IRB administrator.

Upon completion of this study, please submit a Closing Report Form as a new package in IRBNet. Please maintain copies of all research-related materials for a minimum of 3 years following study closure. These records include the IRB-approved protocol, approval memo, questionnaires, survey instruments, consent forms, and all IRB correspondence.

Should you have questions regarding your study or any other IRB issues, please contact the Research Integrity unit of the Office of Research and Sponsored Programs by emailing IRB@unf.edu or calling (904) 620-2455.