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Jamaican Teachers' Perceptions of the Impact of the Tablets in School Project on Their Literacy-Teaching Practices

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Abstract

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Dissertation Submitted in Partial Fulfillment

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Doctor of Philosophy

Assessment, Evaluation, and Accountability

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Abstract

There have been many innovations targeting literacy teaching and learning in small countries such as Jamaica, but changes to literacy teaching practices are rarely sustained beyond the life of the initial projects. The purpose of this study was to understand teachers' rationale for changes to literacy teaching practices that were and were not sustained beyond the life of the initial Tablets in Schools (TIS) project of 2014 in Jamaica. Grounded in Lewin's and Rogers's change theories, the study's conceptual framework communicated that impactful innovation leads to sustainable change. The two research questions sought to establish how primary school teachers explained (a) changes made and (b) changes not made to their literacy teaching practices since implementation of the TIS. This basic qualitative study used semistructured interviews with a criterion-based sample of 13 teachers across four elementary schools who taught literacy and had participated in the TIS project. Thematic data analysis was facilitated by data management software and a rigorous coding process. The results showed that teachers explained changes made to their literacy teaching practices in terms of the supportive context in which they operated. The results also showed that teachers' explanations of changes not made were linked to their fixed prevailing mindset, their flawed perceptions of technology, and use of the tablets for activities other than literacy teaching and learning. The study has social change implications for future innovations in Jamaican education developed to achieve the fourth United Nations Sustainable Development Educational goal of inclusive and equitable quality education and lifelong learning opportunities for all students.

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Dedication

I dedicate this dissertation to my son, Warren, to inspire him to believe in himself and pursue his dream.

Acknowledgments

I must thank my friends, family, colleagues, and mentors for the role they have played in my doctoral journey and the completion of this dissertation. I wish my mother could be here to celebrate with me.

My family: Dad, Ms. G., Rose, Hilary, David, and Ericca, thanks for believing in me. Warren, Tracy, Christina: You give me joy and motivation to continue.

My longstanding former mentor, Dr. Bonnie Mullinix: I am so grateful for the faith you have in me and for your encouragement and guidance over the years. Thank you for keeping me focused.

Dr. Ron Paige, my current mentor: Thank you for welcoming me into your fold and for seeing me through this process. You are indeed an inspiration!

Dr. Hammet, my methodologist, thank you for your insights and encouragement.

Chue Vang, my academic advisor: I thank you for helping me work through difficult decisions as I struggled financially.

Finally, thank God for journeying mercies, for paving the way for me to get through this. For with God, all things are possible.

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Chapter 1: Introduction to the Study

Innovations occur in every aspect of human life, and they are essential for ensuring a sustainable future (Serdyukov, 2017). Innovations are instruments of positive social change and, in this regard, innovations in education are expected to bring about improvement in student outcomes as well as in educational practices. However, innovations in education and other disciplines do not always succeed in terms of sustained changes in practice or improvements in student achievement (Azman, 2016; Gong & Yang, 2020; Hoffman, 1998; White & Philippe, 2021). Hence, finding out why some innovations in education do not bring about sustained improvement to practice continues to keep researchers involved. In this study, I explored how literacy teaching practices have been influenced by innovations in education as perceived by literacy teachers who were involved in the Tablets in Schools (TIS) project in Jamaica.

The TIS project in Jamaica was an educational initiative in which computer tablets were made available in Jamaican schools. This innovation involved providing technological support for teaching and learning across disciplines, including the teaching of literacy skills at the primary level, while fostering the achievement of Jamaica's vision to produce citizens with competitive 21st-century skills. The TIS project was implemented in 52 institutions across Jamaica in 2014 by the Ministry of Education in partnership with e-Learning Jamaica and the University of Technology (Onyefulu et al., 2016).

Literacy is a critical skill and an important measure of a country's education status (Roser & Ortiz-Ospina, 2018). Children with a strong literacy foundation are more

likely to achieve academic success than those who struggle to acquire literacy skills in their early years (Sparks, 2011). Therefore, a country that provides a strong literacy (education) foundation for its children is better positioned for social and economic prosperity.

In Jamaica, there have been significant improvements in education in terms of access and quality over the years. Changes in educational policies, revisions to the national curriculum, and an abundance of professional development opportunities for teachers have all been geared towards increasing student achievement, especially in the areas of literacy and numeracy. Given the focus of this study, it is expected to add to the body of knowledge in relation to practices specific to literacy teaching at the elementary level while fostering an understanding of how and why teachers have adjusted their literacy teaching practices. The study has potential social change implications for future innovations geared at improving standards in teaching and learning in literacy, and other critical academic areas in Jamaican schools. The study also has social change implications in relation to the achievement of the United Nations Sustainable Development Educational Goal Number 4, reported in 2015 by the United Nations Educational, Scientific, and Cultural Organization (UNESCO), to "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (p. 284). This investigation provided the opportunity to explore the promotion of social change in education, which will be of interest both locally and globally.

This chapter sets the stage for the study by providing a brief background as well as a full description of the problem on which the study was based. It includes an

explanation of the research purpose, presents the research questions that drove the study, and outlines the basis for the conceptual framework that was adopted. The final sections of the chapter provide insights into the scope of the study, assumptions that have implications for its viability, as well as its potential significance for literacy teaching and learning in Jamaica. Operational definitions of important terms are provided, and the chapter closes with a summary.

Background to the Study

Education has long been accepted as a basic human right, with learning to read (literacy) and understanding and working with numbers (numeracy) being foundational skills that drive education and enable people to participate fully in society. Large numbers of students complete primary and secondary schools across the world each year, yet there is a longstanding concern that too many of them have not attained mastery in literacy and numeracy (Campbell, 2014; Mirizon et al., 2021; Sternberg et al., 2007). Students who fail to attain the minimum achievement standards at the primary and secondary levels are less likely to participate successfully in higher education and training (OECD, 2012; Sparks, 2011). In short, illiteracy has negative implications for the quality of a country's labor force, its economic and social development, and its capacity to compete in the global market.

Across the world, teachers at the early childhood and primary levels are charged with the responsibility to facilitate students' attainment of foundational literacy and numeracy skills through the implementation of the formal curriculum developed by the educational jurisdiction in their respective countries. Teachers of literacy are therefore

required to apply literacy teaching practices incorporating various strategies and resources to teach critical foundational literacy skills and improve student achievement. Such literacy teaching practices are manifested in the wide range of activities that teachers engage in as they fulfill their mandate. However, learners' acquisition of these skills is influenced by several factors, including the specific teaching-learning context in which they are situated, teachers' experiences and teaching competences, as well as students' learning and application preferences (Creely, 2019). In an educational climate that emphasizes accountability, teachers are expected to employ teaching practices that meet students' diverse learning needs (Scott & Teale, 2009) while facilitating the attainment of specific learning targets, including the development of competencies in literacy.

There have been several innovations and educational reforms that have specifically targeted literacy teaching and learning in many countries. Examples include the United Kingdom's National Literacy and National Numeracy Strategies of the late 1990s (Department of Education, 2011), Kenya's National Tablets Program (Piper et al., 2017), the Read 180 program of the United States (Dietrichson et al., 2021), and Jamaica's Tablets in Schools (Onyefulu et al., 2016). However, as is the concern about innovations and reforms in other sectors, there is doubt surrounding the sustainability of changes to practice that have been targeted and facilitated by reform and innovation programs in education. Whether national, statewide, communitywide, or schoolwide, innovations come with a price tag; hence, there is just cause for concerns about their success or failure, and whether changes in practice that occur during implementation are

superficial or are sustained through institutionalization or national diffusion (Gong & Yang, 2020; Hoffman, 1998; Serdyukov, 2017; White & Philippe, 2021).

The Ministry of Education in Jamaica has long accepted and expressed in its strategic plan that literacy skills are an essential foundation for lifelong learning and key competencies for employment and survival in today's world (Ministry of Education, 2012). The 2004 report of the Task Force for Educational Reform highlighted the poor literacy rate at Grade 4 as a major concern (Task Force on Educational Reform, 2004). The report expressed the vision of a learner-centered environment with maximum use of technology that produces a fully literate and globally competitive workforce. Hence, it is no surprise that there have been numerous interventions aimed at reducing the literacy deficit at the primary level. Initiatives such as the Primary Education Support Program (PESP), the Caribbean Centre of Excellence Project (2002–2009), and the Expanding Education Horizons (EEH) Project (2005–2009) all targeted improvement of literacy and general competence in language at the elementary level. Teachers are key players in educational reform because it is they who, through their teaching practices, bring policies and interventions to life.

One of the most recent interventions targeting deficits in literacy achievement in Jamaica was the TIS project. This intervention involved giving computer tablets to 52 institutions across Jamaica to provide technological support for teaching and learning (Onyefulu et al., 2016). The TIS pilot project was implemented in the academic year of 2014–2015 by the Ministry of Education, Youth, and Information in collaboration with e-Learning Jamaica Limited (Onyefulu et al., 2016). In preparation for the project, the

Ministry of Education, Youth, and Information arranged for classroom teachers and teacher educators across the country to be trained in information and communications technology (ICT). The objective was to create a cadre of professionals with the necessary skills to successfully lead the change towards integrating technology into their teaching practices (Jamaica Information Service, 2010).

The TIS project in Jamaica had two prongs: public and private. Under the public project, a total of 52 institutions participated, including 38 primary schools, five all-age and junior high schools, 12 high schools, one teacher's college, and one special education institution. Under the private project, one primary school in Kingston benefited from a Samsung-sponsored smart school initiative in which two smart rooms were created and equipped with computer tablets and other multimedia devices (Geezam Caribbean Tech Blog, 2015; Jamaica Information Service, 2015). This Samsung-sponsored TIS project was a private project because it was funded by a private organization and not the Jamaican government.

Technology has been used to support teaching and learning for centuries (Picton & National Literacy Trust, 2019), and ICTs offer a wide range of possibilities for teacher innovation in all disciplines and at all levels, including literacy teaching at the elementary level. Educational reforms involving ICT such as the One Laptop per Child (OLPC) project in South Korea, Kenya, and other countries have sought to address deficits in student achievement and improve the quality of education in general (Hany, 2020). One of the goals of the National Tablets project in Kenya emphasized the use of computer tablets to improve literacy at the lower primary level, Grades 1 to 3 (Piper et al., 2017).

The TIS project in Jamaica was implemented to provide technological support for teaching and learning and improve student achievement across disciplines. Ultimately, the goal of the Jamaican TIS project was to facilitate the achievement of the government's vision to produce citizens with the capacity to compete globally in the 21st-century (Onyefulu et al., 2016). This vision has clear implications for the teaching of literacy and the quality of education.

Educational interventions involving ICT programs that are designed to tackle issues of instructional quality and accountability have potential for positive results (Piper et al., 2017). The incorporation of ICT for teaching and learning is beneficial to students in terms of increased motivation and engagement, as well as the enhancement of 21st-century skills including communicating, critical thinking, and collaborating (Lee, 2016). Benefits for teachers have also been noted in terms of professional development and possibilities for tailoring instruction to meet students' varied learning needs in a range of subject areas and learning contexts (Chou & Wang, 2021). Likewise, the TIS project of Jamaica has been lauded for its positive impact on students' reading, literacy, and numeracy skills as well as change in teachers' attitudes toward the use of technology (Onyefulu et al., 2016).

Teachers are the most important link between decision makers and students and must be empowered to adapt policies and decisions into their practice (Hurreeram & Bahadur, 2019). They are critical to the success of any innovation in education, including the TIS project of Jamaica; hence, the question of whether innovations such as this have engendered changes in literacy teaching practices is worthy of exploration. There has

been no formal review of the TIS project, in terms of its impact on teachers' literacy practices, to determine if any changes to their practices that were associated with the project have been sustained, have evolved, or have been discontinued. This gap needs to be addressed considering the essential role that teachers play in translating policy into practice and in the sustainability of educational innovations. This study served as an assessment of the impact of the TIS project on the teaching of literacy and contributes to the body of knowledge relating to the impact of technological innovation on literacy teaching practices in Jamaica.

Problem Statement

The problem underpinning this study is that there have been many innovations targeting literacy teaching and learning in countries across the world, including small nation states such as Jamaica, but too often, changes to literacy teaching practices are not sustained beyond the life of initial projects. The overarching aim of innovation in any sphere is to bring about improvement and positive change. In education, this improvement and change would be represented by the "emergence of new, more effective instructional practice" (Fleisch, 2016, p. 448). Teachers are the key constituents during the implementation of any innovation in education as it is they who are charged with the responsibility to bring projects to life by integrating innovation into their practice (Wilcox & Lawson, 2018). Because teachers are implementors of educational innovation, it follows that the effectiveness of innovations in education is evidenced by changes to teaching practice that occur during implementation of the innovation being brought forward to current practices.

The current literature includes research documenting instances in education and other fields in which following up on innovation through practice has indicated problems. In the educational sphere, according to Fleisch (2016), the Gauteng Primary Language and Mathematics Strategy (GPLMS) in South Africa from 2010 to 2014 worked well until there was a change in political leadership and a shift in focus from primary to secondary education. Knight and Rapley (2007) found from their survey of educational innovations in Jamaica that teachers who participated in the New Horizon Project had reverted to their preproject practices within 2 years after the project ended. An analysis of the OLPC initiative in the Oksapmin area of New Guinea by Saxe and de Kirby (2018) revealed that several threats, including the fact that not all the sites received laptops, impacted the sustainability of the innovation.

In this study, the Jamaican TIS project of 2014 was highlighted and explored as one example of an educational innovation that targeted improvements in literacy teaching and learning in a small nation. This innovation was worthy of exploration to ascertain what changes to literacy teaching practice were or were not cultivated during the implementation of the project and what novel practices had been sustained beyond the life of the initial project and why. Hence, this study provides valuable information regarding changes in literacy teaching practices as a direct consequence of literacy-focused innovation. The current study has further implications for how future innovations in education, especially among small nation states, are undertaken to foster the realization of sustainable change in educational practice.

Purpose

The purpose of this basic qualitative study was to understand teachers' rationale for changes to literacy teaching practices that were and were not sustained beyond the life of the initial TIS project of 2014 in Jamaica. The central phenomenon of this study was the concept of sustained change in the teachers' literacy teaching practices brought on by innovations in education such as the TIS Jamaica project. The objective was to have teachers give an account of their engagement with the TIS project, an educational innovation in a small island nation, to highlight their individual and collective experiences and their perception of how those experiences had influenced their literacy teaching practices since participating in the TIS project. This analysis is critical because teachers could, arguably, be the most significant stakeholders influencing the success or failure of any innovation in education because they are, as Wilcox and Lawson (2018) concluded, the chief implementers of educational innovations.

Research Questions

This conduct of this basic qualitative study was guided by the following research questions:

RQ1: How do primary school teachers in Jamaica explain any suggested innovation changes made to their literacy teaching practices since implementation of the TIS?

RQ2: How do primary school teachers in Jamaica explain any suggested innovation changes not made to their literacy teaching practices since implementation of the TIS?

Conceptual Framework

The conceptual framework of a study is formulated based on critical interrogation of related literature and, according to Ravitch and Riggan (2017), serves as an organizing structure that integrates related ideas, research, and theories to direct the study. In this study, the conceptual framework was grounded in theories of change that offer explanations of how change occurs and is manifested. Theoretical support for the conceptual framework was derived from the works of Lewin (1947) and Rogers (2003), who presented change as a process that occurs in stages and influenced by factors within the specific context that it occurs. While neither theory offered an explicit explanation of the concept of change, both implied transition from one state to another. For Lewin, "change and constancy are related concepts" (Lewin, 1947, p. 13) occurring simultaneously and being influenced by similar conditions. Rogers presented change as an "innovation-diffusion process" (p. 20). In other words, it can be concluded that change means to make or become different.

The other critical concept, literacy teaching practices, includes the range of activities that teachers engage in, from planning to implementation to evaluation of literacy lessons. Given that the study explored the concept of change in relation to teachers' literacy teaching practice, these theories are relevant as they provided the basis for understanding teachers' perception of the influence the TIS project might have had on their literacy teaching practices, as represented by the range of activities that teachers engage in as they plan, implement, and evaluate literacy lessons. Additionally, the conceptual framework guided the exploration of factors that engendered the sustainability

of changes to literacy teaching practices that were developed during the implementation of the TIS innovation.

Lewin's (1947) and Rogers's (2003) theories offer insights into the change process that are relevant for understanding how innovations such as the TIS project might have fostered changes in literacy teaching practices among teachers. Lewin (1947) proposed that change occurs in three steps: *unfreeze*, during which people become aware that a change is pending; c*hange*, during which people begin to engage in the new practices and processes; and *refreeze*, a period of stability when the change settles as the new norm.

Rosch (2002) and Child (2015) shared the view that Lewin's theory is not as simplistic as it appears. They believed that change as explained by Lewin's theory is a complex process that is situated and defined by the specific contexts in which it occurs. Hence, according to Child, contemporary conditions allow for its flexibility and adaptability in various contexts and institutions. Additionally, according to Rosenbaum et al. (2018), the three steps identified by the theory are not isolated from other interrelated processes such as group dynamics that are part of the context in which change occurs.

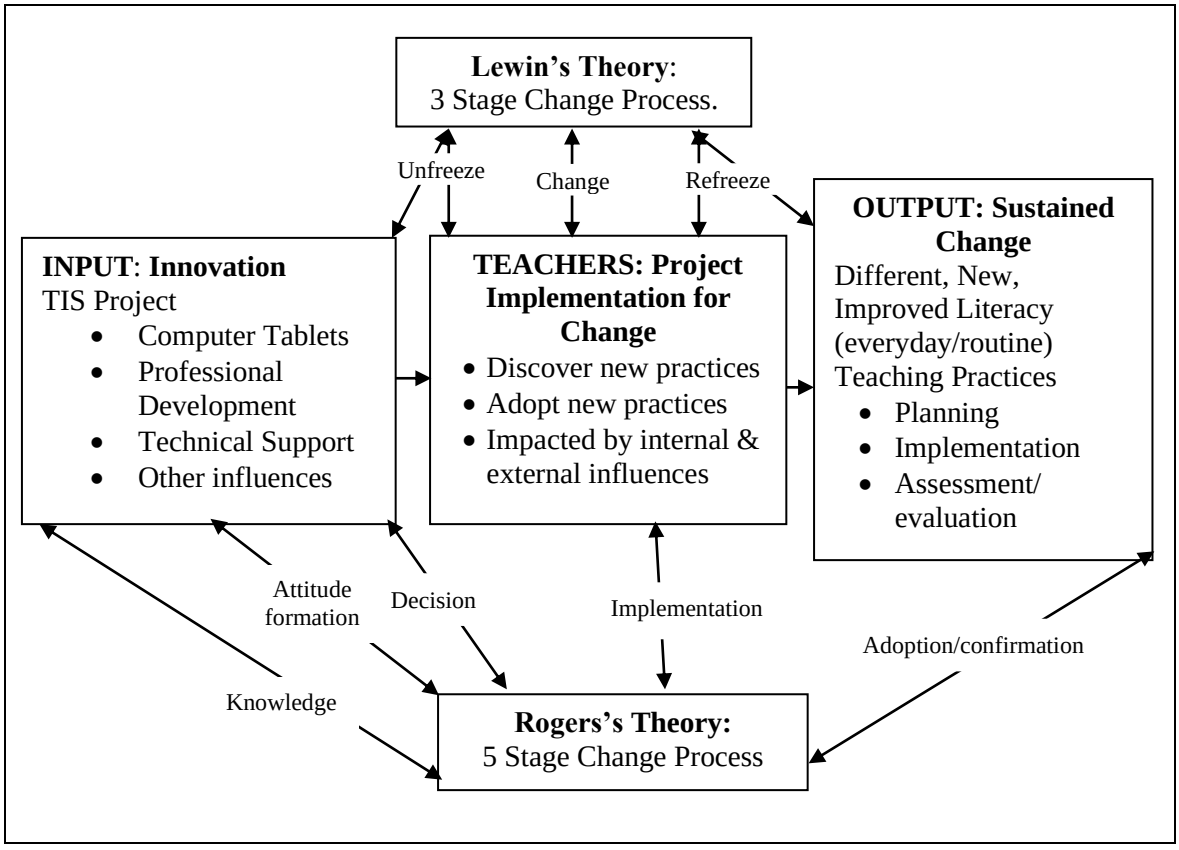
Rogers (2003) proposed that change occurs in five stages: knowledge, attitude formation, decision to accept or reject, implementation, and adoption or confirmation. This theory has identified the main elements at work in the spread of new ideas as well as conditions that foster the diffusion of innovative change; it is useful for understanding why some innovations are successful or sustainable and others are never widely accepted (Kaminski, 2011). In applying this theory to different contexts to judge how sustainable

an innovation might be, it is important to consider both the internal and external environmental influences (Dibra, 2015) because the process of diffusion of innovation does not occur in a vacuum. Internal environmental influences refer to the environment of the organization in which the innovation is being implemented, such as organizational structure and culture (Bućˊ & Divjak, 2016), while external environmental influences relate to those influences outside of the organization, such as pressure from political and social sources (Sun et al., 2018).

The conceptual framework for this study was manifested in the idea that innovations (input) foster discovery and adoption of different ways of doing and lead to changes (output) in people's everyday practices, as I have demonstrated in an original conceptualization of change presented in Figure 1. The diagram shows the relationship among the underpinning theories, innovation in education, teachers, and changes in practice.

Figure 1

Concept of Change Relative to Influence of Innovation on Literacy Teaching Practices



Both being linear theories of change, Lewin's and Rogers's theories complement and help explain each other, and as a result, they provided a basis for understanding change relative to teachers' literacy teaching practices in response to the TIS project, as depicted in Figure 1. Against the backdrop of these theories, the conceptual framework of this study is expressed in the idea that meaningful change is a consequence of experience (arrow flowing from Input to Teachers) and is evidenced in people's actions (Output—Sustained Change), in the things they do as they carry out their daily lives. In considering the contextual framework against the backdrop of Lewin's theory, the *unfreeze* phase

would operate as both a prelude to and part of the input indicated in the diagram by two double-headed arrows between Lewin's Theory and Input and implementation. *Change* occurs at project implementation (double-headed arrow between Lewin's Theory and Teachers), and *refreeze* occurs as an output that is indicated by a double-headed arrow between Output and Lewin's Theory. Likewise, Rogers's first three stages would be most visible as input (represented by three double-headed arrows between Rogers's theory and Input), implementation (theory) coinciding with implementation in the diagram (indicated by the double-headed arrow between Rogers's theory and Teachers), and the final stage outlined in the theory being part of the output, as indicated by the double-headed arrow between Rogers's Theory and Output.

The conceptual framework established here demonstrates the relationship between the theories of change and the change process brought about by innovation. The framework informed the methodology of this study as driven by the research purpose and research questions and provided justification for the selection of participants, instrumentation, and data analysis. These connections will be further explored in Chapters 2 and 3.

Nature of the Study

This study employed a basic qualitative design as the means for a qualitative inquiry approach. Kahlke (2014) explained the basic qualitative approach as a design that draws on the strength of established qualitative methodologies while not conforming strictly to any specific one. Basic qualitative designs are also known as generic qualitative or interpretative design, with the main source of data being interviews (Caelli

et al., 2003; Kahlke, 2014). The selection of the basic qualitative design was consistent with my purpose to understand what changes to literacy teaching were and were not sustained beyond the life of the initial TIS project in Jamaica and why. The focus of such an exploration, as the conceptual framework points out, hinges on my "understanding [the] experience or [the] event" (Caelli et al., 2003, p. 2) within the context of the TIS project in Jamaica. The flexibility of a basic qualitative approach enhanced my opportunities for discovery and understanding of the phenomenon of personal change applied to practice that I sought through the study of participants' perceptions (see Merriam & Tisdell, 2016).

A basic qualitative design afforded me the flexibility to be less restricted by the traditionally accepted rules of productive research and more responsive to the research context and questions (Kahlke, 2018). Hence, this design helped me to plan for, acquire, and interpret detailed descriptions of the TIS project as experienced by the teachers. The design allowed me to provide evidence of the TIS project on educator change in terms of how teachers might be reinventing themselves and their teaching practices in the literacy classroom because of their experiences with the project. In this basic qualitative study, purposefully selected participants provided semistructured interview accounts of their experiences in the TIS project. The teachers shared their perspectives on ways in which their teaching practices had changed since they first participated in the project. Finally, the participants' insights were analyzed through multiple cycles of coding that facilitated the generation of categories and themes and the discovery of the findings. A more

detailed description of the processes for data collection and analysis is presented in Chapter 3.

Definition of Terms

Change: To change is to make or become different or, to paraphrase Lewin (1947), to move from one level (or stage) to a new level. Change may be manifested in a small alteration, a marked difference, or substitution of one thing for another. In this study, the concept was applied to differences in literacy teaching practices and refers to any alterations or variations to those practices that teachers described as being influenced by their experiences with the TIS project.

Literacy: Literacy is commonly defined as the ability to read. It also encompasses "a complex set of abilities to understand and use the dominant symbol systems (letters, words, numbers, pictures/icons) of a culture for personal and community development" (The Centre for Literacy, 2014, para. 1). In this study, the term *literacy* refers to students' ability to read, write, and communicate effectively about the written/printed material with which they interact at their grade level.

Literacy teaching practices: According to Hunter and Rasmussen (2018), teaching practices are reflected in all the habits that teachers display based on their experiences, assumptions, and beliefs. In this study, *literacy teaching practices* refer to all the activities related to literacy teaching and learning that teachers perform as they implement the national curriculum—in other words, their basic approach in teaching literacy.

Assumptions

This study was based on several assumptions. First, people often struggle against changing their established habits even when they know that there are better alternatives. I have seen this among teachers whom I have worked with, and I have experienced this personal struggle on occasion. If the participants experienced similar struggles, they might have made no adjustments to their practices or had difficulties recognizing and sharing any adjustments they might have made.

I assumed that the TIS project provided motivating, practical, and useful alternative practices to the teachers of literacy who worked with the project. Coupled with this, I assumed that as professionals, teachers are interested in the educational welfare of their students, so those who participated in the TIS project were open to change. The participants would therefore have had much to report, making it possible to gather the rich details that would serve my research purpose well. Additionally, I assumed that, apart from caring about their students' academic well-being, teachers do care about their self-image and approval from their supervisors. Therefore, they would be willing to change their practices to enhance their effectiveness so that they might be rewarded for a job well done. Whether the teachers' motivation to change was altruistically or pragmatically motivated, the implications for change would be the same and would serve the research purpose well.

Finally, I assumed that the teachers would be willing to share their experiences of the TIS project as well as the ways they believe their literacy teaching practices had been influenced. Because these proved to be true, I was a step closer to accomplishing my

research goals. Otherwise, I would have needed to strategize to get the teachers more comfortable to share, or I might have needed to focus my research interest elsewhere. These assumptions were important as they encouraged me to be sensitive as I navigated through the research process, especially as it related to participant selection, conducting the interview, and analyzing the data.

Scope and Delimitations

The problem that was investigated for this research study involved exploring the influence of innovation implementation in education on literacy teaching practices among participating teachers. However, a scope of that magnitude would be beyond the capabilities of a single researcher working with limited resources and support. Hence, the study focused on one segment of teachers (four primary schools in Kingston parish) who participated in the TIS project in Jamaica as an example of educational innovation in small nation states. Confining the investigation to the parish of Kingston enhanced the potential for collecting rich data in a specifically defined and more easily manageable region of Jamaica.

While literacy achievement was one of the articulated goals of the TIS project, the current study was restricted to exploring literacy teaching practices, and I did not attempt to draw conclusions about the effects of the project on the literacy achievement of students or on teacher competence or effectiveness. Study participants were the teachers who were actively involved as teachers of literacy during the project. These teachers were best positioned to give their perspective regarding the influence that the project had had on their literacy teaching practices following the conclusion of the project. No students,

school, or project administrators were targeted as participants because it was the teachers' perspectives that served the research purpose and provided answers to the research questions. This study, while being confined to four Kingston primary schools, has potential transferability for considering the influence of similar educational innovations on educational practice in schools across Jamaica and in other jurisdictions.

Limitations

I experienced some challenges in gathering data for this study. Some teachers were reluctant to participate because they doubted their ability to recall details of the project of focus based on the time lapse. Other teachers could not find the time to participate given their many competing demands and responsibilities. In addition, there have been staff changes at all the schools since the TIS project was implemented. As a result, there were several teachers who were not working at the participating schools during the project years. Also, some of the teachers who were there during the period and who participated in the project were no longer working in those schools. These situations ultimately reduced the pool from which participants were to be drawn. To address this limitation and enhance the probability of acquiring useful data, participants were selected using a purposeful sampling design strategy.

The potential for bias was another challenge that impacted this study. Bias arose from several sources, including the researcher, the methodology, and the meanings derived from the data. To address the issue of researcher bias, I declared my position as teacher educator and carefully distinguished that from my researcher role. In addition, I conducted practice interviews and engaged in peer debriefing to check and refine my

thoughts around different aspects of my research project, including the methodology, my data analysis, and my interpretation of the results.

Another limitation that impacted this study related to its limited capacity for generalization of the findings to other settings. This limitation is a natural feature of some qualitative studies; however, the depth of the investigation, the rich details that were solicited from participants, and the potential for impacting social change collectively enhanced the usefulness of this basic qualitative research.

Significance

Education is a critical social institution for safeguarding the sustainability of society and must evolve continuously through educational innovations to meet society's emerging need (Serdyukov, 2017). This study explored one example of educational innovation in a small nation and provided a basis for analyzing the influence of such innovations on teaching practices in similar contexts, as well as in larger and more developed nations. Hence, it provided a basis for mapping the change process triggered by educational innovations and informing stakeholders of experiences that foster or hinder changes in teaching practices among teacher participants.

This study also has significance for understanding the influence of educational innovation on literacy achievement and literacy trends. Over the years, there has been a trend towards a global increase in literacy achievement as measured by a wide range of standardized literacy tests. Given this success, it is important to explore literacy teaching practices associated with innovations such as the Jamaican TIS project because this could

hold useful implications for sustainable practices that support continued student improvement in literacy.

This study highlighted teachers' experiences of the TIS initiative in Jamaica and explored explicit and implicit changes in the teachers' routine literacy practices that have occurred because of their engagement with the project. The details provided by the teachers are useful for informing future literacy interventions and "data driven" planning (Bresciani, 2010, p. 39). Stakeholders such as education ministries, parents, and school administrators may find the results useful for assessing the impact of this project and others in similar contexts in terms of literacy teaching and guide future investigations and investments into similar projects. This study is also significant in terms of adding to the body of knowledge regarding the impact of innovations on classroom practice and providing insights into factors that encourage teachers to sustain changes that have been fostered by innovations in education.

The study is significant in its implications for positive social change in that the results should inform future innovations in education that seek to enhance the quality of teaching and learning. While the study was focused on the perspectives of select literacy teachers in Jamaica, the results are useful for understanding changing teaching practices in education in the face of educational innovation locally, if not beyond. Additionally, the results serve as an indicator of Jamaica's role and progress in achieving the fourth United Nations Sustainable Development Educational goal of "inclusive and equitable quality education and promote lifelong learning opportunities for all" (UNESCO, 2015, p. 284).

Summary

In this chapter, the research problem and general background information have been presented to provide justification for my research focus, methodology, and purpose. It has provided a context for the study in terms of the value of education, innovations in education, and literacy in countries across the world, including Jamaica. The chapter has provided the framework for exploring teachers' perception of the impact of educational innovation on literacy teaching practices as manifested in a small nation island. Through this chapter, I have established the basis for the review of literature to be in the next chapter, as well as the methodology that will be outlined in Chapter 3.

Chapter 2: Literature Review

Change is commonplace in today's world (Stouten et al., 2018), and innovations in any discipline are ultimately designed to improve practice and outcomes. In the educational context, innovation refers to ways of developing and applying alternative approaches to address and improve ineffective educational practice (Fındıkoğlu & İlhan, 2016). However, innovations do not always produce the desired effects of improved practice and outcomes (Hoffman, 1998; Lambriex-Schmitz et al., 2020; Serdyukov, 2017) because, while many "educators naively believe grand reforms or powerful technologies will transform our education system" (Serdyukov, 2017, p. 9), as Hoffman (1998) pointed out, bad things often happen to good ideas.

Educational innovations are directed at any aspect of the education system that can impact the quality of education and the experiences of learners. Some innovations have drastic impact, while others have minimal to no impact. Serdyukov (2017), in his literature survey, identified several educational innovations in the United States that had widespread impact on the whole education system, including the No Child Left Behind Act and the Science, Technology, English, and Mathematics (STEM) curriculum. However, he expressed doubt that these had contributed to improved productivity and quality of learning and suggested that these and other innovations emphasized one or more critical areas at the expense of other critical areas.

Researchers have suggested a range of factors that contribute to the success or failure of innovation in various disciplines, including education. For instance, Fleisch (2016) and Shalem et al. (2018) investigated the GPLMS, a large-scale initiative in South

Africa. Fleisch noted from his investigation that support of coaches, teachers developing trust in their coaches over time, and the abundance of resources that were provided contributed to the success of the initiative. However, he also noted that the change in political leadership and subsequent shifting priorities affected the project negatively in terms of the sustainability of changes made during the life of the project. Shalem et al. found that the success of the GPLMS initiative was impacted by the mode of authority present in the intervention in terms of whether change was mandated from above or negotiated from below. He maintained that teacher autonomy and knowledge impacted the instructional choices they made during and after the life of the innovation.

Rai and Deng (2016) cited from their analysis of learner behavior relative to massive open online courses (MOOCs) in universities that personal factors such as interest and perception of value or quality as well as technology-related issues (e.g., internet connectivity), knowledge about MOOCs, and the availability of supporting resources contributed to learner success or failure. Serdyukov (2017) concluded from a literature survey that, for innovation to have a great impact, there is a need for an army of creative and motivated implementers with the autonomy to innovate during implementation as well as favorable conditions for spreading the innovation. Similarly, Gordon and Job (2022) cited personal factors in terms of individual innovativeness, self-efficacy, and eLearning readiness as driving forces for people's willingness to accept and adopt innovation. Other researchers have cited environmental factors (Buć & Divjak, 2016; Dibra, 2015), as well as political and social factors (Fleisch, 2016; Sun et al., 2018)

as contributing to the success or failure of innovation in education, and to the sustainability of changes to educational practices beyond the life of innovative projects.

The problem on which this study was based is that there have been many innovations targeting literacy teaching and learning in countries across the world, including small nation states such as Jamaica, but there have been instances where changes to literacy teaching practices have not been sustained beyond the life of initial projects. Hence, this study was conducted to understand teachers' rationale for changes to literacy teaching practices that were not sustained beyond the life of the initial TIS project in Jamaica. Through this study, I explored teachers' perception of what and why changes to literacy teaching were sustained or not, beyond the life of the initial TIS project in Jamaica, and why changes were avoided.

The literature reviewed in this chapter provides insights into the phenomenon under study as well as further justification for this study. I begin with an examination of theoretical foundations for my conceptual framework. I continue with a brief overview of literacy in the global context and examine technology innovations in education that have been directed at improving literacy rates. The final section of the chapter is devoted to examining the implications of technology innovations for literacy teaching practices.

Literature Search Strategy

My search for literature relevant to my research focus and purpose was conducted using the Walden Library and various online search engines. Specifically, some of the databases I foraged for the most current literature included ProQuest Central, Academic Search Complete, SocIndex, and Education Research Complete. Search terms used

included *innovation in education*, *literacy teaching practices*, *technology in education*, *computer tablets*, and *literacy teaching*. In my search for literature related to the two change theories, I relied heavily on ProQuest Central, using terms such as *Lewin's* (or *Rogers's*) *change theory*, *response to Lewin's (Rogers's) theory*, *application of change theory in education*, as well as *why innovations succeed or fail*. I also used these terms to conduct additional searches in Google Scholar. In addition, I checked dissertations related to my topic in the Walden Library databases using terms such as *teaching practices*, *technology integration*, and *computer tablets in literacy teaching*. While most of the references fall within the last 5 years, seminal works outside of the recommended 5-year period served to provide a context for the history of literacy teaching and how the term has evolved over the years. In addition, while there is an abundance of literature addressing innovation in education, technology in education, and implications for teaching and learning on the international landscape, there is a scarcity of literature that is specific to small nation states such as Jamaica. To counter this fact, I ensured that the review captured information from several countries across the world while I thoroughly interrogated the limited material, including a dissertation that explored the TIS Jamaican project (McGhie-Sinclair, 2017), albeit with a different focus.

Conceptual Framework

Conceptual and theoretical frameworks encapsulate the epistemological paradigm that a researcher assumes in exploring a research problem (Imenda, 2014). These help to clearly communicate the reasons for exploring a topic, the assumptions that are made, and the conceptual grounding of the approach against the backdrop of dialogue with

scholars. Conceptual frameworks provide "a map of the world a researcher intends to study" (Rallis, 2018, p. 354). In this study, the conceptual framework reflects on the concepts of literacy and changing literacy teaching practices grounded in Lewin's (1947) theory of change and Rogers's (2003) diffusion of innovation theory. Lewin's theory explains the change process and implications for sustainable change. Rogers's theory also suggests implications for sustainability of change in his explanation of how change spreads through a population. Figure 1 shows the combining of these two theories as key aspects for understanding and interpreting the change process being studied from input to output.

The conceptual framework of this study is manifested in the idea that the impact of any innovation should be realized in the practices that people engage in as they carry out their lives from day to day. Hence, in this study, change is regarded as a process that impacts how people operate and that spreads and is sustained over time. This conceptual framework provided the backdrop against which teachers' perceptions of the influence of the TIS project on their literacy teaching practices, in terms of those brought forward or left behind, were investigated. It guided the data collection and analysis processes as well as the conclusions that were drawn in terms of evidence of the influence of the innovation (the TIS project) on the changes in the teaching practices of those teachers who participated in the initiative.

Lewin's Three-Step Change Theory

Lewin (1947) proposed that people are influenced by forces that either encourage change or prevent it from occurring and thereby maintain the status quo. He

conceptualized the change process as having three phases: unfreeze, change, and refreeze. The first phase, *unfreeze*, represents a period of disturbance of current levels of customs or habits, and a readiness for change among potential adopters. During this stage, individuals first dispel prevailing attitudes and behavior, then begin to let go of old customs while becoming more aware of other possibilities and ways of doing things, thus creating a readiness to change. Conversely, during this period, some individuals are influenced by forces that induce fear and uncertainty that prompt resistance to change.

The second phase of the three-step process, as described by Lewin, is *change*, a time of exploring alternatives and the benefits of change, thereby diminishing the influence of forces that foster resistance to change. During this phase, the change begins to occur, and individuals' experiences and heightened awareness allow the change to either take root or dissipate. In the final phase, *refreeze*, the change that began at Phase 2 becomes the new norm, and equilibrium (stability) is restored.

There have been varying responses to Lewin's three-step model of change. Critics have pointed to its linearity rendering it simplistic and rigid, plus noting its failure to account for the interactions of the stakeholders (Cummings et al., 2016). Supporters such as Rosenbaum et al. (2018) have argued that the theory is more dynamic than given credit for. In their review of 13 models of planned organizational change that emerged since Lewin's 1947 theory, Rosenbaum et al. found that all 13 models were grounded in Lewin's three-step model of change and concluded that Lewin's model provides a framework for planned change and remains relevant today. This benchmark of the

relevance and applicability of the theory today in various contexts is supported by several researchers, as highlighted in the ensuing paragraphs.

Lewin's change model is used widely across disciplines and organizations to guide various improvement projects that aim to transform practice and "maintain equilibrium and survive [in an] … ever changing environment" (Wojciechowski et al., 2016, p. 3). Similarly, in their biographical study of Lewin and his theory, Burnes and Bargal (2017) noted the relevance of the theory for promoting change in different situations such as those that related to learning new energy-saving behaviors, promoting democratic values, and promoting mergers between or among organization. Support from the literature demonstrates that Lewin's theory was appropriate for establishing the conceptual framework of this study, and for mapping the change process as it relates to teachers' perceived influence of the TIS project on their literacy teaching practices.

Rogers's Diffusion of Innovation

Rogers's (2003) diffusion of innovation theory explains how new ideas and practices (innovations) are adopted by people and organizations. Rogers conceptualized diffusion as "the process by which an innovation is communicated through certain channels over time among the members of a social system" (p. 5) and an innovation as "any idea, practice or object that is perceived as new by an individual or other unit of adoption" (p. 12). The main tenet of this theory is that the innovation-decision process consists of a series of actions and choices through which organizations and individuals evaluate new ideas and decide whether to adopt them into practice or not. According to Rogers, an individual (or other decision-making unit) first gains knowledge of an

innovation, forms an attitude about it, decides whether to accept or reject it, implements that decision, then finally confirms the decision.

Rogers's diffusion of innovation theory has been examined for its practical application in different contexts including education, health, industry, and community development. In a critical analysis of the principles and practice of diffusion theory, Dearing and Cox (2018) concluded that the theory provided a framework for explaining receptivity to innovation in health care and that the principles can be "operationalized to accelerate the rate of adoption and broaden the reach of health innovations" (p. 189).

Other scholars have applied Rogers's theory to understanding the change process in relation to factors that foster or hinder change in response to innovation. Ranjan and Witter (2020), through their mixed-methods study, identified change agents (someone within a group who promotes and encourages a particular change) as critical to the change process in the field of agriculture. They declared change agents' perception of the benefits of the proposed ditch drainage management system to be the factor determining the extent to which they promoted its adoption. Marak et al. (2019) found from their quantitative survey that benefits and "trialability" (the ability to trial/test an idea before deciding to adopt it) were significant factors in determining the adoption of 3D printing technology. Based on Rogers's theory, potential adopters would likely check for the benefits and utility value of an innovation at some point between the second and third stages of the diffusion process. Similarly, Suwamaru (2016) concluded from a mixed methods study that citizens in rural Papua New Guinea were driven to adopt mobile phones when they recognized the benefits to be derived in terms of their communication

needs. These studies captured the essential elements of Rogers's theory in terms of the innovation, communication channels, social systems, and time. They demonstrate that over time, potential adopters first become aware of the innovation, then form an attitude about it based on need, utility, or some other factor before eventually deciding to accept or reject the idea/innovation.

Researchers have also explored the relevance of Rogers's (2003) theory in understanding change in education. Raman et al. (2018) discovered from their research that student motivation to adopt an innovation (e.g., a programming contest) were strongly associated with factors such as ease of use, perceived usefulness, compatibility, relative advantage, and benefits derived. A review of the relevant literature conducted by Hou (2017) revealed that curriculum dissemination emanates from the theory of diffusion in terms of the role communication plays in facilitating the process from awareness (knowledge) to adoption, and factors that encourage adoption. Dintoe (2019) discovered from a survey of studies that applied Rogers's diffusion of innovation theory that faculty support for an innovation was largely dependent on infrastructure, accessibility, and quality of communication in relation to the innovation. Dintoe concluded that where faculty understand the innovation and the benefits to be derived and have access and opportunity to practice, there tends to be less fear of the change and more likelihood that technology integration will be adopted into practice.

Although studies by Hou (2017), Costa and Walsh (2018), Dintoe (2019), and Awad et al. (2022) support Rogers's theory as relevant and applicable to faculty and students operating in a technology-enabled environment, Obiri-Yeboah et al. (2013)

found from their quantitative study in Ghana that even when users are aware of the usefulness of an innovation, there are other factors that discourage adoption. Such factors include the attitude of potential adopters in terms of being open to or closed to change, and the level of technical and other support that is available. Similarly, Porter and Graham (2016) concluded from their quantitative study in higher education that the institution's purpose, coupled with its provision of infrastructure and support, is especially critical for late adopters. Still, as was the case for Lewin's 75-year-old theory, contemporary literature also continues to support Rogers's theory.

Lewin's (1947) change model and Rogers's (2003) diffusion of innovation theory provide the framework for charting the change process and for understanding the reasons that some ideas are adopted with relative ease while others are not. According to Mitchell (2013), Rogers's theory is a modification and extension of Lewin's theory. Both theories identify stages in the change process: Lewin named three stages and focused on the forces that drive or prevent change, while Rogers named five and focused on the decisions that are taken at each stage. These change theories provide the lens to explore teachers' experiences with the TIS project and capture factors that promote or inhibit change in their literacy teaching practices. The theories have therefore informed the conceptual framework and the methodological decision that drove this study. The relevance of these theories for guiding my exploration of the phenomenon of change in an educational setting is captured in the conceptual framework (Figure 1) and the detailed interview protocol (Appendix B), which is discussed at length in Chapter 3.

Literature Review Related to Key Variables and/or Concepts

Literacy in the Global Landscape

Literacy has a long history dating back to about 3500 BC when only a few people could read and write (Foley, 2024). Yet, despite such an early start, in 1820, thousands of years later, only a mere 12% of the world population could read and write (Roser & Ortiz-Ospina, 2018), a direct consequence of inequality in education. For centuries, learning to read, and education in general, was largely regarded as a privilege for the ruling or upper social classes. Archeological evidence such as that from classic Mayan society (Rossi, 2018) bears testament to this inequity, as does the rich literature available on the history of education throughout the world. For instance, nineteenth century Europe was a time of construction for the education system, and schooling became an ideal although not for everyone (Westberg et al., 2018). It is widely accepted that education shapes society in terms of its cultural, political, and economic practices, including the "inequalities such organizational systems sustain" (Rossi, p. 86).

Over time it was generally recognized that it was better to manage education of the masses than prevent it so that the desired culture could be preserved while securing the quality of the labor force (Westberg et al., 2018). Over the last two centuries, global literacy levels have risen drastically causing a total flip of the figures from 12% global literacy in 1820 to 86% in 2016 (Roser & Ortiz-Ospina, 2018). There have been great gains over the last 70 years with many countries having 95% basic literacy skills, yet many countries across the world, often the poorest, continue to struggle with high levels of illiteracy, among other social ills (Roser & Ortiz-Ospina).

In the context of this study, an understanding of the status of literacy from a global perspective is an important step towards understanding the status of literacy in individual countries such as Jamaica. While there has been a general increase of global literacy levels, the data also suggest that gains experienced by individual countries vary (see Quan-Baffour & Johnson, 2022; Roser & Ortiz-Ospina, 2018). The data presented in this section also have implications for literacy teaching and changing literacy teaching practices because these practices influence students' success in literacy and, by extension, the status of literacy across the world. Literate people read and write at a level that allows them to effectively understand and use written communication, whether in print or electronic media. Essentially, being literate allows people to independently navigate the printed and written world and participate within their communities and the wider society.

Concepts of Literacy

Traditional definitions of literacy describe it as a simple process of acquiring basic cognitive skills for interacting with printed materials in various contexts (UNESCO, 2021). This definition of literacy assumes a universal set of skills that enables persons to decode and encode mostly printed text. However, over time the meaning of literacy has become more comprehensive. Modern definitions of literacy, therefore, highlight many facets and classifications including levels of literacy from basic, through functional, to multifunctional (Komşu, 2018) types of literacy (Kapur, 2019). Additionally, literacy is now related to specific disciplines such as history or science (Goldman et al., 2016). Literacy is also defined as the capacity to communicate in varying contexts (Montoya, 2018).

Some writers distinguish between functional and critical literacy. UNESCO (2020) identified a functionally literate person as one who can participate in activities where literacy is required for functioning within their community and for their own needs. Functional literacy allows individuals to cope with basic literacy demands in society such as writing their name to conduct simple transactions, navigating basic signage within the community, and reading simple literature within the normal course of their daily lives. Although useful, functional literacy is insufficient for challenging existing paradigms of knowledge and power, or for devising strategies to act for equity and social justice (Cho & Choi, 2016; Luke, 2018). This stance suggests that individuals need to move beyond functional literacy to critical literacy and position themselves to take advantage of all that education has to offer and satisfy sophisticated 21st-century literacy demands. According to Barbre (2019) critical literacy "represents a much deeper level of understanding than any series of texts or other curricular resources generally allow for" (Barbre, p. 140). Critical literacy fosters a deep understanding and enhances self-awareness in relation to various topics or social constructs of information; it teaches student to communicate powerfully, and to critique and question text rather than simply absorbing them (Mitchell, 2006). This type of literacy enables individuals to objectively evaluate various forms of communication while considering any biases that might have been expressed or implied.

Today, the question of what it means to be literate in the 21st-century, and by what means teachers can contribute to creating a literate society is relevant in the changing face of the greater demands of what constitutes literacy. While researchers such as

Montoya (2018) and Barbre (2019) have put forth definitions that speak to the different ways in which literacy is manifested, there appears to be a consensus represented by Quan-Baffour and Johnson (2022) that the fundamental defining feature of literacy is the ability to read, write, and understand the written word. Literacy is an integral part of a process of learning: Basic literacy skills, reading, and writing, serve as the foundation for many other forms of learning and education in general. This is because literacy skills and knowledge facilitate students' understanding of information, and acquisition of the skills across subjects and grade levels (Iwai, 2016). Students develop competencies in literacy through the guidance of teachers who are very important for impacting students learning outcomes. It is teachers who apply their teaching practices to the teaching-learning process and facilitate students' development of literacy skills and competencies across disciplines.

Literacy Teaching Practices

According to Santrock (2018), effective teachers have an excellent grasp of their subject area and a solid repertoire of teaching skills that they implement in their lessons. They apply a wide range of teaching strategies and integrate appropriate technology to meet diverse learning needs of students in different learning contexts. Hence, the practices of a teacher operate like a machine with interconnected elements that work together in the teaching-learning process. Teaching practices are habits that represent teachers' experiences, assumptions, beliefs, and understanding of teaching and learning, and that are manifested in the way teachers teach (Hunter & Rasmussen, 2018). Consequently, literacy teaching practices include all the activities that teachers of literacy

engage in as they plan and implement lessons geared at developing or refining the literacy skills of their charges, as well as the assessment activities geared towards checking for learning. These teaching practices are influenced by myriad factors.

Darling-Hammond (2006) during an intense qualitative exploration of teacher education programs, interviewed and surveyed hundreds of teachers, principals, and teachers to gather details of their work. She declared that the teaching-learning context, the nature of the subject matter, the instructional goals, and the teachers' personal experiences, interests, and perceptions were the significant factors that influence a teacher's teaching practices. In a conceptual article describing his phenomenological study of the experiential teaching of poetry, Creely (2019) also recognized the teaching-learning context in addition to subject matter and methodological competence as significant factors that impact teachers' poetry related literacy teaching practices. Additionally, Dlamini and Sheik (2019) found from a case study they conducted in Swaziland that the teachers' literacy teaching practices were greatly influenced by their pedagogical knowledge and teaching experience. While these studies offer insights into factors that influence teaching practices across disciplines in different contexts, none has tapped into the change process in terms of teachers' experiences with innovation. However, these studies are representative of those that provide support for the use of qualitative means, especially personal interviews, as data gathering tools for investigating literacy teaching practices. In addition, information about the nature of teaching practices, and contributing factors will serve as important tools for defining the variable literacy

teaching practices in the context of this study and inform the data collection process as represented in the interview protocol (Appendix B).

The Jamaican Situation

Despite the efforts of the Ministry of Education, and the universities and colleges in Jamaica, it appears that there is a continuous struggle with regards to building a culture of research and scholarly writings. Much of the information that relates to the focus for the proposed study from a local standpoint is contained in government news releases and websites. Given this reality, I have reviewed a mix of materials based on what is available, hoping to strike an objective balance while painting a picture of the Jamaican situation with regards to the status of literacy.

A brief look at the history of education in Jamaica shows that the education system had its roots in slavery and worked to maintain the status quo of white supremacy, and black subservience. During the colonial era, there was no formal education system; whites who could afford to do so would educate their sons in Britain or hire private tutors while children of less affluent whites attended free schools offering a British-like curriculum. Some missionary-run plantation schools provided basic education that focused heavily on religion and the virtues of obedience for slave children, and teaching girls (whites) to perform their roles as homemakers (Matthei & Matthei, 2001). Literacy was not a priority, at least not when it came to the masses whose ignorance of rights and privileges served the political and economic purposes of the affluent minority well. Long after slavery had ended, the social stratification of the colonial period persisted as manifested in the Jamaican education system with two separate educational provisions.

Emerging from the colonial era was an education system consisting of public elementary schools for the masses, and fee-paying high schools emerged from the colonial era (Miller & Munroe, 2014).

Since the 1970s there have been several efforts to eradicate illiteracy through community-based interventions such as the Jamaican Movement for the Advancement of Literacy (Skyers, 1995) and the Jamaica Foundation for Lifelong Learning (Barrett, 2022). These three social intervention programs were largely focused on adult literacy. The government of Jamaica through the Ministry of Educations also embarked on several initiatives aimed at improving the quality of education in Jamaica. However, according to Knight and Rapley (2007), while there were some positive outcomes in schools where the initiatives were implemented, the question of sustainable change was of concern. For instance, the New Horizon Project (NHP) ended two years prior to the start of the Expanding Education Horizon (EEH) initiative. However, by the time the EEH began, there was little evidence of the NHP. Teachers had reverted to preNHP practices in terms of lesson delivery and orientation of learning. Other initiatives for improving the status of literacy among the nation's children included, the Enrichment Initiative (Palmer, 2017), the Alternative Secondary Transitional Education Program (Ministry of Education Youth and Information, 2020), and the Tablets in Schools project (Onyefulu et al., 2016). However, as with those initiatives highlighted by Knight and Rapley, the question of whether these innovations have led to sustained changes in teaching practice remains and represents a gap that needs to be explored.

Technological Innovation in Education

Over the past century, advancements in technology have transformed every facet of society, including education. Correspondingly, the world economy has become more centralized and integrated, resulting in increased competition for labor and foreign investment (Wagner, 2010). Countries that hope to attract foreign investment must ensure that their education systems produce human capital equipped with 21st-century knowledge, skills, and dispositions to satisfy the demands of the international labor market (Gonzales & Storti, 2019).

Technology innovation is a natural feature of the education landscape of the 21st-century and, according to Foss et al. (2019), technology has become commonplace in the classroom. Since the 1920s, when radio was introduced to classrooms, there have been rapid changes in technology and numerous possibilities for its integration into teaching. The changes have been rapid: overhead projectors of the 1930s, smart boards of the 1990s, internet access for school in the early 2000s, wireless devices in 2010, and mobile devices a few years later. The rapid and increasingly sophisticated advancements in technology have come with increased difficulties in incorporating them into the classroom (Foss et al.). According to Smith-Johnson (2020), technology innovations occur so rapidly that potential users must respond just as rapidly to learn how to use them before other innovations appear and render existing ones obsolete. People's feelings about new technology vary from positive to negative depending on factors such as competence and level of exposure to information about the purpose of the new technology (Potgieter, 2004). Therefore, how teachers feel about change, experimenting

with technology, the risks involved influence their experiences with new technology (Howard & Gigliotti, 2016). These feelings ultimately determine how readily new technology is integrated into practice.

There have been some educational reforms involving large scale introduction of ICT in education. For instance, the OLPC program of 2005 was introduced in developing countries in the Global South, nations with low economic and industrial development located typically south of more developed, and industrialized nations (Hany, 2020). The aim of the OLPC program was to improve learning by providing low-cost devices to all children in schools. Turkey, the Republic of Korea (South Korea), and Kenya also implemented OLPC or digital textbook programs (Piper et al., 2017). The aim of Kenya's National Tablets Program was to improve instructional practice and enhance accountability in the national education system (Piper et al.).

Large-scale ICT initiatives such as Paraguay's OLPC project and Kenya's National Tablets Program have been the subject of much discussion. Ames (2019) conducted an in-depth study of the Paraguayan OLPC project and identified many issues. The problems related to inappropriate (noneducational) use of the devices, the perpetuation of existing inequalities, and misalignment between the project ideals and the contexts in which it was implemented. Ames' critique of the OLPC program has been lauded for skillfully revealing the disconnect between the vision and the implementation reality of the project (Hany, 2020). The general conclusion about large-scale innovations such as those described here is that computers do not, by themselves, improve student

academic achievement. Rather, computers must be supported by training and high-quality instruction that focus on improving student achievement (Cristia et al., 2017).

The ubiquitous influence of computers in all spheres of life has become near universal, and educators have used these to support teaching and learning for decades (Picton & National Literacy Trust, 2019). Mobile digital devices such as computer tablets are attractive and enticing to persons across generations, and offer greater flexibility for use in various contexts, including education at all levels. It is believed that providing students with these tools will foster cognitive maturity as they are trained with 21st century employability skills necessary for competing in the global market (Hurreeram & Bahadur, 2019).

There has been much research on the use of computer tablets to enhance teaching and learning across disciplines, and at different levels of the education system. Educators have found that integrating computer tablets in the teaching of science and electrical engineering fostered greater learning improvement among students (Chou & Feng, 2019; Chou & Wang, 2021). Patel and Burke-Gaffney (2018) praised the value of mobile tablet computers in the field of medical education given their portability, ease of use, and capacity for facilitating access to a wide range of resources. Computer tablets have also been found to be valuable tools at the early childhood level, as well as for teaching students with special needs (Chou & Wang, 2021; Eldeniz Çetin & Cay, 2020; Papadakis et al., 2018).

Researchers have also explored the utilization of computer tablets to support literacy teaching and learning at the elementary level. Mifsud and Grech (2016)

discovered from their ethnographic study of literacy teaching with tablets in bilingual primary classrooms in Malta that the teachers used computer tablets to support a wide range of language activities involving listening, speaking, reading, and writing, as well as for creating their own materials and fostering collaborative tasks. Booton et al. (2023) discovered from their systematic review of 11 studies that some features of mobile apps, such as conversation prompts, are more supportive of students' literacy development than others such as hotspots. However, Kim et al. (2021) concluded from their meta-analysis of 36 intervention studies that while there are some positive effects of education app use for literacy learning, certain skills are "often more sensitive to direct teaching interventions" (p. 2). This conclusion suggests that app use does not necessarily translate to more engaging or authentic learning experiences, nor can app use replace the teachers' input into the teaching and learning process. In a more recent survey, Otterborn et al. (2019) found that Swedish preschool teachers also used a range of digital apps to support teaching and learning in general but would welcome more specific guidance in relation to "unpacking 'what' and 'how' to teach with digital tools" (p. 735).

Computer tablets offer numerous possibilities for fostering young children's emergent literacy at home and school. They complement nondigital print experiences and have the potential to help "young children learn to use a symbolic coding system to communicate" (Neumann & Neumann, 2017, p. 14). However, parents and teachers must guide and support children's use of these gadgets and select suitable apps that foster their literacy learning (Neumann & Neumann). Undoubtedly, there are numerous examples that attest to the ubiquitous influence of technological innovation on teaching and

learning, and the education landscape in general. However, these studies have not sufficiently treated teachers' experiences with technology innovation, how the change process as represented by change theories such as those of Rogers (2003) and Lewin (1947) may offer explanations of teachers' teaching practices, nor how changes to teaching practices are sustained after the novelty of innovations wears off. Therefore, these gaps in the literature further support the need for the proposed study.

Implications for Literacy Teaching

ICT has become an important feature at all levels of education from preschool to higher education. The potential of ICT for enhancing teaching and learning has been endorsed by several researchers. ICT brings with it opportunities for innovation in teaching methods and teaching practices (Tang, 2019; Wang, 2020), and improving learning environments. Computer technology has changed teaching as we know it in the traditional sense. It allows teachers to provide a greater number and variety of audio-visual teaching aids (Tang), as well as opportunities for autonomous learning (Elsner & Jurecka, 2021). Even struggling learners can explore the tools and programs made available by computer technology independently or collaboratively (López-Escribano et al., 2021). Technological advancements have extended the classroom beyond traditional walls and opened opportunities for greater access to resources and collaboration among teachers and learners alike (Lotherington & Jensen, 2011).

Educators' use and adaptation of ICT into their practice vary according to the digital competencies they possess (Picton & National Literacy Trust, 2019). Some teachers seem to prefer paper-based media and easy to use technology that can function

without Wi-Fi (Elsner & Jurecka, 2021). Hains et al. (2019) found that preschool and primary level teachers used the internet and ICT daily for professional activities as well as for leisure but felt they needed more support to make better use of ICT in their teaching practice. McGhie-Sinclair (2017) in her qualitative study of the TIS project as manifested in four Jamaican schools, found that participants felt the benefits of using computer tablets in the teaching learning process far outweighed the disadvantages. Yet, she maintained that while there have been numerous adjustments made to how students are assessed, for the most part the way teachers teach, and the instructional methods have not evolved as rapidly (McGhie-Sinclair). This obvious contradiction supports the need for the proposed study to explore teachers' changing literacy teaching practices relative to the influence of technology innovation in education.

Literacy is a critical part of the curriculum in any educational system, and there has been considerable research into the value of ICT for teachers of literacy in various learning contexts. For example, technology has enhanced literacy teachers' ability to provide greater opportunities for independent reading (Elsner & Jurecka, 2021) given the interactive and adaptive features that provide support for teaching and learning and enable teachers to better tailor instruction to meet individual literacy needs (Eutsler et al., 2020). Despite the potential for distracting students from the focus of a lesson, e-books offer teachers alternatives for focusing on vocabulary learning and developing students' phonemic awareness as student are guided to activate sound and animation to support their literacy learning activities (López-Escribano et al., 2021). Nikolopoulou et al. (2019) declared ICT effective for teaching various aspects of literacy including letter

sound association, vocabulary, and general preparation for reading and writing. In addition, ICT provides excellent support for teaching students with special needs. For instance, the use of software such as text to speech software is especially valuable for teaching visually impaired students to read (Mosito et al., 2017).

The studies highlighted here demonstrate that ICT offers a wide range of opportunities for improving teaching and learning, as well as the limitations of projects geared at using ICT to raise educational standards. The literature reviewed in this section has demonstrated how quantitative inquiry has been successfully applied to study the relationship between literacy teaching/learning and ICT. This situation further confirms the need for more qualitative investigations into related issues including how individual teachers of literacy experience ICT in terms of technology innovation, and how these experiences influence them to change their teaching practices.

Summary and Conclusions

The essential thought communicated by the conceptual framework of this study is that change is evidenced by the practices that people engage in as they carry out their daily activities. When the initial confusion of an innovation clears, evidence of its influence is manifested in the adjustments that people have made to how they do things. As suggested by Lewin's change theory and Rogers's theory of diffusion of innovation, people choose to adapt change into their routines, to change from one way of doing things to another. Computer technology has changed teaching as we know it in the traditional sense, albeit in different ways, and at a different pace, depending on a wide range of factors. However, as indicated by several researchers, innovation in education

does not always lead to sustainable change to practice that improves the quality of education.

Concepts of literacy have evolved over the years to encompass more than mere reading and writing. However, regardless of how it is defined, literacy is universally accepted as the foundation for all other learning, and is critical for individual, national and global development. Countries such as Jamaica have been working steadily to improve literacy rates, inching closer to attaining the vision for 100% literacy by 2030. Strategies for improving literacy among the Jamaican people began with a focus on adult literacy in the early 1970s through the establishment of the JAMAL program. More recently, efforts have been directed at early literacy through initiatives such as NAP and technology innovation in education including the TIS project.

Advancements in technology have infiltrated every aspect of society, including education. Technology innovation has provided a myriad of options for educators seeking to enhance student achievement and their professional practice. Likewise, large scale interventions involving technology infusion have been implemented in many countries across the world with the aim of improving student achievement in specific areas such as mathematics, science, and literacy.

There have been several studies exploring the integration of computer technology across disciplines and levels of education. Some have attempted to determine the impact of technology on student achievement. The implications for literacy teaching and learning have been far reaching. Computer technology, and particularly mobile devices such as computer tablets, have enhanced teachers' capabilities for providing rich learning

experiences for students at all levels, including those with special needs. Likewise, the benefits for students have been many, especially in terms of fostering autonomy and cooperation simultaneously. The abundance of options provided by the flexibility of mobile technology, supporting apps and software increases the likelihood that literacy teachers adjust their teaching practices to take advantage of the opportunities for their own professional development, and for improvement. However, in the final analysis, it is teachers who will buy in to educational innovations and incorporate them into their practice or resist and continue as before.

The literature explored here was focused largely on related issues in the international sphere relative to innovation in education and implications for change, and improvement in educational practice. There have been few studies that have focused on literacy teaching in Jamaica one of which was a dissertation (McGhie-Sinclair, 2017) that sought to reconcile administrators' perception of the integration of computer tablets in literacy teaching with what happened in the classroom. This review of literature has confirmed that more research focusing on innovations in small nations state is needed to provide the basis for understanding the influence of technology innovation such as computer tablets on literacy teaching practices. This represents a further gap in the literature to be addressed and sets the stage for chapter three that outlines the methodological framework that was applied to this qualitative study.

Chapter 3: Research Methods

The aim of this basic qualitative study was to understand teachers' rationale for changes to literacy teaching practices that were not sustained beyond the life of the initial TIS project in Jamaica. In this chapter, I provide detailed descriptions of the specific research design as well as the role of the researcher and the methodological framework applied for the conduct of this study. The chapter includes the study population and sample, anticipated sample size, sample selection methods, and criteria for selection. I also describe the procedures for managing the data collection and data analysis processes. Finally, the chapter concludes with an argument for the trustworthiness of the study and a discussion of potential ethical issues that might have arisen during the conduct of this study.

Research Design and Rationale

This study was guided by two research questions:

RQ1: How do primary school teachers in Jamaica explain any suggested innovation changes to their literacy teaching practices since the implementation of the TIS?

RQ2: How do primary school teachers in Jamaica explain any suggested innovation changes not made to their literacy teaching practices since the implementation of the TIS?

In this study, I explored the phenomenon of change as experienced by primary school literacy teachers in Jamaica and manifested in their literacy teaching practices. I sought to understand the teachers' perceptions of changes to their literacy teaching

practices related to their participation in a recent innovation project, what they had embraced or ignored, and why. Understanding the teachers' perceptions of change relative to the Jamaican TIS innovation provided the basis for studying and understanding the nature of any reported change to literacy teaching practices and why these changes occur, given teachers' collective and individual experiences with educational innovations in small nation states. While the study was conducted locally, it could have implications for understanding similar innovations in other small nations that are geared towards improving teacher practice in relation to the teaching of literacy.

To explore the phenomenon, I used a qualitative approach that involves studying people in their natural settings to understand the meanings they ascribe to their experiences (see Creswell & Creswell, 2018; Merriam & Tisdell, 2016). Hence, a qualitative methodology afforded me the best opportunities for exploring the teachers' perceptions of the influence of the innovative TIS project on their literacy teaching practices in the specific educational context of selected Jamaican primary schools. The qualitative approach was ideal because I planned to go into the field, get close to people in their natural setting, and capture what was occurring in their specific circumstances (see Flick, 2018; Patton, 2015), thereby acquiring culturally specific and contextually rich data. Specifically, this method of inquiry allowed me to explore how teachers in their respective schools experienced the TIS project and their perspectives on its influence on their literacy teaching practices.

Of the many design methodologies available within the qualitative tradition, basic qualitative research studies possess the features of qualitative inquiry that appeared to suit

my study needs the best. Kahlke's (2018) presentation of the benefits of using a basic qualitative design resonated well with my research purpose and questions. Kahlke (2014) suggested that no single methodology can fit perfectly with a research problem. A basic qualitative research design allows researchers to build a unique research framework while borrowing from more established designs. The basic qualitative design, therefore, offered me the option to explore the phenomenon of changing literacy teaching practices in the context of the TIS project while borrowing from the more traditional design methodology of phenomenology. I was able to employ the tools within the traditional qualitative realm to develop a novel research design that fit my research questions. According to Usher and Jackson (2014), "phenomenology is the careful and systematic reflective study of the lived experience" (p. 181).

Phenomenological research enables researchers to gain insights into the essence of what people's experiences in the world are like by examining those experiences as they occur, and on their own terms. However, while a phenomenological approach would have been useful for understanding the theoretical essence of teachers' experiences of the TIS project, a basic qualitative approach could yield details of how those experiences pragmatically influenced their literacy teaching practices.

I considered using a case study design for this study. Tight (2017) defined case study as an "in-depth study of one or a limited number of cases" (p. 6). Case studies capture stories and the meanings of those stories from the perspective of those involved in and touched by the stories (Patton, 2015). Case study is suitable for exploring, explaining, or describing a phenomenon within a predefined (bounded) context (Stuckey,

2016). Given that the study was confined to four primary schools in Kingston parish, Jamaica, the methodological tool of bounding was important to my study. However, as with the phenomenological method, traditional case study research focuses on theory development, not the more pragmatic outcomes suggested by the purpose and research questions of this study. Therefore, given that my research purpose was to understand teachers' experience of the TIS project from their self-reports, the basic qualitative approach, enhanced by the phenomenological tool of reflecting on a person's lived experience and the case study tool of bounding the study, was appropriate for my investigation.

Role of the Researcher

Typically, as is common in qualitative research, in this basic qualitative inquiry study, I assumed the role of primary data collection agent. In the role of data collection agent, I interacted with the participants during semistructured interviews, posing questions and making note of information communicated outside of the verbal responses and interpreting the data to convey the meanings communicated by the participant. It is therefore critical that I (a) demonstrate the veracity of my data collection protocols and (b) declare my personal values and biases that I brought to the table at the start of the research process. The rigor and correctness of my conduct of the study were fully addressed in my treatment of the instrumentation, trustworthiness, and ethical considerations, where I demonstrated my intention to be mindful of the implications for credibility, validity, and reliability of the research findings.

Additionally, in my professional capacity as a teacher educator, I had conducted school visits for practicum supervision and assessment in the past; this role brought with it another set of biases that I must declare. As expected, some of the interviewees were former students of mine or had in the past mentored student teachers from the teacher education university where I work. Based on my professional background, I had interacted extensively with schools in my capacity as mentor and assessor for student teachers completing their practicum. Given this background, I informed all potential participants that my role on this occasion was confined to researcher, not assessor or supervisor. This declaration helped the participants to successfully separate my professional role from my researcher role and helped to reduce anxiety about sharing the information and how it would be used.

Methodology

In this section, I am presenting details of the methodology in terms of the participation logic; instrumentation; procedures for my self-developed instrument; procedures for recruitment, participation, and data collection; and my data analysis plan. I provide justifications for my decisions and support these with relevant literature where appropriate.

Participant Selection Logic

The participants for this study were drawn from a population of more than 160 teachers across four primary schools in Kingston and St Andrew, Jamaica that participated in the pilot TIS project. The study was confined to the Kingston and St

Andrew area because this region has the largest cluster of schools that participated in the TIS project.

From the target population, participants were selected into a potential participant group using a criterion-based purposive sampling strategy. This ensured that only those teachers who satisfied the criteria for selection were included. Purposeful sampling was appropriate for this basic qualitative study because it involved choosing cases that were aligned with the research purpose and were therefore more likely to be representative of the focus than would be a random sample drawn from the population. A criterion-based purposive sampling strategy enabled me to select potentially information-rich cases that might yield insights and an in-depth understanding of the central issue being studied (see Patton, 2015). The potential participant pool was dependent on how many teachers qualified to participate based on the criteria for the study as well as their willingness to participate in the study. To be considered for selection, participants needed to

- have been involved in the TIS project,
- be teachers of literacy,
- be willing to participate in the study, and
- be willing to have the interview session recorded.

According to Patton (2015), a purposeful sample is determined by "judgement and negotiation" (p. 315), and that is how I proceeded to determine a working sample from the potential participant pool. I was seeking a minimum potential participant group size of 12–15 qualified teachers. Having established a group of potential participants who adhered to the basic criteria for addressing the needs of my study, I then used my

judgment and knowledge of the context of the study to select my sample participants. I selected 13 participants whom I believed were best able to provide breadth of insight and depth of understanding necessary to meet the needs of my study.

To identify potential participants, I first sought assistance from principals of schools that participated in the TIS project after explaining the nature of the study and outlining the criteria for participation. I then met individually with each of the teachers who had been identified to share details of my study and invite them to participate. Additionally, each potential participant was emailed a formal invitation letter with details of the study and a clear and complete statement of informed consent (Appendix A). After I selected the final sample, I kept the contact details for other interested teachers who met the selection criteria in the event that someone could not follow through to participate.

In general, qualitative studies utilize smaller samples than quantitative studies because frequencies are rarely significant, and more data do not necessarily mean more information (Mason, 2010). A sample size of 13 participants, in addition to being feasibly manageable by a single researcher, was adequate for this study because "the logic and power of purposeful sampling depend on selecting information-rich cases for in-depth study" (Shaheen et al., 2019, p. 28). Hence, the sample was large enough to capture a substantial portion of the teachers' perceptions that are important for fulfilling the research purpose. In addition, my use of a rigorous interview protocol helped ensure that rich descriptive data would sufficiently address the issue of saturation.

Instrumentation

To collect data for this basic qualitative study, I conducted in-depth, semistructured personal interviews. To facilitate the interview process, I developed a detailed interview protocol (Appendix B) that focused on addressing the needs of each research question. In addition to the interview protocol establishing content validity, it demonstrated the alignment between the research questions and the interview guide (Appendix C) that I used to conduct each interview session.

One of the first steps I took in developing the interview protocol (Appendix B) was to consult the literature for insights. I have found much value in examining the methodology applied by previously published researchers before attempting to design interview questions for data collection. The interview protocol is presented in tabular form. The first column of the protocol lists the research questions that drove the study. In the second column I have placed specific interview questions that align with each research question. In the third column I have highlighted examples of key literature that guided my development of the specific questions for the interview. While the literature may not yield specific examples of interview questions, it has provided foundational support for a researcher-designed instrument. The fourth column specifies the data type and characteristics that I was expecting to garner from the interview responses. The final column contains examples of potential probes that might be used to keep the interview focused if participants did not provide sufficient details specific to the questions asked.

I conducted a single, approximately 60-minute long, semistructured interview, at an agreed time with each participant at the school where they worked. Semistructured

interviews are appropriate for learning about people, their perceptions, and the meanings they ascribe to their experiences (see Rubin & Rubin, 2012). Through these interviews I was able to discover things that I could not have observed (see Patton, 2015). When the interviews were complete, I was able to stitch the narratives together to get a deep understanding of the teachers' individual and collective experiences with the TIS project, the changes to their literacy teaching practices that had been retained beyond the life of the project, those that had not been retained, and why.

The interview questions were extracted from the interview protocol and organized into an interview guide (Appendix C) that included an introductory section designed to provide information about the researcher and the study to the interviewees. The interview guide included reminders about the voluntary nature of participation as well as ethical principles to be observed. This helped the participants to be relaxed and more likely to divulge personal or sensitive details when asked.

The next section of the instrument consisted of easy, nonthreatening questions that solicited background information from participants. Again, this should have helped participants become comfortable. More challenging questions that spoke specifically to the research purpose and questions came later in the interview, and where necessary, probing questions were asked to achieve the depth of response required. The final section of the interview guide consisted of a single wrap-up question that served as a toning down and conclusion of the session (see Rubin & Rubin, 2012).

After the last interview question was answered, I closed by expressing gratitude to participants for their contribution and arranging for a debriefing exercise within 2 to 3

weeks. At the debriefing exercise, I intended to provide participants with transcripts of the interview for their perusal and approval and a debriefing form that detailed the purpose of the study and how the data would be used. However, the research participants were not engaged in a formal debriefing exercise as planned. Instead, each participant was sent their transcript with an invitation to review and communicate any cause for concern. The participants were encouraged to ask questions for further clarification and, as at the beginning of the recruitment process, offered the option to withdraw, if for any reason they felt dissatisfied. Additionally, participants were invited to state their willingness to participate in a follow-up interview if the need arose, but no follow-up interviews were necessary.

I recorded the interviews with two cell phones, both of which were in airplane mode to prevent interruptions from incoming calls. I elected to use two devices for recording to guard against loss of information if one device failed. Cell phones are easy to use for recording and easily accessible. Recording the interviews made it possible to capture all relevant details, including voice inflections, pauses, and nonverbal communication during the interview, and facilitated the transcription process. I also maintained an audit trail of the data collection process to support the data analysis process. All recorded data will be maintained in password-protected folders on my personal computer for 5 years.

Data Analysis Plan

My plan for data analysis included a series of activities aimed at managing and making sense of the data in a manner that was applicable to my research questions. The

interview protocol was my frame of reference throughout the data analysis process because it demonstrated the alignment among the research questions, the interview questions, and the types of data needed to address those questions. Data analysis began with the interview, because even though the sessions were recorded electronically, I took care to note instances where ideas "jumped" out for one reason or another. This was done using symbols and numbers or notations regarding the time stamp in the recording. After the interviews were complete, I manually transcribed them, then read through each transcript, making notes of my first impressions, and highlighting those phrases and statements related specifically to the research questions. I used the data management software MAXQDA to assist with data analysis. The transcripts were imported into the software to facilitate the coding process.

I started with a set of predetermined codes that were implied by the research questions and type of data being sought (see Appendix B), but other codes were deduced based on what emerged from the data. Pertinent to both research questions, I applied the descriptive coding method (see Saldaña, 2016) to capture details of the teachers' explanations of any changes to, or retention of their literacy teaching practices since TIS was implemented. To do this, I reviewed the transcripts and used single words and short phrases to summarize the ideas presented. Applicable to both research questions, I again analyzed all transcript data, this time using the process coding method (see Saldaña, 2016) to capture the actions communicated in the data in terms of changes in literacy teaching practices. Here, codes were verbs that communicated the actions and processes that teachers had mentioned in relation to their changing literacy teaching practices.

Finally, I again analyzed all transcript data applying the values coding method (see Saldaña, 2016) to capture the beliefs, meanings, and perceptions that the teachers had expressed about their experiences and the influences of these values on their decisions and practices.

The data were then organized into categories based on relationships that were identified between and among the data. For instance, in relation to RQ1, relevant categories could be personal/ institutional or skills/knowledge/disposition to indicate forces behind teachers' change related decisions. I also reviewed the data for words and phrases that related to the change theories underpinning the conceptual framework of the study. Hence, some categories related specifically to the stages of change proposed by Lewin (1947) and Rogers (2003). In addition, I specifically watched for discrepant cases and ensured that they were accounted for in my analysis.

Issues of Trustworthiness

Qualitative researchers must address issues of trustworthiness if the results of their studies are to be accepted as plausible to the research community. Trustworthiness is achieved when the research questions are adequately addressed, and the researcher has clearly explained the processes that led to the conclusions drawn (Elder & Miller, 1995). In this section I describe how credibility, transferability, dependability, and confirmability have been applied in my study to safeguard its quality and trustworthiness.

In my study I promoted credibility through different forms of triangulation. Theory triangulation fosters consideration of multiple perspectives by using different theories to analyze, interpret, and compare data (Hastings, 2010). I applied theory

triangulation using two distinguished theories to explore the phenomenon under study. Hence, Lewin's (1947) and Rogers's (2003) change theories guided my development of the interview questions as well as my classification of the types of data that I needed for the study (see Appendix A) and provided the basis for the findings and the conclusions that I have made. I also utilized methodological triangulation through three coding processes to facilitate data analysis pertaining to the specific research questions. Guided by the literature, I applied descriptive coding based on the descriptions communicated in the data, process coding to capture explanations of participants' actions/practices, and values coding to explore participant beliefs and understandings.

The trustworthiness of my study was enhanced by my use of an interview protocol that was based on the literature and specific characteristics of the data that I was seeking. The protocol also addressed the matter of saturation, based on the rigor it communicated. In addition to supporting credibility, I enhanced confirmability by sending the transcripts to participants for them to check that I have accurately represented their perspectives. Additionally, I maintained a journal to facilitate my reflections on the participants, data, and emerging relationships, and reflexivity that I used for evaluating my actions and biases to enhance my objectivity.

In terms of credibility and dependability, the interview protocol made it possible for me to gather rich and thick descriptions, given that the details of the interview process had been carefully worked out, were aligned with the research questions, and were supported by the literature. I used a criterion-based purposive sampling strategy to enhance both credibility and transferability. This sampling strategy was implemented by

first identifying the participation pool based on the established criteria, then deliberately selecting the final sample by choosing persons who varied in characteristics such as age, years of experience, and gender.

Dependability was also achieved through the consistency of the research methods and procedures that I employed throughout my study. Therefore, I provided details of the methodology in previous sections by documenting the rigor of the data collection process and by maintaining a journal and an audit trail to preserve detailed records of the processes I employed while conducting this study. These processes documented the details necessary to support confirmability as well as trustworthiness in general.

Ethical Procedures

Research must be guided by ethical principles, such as those promoted by Walden's Institutional Review Board (IRB), that provide guidelines for researchers in terms of acceptable minimum standards of practice that safeguard the integrity of the research. According to Avila (2016), qualitative researchers must carefully handle various ethical issues in their research projects. In keeping with Walden's IRB guidelines, I approached the principals of the participating schools, shared details of my study and requested permission to involve teachers from their school in my study. I also sought assistance from the principals in identifying potential participants based on the participation criteria outlined in previous sections. Once a school administrator gave approval, I arranged to meet with the individual teachers at that school to develop a potential participation pool. I contacted each teacher from the lists provided to me by the administrator and made full disclosure, verbally and in writing (Appendix A), concerning

the voluntary and nonbinding nature of my study, its purpose, potential risks, and rewards of participation. I then enquired about their willingness to participate individually in a recorded interview. Such full disclosure allowed the potential participants to make informed decisions about getting involved in the project. As a result of providing each potential participant with an invitation that included full disclosure related to their being able to make an informed decision, verbal agreement to become a participant served as acceptance of their informed consent.

In my research, the possibility of participants refusing to participate or withdrawing from the study early was given serious consideration. However, there was no issue in this regard because all the teachers who agreed to participate followed through on their agreement. At the start of each interview, participants were reminded that the session would be recorded to ensure that they were still in agreement. To maintain confidentiality, pseudonyms were used to identify participants and the schools from which they had been drawn. Recordings and transcripts have since been stored in a password protected folder on my personal computer to eliminate any possibility of leakage and to protect the identity of the participants. Additionally, Interview transcripts were assigned code names instead of participants' actual names to ensure confidentiality.

The study was conducted in what could be considered an extension of my work area and this brought with it some ethical issues that I addressed. In the process of recruiting participants for the study, I declared that I would be interacting with them in the capacity of researcher and not teacher educator. My researcher role was also clearly communicated in the invitation letter so that participants were fully cognizant of the

specific researcher role that I assumed in our interactions. It was important that I helped my participants to separate my administrative/evaluative role as teacher educator from my role as researcher. This clarification reduced the potential for participants to feel intimidated or anxious during the interviews and more likely to be candid as they responded to the questions that I posed to them. The participants were unbothered by my professional associations, so the interviews were conducted with all 13 participants as planned. Research studies are built on trust between researcher and participants; therefore, researchers have a responsibility to maintain that trust. To maintain that trust, I offered to share a summary of my completed study with the participants if they so desired.

Summary

In this chapter I presented the methodological framework that drove the study and provided justifications for my methodological decisions. The qualitative tradition was the best choice for my study because it aligned with my research focus and purpose; it was the best approach for studying phenomena (change) in the contexts within which they occur (schools). Within the qualitative tradition, the basic qualitative design was my best option because of its flexibility and suitability for exploring issues about which little is known. I elected to use semistructured interview to gather data from a purposefully selected sample of teachers to ensure that I gathered information from persons who were best positioned to provide the rich details that I sought. In this study trustworthiness was ensured through several means including the use of a rigorous interview protocol, theory and methodological triangulation, and criterion-based sampling strategy. The data

analysis process was guided by the research purpose and questions against the backdrop of Lewin's (1947) and Rogers's (2003) theories to develop relevant conclusions. In the next chapter I present further details of the data collection and analysis process with evidence of trustworthiness as well as the results relative to the stated research questions.

Chapter 4: Results

The purpose of this study was to understand teachers' rationale for changes to literacy teaching practices that were and were not sustained beyond the life of the TIS project of 2014 in Jamaica. The study focused on the phenomenon of sustained change that is stimulated by an educational innovation such as the TIS project in Jamaica. To achieve the research purpose, Jamaican teachers were invited to share their experiences with the TIS project and their perspectives on how those experiences influenced their literacy teaching practices. Theoretical support for the conceptual framework for this study was based on Lewin's 1947 three-step change theory and Rogers's (2003) five-step diffusion of innovation theory. These theories provided a framework for exploring teachers' experiences with the TIS project and discovering factors that promoted or inhibited change in their literacy teaching practices. This qualitative study was guided by the following research questions.

RQ1: How do primary school teachers in Jamaica explain any suggested innovation changes made to their literacy teaching practices since implementation of the TIS?

RQ2: How do primary school teachers in Jamaica explain any suggested innovation changes not made to their literacy teaching practices since implementation of the TIS?

In this chapter, I present the results of the study as well as the procedures and analyses that have been applied to generate these results. The first three sections of the chapter are devoted to describing the research setting, demographics, and data collection

process. The fourth section provides details of the data analysis procedures, including the coding process comprised of applying specific coding methods to determine data codes. Next comes a description of the deductive and inductive approaches applied to review the codes as well as how categories and themes that align with the research questions and the conceptual framework of the study were developed. The fifth section contains explanations of modifications that were made to the original research plan and addresses the critical area of trustworthiness in terms of credibility, transferability, dependability, and confirmability. The penultimate section of this chapter provides detailed results that are specific to the research questions that guided the study. The chapter ends with a summary of the main points and answers to the research questions.

Setting

The study was conducted in four schools in Jamaica: two primary schools, one infant and primary school that also had a junior high department, and an infant school during the time of the TIS project. Three of the schools are situated in the Kingston metropolitan area (KPA); one of the primary schools is situated on the outskirts of the KPA. Infant schools/departments cater to children aged 3 to 6 years, primary schools cater to children aged 6 to 12 years, and junior high departments cater to students between 12 and 15 years old. A junior high department attached to primary schools usually caters to students whose academic achievement is not on par with those who transition to high schools through the national examination for final year primary school students, the Grade Six Achievement Test (GSAT), more recently replaced by the Primary Exit Profile (PEP). All four schools associated with this study are government

funded and use the National Standards Curriculum (NSC) to guide teaching and learning. The three schools within the KPA were part of the government-sponsored pilot 2014 TIS project, while the primary school outside of the KPA was involved in a privately sponsored TIS project during the same period.

The recruitment and data collection activities for this study occurred during a very busy period for primary school teachers; it was the season for school sports (athletics) as well as the period for the final round of PEP assessment. Teachers were heavily involved in the final preparation, organization, and supervision of those activities. Because of competing demands, all the potential participants struggled to identify a block of time in which to complete the interview. In addition, one teacher withdrew before being interviewed and had to be replaced because he had a family medical emergency. These uncertainties and subsequent multiple rescheduling of interviews caused the data collection period to last for a month and a half.

The TIS project was implemented 9 years ago, and since then there have been several changes within the schools and within the national curriculum offered there. For instance, there have been staff changes resulting from teacher retirement, resignation, migration, reassignment, and so forth. School administrators have also changed; the three participating primary schools now have different principals than the ones they had in 2014. Also, one of these primary schools that at the time of the TIS project was operating as an infant, primary, and junior high has since been reclassified as an infant and primary school because the junior high department was discontinued in 2019.

While the 2014 TIS project was being implemented, the sponsors for both the private and public iterations were very involved in monitoring the implementation process and the resources, but eventually sponsors pulled away. Once the sponsors pulled away, it was those schools that had vibrant, supportive parents' and teachers' associations (PTAs); strong, supportive alumni; and proactive school administrators that could count on support (cash or kind) to keep the project alive. However, the kind of postproject support that was available to schools and teachers varied from one school to another.

The national curriculum for Jamaican primary schools has also undergone some changes since 2014, with one of the recent thrusts being the move from a generalist approach to a specialized subject-based teaching approach at the primary level. Now, instead of one teacher teaching all subjects to their assigned class, some primary school teachers teach one of four subject areas, language arts, mathematics, science, or social studies, and reading specialists have been engaged to provide remediation for struggling readers across all grades. Literacy teaching for infant and lower primary (Grades 1–4) is deliberately focused on getting children to master basic literacy skills in readiness for primary education, while for upper primary (Grades 5 and 6) and among subject specialists, literacy teaching is usually manifested through content area literacy and refinement of basic literacy skills.

Demographics

Thirteen teachers, 10 females and three males, from across four schools participated in the study. Three teachers from each of the three primary schools participated, while there were four participants from the infant school. All participants

were actively engaged in the TIS project at their respective schools and taught literacy in various forms. Participants who worked with students ages 3 to 10 (infant to lower primary) taught literacy as a natural part of their responsibilities. However, for teachers who taught students above Grade 4 (upper primary), literacy teaching was manifested as content area literacy and more focused on refinement and expansion of literacy skills that had been developed in the former grades. Hence, all the participants in this study taught literacy during and after the TIS project, albeit in different forms depending on the level of students they were assigned to teach.

All the participants had been teaching before the TIS project came into existence and had been at the same school since. Table 1 presents demographic data deduced from the interviews (pseudonyms were used to safeguard privacy and confidentiality). During the project, the participants served in different roles. Three participants served as team leaders during the project and provided guidance to their colleagues. One of these team leaders also served as coach. She was trained by the sponsors and provided technical support to her colleagues and their students across the school. Even though she had no specific class assigned to her, in her capacity as coach, she taught literacy to various groups of students when their assigned teachers were not available. One participant was assigned to teach an upper primary grade, four taught at the infant level, and all the others taught students at the lower primary level. Therefore, all participants taught literacy, albeit in different forms during the TIS project depending on the classes to which they were assigned. Two other teachers expressed interest in participating in the study but

were not included because, at the time of the project, neither was involved in literacy teaching.

Table 1

Demographic Information

Participant ID	Sex	Role during project	Level taught during TIS	Current teaching level
Anna-A	Female	Team lead & Class teacher	Lower primary	Infant
Barbara-B	Female	Team lead & Class teacher	Infant	Infant
Carole-A	Female	Class teacher	Lower primary	Lower primary
Diana-A	Female	Class teacher	Lower primary	Lower primary
Ella-C	Female	Class teacher	Lower primary	Lower primary
Fiona-D	Female	Team lead/coach	Grades 1-6	Upper primary
Georgia-D	Female	Class teacher	Lower primary	Lower primary
Hannah-B	Female	Class teacher	Infant	Infant
Isaac-D	Male	Class teacher	Upper primary	Upper primary
Jack-C	Male	Class teacher	Lower primary	Lower primary
Kera-B	Female	Class teacher	Infant	Infant
Lana-B	Female	Class teacher	Infant	Infant
Mark-C	Male	Class teacher	Lower primary	Lower primary

Data Collection

To help me prepare for the interviews with the research participants, I conducted two practice interviews with my peers during the week before the start of the data collection process and engaged in peer debriefing. These practice interviews assisted me in refining my opening statements, adjusting my pace, and achieving a mental state of readiness. Feeling more assured, I conducted a single, semistructured interview at an agreed time with each of 13 teachers drawn from across four participating schools, which I identified as School A, B, C and D. Seven participants were interviewed face to face at the school where they worked, and five were interviewed using Zoom. To maintain

privacy and confidentiality, face-to-face interviews were conducted in rooms assigned to me by the principals. However, one of the face-to-face interviews was conducted in my vehicle because there was no suitable room available for our use on the day of the interview. Face-to-face interviews were recorded on my personal cellular phones. For the interviews that were conducted virtually, I utilized my personal Zoom account; these interviews were recorded in Zoom, and the recordings were accessed and reviewed within 10 minutes of being completed.

The interviews were conducted from March 22, 2023, to May 1, 2023. The data collection period coincided with several school-related activities including the national assessment period for final-year primary school students and school sports events. In my preparation for the data collection process, I developed an interview protocol (Appendix B) with five columns where the research questions, supporting literature, nature and type of data being sought, and possible probes were outlined. Based on its organization and the details provided in each column, each interview focused on the specific needs of each research question, established content validity, and demonstrated the alignment between the interview guide (Appendix C) and the research questions.

The interview guide (Appendix C) generated from the interview protocol was used in all 13 interviews, but the wording of some questions varied slightly on some occasions. For instance, the first question in the interview guide was designed to have respondents explain the purpose of the TIS project. One iteration read, “What was your understanding of what that project was about in terms of its purpose?” while another iteration read, “In your perspective, what was that project about: What was its purpose?”

In addition, probes were injected where participants' responses lacked details or shifted focus, as suggested in the interview protocol.

I listened attentively as each interviewee shared their perspectives in response to the questions asked, nodding and interjecting "okay," "right," or "I understand" to reassure participants of my interest in their perspectives and to acknowledge their responses. A common occurrence among the interviewees while responding was their reference to memory lapses, given that they were being asked to recall details of a project that had taken place almost 9 years ago. Some participants were able to recall details more readily, while others could not! A common phrase used by most participants was "I can't remember."

Face-to-face interviews were recorded using my two personal cellular phones, while those conducted using Zoom were recorded within the Zoom platform. The first interview was conducted in person and recorded on my two cellular phones. I transcribed this first interview manually by replaying the recoding bit by bit multiple times and typing the transcript into a Word document. However, subsequent transcripts were completed with the help of transcription software on my phone. For those interviews that were conducted digitally, the transcript feature embedded within the Zoom platform was utilized. Interviews were transcribed in the order that they were completed and saved as a Microsoft Word document in a password-protected folder on my personal computer.

While the transcription software was useful, there were many errors and misrepresentations in those transcripts. One example of this misrepresentation occurred when the phrase "so, for the children" was misrepresented as "so foreign children" by the

transcription software (see Appendix D for more examples). The errors that were manifested in the software-generated transcripts might be explained by the peculiarities of the Jamaican accent or pronunciation and the inability of the software to relate to those peculiarities. Because of these peculiarities, I was careful to go through each recording multiple times to ensure that the final transcripts accurately represented the responses provided by the participants. As I prepared the transcripts, I highlighted segments that seemed potentially useful and tagged them with brief notes using the comments function in Microsoft Word.

As soon as the transcripts were completed, I conducted member checks by emailing each participant a copy of their interview transcript and invited them to review it for accuracy. I also called each participant as a backup to notify them of the email and their agreement to review their respective transcript. Five participants responded to the email, promising to review and provide feedback, but only one followed through; she requested that a few adjustments be made. I made the adjustments soon after I received the instructions. After reviewing and correcting the transcripts, I saved them in a password-protected file, using pseudonyms to reflect the sequence in which the interviews were conducted. I also used letters A to D to tag participants from the same school. For example, the first interviewee was drawn from School A and was named "Anna-A," while "Mark-C" identified the 13th participant who was interviewed and indicated that he was drawn from School C. All 13 transcript files were uploaded into the MAXQDA platform for coding and analysis.

Data Analysis

As described in my data analysis plan in Chapter 3, data analysis in this study began during data collection with my careful documentation of ideas that jumped out as I conducted the interviews. During each interview, I kept my notebook and pen handy, using short phrases and symbols to jot down ideas that appeared from time to time, making sure to include the time stamp of the matching interview segment. Additionally, I made note of nonverbal communications including tone, body language, facial expression, and pauses that I felt would later enhance my ability to understand participants' perspectives. Additionally, transcripts were carefully reviewed one by one, and sections that appeared to be significant or supported my notes were highlighted and tagged. I then utilized MAXQDA, a computer-assisted qualitative analysis software (CAQAS), to manage the data through two cycles of coding, descriptive and process coding. Later, I exported the coded segments from MAXQDA into Microsoft Word and Excel files and consolidated each set of files into two composite files that contained all coded segments.

As a novice researcher with minimal experience with CAQAS, I struggled to get a handle on MAXQDA and the coding process. My first attempt at coding neither reflected the data analysis plan I outlined in Chapter 3 nor fully represented the descriptive nature as intended. Instead, my choice of codes tended to be broad and reflective of a more advanced cycle in the coding process. My reflections, consultations with my committee chair, and further interrogation of the literature and audio-visual resources led me to recognize that my first coding attempt was more deductive than inductive, thereby

limiting my chances of discovering the natural ebb and flow of the data. Hence, I revised my initial approach, taking care to use words and phrases that more accurately captured the participants' descriptions of the events, experiences, and perceptions.

First Cycle: Descriptive Coding

After reevaluating my first attempt at descriptive coding, recognizing some flaws, and reassured by Saldaña's (2016) caution that rarely will anyone get coding right on the first attempt, I reuploaded the transcripts as a new project into the MAXQDA software and started the coding process again. Whereas in the first attempt I used codes that were extracted from the research questions such as "purpose of TIS" and "change," in the second attempt I coded segments based on key words that appeared to capture the essence of descriptions such as "excited about the program," "teacher use of tablets," "student collaboration," and "too much information."

One strategy that I found to be useful was going back to previously coded transcripts, comparing them with each other and adding additional codes where appropriate. I also used the search function in MAXQDA to identify where key words appeared throughout the transcripts and selectively coded those segments based on the ideas they communicated. The code "still using" was used to represent participants' continuation of practices after the TIS project had ended. "Still using" was applied to Anna-A's description of practices she had continued after the project ended:

> So, I'm still using it, because basically this generation is very computer literate so you really can't exclude technology from the lessons in any way … because I still

> take my computer every day, still do my PowerPoints… still do my videos with songs… with vowel sounds and all those things….

After coding the first "still using" segment, I conducted a search in MAXQDA for the word "still" and got 134 hits. I reviewed each hit and then applied the same code to those segments that communicated a similar meaning. Examples of these include Hannah-B's declaration that:

> We have a few tablets that still work, so I still use Kahoot, I still use quizzes, I still use the Jolly Phonics app, most definitely. There are four sites that we use. We use class dojo and Education City," and Mark-C's admission that "It's still being integrated just that the students will not be using the tablet on a wide scale, as they would normally do so.

At the end of the first cycle of coding, I had a total of 681 codes. Table 2 displays a sample of first cycle codes and their frequency. High frequency codes included "tablet use" with 65 coded segments and "student" with 53 coded segments. Low frequency codes included "nervous," "benefit," and "politics," with one coded segment each.

Table 2

Sample of First Cycle (Descriptive) Codes

Codes	Frequency	Codes	Frequency
A lot of work	16	Manipulatives	2
Appropriate	11	Memory lapse	6
Assessment of students	13	Nervous	1
Behavior	4	Parents	12
Benefit	1	Politics	1
Boys	7	Purpose	6
Capture attention	7	Repetition	2
Class control	7	Research	6
Class size	8	Something new	10
Collaboration	24	Still using	42
Confidence	6	Student	53
Control	8	Support	4
Critical thinking	2	Tablet care	17
Excited about the program	14	Tablet quality	12
Feedback	5	Tablet use	65
Games	10	Teacher	45
Gone back	10	Teacher fear	21
Hands on	8	Technology	20
Help students	2	Technology integration	13
Home	11	Time	17
Independence	6	Too much	12
Learning	38	Training	23
Lesson plan	27	Useful	3
Literacy	26	Workload	8

Being satisfied that I saturated the possibilities for descriptive codes, I exported the coded segments to Excel. I then pulled all the coded segments together into a single file (See Appendix F for excerpt). The composite file displayed each participant whose interview transcript was coded, the specific codes that were applied and matching coded segments from the transcripts. The Appendix F excerpt shows that the code “support” was applied three times across two transcripts, Georgia-D’s, and Hannah-B’s, and that

the coded segments communicated different ways in which the participants received support during the project.

I reorganized the composite file by first utilizing the sort and filter feature embedded in Excel to arrange the document alphabetically by codes. This strategy allowed me to review each coded segment for specific codes for consistency of meaning and where appropriate, I recoded some segments. For instance, I noticed that there was inconsistency of meaning for the code "time" as communicated by Barbara-B and Fiona-D. Fiona-D was referring to students wanting to make good use of the time with the tablets when she said:

> Because we had like 45 min to an hour, and they wanted to get everything out, so they're…that I mean… They didn't want an excuse to go use the bathroom, and maybe even if they needed to use a bathroom, they would have stayed because they just didn't want to miss out with 5 min from the lesson.

However, Barbara-B was referring to the amount of time spent to get things ready for integrating the tablets in her lessons when she declared that she:

> Had to spend more time… and staying back at school and putting on the apps and … even the fact of charging the tablets… making sure they are charged. And we couldn't leave them plugged in at all, we had to charge it before we left.

Hence, based on the differences in focus and meaning of the two segments, I recoded Fiona-D's segment as "student motivation" and Barbara-B's statement was recoded as "time consuming."

I also reorganized the document alphabetically according to the coded segments. This reorganization caused segments that had two or more codes to line up behind each other, making it easier for me to see where segments cut across codes. For instance, the following segment from Isaac-D's transcript was originally coded twice as both "teacher" and "learning" but was later recoded as "teacher learning" which I believed more accurately represented what had been communicated:

> A lot was learned along the way, in terms of in terms of you know how you or you should go about teaching the children, and you know how best to get your materials together. and you know also. You know, there was a lot of learning in terms of different sites where we could find information to assist the children.

My reflections and review of the coded segments in Microsoft Excel allowed me to become more familiar with the data and make connections. I then returned to the MAXQDA and embarked upon a second cycle of coding.

Second Cycle: Process Coding

Process coding involved using gerund phrases to represent actions in the data (Miles et al., 2020). During this second cycle of coding, I returned to MAXQDA and went through each transcript line-by-line, coding the actions that had been communicated in the transcripts. I used codes such as "trying something new," "putting them in groups," "sharing information," "learning letter sounds," "evaluating apps" and, "using videos and games."

As I read through the transcripts, I recognized that many of the descriptive coded segments also communicated actions that had been performed by the participants or other

stakeholders in the TIS project. For instance, during the descriptive cycle of coding, I applied the code "collaboration" to Barbara-B's declaration that: "I would take tablets to school so they would sit in groups, and I let them use the tablets that I take to school." However, when I examined this same statement during the process coding cycle, I recognized that Barbara-B had communicated three separate actions, one of her own and two by her students, within the single statement. Hence, I used three gerund phrases, "teacher taking tablets to school," "siting in groups" and, "students using tablets" to capture the three actions that were communicated. Table 3 displays a sample of process codes that were assigned to actions and the person, or persons, identified with each. Based on the table, the actions communicated by the participants were mostly performed by either students or teachers, while only three codes were assigned to actions performed by both student and teacher.

Table 3

Sample Process Codes With Actors Identified

Process code/action	Actor(s)	Process code	Actor(s)
Answering questions	Student	Sending tablets home	Teacher
Buying equipment for school	Teacher	Sharing ideas	Teacher
Collaborating	Teacher & Student	Sitting in groups	Student
Downloading aps	Teacher	Staying on task	Student
Evaluating apps	Teacher	Student observing	Student
Finding new things	Teacher	Student researching	Student
Incorporating technology	Teacher	Taking pictures	Student
Incorporating the phone	Teacher	Taking tablets to school	Teacher & Student
Monitoring activities	Teacher	Teacher researching	Teacher
Participating in training	Teacher	Observing students	Teacher
Playing games	Student	Teaching with pictures	Teacher
Preparing interactive sessions	Teacher	Typing answers	Student
Providing feedback	Teacher	Using other devices	Teacher
Reading independently	Student	Using quizzes	Teacher
Reading stories	Student & Teacher	Using videos	Teacher
Rotating groups	Teacher	Using tablets	Student
Scheduling rooms	Teacher	Watching videos	Student
Selecting apps	Teacher	Working at home	Student

Process codes were applied to the actions that related to teachers' lesson preparatory activities, lesson implementation activities, and assessment activities. For instance, I used the codes "teacher researching" and "finding new things" to tag Anna-A's declaration that:

> … you're doing more research… you find new ideas of how you can do assessment in class because you are now researching even though you don't use it to do everything, you pick up little things on how you can make your class better.

As I had done during the first cycle of coding, I moved back and forth among coded transcripts to compare and add new codes where applicable. The coded segments that were generated during this second cycle were exported to Microsoft Excel for safekeeping before I moved on to the third cycle of coding, values coding.

Third Cycle: Values Coding

According to Hedlund-de Witt (2013), values coding "captures and labels subjective-value perspectives" (p. 5). It involves identifying segments of the data that appear to communicate a person's perspectives in terms of values, attitudes, or beliefs. As with the first two cycles of coding, I perused the transcripts line by line, this time checking for instances where the participants had expressed their perspectives or attitudes about aspects of the TIS project.

I discovered that participants had different attitudes towards technology. For instance, some participants had expressed love for technology or had declared their faith in technology while others had expressed a fear of technology. Table 4 displays a sample of codes used to label some of the different attitudes towards technology that had been

communicated by participants. The table shows that the participants had communicated similar attitudes in different ways. Barbara-B had provided an extensive explanation to support her declaration of love for technology, while Ella-C had been much more conservative in her statement. Diana-A had used the word "fear" as she had expressed her anxiety of technology, while Carole-A had sighed and had used the word "drawback" to communicate her fear. Faith in technology had been communicated by both Jack-C and Carole-A through expectations of what technology could do for literacy teaching and learning.

Table 4

Sample Values Codes and Segments Relating to Attitudes to Technology

Codes	Coded Segments	Participants
Love technology	Because I'm technology driven from before. So, I love technology… so, I always try to explore…What can I do differently. Um, before … before tablets in school, I went and purchased projectors for my classroom.	Barbara-B
Love technology	I think I love technology to an extent.	Ella-C
Fear of technology	When I heard about tablets in schools … (*sighs)* When I heard about it… I have this drawback so…I know that it involves technology. And I had certain draw back with that ... Was I… I started questioning myself. Will I be able to deliver as much as I ought?	Carole-A
Fear of technology	Depends on how I feel and the fear… I'm being honest. Sometimes you have a day that you just don't feel like yourself and sometimes stress and happenings here and you'll get turned off, yeah	Diana-A
Belief/Faith in technology	I believe in technology, SO it was very… I was very excited, basically because I know that I would be able to use it in my class with my students to make teaching more fun.	Anna-A
Likes Technology	I like technology and so forth	Jack-C
Faith in technology	The tablet enhances the learning aspect.	Carole-A

Categorization

Categorization was completed in Microsoft Excel where codes were first arranged alphabetically, and each coded segment was reviewed for consistency of meaning. Codes with similar or overlapping meanings were then bundled together to produce categories (see Table 5 for sample and Appendix G for a complete list). For example, "feeling uncomfortable," "passionate," "excited," and other similar codes communicated people's mindsets and emotions relative to different aspects of the project. These codes were therefore bundled together in a category called "mindset/emotions."

Table 5

Sample Categorization Based on Overlapping Meanings Among Codes

Codes	Categories
Love Technology, Fear of Technology, Believe in Technology, Faith in Technology, Likes Technology, Tablets Enhances Learning, Technology Helps, Makes Teaching Fun, Technology is Useful, Children's Interest in Technology, Fascinated.	Attitude Towards Technology
Organize And Manipulate Group Activities, Monitoring Activities, Incorporating Phone, Lesson Implementation, Differentiating Instruction, Differentiated Activities, Flipped Classroom, Hands on Practical, Outdoor Play, Use Apps to Facilitate Student Literacy Learning, Use Tablets for Engagement Phase, Using Tablets for Outdoor Play, Using Stories to Enhance Literacy, Using the Smart Board, Using Videos to Support Teaching, Using Laptops, Using Other Devices, Using Other Forms of Technology Teacher Directed Tablet Use, Listen to stories, Phonics, Repetition, Videos, Games, Quizzes, Group Work.	Literacy teaching
Lack of Exposure, More Comfortable Over Time, Feeling Uncomfortable, Passionate, Having Challenges, Mood Impacts Teaching, Older Teachers, Comfortable/Uncomfortable, Confidence, Excited About Program, Fear of Technology, Teacher Mindset, Teacher Nervousness, Questioning Capabilities, Willing to Try, Feeling out of Place.	Mindset/Emotions

As an example of the categorization process, the category "attitude towards technology" was created by pulling together codes that communicated the positive and

negative feelings that participants had in relation to technology. Codes that represented positive emotions included “passionate,” “excited,” “willing to try,” and “comfortable.” Codes such as “nervous,” “uncomfortable,” and “fear” were indicators of negative emotions. Again, codes sometimes cut across categories because of overlaps in word and phrase meanings. For instance, as seen in Table 5, the code “fear of technology” represented both an emotion that is evoked by technology and an attitude towards technology. Therefore, this code appeared to represent two categories, “mindset/emotions” and “attitude towards technology.”

Theming

The challenge of developing themes led me to circle back to the transcripts, fieldnotes, and codes for a deeper and more deliberate search for relationships within the data. Given that the study is focused on understanding teachers’ rationale for changes made and not made to their literacy teaching practices since the TIS project, I reexamined the transcripts and codes for clues to the change process as presented by Lewin (1947) and Rogers (2003) and documented in my conceptual framework (see Figure 1). As I examined the participants’ accounts of their individual experiences, I uncovered no discrepant cases. However, I observed that participants’ beliefs about themselves, technology, and the needs of their students, had influenced their actions so that those actions fell along a continuum. For instance, in relation to their beliefs about themselves and their own competences, at one end of the continuum were participants, such as Barbara-B, who had communicated excitement, and willingness to embrace the TIS project. “… I was super, super excited so I was like…let’s go (clapping hands) I was

putting it into the lessons." At the other extreme were participants who had communicated apprehension and doubt, including Carole-A who had sighed heavily when she had said:

> When I hear about tablets in schools … (sighs). When I hear about it… I have this drawback so…I know that it involves technology. And I had certain drawbacks with that ... Was I… I started questioning myself. Will I be able to deliver as much as I ought.

Then somewhere in the middle where participants such as Ella-C who mentioned that:

> "When I first heard about the program, I was truly excited on a whole... I think I love technology to an extent…. The um, negative aspect of it was that when I heard that the students would have been given the devices to take home, knowing that that could be problematic…"

Although not a theme in and of itself, identifying the continuum of participant beliefs helped me see the themes underpinning the groupings on the continuum. The theming process yielded four themes that aligned well with the conceptual framework, research questions, research problem, and study purpose: one theme for RQ1 and three themes for RQ2.

- Theme 1: Participants who operated in supportive, collaborative environments were more prone to change. (RQ1)
- Theme 2: Most participants in the study entered the TIS project with fixed yet polarized mindsets. (RQ2)

- Theme 3: Most participants in the study perceived technology as a method of learning rather than an instructional tool. (RQ2)
- Theme 4: Although student use of the tablets to better engage the aspects of language necessary for improving their literacy was a key goal of the TIS project, teachers and parents instead used the tablets for fun and other personal goals. (RQ2)

Table 6 provides a visual representation of the relationship among the research questions, categories, and themes. Theme 1, "participants who operate in supportive, collaborative environments tend to respond positively to change," emerged in response to RQ1. As shown in table 6, Theme 1 was informed by categories such as "collaboration and support," "parental involvement," "training," and "workload." Theme 1 captured participants' perspectives regarding support they had received or had provided within their school environments. Barbara-B had summed up her perspective of the situation in School B when she had reported that; "anything the teachers don't understand, we had to find a way to show them and to get them ready."

Table 6

Relationship Among Research Questions, Categories, and Themes With Evidence From Transcripts

Research questions	Categories	Themes	Evidence from transcript
RQ1: How do primary school teachers in Jamaica explain any suggested innovation changes made to their literacy teaching practices since implementation of the TIS?	Collaboration and Support, Parental Involvement, Training, Workload.	Participants who operated in supportive, collaborative environments were more prone to change.	We had to find a way to show them; I was left in the air floating; Sometimes people show me even the students; When I wanted to do my thing, I just did it; Teachers who weren't quick; Training should involve one-to-one; There was always somebody. Got donations over time; Persons needed more time; I shared with everybody; The internet isn't working; Parents are not helping; They are coming to check.
Q2: How do primary school teachers in Jamaica explain any suggested innovation changes not made to their literacy teaching practices since implementation of the TIS?	Attitudes Towards Technology, Mindset/Emotions	Most participants in the study entered the TIS project with fixed yet polarized mindsets.	I like the technology; How I feel, and the fear; I believe in technology; I'm technology driven; I'm not technology inclined; I'm scared. Much fearful; Technology is useful; Help them to feel that they are achieving; Never have taken to technology; We are a technology school.
	Attitudes towards Technology, Mindset/Emotions, Tablet Use, Reversion, Benefits of Technology	Most participants in the study perceived technology as a method of learning rather than an instructional tool.	Technology really improved the students; Learn so much from technology; Technology would help us; Driving the lessons; Use and implement it into the lessons; Will be doing technology.
	Classroom Management, Student Engagement, Teacher Planning/Preparation, Literacy teaching	Although student use of the tablets to better engage the aspects of language necessary for improving their literacy was a key goal of the TIS project, teachers and parents instead used the tablets for fun and other personal goals.	Parents took away the tablet; Send the homework; Want it for personal use; It makes it a little easier for you and the workload; To get some information; Keeps us connected with the family at home; *Open … a research window; Use it like as a reward too.

Theme 2, "most participants in the study entered the TIS project with fixed but polarized mindsets," is connected to RQ2. This theme evolved from categories that were largely influenced by values codes (see Table 4) that informed the categories "attitudes towards technology" and" mindset" (see Table 6). Theme 2 encapsulated participants' mindset and perspectives about themselves, technology, teaching, and learning. Carole-

A's declaration that "the tablet enhances the learning aspect" and Ella-C's admission that "depends on how I feel and the fear… I'm being honest" provide a glimpse of participants' utterances that signaled this second theme.

Theme 3, "most participants in the study perceived technology as a method of instruction rather than an instructional tool," was derived from categories such as "mindset/emotions" and "attitudes towards technology." This third theme also evolved in response to RQ2 thereby reflecting participants' overarching view of technology.

Theme 4, "although student use of the tablets to better engage the aspects of language necessary for improving their literacy was a key goal of the TIS project, teachers and parents instead used the tablets for fun and other personal goals" also related closely to RQ2. Largely influenced by process codes (see Table 3), Theme 4 was reflected in participants' comments such as "for preactivity, you might have a little game, my little quiz, or something on the tablet… a little game" (Georgia-D), and "parents took away the tablets…. So, when you check, you would see pornography movies and all those things," (Diana-A).

Evidence of Trustworthiness

For research to be relevant, it must be trustworthy (Adler, 2022). Because of the skepticism surrounding the credibility of qualitative research in the scientific community, it is critical that qualitative researchers provide evidence of trustworthiness. As discussed in Chapter 3, I have carefully tracked my research journey in terms of how my plans were applied, how adjustments were made, and how I have safeguarded the integrity of the research process. In this section, I provide evidence of the application of four critical

components: credibility, transferability, dependability, and confirmability to demonstrate how trustworthiness has been achieved in my study.

Credibility

To achieve credibility in this basic qualitative study, I conducted two forms of triangulation. Theory triangulation was accomplished by utilizing two well recognized change theories, Lewin's, (1947) three step change theory and Rogers's (2003) five stage change theory. These theories informed my conceptual framework as well as my methodological approach. Through these theories I was able to map the change process, as it was manifested in the TIS project, from two distinguished perspectives that use different concepts to communicate the process of change. Additionally, theory triangulation provided the foundation for my interview protocol (see Appendix B) that in turn guided me as I developed the interview questions (see Appendix C) and conducted my data analysis.

Methodological triangulation was achieved through several cycles of rigorous coding for managing and analyzing the data. I began the data analysis process by reading through the interview transcripts multiple times and highlighted key words and phrases that stood out. These highlights and my reflective field notes guided me as I completed the coding, categorizing, and theming using the software, MAXQDA. I struggled a bit with coding at the start but improved after consulting with my dissertation Chair as well as the relevant literature. I used descriptive coding to capture the descriptions of experiences and events that were communicated within the data. Then I used process

coding to capture the actions and practices shared by the participants. Lastly, I used values coding to highlight the participants' beliefs and understandings.

Additionally, I utilized a detailed interview protocol to enhance credibility in my study. The interview protocol was rigorously grounded in the literature and provided details of the nature of the data that I sought. It also guided the development of the interview questions (see Appendix C) and addressed the matter of data saturation. The interview questions were deliberately crafted to capture details specific to the research questions. and potential probes were listed in the protocol to ensure that the interviews went according to plan.

The interview protocol proved to be useful for supporting credibility in this study because the fine details it contained guided the interview process. The interview protocol ensured the alignment between the interview questions and the research questions, connected with the relevant literature, and made it possible for me to gather rich and thick descriptions. The interview protocol was organized in rows and columns to allow for logical placement of the critical areas and ease of navigation (see Appendix B). For example, the research questions were in the first column with matching interview questions in the second, supporting literature in the third, characteristics of data in the fourth and possible probes in the fifth. Hence, it was easy to view all these components at once if I needed to do so.

Credibility was also enhanced through my use of a criterion-based purposive sampling strategy that involved choosing only cases that satisfied the specific criteria of being teachers of literacy and participants in the TIS project. This sampling strategy

served to enhance the methodological rigor of my study and each aspect of trustworthiness regarding data collection, analysis, and the results (see Campbell et al., 2020). My use of a criterion-based sampling strategy ensured that there was alignment between the sample and the research purpose because I only selected information rich cases that met the relevant criteria. Therefore, after the principals identified potential participants in their schools, I vetted each person to ensure that they met the established criteria for participation before including them in the participation pool. Several other teachers approached me to ask if I needed more participants, but I explained that they did not meet the selection criteria and were not eligible to participate.

Transferability

Transferability, the extent to which the findings of this qualitative study can be applicable and relevant to other similar settings, was prioritized in the current study. Hence, the criterion-based purposive sampling strategy that I employed was critical for enhancing transferability in this study. First, I established the criteria to align with the research purpose and questions. Next, I ensured that these criteria were communicated to the principals from whom I sought permission to involve their staff and during the recruitment period when I met with prospective participants. Only teachers who satisfied all the established criteria were considered for participation in the study. Based on the established criteria, and after conversing with each teacher who expressed an interest to participate, I identified the participation pool. Finally, I deliberately selected the final sample from the participation pool by choosing teachers who varied in age, years of teaching experience, and gender.

Confirmability

Member checks were conducted to enhance confirmability. Participants were emailed a copy of their interview transcript with instructions to peruse and provide feedback regarding accuracy. I followed up with a phone call to alert the participants of the email and my instructions. All the participants promised to provide feedback within 48 hours but only one followed through with comments. She highlighted some minor corrections that I addressed as soon as they were communicated to me. I have since reached out to the other participants to check if there were any issues. They all stated that they were satisfied with the transcripts and had no issues.

Confirmability was also enhanced by my interviewing of multiple participants from the same school. I was better able to recognize and appreciate participants' collective experiences as well as their individual experiences within the same context. I maintained a field journal to facilitate reflection on different aspects of my research journey (see Appendix I for sample entries). I recorded information on the participants, data, and emerging relationships as well as my evaluation of my actions and biases. At an early stage in the data collection process, I realized the necessity of identifying participants with their schools, but I was concerned about the implications for objectivity. To address this issue, I used letters A to D to tag participants from the same school, in addition to the pseudonyms already assigned to each participant based on the order in which they were interviewed. Confirmability was also assured through journaling to keep track of contacts, scheduling, details about the school environment, nonverbal clues that were communicated during the interviews as well as my accomplishments and struggles.

Dependability

I achieved dependability by consistently applying the research methods and procedures that were relevant for my study. I provided clear descriptions of my research methodology in several sections of Chapters 3 and 4. The detailed records contained in my field journal and audit trail (see Appendix H) of the data collection process served as evidence of my adherence to the research processes. Together, these strategies supported confirmability as well as trustworthiness in general.

Results

In this section, I examine the research questions within the context of the themes that emerged and based on the evidence from the transcripts presented in Table 6. This section is organized by the two research questions that guided the study and used here as a starting point for describing the four themes as the key findings that emerged from the data analysis. My discussion includes the details of the results as well as how I navigated through the data to identify critical elements that facilitated theming. The section also showcases the key findings for each research question and provides corroborative evidence from the interview data. The section ends with a summary of the central findings for each research question.

Results Related to Research Question 1

The results for RQ1 are encapsulated within a single theme: “Participants who operated in supportive, collaborative environments were more prone to change.” That main theme represents participants’ perceptions of their schools as supportive or unsupportive contexts that influenced their experiences and change-related decisions

relative to their literacy teaching practices. Table 6 highlighted evidence from the transcripts that supports this theme as a key finding for RQ1. As an important finding for RQ1, the theme communicates the significance of context in the process of change. It is indicative of the ways in which teachers within the same school explained changes made to their literacy teaching practices since the TIS project.

Participants' articulation of their individual and collective experiences with support from their respective school environment reflected a continuum. One of the four teachers at School B shared that: "What we did as colleagues, we came together and helped those teachers," and "parents were really able to purchase their tablets." Another of her colleagues corroborated those comments when she shared that, "We tried, we pulled the ones who were not excited, and showed them how it can help them, and how it works." In contrast, one teacher from School A shared that, "I was left floating" and, "parents took away the tablets." Based on participants' expressions about their perspectives and experiences regarding support in their school environments, the key RQ1 finding as expressed by Theme 1 is that the "teachers explained changes made to their literacy teaching practices since the TIS project in terms of the nature and quality of the support they experienced within their school contexts."

The main finding for RQ1 is supported by three subfindings. The first subfinding is that "some participants operated in more supportive contexts than others," and points to a continuum where at one extreme there were participants who had expressed being supported by stakeholders within and outside their schools, and at the other extreme there were participants who had expressed that they had been left to figure it out. This

subfinding is significant to the main finding for RQ1 in that it provides the basis for comparing and aligning participants' perceptions of their contexts with how they account for their change related decisions.

The second subfinding for RQ1 is that "support varied in nature and quality" and relates to the ways in which support was received or meted out within the different schools. This subfinding is significant because it fleshes out the main finding for RQ1 by focusing on participants' individual and collective experiences of support within their respective schools. It is also useful for determining the value that participants placed on the different forms of support and the implications for their explanations of change-related decisions.

The final subfinding for RQ1, "supportive contexts fostered the emergence of leaders who in turn provided support that influenced peers to change," points to the influence of support from within in comparison to support from outside sources. This third subfinding is significant for RQ1 because it highlights the role of change agents in participants' explanations of their change related decisions.

Results Related to Research Question 2

The data yielded three themes for RQ2: Themes 2, 3, and 4. Theme 2, "Most participants in the study entered the TIS project with fixed yet polarized mindsets," communicates the relationship between participants' mindset and their response to the TIS innovation project. Participants' declarations about their beliefs, attitudes, and expectations regarding technology at the start of the project demonstrated both similarities and contrasts. For instance, contrasts were reflected in statements such as "I

love technology," versus "I have a fear" while similarities were expressed in statements such as "technology will help us," and, "technology enhances learning."

Based on the evidence presented, the key result communicated by Theme 2 for RQ2 is that participants' explanations about why changes were not made to their literacy teaching practices revolved around their respective prevailing mindsets. This finding was supported by three subfindings: "participants' mindsets can be represented by a continuum; teachers' mindsets influenced their expectations and teachers' mindsets influenced their change related decisions." The first subfinding points to the range of participants' attitudes and beliefs about themselves and technology and is important for understanding the variations in participants' explanations of changes not made. The first subfinding points to the extremes of loving or hating technology, the second subfinding reflects the relationship between mindset and propensity to change while the third subfinding speaks to the connection between teachers' mindset and their change related decisions. These subfinding underscore the power of mindset in terms of participants' perceptions, decisions, and explanations of change related decisions.

The third finding for RQ2 is expressed through Theme 3: "Most participants in the study perceived technology as a method of learning rather than an instructional tool." This third finding is closely related to the previous finding and expresses that participants' activities during the project were closely determined by their views and expectations of technology as a method of learning versus as a tool to be used and manipulated. Anna had expressed her expectations when she had declared that "technology will help us" and "how excited children are when they see the technology

and are able to use it. I see how learning can be fun." Barbara had also admitted that she had seen the project as a "more technology way of getting the students to learn" and that "at every point that we could put technology, we would put it there." Ella had expressed that she saw technology as a fun method to enhance learning as evidenced in her statement that, "they [children] would use it and they will learn from it, and they would have fun learning. I know that." These and other expressions provided evidence for the finding that most participants explained changes not made through their view of technology as a learning method rather than a tool for teaching and learning.

The third finding is supported by two subfindings. The first subfinding, "teachers' misconception of technology led to unrealistic expectations," is about teachers' apparent perception of technology by itself as a method for addressing learning gaps. This subfinding leads to the second subfinding, "teachers' misconception of technology negatively impacted their change related decisions," which highlights how misconceptions lead to inappropriate responses and drive their explanations of the changes not made to their literacy teaching practices since the TIS project concluded. Both these subthemes point to the chain reaction of misconceptions serving as barriers to change.

The fourth finding for RQ2 is also encapsulated in Theme 4: "Although student use of the tablets to better engage the aspects of language necessary for improving their literacy was a key goal of the TIS project, teachers and parents instead used the tablets for fun and other personal goals." Participants shared how they used the computer tablets for research, monitoring students, motivating students, and assessment, among other

administrative activities (see Table 3). Lana-B and Isaac-D shared that the children and parents used the tablets “to go on all sort of sites,” (Lana-B) and “they want to do other things, find games and go on other websites and so forth” (Isaac-D).

In response to RQ2 the teachers explained the changes not made to their literacy teaching practices through their and others’ use of the computer tablets for activities other than for literacy teaching. Like the other major findings, this finding is supported by subfindings that indicated ways in which teachers and parents used the tablets for personal purposes. The first subfinding is that “most teachers used the tablets for personal and administrative matters more than for literacy teaching activities.” This subfinding is significant for explaining changes not made because it points to the distractions that served as barriers to change. The second subfinding,, “most parents misused the devices for personal purposes” also treats distractions that hinder change, but this time in relation to parents as stakeholders in their children’s literacy development. Hence, this subfinding has implications for how teachers explained changes that they did not make to their literacy teaching practices.

Summary

This basic qualitative study explored the perceptions of 13 Jamaican teachers’ regarding the impact of the TIS project on their literacy-teaching practice and was guided by two research questions. In this chapter, I described the research setting and participant demographics as well as the processes I utilized to collect the data. I shared detailed descriptions of the interview process including practice interviews that helped me refine my interviewing skills, ethical considerations that guided the process, timelines and

strategies for recording and transcribing the interviews. I also outlined how I utilized the MAXQDA software and Saldaña (2016) recommendations to conduct three cycles of coding. In addition, I described how I transitioned from coding to categorizing to theming, thereby arriving at the results for each research question.

The data yielded four main findings that were communicated through four themes outlined in earlier sections. Each of the main findings was further supported by important subfindings. Table 7 provides a summary of the results for each research question as derived from the themes, findings, and the supporting subfindings.

Table 7

Summary of Results Transitioning to Findings

Research questions	Themes	Key findings	Subfindings
How do primary school teachers in Jamaica explain any suggested innovation changes made to their literacy teaching practices since implementation of the TIS?	Participants who operated in supportive, collaborative environments were more prone to change.	Teachers explained changes made to their literacy teaching practices since the TIS project by way of the nature and quality of the support experienced within their school contexts.	Some participants operated in more supportive contexts than others. Supportive contexts fostered the emergence of leaders who influences peers to change.
How do primary school teachers in Jamaica explain any suggested innovation changes not made to their literacy teaching practices since implementation of the TIS?	Most participants in the study entered the TIS project with fixed yet polarized mindsets.	Teachers' explanations about changes not made were determined by their prevailing mindsets.	Participants' mindset can be represented by a continuum. Teachers' mindset influenced their expectations.
	Most participants in the study perceived technology as a method of learning rather than an instructional tool.	Teachers' explained changes not made through in terms of view of technology as a learning method rather than a tool for learning.	Teachers' mindsets influenced their change related decisions. Teachers' misconception of technology led to unrealistic expectations.

Table Continues…

	Although student use of the tablets to better engage the aspects of language necessary for improving their literacy was a key goal of the TIS project, teachers and parents instead used the tablets for fun and other personal goals.	Teachers explained the changes not made to their literacy teaching practices through theirs' and others' use of the computer tablets for activities other than for literacy teaching.	Teachers' misconception of technology negatively impacted their change related decisions. Most teachers used the tablets for personal and administrative matters more than for literacy teaching activities. Most parents misused the devices for personal purposes

The descriptions, explanations and supporting evidence from interview transcripts that I have provided in this penultimate chapter have laid the foundation for the interpretation of findings that will be treated in Chapter 5. In the final chapter, I will also address the limitations of the study, provide recommendations, explore the implications for positive social change and present my conclusions for the study.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this qualitative study was to understand teachers' rationale for changes to literacy teaching practices that were and were not sustained beyond the life of the initial TIS project in Jamaica. I utilized a basic qualitative design with interviews as the main data collection source (see Caelli et al., 2003; Kahlke, 2014). I chose this design because, while it conforms to none of the established methodologies, I was able to draw on the strengths of several, including case study and phenomenology. Through this methodological design, I was able to develop a rigorous interview protocol for conducting interviews and collecting useful data as well as focus my data analysis procedures throughout the coding, categorizing, and theming process.

Innovations are a natural feature of the education landscape and are geared towards improvements in student achievement and in educational practice. However, innovations in any sphere do not always fulfill the expectation of generating positive and sustainable social changes in terms of improvements to practice. As an educator of almost 40 years, with experience across primary, secondary, and tertiary levels, I have seen many educational innovations in my small nation state of Jamaica. Additionally, my work as a teacher educator has brought me even closer to educational innovations given that teacher education institutions are often called upon to provide training to potential innovation participants. Sadly, too often there is little or no sign that these innovations took place because participants often return to their preinnovation activities once the projects have ended. These experiences have propelled me to seek to understand, from

the teachers' perspectives, why changes that occur during education innovation projects often do not last beyond the life of those projects.

This study yielded four main findings and nine subfindings in relation to the two research questions that guided the study. The main finding for RQ1 was that teachers explained changes made to their literacy teaching practices since the TIS project by way of the nature and quality of the support they experienced within their school contexts. Participants' views of their schools as supportive environments contributed to their decisions and actions regarding altering their literacy teaching practices. In addition, and as indicated by the first subfinding for RQ1, support varied in form and source across contexts. Participants reported that support came from external sources such as the project organizers, parents, and sponsors as well as from internal sources such as colleagues and the school administration. The second subfinding showed that supportive school environments fostered the emergence of leaders from within, and that these leaders became influential in motivating their peers to adopt and sustain novel literacy teaching practices.

The data provided three key findings for RQ2. The first key finding showed that the teachers' prevailing mindset influenced their response to the project and helped explain the changes not made. Based on the subfindings for this main finding, the teachers' mindset varied across a continuum and clearly influenced their expectations of the project in raising literacy levels. The second major finding showed that teachers misconceived technology as a teaching method rather than an instructional tool. This misconception caused the teachers to have unrealistic expectations about what technology

can do by itself and prevented some participants from recognizing the role they needed to play in terms of adapting the tool into their literacy teaching practices. The third finding was that teachers, parents, and students tended to use the tablets more for personal purposes than for literacy teaching and learning. This finding showed a predominance of teachers' use of the computer tablets for administrative and personal matters such as for assessment, class control, communication, and record keeping while parents used them mostly for entertainment.

These findings and subfindings have laid the foundation for the next section, where I discuss my interpretation of the findings. After the interpretations, I describe the limitations that impacted the study, the recommendations for further research, the implications for positive social change, as well as the methodological implications. The chapter ends with a conclusion that communicates the lessons learned and captures the key essence of the study.

Interpretation of the Findings

Interpreting the findings of a research study involves reviewing the data to make meaningful sense of the results and exploring the extent that what was discovered confirms or extends knowledge in the field. It entails comparing the findings with previous studies and within the context of the foundational theories of the conceptual framework used, while recognizing any limitations and implications, and making recommendations for further research. This section focuses on my interpretation of the main and subfindings within the context of the conceptual framework and the literature review that were described in previous chapters. My interpretation of the findings is

guided by the categories and themes that were derived from my analysis of the data and provides the basis for drawing conclusions and making recommendations.

Study Findings Within the Context of the Theories and Conceptual Framework

The conceptual framework of this study was built around Lewin's (1947) theory of change and Rogers's (2003) diffusion of innovation theory. Together, these theories provided a basis for understanding the forces that either stimulate change or hinder it from happening. Both theories presented change as a process of sequenced stages. The conceptual framework for this study created a textual and visual representation incorporating the influences of both theories during the implementation of the TIS project. It comprised three main components: *input, teachers,* and *change*.

Input

Four main results, each with two subfindings, were derived from the data. The main finding for RQ1 related to the teachers' explanations of changes made to their literacy teaching practices, based on the support they experienced within their respective school contexts. Here, the teachers' explanations of the changes they made indicated a probable relationship to the nature and quality of support they received, often from emerging and supportive change leaders within their school district. Lewin (1947) theorized that the unfreezing phase of the change process is a time of letting go of old ways, increasing awareness, and becoming open to new possibilities. Similarly, Rogers (2003) described the early stages of the change process as a time of attitude formation and becoming more open to change based on increased awareness through knowledge acquisition. Therefore, change leaders who emerged within School B became an

important link between the implementers (other teachers) and the innovation. As implied by Ranjan and Witter (2020), these change agents helped to communicate and confirm the benefits and utility value of the TIS project and thereby motivated their colleagues to let go of old habits and embrace new practices.

Some participants shared details of how the training and technical support they received before the start of the TIS project served to build their capacity in the use of tablet computers for literacy teaching. Training and technical support also fostered an awareness of the goals and potential of the project for enhancing literacy teaching. One participant from School B shared that:

> A lecturer came in and she would show us how to integrate the different apps into our lessons and how to download, how to use it on the tablet, how to put it on the tablet. We had to do a demo and present in small groups just to show her how we were going to be doing it in our lesson.

At School B, participants' perception of the quality and benefits of the support they received for training and resources served to promote their readiness for change. The details provided by all four participants confirmed that they found the training useful and exciting; they gained new knowledge that encouraged useful attitude formation as they began to unfreeze old habits. Ultimately, these were the same teachers who followed through to bring the skills learnt forward into their practice.

On the other hand, most participants from School A expressed discomfort and dissatisfaction with the quality of the support they received at the start and throughout the project. For Diana-A, training was not as positive an input as she needed, and she did not

benefit much. She felt that the training did not meet her learning needs because it was presented as one size for all. This sentiment was evidenced in her declaration that "Some people are not as fast as some. We all have different learning styles…we are teachers and still a learner. I was left in the air floating." Diana-A's experiences with training negatively impacted her capacity to unfreeze and form a positive attitude towards the TIS project, resulting in little desire or capability of adopting new literacy teaching practices.

Participants in other schools shared similar perspectives about the effectiveness of the training in terms of preparing all participants for the project. Hannah-B expressed her concern about the effectiveness of the training for her colleagues:

> The training wasn't bad, but it was a bit lengthy, but it wasn't bad. But then I think that for some persons, they needed more time, because it was like a rush, and then it was broad… like the training wasn't really about tablets. It was more a sensitization, like you know, introduction to computer. Yes, there was a little thing about tablets, but not a lot**.**

In their examination of Lewin's theory, Burnes and Bargal (2017) and Wojciechowski et al. (2016) recognized the theory's usefulness for explaining transformation in practice and implied that learning new skills is an important aspect of the change process. Therefore, participants such as Carole-A, Diana-A, Jack-C, and Isaac-D, who expressed that they did not benefit much from the training, struggled to learn the skills that would foster change in practice and were therefore less prone to adapt. Differences in participants' perception of and response to training and technical support prior to the start of the project impacted participating teachers' ability to unfreeze

and form positive attitudes towards change at the *input* component depicted by the conceptual framework. Hence, the nature and quality of support experienced during the early phase of the change process strongly influenced potential adopters' change-related decisions throughout subsequent phases of the TIS project.

For RQ2, the results revealed three major findings, two of which bear relevance for the input component of the conceptual framework. Participants' explanations of changes not made to their literacy teaching practices were often based on their prevailing mindsets with which they entered the TIS project, especially as they related to misconceptions about technology, supporting the proposition of Obiri-Yeboah et al. (2013) that even when potential adopters are aware of the usefulness of an innovation, their attitude can serve to discourage adoption. The results showed that, while there were some participants who recognized technology as a tool for enhancing teaching and learning, several others viewed technology as a having the capacity to "make teaching fun," and, somehow, all by itself, "help students learn" and "help us to bring up the literacy," even without the input of the teacher.

Some participants claimed to "love technology" and to be "super excited" to get involved, while some expressed a fear of technology and doubts about their technological capabilities. Carole-A demonstrated this negative mindset clearly when she said, "I have a fear of technology. Yes! And I'm not technologically inclined… so hearing that this tablet… I'm scared… much fearful." Fiona-D also noted the fear among her peers when she shared how difficult it was to coach them. She stated that some teachers refused to go to the smart room and use the devices to support their teaching "because of fear of the use

of technology." Ultimately, as indicated by Gordon and Job (2022), personal factors such as mindset, attitude, and self-efficacy impeded some of the participants' propensity for change in terms of them accepting and adopting new teaching practices that were implemented under the TIS project.

In this section, I interpreted three of the four main findings in the context of the input phase of the conceptual framework and highlighted the similarities and differences among participants' experiences during the preparatory phase of the TIS project. From a theoretical standpoint, the data revealed connections among participants' knowledge, attitude formation, and decisions about the project and the implications for their potential to unfreeze and dispel with old teaching practices in preparation to adopt novel ones. The data also highlighted different manifestations of input from external sources such as e-Learning Jamaica, Samsung Group, the Ministry of Education, and parents. Input from these sources included computer tablets and smart rooms, training, apps, and programs as well as technical and financial support.

Input from internal sources, such as the school administration, included assigning supervisory duties to specific teachers as occurred in Schools A, B and D, and allocating space to accommodate charging ports and device storage. The participants themselves were an integral part of the input phase because they brought their attitudes, competencies, and preferences into the process. Together, these manifestations of input from different sources influenced participants' perceptions about the project and their own readiness for change and ultimately their response to the TIS project during the input component and subsequent components of the conceptual framework.

Teachers

This second component of the conceptual framework represents the implementation stage when the teachers were heavily involved in the implementation of the TIS project. This is the stage of key decision-making (see Rogers, 2003) underpinning one's plan for behavior change (see Lewin, 1947). Still, as the central component of the conceptual framework, it represents the conceptual bridge between unfreezing and refreezing (Lewin), attitude formation and adoption (Rogers). Thus, in relation to the findings for RQ1, participants provided details of how support was manifested in their individual schools as they were engaged in various aspects of the project. Barbara-B shared how the Jamaican Ministry of Education helped her school to acquire apps to support literacy teachings: "We would have to look for different apps that we think will fit the age group and then we send them to the Ministry, and they are approved and come back to us." As expressed by Barbara-B, participants at School B also collaborated with other stakeholders to provide support for other teachers who needed scaffolding:

> I'm responsible for selecting the apps for the age level because I'm the senior teacher for my age group at my school. So, I had to go home, go through the apps… We had an IT group… persons responsible for taking care of the IT at our institution. So, it's made up of two teachers, me, Ms. RH, parents, PTA representative and community representative. So, they would come in and assist the teachers who weren't quick with the technology, and they would give ideas of what we can do.

Fiona-D shared how, at School D, the sponsors assigned two representatives to continue working with the coaches and teachers. The representatives were not teachers but were technology experts: They provided technical support for approximately 2 years during the project. Georgia-D corroborated Fiona-D's account of the situation when she declared that "Oh, there was always somebody resident in the room by the way…a technology person who would oversee things." While the support from these technology experts at School D was reassuring for the participants, an unintended consequence was that some of the teachers there became overdependent and often transferred their literacy teaching responsibilities to the coaches and representatives. This overdependence on the sponsor representatives prevented some participants from recognizing and taking advantage of opportunities to develop the skills they needed to become confident and operate independently.

Elsewhere, some participants did not always feel supported: Diana-A, who had misgivings about the effectiveness of the training she received at the start, admitted that she needed more support: "Some things I never knew and sometimes… trial and error. You know, sometimes people show me … even the students."

In School B, where participants expressed being most supported, a system of internal support developed, with some teachers becoming change agents who promoted and encouraged the shift to alternative literacy teaching practices. The emergence of internal leaders who became change agents within one school fostered receptivity to innovation (see Dearing & Cox, 2018). Change agents such as Barbara-B promoted and

encouraged her peers to embrace change through her active involvement and her growing competence:

> I shared with everybody what I did, and if they wanted to do the same thing, I go to their class, and I show them how to do it, or did it for them, and then give like an example of what I did in my class, so they can get to see what I did, and then let them start from there.

Kera-B corroborated when she also explained that:

> What would happen is that each teacher helps each other. So, if I wasn't sure… I could go to another teacher, and she could like, you know, she might be more versed than me and you know, so we could do it. And we learn, and we get to understand. Cause eventually, you know we got it. We got it… eventually we got it.

In comparison, at School D, private sponsors provided training, resources, and technical support deep into the life of the project. Yet, Fiona-D expressed her frustrations as she spoke of the burdens she experienced as a coach in giving support to some of the older teachers who struggled with technology. She declared that those teachers "wouldn't even find any activity for the topic that is being taught. Most of the time the work was left up to me to be done." Based on Fiona-D's comment, she too, needed more support to handle situations where participants were resisting and not as involved as expected.

At School D, two smart rooms had been created and equipped with servers and computer tablets for students, as well as a master tablet for teachers. Fiona-D shared how she was able to keep students on task because, "in the smart room… we have a tablet that

the coach uses. When I take up that master tablet and I click that link, I know that everybody is watching what I click." Ella-C shared that at School C, a smart board was installed in the library; each classroom had a white board and there were projectors available to support teaching and learning during the project. The facilities that had been created and maintained by Samsung at School D provided opportunities and the environment for trialability (see Marak et al., 2019). Some participants in School D were enticed by the facility and were open to checking out the possibilities for literacy teaching.

Based on Lewin's (1947) theory, the supportive context in which teachers at School B operated helped them to embrace alternative ways of literacy teaching. The participants at School B were better positioned to recognize the benefits of change and were less influenced by debilitating forces, such as fear of technology. From Rogers's (2003) standpoint, this same context engendered the development of a positive attitude towards incorporating computer tablets in literacy teaching practices. It also fostered the emergence of leaders who were sold on the idea of change in literacy teaching practices and who became change agents within their schools. Barbara-B's emergence as leader and change agent in School B was significant for promoting changes to literacy teaching practices among her peers. In fact, Barbara-B's influence as a change agent extended beyond School B because, in her words, "not only that I helped teachers at my school, but I also went on to help teachers at other schools." Change agents, like Barbara-B, whose influence as a teacher implementer was significant during the TIS project and beyond,

was critical to the success of the implementation process for confirming and legitimizing change related decisions (see Ranjan & Witter, 2020).

The findings for RQ2 are relevant for the *teachers* component of the conceptual framework. Some participants' mindset and misconceptions about technology limited their capacity for recognizing and utilizing novel approaches to literacy teaching and learning. A typical example is Jack-C who confidently declared that "with technology all you need to do is to find the information and to share with the kids" and, "with the tablets in school now, you're just selecting, choosing … identifying, selecting, choosing." These utterances clearly communicated his misconceptions that technology, in and of itself, with little or no effort on his part, can address students' learning needs. Based on research on the application of Rogers's diffusion of innovation theory in different contexts, Dintoe (2019) concluded that the more potential adopters understand an innovation, the less they fear change and the more likely they are to adopt new practices. Hence, considering Dintoe's conclusion, Jack-C's misunderstanding of the role and power of technology prevented him from recognizing opportunities to change and utilize computer tablets as teaching tools within his literacy teaching practices.

The third major finding for RQ2 that is related to the second segment of the conceptual framework showed that, most of the study participants as well as parents and students used the computer tablets more for extracurricular or extraneous activities than for literacy teaching or learning. Several teachers shared how they utilized the computer tablets to "find new ideas of how you can do assessment in class," "get deeper in technology," "as a reward," "play games," and "modify the behavioral aspect of it." They

shared how students used the tablets to play games, complete assessments, and watch videos. The participants also shared how some parents misused the tablets and uploaded inappropriate content from time to time: “More than one parent took them away and when you sent for them, they had adult stuff on it.” Stakeholders use of the tablets for personal purposes operated contrary to the aims of the TIS project and prevented them from recognizing the purpose and value of the project as a mechanism for fostering changes to their literacy teaching practices (see Dearing & Cox, 2018).

The findings showed that the participants’ experiences and change related decisions associated with the second component of the conceptual framework were largely a factor of their experiences and perceptions during the input component. Where participants perceived the inputs to be valuable and of high quality, their willingness to experiment was greater. Conversely, participants whose experiences and perceptions of the early stage of the project were less satisfying, tended to be more reluctant to adjust and try new ideas.

Output

This final component of the conceptual framework encapsulates both Lewin’s (1947) third stage, *unfreeze,* and Rogers’s (2003) fifth stage of the change process, *adoption/confirmation,* as represented by their theories. *Output* depicts new literacy teaching practices that participants brought forward after the TIS project officially ended. In response to RQ1, some participants, especially those from School B, explained how the support they received from internal and external sources throughout the TIS project motivated them to adjust their literacy teaching practices and embrace a new norm. At

School B, participants shared how their principal instituted a contract system to keep the tablets safe. Parents who wanted their children to take the tablets home had to sign the contract: "You must have a contract," stated Lana-B. "The contract was to protect the tablets…if you break the screen, then you [parent] must buy it back." Participants from School D shared that they "got donations over time." Based on the participants' accounts, Schools B and D possessed the infrastructure needed to preserve the devices, the reliable internet connection, and the internal leaders who motivated their peers. Hence, as posited by Hou (2017) and Fleisch (2016), the social factors at work within these environments were more conducive to facilitating the change process from awareness through adoption.

Participants' accounts also showed how support from the Jamaican government, E-Learning Jamaica, the Samsung group, parents' and teachers' associations (PTAs), and school administrators created access and opportunities for them to learn and practice. Barbara-B was animated when she paused to demonstrate how the *Jolly Phonics* app was still being utilized at her school. She shared how teachers at School B prepared for teaching literacy with support from different apps:

> What is it that we want the children to do? So, there and then, in the planning session, we would select the specific apps; make sure that the teachers know how to use them, make sure they are on the students' tablets before we leave for the day.

Her colleagues corroborated each other's account about their integration of appropriate apps for literacy teaching and shared how the practices they developed during the TIS project made it possible for them to transition smoothly to online teaching during the

COVID pandemic. Hence, the skills learnt and utilized by participants at School B during the TIS project are still being refined and utilized for literacy teaching today. These accounts support Dintoe's (2019) position that having access and opportunity to practice enhances the probability of adoption of new ideas and practices. Additionally, according to Fleisch (2016), where participants had sufficient resources, the chances of success and sustainable change to literacy teaching practices were greater. Therefore, at School B, all the participants attested to still using apps they were introduced to during the project, they still collaborate to find and share activities for enhancing students' literacy skills, and they still use the tablet computers to support teaching and learning, not just for literacy. However, participants at School B have also admitted to reverting to pre-TIS practices such as those mentioned by Barbara B: paper-based instructional materials, table-top activities, and hands-on practice with manipulatives.

All participating schools had internet access during the TIS project. Diana-A shared that at School A, "there was internet all over" during the project. However, since the project ended, reliable internet has not been available across campus for most schools, even though the Ministry of Education had provided internet plans for schools. In Schools A, C, and D, internet connections were less stable after the project ended, thereby placing limits on teacher's ability to apply internet related teaching- learning activities.

By the time the TIS project ended, most participants had begun to experience diminishing returns in terms of support and resources. Many of the computer tablets and support resources had stopped working, tablets could not accommodate updates, some

could not be charged, and others had electrical issues. Even the better-quality tablets assigned to School D had issues according to Georgia-D: “The batteries were swelling…And we found that the tablets at the time were not opening.” There was a similar situation at School B as Kera-B pointed out: “they [the tablets] started to malfunction and they’re just not working. A lot of them just shut down.” At School D, the smart rooms were gradually repurposed, and coaches were returned to the regular classroom duties.

Based on the third component of the conceptual framework, the data revealed that output varied across and within schools. The data showed that the most consistent evidence of *refreezing* was apparent at School B where participants corroborated that they were supported by internal and external stakeholders throughout and beyond the project, and there were more teachers who were openminded to the project. Kera-B shared about the Education City app: “We use it every day, every day, every day,” and Lana-B confirmed that: “I learned from that project. It makes you more techno savvy. Learned new ways of doing things.” These new things are manifested in the ways teachers at School B now integrate the *Jolly Phonics Apps* into their everyday literacy teaching practices. This integration was possible because the school administrators, with the support of the PTA, have invested in the full version of the app so all features are now available to all students and teachers across the school.

By all accounts, Schools A, C, and D bore little evidence of positive output in terms of sustainable change to the teachers’ literacy teaching practice. As far as Jack-C was concerned, one new practice that he brought forward from the TIS project was that

he was now able to “find more information readily.” Georgia-D’s literacy teaching activities are not as deliberate as during the project, but she admitted that:

> There's something about a screen...Once it is displayed on a screen, nonreaders make the effort, and they participate. And so, they end up getting something from the lesson. So, because of that, I just try to incorporate it as best as possible.

For the most part, participants have explained that diminishing support, personal preferences, competences, beliefs, as well as their own perceptions about technology have prevented them from adopting new literacy teaching practices. Hence, based on the conceptual framework and the guiding theories, the process of change is driven by several factors that impacted potential adopters’ experiences and fueled their change related decisions.

Interpretation Within the Context of the Literature

In this study, I defined literacy teaching practices as all the activities that literacy teachers engage in as they prepare, implement, and assess their literacy lessons. This working definition of literacy teaching practices was coined from Santrock’s (2018) perspectives on effective teachers, and Hunter and Rasmussen’s (2018) definition of teaching practices. In the current study, participants highlighted practices as they prepared lesson plans to support literacy teaching and learning by collaborating with colleagues to identify and select suitable resources and activities for teaching specific literacy concepts. Participants shared their practices during literacy lessons such as having students read stories, write responses to questions posed, reproduce sounds they listen to on different apps, match pictures to their names, and so forth. For assessment,

the participants also shared how they used worksheets, games, and paper and pencil tests to check for learning. The data revealed that only a few adjustments were made to the participants' literacy teaching practices since the TIS project while highlighting the various factors accounting for the participants' change related decisions.

The main finding for RQ1 stated that teachers' explanations of changes made to their literacy teaching practices since the TIS project ended, were centered around the nature and quality of support they experienced within their school contexts. The report from Hannah-B was that:

> The provider that we got, they were really, really good, because if we had any issues, they tried to sort it out. They worked with us immensely through the process and everything. So, it was… It was good.

The literature suggested that support from internal and external sources enhanced the success of innovations (Buć, & Divjak, 2016; Fleisch, 2016; Gordon & Job, 2022; Rai & Deng, 2016; Serdyukov, 2017; Shalem et al., 2018). These researchers cited manifestations of support in terms of availability and accessibility of supporting resources, training to promote awareness and eLearning readiness, supportive coaches, and mentors. The data from this study confirmed that all the participants received support from both internal and external sources, but differences in the nature, quality, and consistency of support across schools caused teachers in School B to be more inclined to adopt new literacy teaching practices than teachers from the other schools. Additionally, the supportive environment which existed at School B engendered the emergence of

internal leaders who became change agents who promoted adoption within their school district (see Ranjan & Witter, 2020).

The first main finding for RQ2 showed that teachers' prevailing mindset influenced their explanations of changes not made to their literacy teaching practices since the TIS project. This finding confirmed that even if potential adopters are fully aware of the value of an innovation, their reluctance to change is influenced by their attitude and mindset (see Obiri-Yeboah et al., 2013). This finding also confirmed that teachers' teaching practices are largely a factor of their personal interests, perceptions, and experiences (Darling-Hammond, 2006). In addition, this finding explained why many of the older, more experienced participants tended to continue the literacy teaching practices they had before the TIS project. Mark-C succinctly summed up his perspective of the debilitating influence of mindset on the change related decisions of older teachers at School D when he said:

> They're not accustomed to it. They didn't have that progressive mindset I believe. So, they were somewhat fixated on what it was that they were accustomed to doing. This drastic change, and you know, using the whole online modality and all of that. That was a challenge for them in terms of using the tablets in school.

The second main finding for RQ2 revealed that the teachers' explanation of changes not made to their literacy teaching practices since the TIS project resulted from their flawed view of technology as a method of instruction rather than as an instructional tool. This finding confirmed the disconnect between perception and reality as purported by Cristia et al. (2017) and Hany (2020). This second finding for RQ2 indicated that

where participants believed that the computer tablets, by themselves, would improve their students' learning, the chances of them experimenting with new practices were reduced. The data in this study therefore confirmed that the teachers' feelings about new technology were based on their technological competencies and what they believed they knew about technology (see Potgieter, 2004). Hence, as reported by Howard and Gigliotti (2016), the differences in participants' feelings about the new technology, and change in general, caused them to respond differently. Those with positive feelings and attitudes were more prone to experiment and change, while those with negative attitudes towards technology were less prone to adopt.

In relation to the third major finding for RQ2, participants' explanation of changes not made were linked to their and other stakeholders' use of the computer tablets for activities other than for literacy teaching and learning. This finding is reminiscent of the Paraguayan OLPC project where there were reports of inappropriate tablet use (see Ames, 2019). The data in the current study showed that teachers, students, and parents used computer tablets for personal purposes more than for literacy teaching and learning. Participants shared how the tablets were utilized to motivate students' compliance with rules and as a reward system for good behavior or for completing assigned tasks unrelated to literacy instruction. Some participants shared how parents misused the devices and uploaded inappropriate sexual content for their own pleasures, and how students used tablets to play games that did not necessarily have relevance for literacy teaching and learning. Carole-A felt that some of this situation could have been avoided and suggested that:

> You could have a training for the parents. Calling the parents… tell them the stipulations…typically, what this thing is about …what the tablets is about for the learning process. Have some seminar going with parents before you introduce… before you give it out to the schools. For that parent would have knowledge before we just dash it on them like that. Because remember, you know, you must bear in mind that they're parents of different levels. We are trying to reach everyone. Cause some parents are illiterate…you know.

This third finding therefore confirms the proposition that there must be clear guidelines if stakeholders are to use the devices and apps in a manner that fosters and supports literacy learning (see Neumann and Neumann, 2017).

In this section I analyzed the results in relation to the literature that I reviewed in Chapter 2. Based on that analysis, I compared key elements within the literature with specific findings from my current study. Table 8 provides a summary of this comparison and highlights specific elements within the literature that have been confirmed by the findings of my study. The table shows six elements within the literature that have been confirmed by the findings. For instance, the findings confirmed the position of several researchers that supportive environments are more conducive to success in innovation (see Buć, & Divjak, 2016; Fleisch, 2016; Gordon & Job, 2022; Rai and Deng, 2016; Serdyukov, 2017; Shalem et al., 2018). The table also shows where this current study has provided new insights other than those exposed in the reviewed literature: it highlights one element that represents an extension to the body of knowledge. This seventh element

indicates that the collective forces of factors within specific change contexts is more influential than any single factor in the process of change.

Table 8

Findings From the Reviewed Literature Addressed in the Current Study

Findings	Element	Status	Source
Teachers explained changes made to their literacy teaching practices since the TIS project by way of the nature and quality of the support experienced within their school contexts.	Supportive environments enhance the success of innovations.	Confirmed	Buć, & Divjak (2016); Fleisch (2016); Gordon & Job (2022); Rai and Deng (2016); Serdyukov (2017); Shalem et al. (2018).
	Change is situated and defined by the specific contexts in which it occurs.	Confirmed	Child (2015); Rosenbaum et al. (2018),
	Change leaders/agents motivate others to change.	Confirmed	Ranjan & Witter, (2020)
Teachers' explanations about changes not made were determined by their prevailing mindsets.	Attitude and mindset influence potential adopters' change related decision.	Confirmed	Obiri-Yeboah et al. (2013) Darling-Hammond, (2006)
Teachers' explained changes not made through in terms of view of technology as a learning method rather than a tool for learning.	Misconceptions foster unrealistic expectations and negative change related decisions.	Confirmed	Cristia et al. (2017); Hany (2020); Howard & Gigliotti, (2016); Potgieter (2004).
Teachers explained the changes not made to their literacy teaching practices through theirs' and others' use of the computer tablets for activities other than for literacy teaching.	Absence of clear guidelines and monitoring encourage misuse of devices.	Confirmed	Neumann & Neumann (2017)
	The effect of multiple factors combined is more significant than the effect of individual factors on teaches' change related decisions.	Extend	

Limitations of the Study

I encountered a few limitations during my journey in conducting this study. One of the first challenges was that it took me several weeks to get consent from the principal and teachers from one of the participating schools. Each time I tried to reach the principal she was either out or in a meeting, causing me to lose valuable time and delayed the IRB approval and data gathering processes.

A second limitation was manifested in the fact that the participants struggled to remember details about the TIS project because of time passed. The fact that another tablets project occurred during the COVID pandemic compounded things and caused some participants to be a bit confused. I had to start each interview by reminding them of the distinction to ensure that they focused on the right project. I believe that if I had conducted my study sooner, the participants' memories would have been more on point.

One of my greatest challenges was related to my familiarity with using MAXQDA, the qualitative data management software. Even though I watched the orientation videos, it took me several attempts before I was able to successfully code and organize the data using the software. I found it useful to support my data analysis with Microsoft Excel, with which I was more familiar. Hence, I exported the coded segments to Excel and was able to better manipulate and reorganize the data to reveal the critical areas that supported my findings.

Another challenge that I faced was in the conduct of member checks. Even though I sent their respective transcript to each participant for review and feedback, only one participant responded to highlight areas that needed minor adjustments. I would have

preferred that everyone had responded, but they did not. However, I shared some transcripts with my dissertation Chairperson and used the feedback he provided to guide my interactions with the other transcripts as I extracted the findings. In retrospect, perhaps, I could have returned to the schools to meet with the participants at their convenience to ensure that they reviewed their transcripts, so there would be no doubts.

Recommendations

The main recommendations emerging from this study are connected to my concerns about the nature and quality of support that are available for potential adopters before, during, and after innovations are implemented. I suggest that sponsors and organizers of innovation in education be more deliberate and consistent in this area. The TIS project of 2014 was designated to be a pilot project and there were 52 institutions across Jamaica that were involved in the project. I believe that a smaller number of institutions would have put less strain on the resources and allowed for more high-quality support to be available to schools for longer periods. The teachers in these pilot schools would have therefore been better poised to adopt novel literacy practices and later contribute to the diffusion of innovation process by sharing their knowledge, experiences, expertise and success stories with colleagues in other schools.

My second recommendation is based on the ideas communicated by Diane-A when she lamented that the training did not meet her learning needs. For other projects going forward, I recommend that the project organizers and sponsors first conduct a diagnostic assessment of potential participants' training needs to facilitate differentiated instruction that taps into their specific learning needs. One benefit of this approach would

be that participants would be more motivated to learn the information and incorporate it into their practice because it taps into their specific training needs. Additionally, those participants who have fewer learning gaps could be exposed to more advanced information or be engaged in the training process to help their peers get started.

I am also suggesting that there be further research that involves other schools outside of the cooperate area that participated in the TIS project. The current study is limited in its focus on four cooperate area schools. I am also recommending that an evaluation of the TIS project be conducted by the project organizers. Even though so many years have passed since the TIS 2014 project was implemented, I believe that there is still value in conducting a formal evaluation to determine the extent to which the project goals were met. There are many lessons to be learnt from program evaluation, and these lessons can inform decisions about future educational innovations.

Outside of a formal evaluation, there is scope for academic research that utilizes a larger sample of schools and teachers from other schools across Jamaica and another methodological framework such as mixed methods. A study of this nature might yield different and more precise understandings of teachers' perception of the impact of the TIS project on their literacy teaching practices. Additionally, I believe it would be useful to employ additional data gathering techniques such as observation, and document analysis of teachers' lesson plans, before and since the project, to provide a basis for comparing participants' literacy teaching practices through time.

Parents are critical stakeholders in the education process; but their involvement in educational innovation such as the TIS project is often incidental and inconsistent. I

believe that parental involvement in educational innovation should be deliberate. Project organizers must target parents for training and orientation, conduct inventories to identify the skills that parents bring to the table and make use of those skills at different points in the project where possible. When parents understand the nature and aim of an innovation, and feel that they have something meaningful to contribute, they will be more likely to buy in to the cause and respond positively and productively.

Finally, I am suggesting that future projects like the TIS 2014, need to be supported by clear guidelines and protocol so that participants have a clear grasp of the aims of the project and their roles as chief implementers. These guidelines should also be communicated to other stakeholders such as parents and community members. In addition, the project organizers must ensure that there is a mechanism for consistent and regular monitoring of project related activities so that participants remain focused throughout. Perhaps the Ministry of Education can collaborate more with the teacher education institutions across the country to provide the human resources and technical expertise needed to facilitate consistent, and high-quality monitoring of projects such as these.

Implications

The implications for positive social change emanating from this study are profound and may impact future educational innovations in Jamaica, and other small nation states across the Caribbean that seek to enhance the quality of literacy teaching and learning. This study is the first research endeavor to examine the impact of the TIS's 2014 project in Jamaica. Even though the study was focused on the perspectives of select

literacy teachers from a small group of schools in Jamaica, the results are valuable for understanding how innovation in education impacts changing teaching practices beyond the ambit of the research.

This study contributes to positive social change because it focused on understanding change from the perspectives and experiences of teachers who, as implementors, are key players in educational innovations. The insights gained provide guidelines for addressing potential pitfalls that may impact future innovations in education. The results also serve as a signal to stakeholders in education, including teacher education institutions, regarding how they might contribute more to enhancing the success of future innovations in education.

The results of this study serve as a measure of the status of literacy teaching and learning in Jamaica. The study also highlights gaps that may prevent the achievement of the first Vision 2030 goal of Jamaicans being empowered to realize their fullest potential or attain the second national outcome of world class education and training. Ultimately, this study points to Jamaica's role and progress in achieving the United Nations Sustainable Development Educational fourth goal of "inclusive and equitable quality education and promote lifelong learning opportunities for all (UNESCO, 2015, p. 284).

Conclusion

The key findings of this basic qualitative study provided insight regarding Jamaican teachers' perceptions of the impact of the 2014 TIS project on their literacy-teaching practices. Through a carefully designed study that was supported by a rigorous interview protocol and purposive sampling, I gathered rich data from 13 participants from

across four schools in Kingston, Jamaica. Participants shared details about their perspectives and experiences before, during, and since the TIS project. The evidence revealed that several factors, including participants' prevailing mindsets, their beliefs about technology and its capabilities, as well as the support they received during and since the project, explained why some teachers adopted new literacy teaching practices while others did not.

While the evidence highlighted these factors as critical, no single factor is more influential than multiple factors occurring together within the same context. Each change context is different, and the people within those contexts bring a host of characteristics into the mix. Because I conducted a qualitative study, I was able to determine why teachers believed they responded to the TIS implementation in the way they did. However, had my current study been quantitative in design, I would have been better poised to predict the specific factors that influenced teacher decision making, exactly how individuals or groups would respond to innovation in different contexts, recognize potentially debilitating conditions or factors and recommend steps to reduce their impact. It is expected that educational innovation will bring about sustainable change in educational practice. But educational innovations must also be responsive to the qualitative nuances of the specific contexts in which they are to be implemented if the right condition for sustainable change is to be created.

References

Adler, R. H. (2022). Trustworthiness in qualitative research. *Journal of Human Lactation*, *38(4*), 598–602. https://doi.org/10.1177/08903344221116620

Ames, M. G. (2019). *The charisma machine: The life, death, and legacy of One Laptop per Child*. MIT Press.

Avila, R. (2016). Quantitative methods and research. In S. Danver (Ed.), *The SAGE encyclopedia of online education* (pp. 940–942). SAGE Publications. https://doi.org/10.4135/9781483318332.n299

Awad, R., Aljaafreh, A., & Salameh, A. (2022). Factors affecting students' continued usage intention of E-learning during COVID-19 pandemic: Extending Delone & McLean IS success model. *International Journal of Emerging Technologies in Learning (Online)*, *17*(10), 120–144. https://doi.org/10.3991/ijet.v17i10.30545

Azman, H. (2016). Implementation and challenges of English language education reform in Malaysian primary schools. *3L, Language, Linguistics, Literature*, *22*(3), 65–68. https://doi.org/10.17576/3L-2016-2203-0

Barbre, J. O. (2019). Crafting a critical literacy skillset: An improved use of visual modalities. *International Journal of Education & Literacy Studies*, *7*(2), 139–143. https://doi.org/10.7575/aiac.ijels.v.7n.2p.139

Barrett, S. (2022). The changing landscape of adult learning and education in Jamaica: Fifty years and beyond. *Convergence Journal*, *44*(2), 91–102.

Booton, S. A., Hodgkiss, A. & Murphy, V. A. (2023). The impact of mobile application features on children's language and literacy learning: A systematic review.

Computer Assisted Language Learning, *36*(3), 400–429. https://doi.org/10.1080/09588221.2021.1930057

Bresciani, M. J. (2010). Data-driven planning: Using assessment in strategic planning. *New Directions for Student Services*, *2010*(132), 39–50. https://doi.org/10.1002/ss.374

Buć, S., & Divjak, B. (2016, September 21–23). *Environmental factors in the diffusion of innovation model: Diffusion of e-learning in a higher education institution* [Paper presentation]. Central European Conference on Information and Intelligent Systems, Varazdin, Croatia.

Burnes, B., & Bargal, D. (2017). Kurt Lewin: 70 years on. *Journal of Change Management*, *17*(2), 91–100. https://doi.org/10.1080/14697017.2017.1299371

Caelli, K., Ray, L., & Mill, J. (2003). "Clear as mud": Toward greater clarity in generic qualitative research. *International Journal of Qualitative Methods*, *2*(2), 1–13. https://doi.org/10.1177/160940690300200201

Campbell, C. (2014). *Student achievement division literacy and numeracy strategy: Evidence of improvement study*. Student Improvement Division: Ontario Institute for Studies in Education, University of Toronto. https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=2cdc9fbb099ff2910313af761ba777d667125a22

Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., Bywaters, D., & Walker, K. (2020). Purposive sampling: Complex or simple? Research case

examples. *Journal of Research in Nursing*, *25*(8), 652–661. https://doi.org/10.1177/1744987120927206

Child, J. (2015). *Organization: Contemporary principles and practice*. John Wiley & Sons.

Cho, H., & Choi, J. (2016). Teaching for social justice: Voices from prospective South Korean elementary teachers. *KEDI Journal of Educational Policy, 13*(2), 259–282.

Chou, P., & Feng, S. (2019). Using a tablet computer application to advance high school students' laboratory learning experiences: A focus on electrical engineering education. *Sustainability, 11*(2), Article 381. https://doi.org/10.3390/su11020381

Chou, P., & Wang, P. (2021). Looking deeper: Using the mobile microscope to support young children's scientific inquiries. *Sustainability*, *13*(7), Article 3663. https://doi.org/10.3390/su13073663

Costa, L., & Walsh, G. (2018). Nova Southeastern University: A diffusion of innovation analysis of distance education. *Distance Learning*, *15*(4), 57–63.

Creely, E. (2019). "Poetry is dying": Creating a (re)new(ed) pedagogical vision for teaching poetry. *Australian Journal of Language & Literacy*, *42*(2), 116–127. https://doi.org/10.1007/BF03652031

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage Publications.

Cristia, J., Ibarrarán, P., Cueto, S., Santiago, A., & Severín, E. (2017). Technology and child development: Evidence from the One Laptop per Child program. *American*

Economic Journal. Applied Economics, 9(3), 295–320. https://doi.org/10.2139/ssrn.2032444

Cummings, S., Bridgman, T., & Brown, K. G. (2016). Unfreezing change as three steps: Rethinking Kurt Lewin's legacy for change management. *Human relations*, *69*(1), 33–60. https://doi.org/10.1177/0018726715577707

Darling-Hammond, L. (2006*). Powerful teacher education: Lessons from exemplary programs.* Jossey-Bass.

Dearing, J., & Cox, J. (2018). Diffusion of innovations theory, principles, and practice. *Health Affairs, 37.* 183-190. https://doi.org/10.1377/hlthaff.2017.1104.

Department of Education. (2011). *The National Strategies 1997–2011: A brief summary of the impact and effectiveness of the National Strategies.* The National Strategies 1997-2011 (publishing.service.gov.uk)

Dibra, M. (2015). Roger's theory on diffusion of innovation - the most appropriate theoretical model in the study of factors influencing the integration of sustainability in tourism businesses. *Procedia - Social and Behavioral Sciences 195(3),* 1453–1462. http://dx.doi.org/10.1016/j.sbspro.2015.06.443

Dietrichson, J., Filges, T., Seerup, J. K., Klokker, R. H., Viinholt, B. C. A., Bøg, M., & Eiberg, M. (2021). Targeted school-based interventions for improving reading and mathematics for students with or at risk of academic difficulties in grades K-6: A systematic review. *Campbell Systematic Reviews, 17*(2), 1–78. https://doi.org/10.1002/cl2.1152

Dintoe, S. S. (2019). Technology innovation diffusion at the University of Botswana: A comparative literature survey. *International Journal of Education and Development Using Information and Communication Technology, 15(1*, pp. 255–282. https://eric.ed.gov/?id=EJ1214258

Dlamini, P., & Sheik, A. (2019). Exploring teachers 'instructional practices for literacy in English in Grade 1: A case study of two urban primary schools in the Shiselweni region of Eswatini (Swaziland), *Reading & Writing 10*(1), e1–e9. https://doi.org/10.4102/rw.v10i1.229

Eldeniz Çetin, M., & Cay, E. (2020). Teaching puzzle-solving skills to students with multiple disabilities via a tablet computer. *Egitim Ve Bilim, 46*(205). https://doi.org/10.153900/EB.2020.8457

Elder, N. C., & Miller, W. L. (1995). Reading and evaluating qualitative research studies. *Journal of Family Practice, 41*(3), 279–285. JFP_1995-09_v41_i3_reading-and-evaluating-qualitative-resea.pdf (mdedge.com)

Elsner, D., & Jurecka, A. (2021). The use of digital reading pens in the early foreign language classroom. *Research Papers in Language Teaching and Learning, 11*(1), 137–149. https://www.proquest.com/scholarly-journals/use-digital-reading-pens-early-foreign-language/docview/2524961793/se-2

Eutsler, L., Mitchell, C., Stamm, B., & Kogut, A. (2020). The influence of mobile technologies on preschool and elementary children's literacy achievement: A systematic review spanning 2007–2019. *Educational Technology, Research and Development, 68*(4), 1739–1768. http://dx.doi.org/10.1007/s11423-020-09786-1

Fleisch, B. (2016). System-wide improvement at the instructional core: Changing reading teaching in south Africa. *Journal of Educational Change, 17*(4), 437–451. https://doi.org/10.1007/s10833-016-9282-8

Flick, U. (2018). Doing qualitative data collection – charting the routes. In *The Sage handbook of qualitative data collection* (pp. 3-16). SAGE Publications Ltd. https://doi.org/10.4135/9781526416070

Fındıkoğlu, F., & İlhan, D. (2016). Realization of a desired future: Innovation in education. *Universal Journal of Educational Research*, *4*(11), 2574–2580. https://doi.org/10.13189/ujer.2016.04110

Foley, J. M. (2024, March 3). Literacy. *Encyclopedia Britannica*. https://www.britannica.com/topic/literacy

Foss, A., Wilcoxen, C., & Rasmus, J. (2019). The academic and behavioral implications of robotics in the classroom: An elementary case study. *Technology and Innovation*, *20*(3), 321–332. http://dx.doi.org/10.21300/20.3.2019.321

Geezam Caribbean Tech Blog. (2015). *Samsung's smart school are tablets for VARK hexagons of learning*. https://geezam.com/samsungs-smart-school-are-tablets-for-vark-hexagons-of-learning/

Goldman, S. R., Britt, M. A., Brown, W., Cribb, G., George, M., Greenleaf, C., Lee, C., & Shanahan, C., & Project READI. (2016). Disciplinary literacies and learning to read for understanding: A conceptual framework for disciplinary literacy. *Educational Psychologist*, *51*(2), 219–246. https://doi.org/10.1080/00461520.2016.1168741

Gong, T., & Yang, S. L. (2020). Why do innovations succeed or fail? Local anti-corruption reform in China. *China Review*, *20*(4), 69–94. https://www.jstor.org/stable/26959854

Gonzales, M. M., & Storti, R. (2019). Fostering a culture of innovation: A case study of elementary school principals in Costa Rica. *International Journal of Education Policy and Leadership, 15(6),* 1–19. http://dx.doi.org/10.22230/ijepl.2019v15n6a821

Gordon, M. B., & Job, G. C. (2022). Individual innovativeness, self-efficacy, and e-learning readiness of students of Yenagoa study centre, National Open University of Nigeria. *Journal of Research in Innovative Teaching & Learning, 15*(1), 2–22. https://doi.org/10.1108/JRIT-12-2019-0079

Hains, V. V., Sedlar, A., & Cerepinko, K. (2019). *Competences and methods of using information and communication technology amongst pre-school and primary school teachers*. Varazdin Development and Entrepreneurship Agency (VADEA). https://www.proquest.com/conference-papers-proceedings/competences-methods-using-information/docview/2230616930/se-2?accountid=14872

Hany, Z. (2020). The charisma machine: The life, death, and legacy of one laptop per child. *International Review of Education, 66*(2-3), 441–444. http://dx.doi.org/10.1007/s11159-020-09837-y

Hastings, S. (2010). Triangulation. In N. J. Salkind (Ed.), *Encyclopedia of research design* (pp. 1538–1540). SAGE Publications. https://dx.doi.org/10.4135/9781412961288.n469

Hedlund-de Witt, N. (2013). An overview and guide to qualitative data analysis for integral researchers. *Integral Research Center, 1*(75), 76–97. https://www.academia.edu/9864164/Coding_An_Overview_and_Guide_to_Qualitative_Data_Analysis_for_Integral_Researchers

Hoffman, J. V. (1998). When bad things happen to good ideas in literacy education: Professional dilemmas, personal decisions, and political traps. *The Reading Teacher*, *52(2),*102–112. https://www.jstor.org/stable/20202024

Hou, Y. (2017). Rogers' theory of innovation diffusion discussed for curriculum dissemination. *Bulletin of Educational Research, 63*(3), 107–145. https://dx.doi.org/10.3966/102887082017096303004

Howard, S. K., & Gigliotti, A. (2016). Having a go: Looking at teachers' experience of risk-taking in technology integration. *Education and Information Technologies, 21*(5), 1351–1366. https://doi.org/10.1007/s10639-015-9386-4

Hunter, M. A., & Rasmussen, H. T. (2018). Interactive learning environments: A three-tiered model toward digital fluency. In C. Fitzgerald, S. Laurian-Fitzgerald, & C. Popa (Eds.), H*andbook of research on student-centered strategies in online adult learning environments* (pp. 365–384). https://doi.org/10.4018/978-1-5225-5085-3.ch017

Hurreeram, S. L., & Bahadur, G. K. (2019). Investigation into a second attempt at the re-introduction of tablets in the education system of Mauritius: A case study. *International Journal of Education and Development using Information and Communication Technology, 15*(4), 22–34. EJ1239618.pdf (ed.gov)

Imenda, S. (2014). Is there a difference between theoretical and conceptual frameworks? *Journal of Social Science, 38(2),* 185–195. https://doi.org/10.1080/09718923.2014.11893249

Iwai, Y. (2016). The effect of explicit instruction on strategic reading in a literacy methods course. *International Journal of Teaching and Learning in Higher Education, 28(1),* 110–118.

Jamaica Information Service. (2010, May 18). *Ministry of Education literacy programme reaping success* https://jis.gov.jm/radio_programs/duhaney-park-primary-samsung-smart-school-classrooms/

Jamaica Information Service. (2015, January 28). *Duhaney Park Samsung's smart school classroom.* Retrieved from: https://jis.gov.jm/radio_programs/duhaney-park-primary-samsung-smart-school-classrooms/

Kahlke, R. M. (2014). Generic qualitative approaches: Pitfalls and benefits of methodological mixology. *International Journal of Qualitative Methods,13(1). 37–52.* https://doi.org/10.1177/160940691401300119

Kahlke, R. (2018). Reflection/Commentary on a past article: "Generic qualitative approaches: Pitfalls and benefits of methodological mixology." *International Journal of Qualitative Methods, 17(1)*1–3. https://doi.org/10.1177/1609406918788193

Kaminski, J. (2011). Diffusion of innovation theory: Theory in nursing informatics column. *Canadian Journal of Nursing Informatics, 6*(2). https://cjni.net/journal/?p=1444

Kapur, R. (2019). *Types of literacy*. https://www.researchgate.net/publication/332875093_Types_of_Literacy/link/5ccfe8ee458515712e956338/download?_tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6InB1YmxpY2F0aW9uIiwicGFnZSI6InB1YmxpY2F0aW9uIn19

Kim, J., Gilbert, J., Yu, Q., & Gale, C. (2021). Measures matter: A meta-analysis of the effects of educational apps on preschool to grade 3 children's literacy and math skills. *AERA Open, 7*. https://doi.org/10.1177/23328584211004183

Knight, J., & Rapley, J. (2007*). Educational reform in Jamaica: Recommendations from Ireland, Finland, and Singapore*. Caribbean Policy Research Institute. https://www.capricaribbean.org/sites/default/files/documents/r0702educational-reform-jamaica200707.pdf

Komşu, U. C. (2018). New literacy types and learning strategies for adult learners. In G. Mihladiz (Ed.), *Academic researches in educational science*, (pp. 213–228). https://www.researchgate.net/publication/324679778_NEW_LITERACY_TYPES_AND_LEARNING_STRATEGIES_FOR_ADULT_LEARNERS

Lambriex-Schmitz, P., Van der Klink, M. R., Beausaert, S., Bijker, M., & Segers, M. (2020). Towards successful innovations in education: Development and validation of a multi-dimensional innovative work behaviour instrument. *Vocations and Learning*, *13*(2), 313–340. https://doi.org/10.1007/s12186-020-09242-4

Lee, A. Y. L. (2016). Media education in the school 2.0 era: Teaching media literacy through laptop computers and iPads. *Global Media and China*, *1*(4), 435–449. https://doi.org/10.1177/2059436416667129

Lewin, K. (1947). Frontiers in group dynamics: Concept, method, and reality in social science; social equilibria and social change. *Human Relations*, *1*(1), 5–41. https://doi.org/10.1177%2F001872674700100103

López-Escribano, C., Valverde-Montesino, S., & García-Ortega, V. (2021). The Impact of E-book reading on young children's emergent literacy skills: An analytical review. *International Journal of Environmental Research and Public Health*, *18*(12), 6510. https://doi.org/10.3390/ijerph18126510

Lotherington, H., & Jensen, J. (2011). Teaching multimodal and digital literacy in L2 settings: New literacies, new basics, new pedagogies. *Annual Review of Applied Linguistics 31*, 226–246. https://doi.org/10.1017/S0267190511000110

Luke, A. (2018). Regrounding critical literacy: Representation, facts, and reality. In D. E. Alvermann, N. Unrau, M. Sailors, & R. B. Ruddell (Eds). *Theoretical models and processes of literacy* (pp. 349–361). Routledge. https://www.researchgate.net/publication/328698288_Theoretical_Models_and_Processes_of_Literacy_7th_edition/link/5bdc6dad4585150b2b995463/download?_tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6InB1YmxpY2F0aW9uIiwicGFnZSI6InB1YmxpY2F0aW9uIn19

Marak, Z. R., Tiwari, A., & Tiwari, S. (2019). Adoption of 3D printing technology: An innovation diffusion theory perspective. *International Journal of Innovation, 7*(1), 87–103 http://dx.doi.org/10.5585/iii.v7i1.393

Mason, M. (2010). Sample size and saturation in PhD studies using qualitative interviews. *Forum Qualitative Sozialforschung Forum: Qualitative Social Research*, *11*(3). https://doi.org/10.17169/fqs-11.3.1428

Matthei, E. H., & Matthei, L. M. (2001). Jamaica. In R. Marlow-Ferguson (Ed.), *World Education Encyclopedia* (2nd ed., *2*, pp. 673–687). Gale. https://link.gale.com/apps/doc/CX3409700116/GVRL?u=minn4020&sid=bookmark-GVRL&xid=8001cef4

McGhie-Sinclair, T. (2017). *The integration of tablet computers in preparing students for the grade four literacy test: Perception versus reality* (Order No. 10268724). Available from ProQuest One Academic. (1906765046). https://www.proquest.com/dissertations-theses/integration-tablet-computers-preparing-students/docview/1906765046/se-2?accountid=14872

Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative research: A guide to design and implementation* (4th ed.). John Wiley & Sons.

Mifsud, C. L., & Grech, L. (2016). Literacy teaching with tablets in bilingual primary classrooms: The Malta TabLit study. In *Apps, Technology and Younger Learners* (pp. 183-194). Routledge. Chapter - Literacy Teaching with Tablets in Bilingual Primary Classrooms.pdf (um.edu.mt)

Miles, M. B., Huberman, M. A., Saldaña, J. (2020). *Qualitative data analysis: A methods sourcebook*. Sage.

Miller, E., & Munroe, G. E. (2014). Education in Jamaica: Transformation and reformation. In E. Thomas (Ed.), *Education in the Commonwealth Caribbean and Netherlands Antilles*, (pp. 221–247).

Ministry of Education. (2012). National education strategic plan: 2011–2020. NESP Handbook copy.indd (uwi.edu)

Ministry of Education Youth and Information. (2020). Alternative secondary transition education programme (ASTEP). ASEP_Final.pdf (uwi.edu)

Mirizon, S., Vianty, M., Rosmalina, I., & Erlina, E. (2021). Secondary school students' English literacy achievement based on PISA reading literacy test 2009. *Englisia: Journal of Language, Education, and Humanities*, *9*(1), 165–182. b5785463b3fa74500daa812b0fb793f54b6c.pdf (semanticscholar.org)

Mitchell, G. (2013). Selecting the best theory to implement planned change. *Nursing Management*, 20, 32–37. http://dx.doi.org/10.7748/nm2013.04.20.1.32.e1013

Mitchell, M. J. (2006). Teaching for critical literacy: An ongoing necessity to look deeper and beyond. *English Journal*, *96*(2), 41–46. https://www.proquest.com/scholarly-journals/teaching-critical-literacy-ongoing-necessity-look/docview/237298501/se-2?accountid=14872

Montoya, S. (2018). *Defining literacy*. UNESCO Institute for Statistics. http://gaml.uis.unesco.org/wp-content/uploads/sites/2/2018/12/4.6.1_07_4.6-defining-literacy.pdf

Mosito, C. P., Warnick, A. M., & Esambe, E. E. (2017). Enhancing reading abilities of learners with intellectual impairments through computer technology. *African*

Journal of Disability, 6. https://www.proquest.com/scholarly-journals/enhancing-reading-abilities-learners-with/docview/1928583136/se-2

Neumann, M. M., & Neumann, D. L. (2017). The use of touch-screen tablets at home and pre-school to foster emergent literacy. *Journal of Early Childhood Literacy*, *17*(2), 203–220. untitled (researchgate.net)

Nikolopoulou, K., Akriotou, D., & Gialamas, V. (2019). Early reading skills in English as a foreign language via ICT in Greece: Early childhood student teachers' perceptions. *Early Childhood Education Journal*, *47*(5), 597–606. http://dx.doi.org/10.1007/s10643-019-00950-8

Obiri-Yeboah, K., Kwarteng, K. O., & Kyere-Djan, R. (2013). Factors affecting ICT adoption in tertiary institutions in Ghana: A case of Kwame Nkrumah University of science and technology. *Information and Knowledge Management, (3)*6), 13–21. Factors Affecting ICT Adoption in Tertiary Institutions in Ghana: A Case of Kwame Nkrumah University of Science and Technology | Obiri-Yeboah | Information and Knowledge Management (iiste.org)

Onyefulu, C., Hughes, G., & Hamil, S. (2016). *A situational analysis report of the e-learning tablets in school pilot project in Jamaica*. https://www.elearningja.gov.jm/wp-content/uploads/2019/10/Situational-Analysis-Final-Report.-March-2016-elj.pdf

Organisation for Economic Co-operation and Development. (2012). *Equity and quality in education: Supporting disadvantaged students and schools.* OECD Publishing. http://dx.doi.org/10.1787/9789264130852-en

Otterborn, A., Schönborn, K., & Hultén, M. (2019). Surveying preschool teachers' use of digital tablets: General and technology education related findings. *International Journal of Technology and Design Education, 29*(4), 717–737. https://doi.org/10.1007/s10798-018-9469-9

Palmer, A. (2017). *Enrichment Initiative*. Enrichment Initiative – Jamaica Information Service (jis.gov.jm)

Papadakis, S., Kalogiannakis, M., & Zaranis, N. (2018). The effectiveness of computer and tablet assisted intervention in early childhood students' understanding of numbers. an empirical study conducted in Greece. *Education and Information Technologies, 23*(5), 1849–1871. http://dx.doi.org/10.1007/s10639-018-9693-7

Patel, S., & Burke-Gaffney, A. (2018). The value of mobile tablet computers (iPads) in the undergraduate medical curriculum. *Advances in Medical Education and Practice, 9*, 567–570. http://dx.doi.org/10.2147/AMEP.S163623

Patton, M. Q. (2015). *Qualitative research and evaluation methods.* (4th ed.). Sage.

Picton, I., & National Literacy Trust (United Kingdom). (2019). Teachers' use of technology to support literacy in 2018. A national literacy trust research report. In *National Literacy Trust*. National Literacy Trust. Teachers_Use_of_Technology_report.pdf (literacytrust.org.uk)

Piper, B., Oyanga, A., Mejia, J., & Pouezevara, S. (2017). Implementing large-scale instructional technology in Kenya: Changing instructional practice and developing accountability in a national education system. *International Journal of Education and Development using Information and Communication*

Technology, *13*(3), 57–79. https://www.proquest.com/scholarly-journals/implementing-large-scale-instructional-technology/docview/1991137529/se-2?accountid=14872

Porter, W. W., & Graham, C. R. (2016). Institutional drivers and barriers to faculty adoption of blended learning in higher education. *British Journal of Educational Technology*, *47*(4), 748–762. https://doi.org/10.1111/bjet.12269

Potgieter, C. (2004). The impact of the implementation of technology education on in-service teacher education in South Africa (impact of technology education in the RSA). *International Journal of Technology and Design Education*, *14*(3), 205–218. http://dx.doi.org/10.1007/s10798-004-2270-y

Quan-Baffour, K., & Johnson, L. R. (2022). Literacy matters in sustainable livelihood development among refugee adults in south Africa. *Reading & Writing*, *13*(1), 316. https://doi.org/10.4102/rw.v13i1.316

Rai, L., & Deng, C. (2016). Influencing factors of success and failure in MOOC and general analysis of learner behavior. *International Journal of Information and Education Technology*, *6*(4), 262–268. Influencing-Factors-of-Success-and-Failure-in-MOOC-and-General-Analysis-of-Learner-Behavior.pdf (researchgate.net)

Rallis, S. (2018). Conceptual framework. In B. Frey (Ed.), *The SAGE Encyclopedia of Educational Research, Measurement, and Evaluation*, *1-4*, pp. 354–356). SAGE Publications, http://dx.doi.org/10.4135/9781506326139

Raman, R., Vachharajani, H., & Achuthan, K. (2018). Students' motivation for adopting programming contests: Innovation-diffusion perspective. *Education and Information Technologies, 23*(5), 1919–1932. http://dx.doi.org/10.1007/s10639-018-9697-3

Ranjan, P., & Witter, J. D. (2020). Promoting adoption of two-stage agricultural drainage ditches: A change agent perspective. *PLoS One, 15*(3), http://dx.doi.org/10.1371/journal.pone.0229969

Ravitch, S. M., & Riggan, M. (2017). *Reason and rigor: How conceptual frameworks guide research* (2nd ed.). Sage Publications.

Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). Free Press of Glencoe.

Rosch, E. (2002). Lewin's field theory as situated action in organizational change. *Organization Development Journal, 20*(2), 8-14. https://www.proquest.com/scholarly-journals/lewins-field-theory-as-situated-action/docview/198000227/se-2?accountid=14872

Rosenbaum, D., More, E., & Steane, P. (2018). Planned organisational change management. *Journal of Organizational Change Management, 31*(2), 286-303. http://dx.doi.org/10.1108/JOCM-06-2015-0089

Roser, M., & Ortiz-Ospina, E. (2018). *Literacy*. Published online at OurWorldInData.org. https://ourworldindata.org/literacy

Rossi, F. (2018). Pedagogy and state: An archaeological inquiry into classic Maya educational practice. *Cambridge Archaeological Journal, 28*(1), 85–102. http://dx.doi.org/10.1017/S0959774317000580

Rubin, H. J., & Rubin, I. S. (2012). *Qualitative interviewing: The art of hearing data* (3rd ed.). Sage.

Saldaña, J. (2016). *The coding manual for qualitative researchers, 3rd edition.* Sage.

Santrock, J. (2018). *Educational Psychology* (6th ed.). McGraw Hill.

Saxe, G. B., & de Kirby, K. (2018). Analyzing the evolution of a digital technology intervention: One laptop per child in a remote Papua New Guinea community. *Anthropology and Education Quarterly*, *49*(4), 394–412. https://doi.org/10.1111/aeq.12263

Scott, J. L., & Teale, W. H. (2009). Effective literacy instruction for urban children: Voices from the classroom. *Reading Teacher, 63*(4), 338–341. https://doi.org/10.1598/RT.63.4.11

Serdyukov, P. (2017). Innovation in education: What works, what doesn't, and what to do about it? *Journal of Research in Innovative Teaching & Learning, 10(1),* 4–33. https://doi.org/10.1108/JRIT-10-2016-0007

Shalem, Y., De Clercq, F., Steinberg, C., & Koornhof, H. (2018). Teacher autonomy in times of standardised lesson plans: The case of a primary school language and mathematics intervention in South Africa. *Journal of Educational Change, 19*(2), 205–222. https://doi.org/10.1007/s10833-018-9318-3

Shaheen, M., Pradhan, S., & Ranajee, R. (2019). Sampling in qualitative research. In *Qualitative techniques for workplace data analysis* (pp. 25–51). IGI Global. DOI:10.4018/978-1-5225-5366-3.ch002

Skyers, R. (1995). *A case study of distance education and development in Jamaica: A study of three distance education organisations and their contribution to development* (Order No. U067412). https://www.proquest.com/dissertations-theses/case-study-distance-education-development-jamaica/docview/2169329872/se-2?accountid=14872

Smith-Johnson, E. M. (2020). Exploring the effects of technology and innovation on changing market requirements and the evolving maritime curriculum: A Jamaican perspective. *Worldwide Hospitality and Tourism Themes, 12*(1), 69–79. http://dx.doi.org/10.1108/WHATT-10-2019-0065

Sparks, S. D. (2011). Early reading problems flag potential dropouts: "Double jeopardy: How poverty & third-grade reading skills influence high school graduation." *Education Week, 30*(28), 5. https://www.proquest.com/trade-journals/early-reading-problems-flag-potential-dropouts/docview/869907436/se-2

Sternberg, B. J., Kaplan, K. A., & Borck, J. E. (2007). Enhancing adolescent literacy achievement through integration of technology in the classroom. *Reading Research Quarterly, 42*(3), 416-420. 04_RRQ-42-3-NDR (pbworks.com)

Stouten, J., Rousseau, D. M., & De Cremer, D. (2018). Successful organizational change: Integrating the management practice and scholarly literatures. *Academy of Management Annals, 12*(2), 752–788. https://doi.org/10.5465/annals.2016.0095

Stuckey, J. (2016). Case study research. In S. Danver (Ed.), *The SAGE encyclopedia of online education* (pp. 167–168). Sage. http://dx.doi.org/10.4135/9781483318332.n58

Sun, S., Cegielski, C. G., Jia, L., & Hall, D. J. (2018). Understanding the factors affecting the organizational adoption of big data. *Journal of Computer Information Systems*, *58*(3), 193–203. http://dx.doi.org/10.1080/08874417.2016.1222891

Suwamaru, J. K. (2016). Modification of DOI theory – the case of mobile phones in rural Papua New Guinea. *Contemporary PNG Studies*, *24*, 1–17 Microsoft Word - 1 Suwamaru, modification of DOI theory (dwu.ac.pg)

Tang, M. (2019). Research on the Chinese language and literature teaching assisted by computer multimedia technology. *IOP Conference Series. Materials Science and Engineering*, *569*(5). http://dx.doi.org/10.1088/1757-899X/569/5/052026

Task Force on Educational Reform. (2004). *Task force on educational reform, Jamaica: A transformed education system*. Microsoft Word - EducationTask Force.doc (unesco.org)

The Centre for Literacy. (2014). *What is literacy? Literacy for the 21st century: A guiding definition.* http://www.centreforliteracy.qc.ca/about/literacy

Tight, M. (2017). Origins and applications of case study. In *Understanding case study research* (pp. 5–17). SAGE Publications Ltd. https://dx.doi.org/10.4135/9781473920118.n2

UNESCO. (2015). *Education for all 2000–2015: Achievements and challenges*. EFA Global Monitoring Report 2015. UNESCO. Education for All 2000-2015:

achievements and challenges;EFA global monitoring report, 2015;summary - UNESCO Digital Library

UNESCO. (2020). *Functional literacy*. Functional literacy | UNESCO IIEP Learning Portal

UNESCO. (2021). *Right to education*. Right to education (unesco.org)

Usher, K., & Jackson, D. (2014). Phenomenology. In J. Mills, & M. Birks (Eds.), *Qualitative methodology* (pp. 181–198). Sage. http://dx.doi.org/10.4135/9781473920163

Wagner, T. (2010). *The global achievement gap: Why even our best schools don't teach the new survival skills our children need—and what we can do about it*. Basic Books.

Wang, X. (2020). Research on the application of computer technology in college English translation teaching. *Journal of Physics: Conference Series, 1648*(3). http://dx.doi.org/10.1088/1742-6596/1648/3/032100

Westberg, J., İncirci, A., Paksuniemi, M., & Turunen, T. (2018). State formation and the rise of elementary education at the periphery of Europe: The cases of Finland and Turkey 1860-1930. *Journal of Educational Administration & History, 50*(3), 133–144. http://dx.doi.org/10.1080/00220620.2017.1391185

White, L., & Philippe, v. B. (2021). Without a trace: Why did corona apps fail? *Journal of Medical Ethics, 47*(12), e83. https://doi.org/10.1136/medethics-2020-107061

Wilcox, K. C., & Lawson, H. A. (2018). Teachers' agency, efficacy, engagement, and emotional resilience during policy innovation implementation. *Journal of Educational Change, 19*(2), 181–204. https://doi.org/10.1007/s10833-017-9313-0

Wojciechowski, E., Pearsall, T., Murphy, P., & French, E. (2016). A case review: Integrating Lewin's theory with Lean's system approach for change" *OJIN: The Online Journal of Issues in Nursing 21(2),* 1–13. http://dx.doi.org/10.3912/OJIN.Vol21No02Man04

Appendix A: Invitation Letter

You are invited to take part in a research study about teachers' experiences with the Tablets in Schools Project and how the project has influenced their literacy teaching practices. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study seeks 12 - 15 volunteers who:

- Participated in the tablets in school project.
- Are teachers of literacy.

This study is being conducted by a researcher named Valri Morgan, who is a doctoral student at Walden University. You may have been familiar with Valri Morgan as a teacher educator who supervises and assesses student teachers in the field. However, this study is separate from that role.

Study Purpose:

The purpose of this study is to find out about teachers' experiences with the 2014 Tablets in Schools Project in Jamaica and how they think their literacy teaching practices have been influenced by those experiences.

Procedures:

This study will involve you completing the following steps:

- take part in a confidential, audio recorded interview (phone option available) (1 hour)
- review a typed transcript of your interview to make corrections if needed (email option available) (10 minutes)

- speak with the researcher one more time after the interview to hear the researcher's interpretations and share your feedback (this process is called member checking and it takes 20-30 minutes, phone option available)

Here are some sample questions:

1. How did you feel when you realized that the TIS project was coming to your school?
2. Please describe your experiences during the project.
3. What changes did you make to your literacy teaching practices while you were involved in the project?
4. How do you explain these changes?
5. What has caused you to continue using those practices that did not change?
6. Is there anything else that you would like to share with me that might help me to understand more about your practices as a literacy teacher and how this TIS project has influenced your practices?

Voluntary Nature of the Study:

Research should only be done with those who freely volunteer. So, everyone involved will respect your decision to join or not.

If you decide to join the study now, you can still change your mind later. You may stop at any time. The researcher will follow up with all volunteers to let them know whether they were selected for the study or not.

Risks and Benefits of Being in the Study:

Being in this study could involve some risk of the minor discomforts that can be encountered in daily life such as sharing sensitive information. With the protections in place, this study would pose minimal risk to your wellbeing in terms of the inconvenience of allocating time to participate in the interview. This study offers no direct benefits to individual volunteers. The aim of this study is to benefit society by helping stakeholders understand how innovations such as the Tablets in Schools Project impact professional practice and inform future decisions about similar projects. Once the analysis is complete, the researcher will share the overall results by emailing you a summary.

Payment:

There will be no payment offered to you for participation in this research.

Privacy:

The researcher is required to protect your privacy. Your identity will be kept confidential within the limits of the law. The researcher is only allowed to share your identity or contact information as needed with Walden University supervisors (who are also required to protect your privacy) or with authorities if court-ordered (very rare)." The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. If the researcher were to share this dataset with another researcher in the future, the dataset would contain no identifiers so this would not involve another round of obtaining informed consent. Data will be kept secure by using

pseudonyms and files in password protected folders on my personal computer. Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions:

You can ask questions of the researcher by telephone at **876-374-8959** or by email at valri.morgan@waldenu.edu. If you want to talk privately about your rights as a participant or any negative parts of the study, you can call Walden University's Research Participant Advocate at **612-312-1210.** You may also contact the IRB via email at irb@mail.waldenu.edu or telephone at **(612) 257-6505.** Walden University's approval number for this study is **IRB will enter approval number here**. It expires on **IRB will enter expiration date.**

You might wish to retain this consent form for your records. You may ask the researcher or Walden University for a copy at any time using the contact info above.

Obtaining Your Consent

If you feel you understand the study and wish to volunteer, please reply to the researcher's email with the words **"I consent."** Thank you.

Appendix B: Interview Protocol

Interview Protocol

Research Question	Interview Question	Supporting Literature	Data Type & Characteristics	Probes as Needed
RQ1: How do primary school teachers in Jamaica explain any suggested innovation changes to their literacy teaching practices since implementation of the TIS?	Tell me a bit about the TIS project in terms of its purpose and your first reactions/feelings towards it. What changes did you make to your literacy teaching practices while you were involved in the project? How do you explain those changes? Which of those teaching practices are you still employing today? What has caused you to continue using those practices?	Lewis (1947) Change begins with discomfort/need for change - Unfreeze Rogers: Change begins with awareness (Potgieter, 2004). Feelings about new technology vary from positive and informed to negative and uninformed depending on factors such as level of exposure to information on the purpose of the new technology area. (Howard & Gigliotti, 2016) How teachers feel about risks, experimenting and change, influence their experiences.	Feelings – anxiety, anticipation, resentment, relief, excitement, fear Expectations Specific activities/roles Change Explanations – reasons, influencing factors (personal, institutional, knowledge/competencies, attitude/emotions Descriptions - characteristics/features of changes.	What emotions were you feeling? What did you expect? What are you doing differently in terms of those practices? Why did you change those practices? Can you share some specific examples in relation to planning, teaching, assessing?
RQ2: How do primary school teachers in Jamaica explain any suggested innovation changes not made to their literacy teaching practices since implementation of the TIS?	Please share with me about those literacy teaching practices you started during the project but have not continued since. Why didn't you continue those literacy teaching practices? In what ways do you think your literacy teaching	Lewin (1947). Second stage of change - after unfreezing then change begins before it settles into a new norm - stability (refreeze). Rogers (2003) -stages of change process; knowledge, attitude formation, decision to accept or reject, implementation, and adoption or confirmation awareness.	Constants Explanation Stages/process of change Factors/Influences Resistance	Reasons for discontinuing some practices. What about your literacy teaching practices before the project? Any still in use now? Give me some details. Which of

Research Question	Interview Question	Supporting Literature	Data Type & Characteristics	Probes as Needed
	practices have been influenced by the TIS project and how do you explain this influence? Why do you think some practices have not been changed? Is there anything else that you would like to share with me that might help me to understand more about your practices as a literacy teacher and how this TIS project has impacted your practices?	McGhie-Sinclair, (2017) Educators use and adaptation of ICE into their practice vary according to the competencies they possess. Rogers/Lewin Darling Hamilton, (2006); Creely (2019); Dlamini and Sheik, (2019) – Wide range of factors influence teachers' teaching practices. Rai and Deng, (2016) factors such as interest and perception of value or quality, technology related issues competence/knowledge, availability of supporting tools / resources influence people's decisions to incorporate innovations into their practices.		those practices have you continued to apply during the project and still do today and why? Some examples?

Appendix C: Interview Guide

Participant ID _____Date _____ Time _____

Location _____ Recording ID

_____

Interview questions	Interviewer Notes
1. Tell me a bit about the TIS project in terms of its purpose and your first reactions/feelings towards it. 2. What changes did you make to your literacy teaching practices while you were involved in the project? 3. How do you explain those changes? 4. Which of those teaching practices are you still employing today? 5. What has caused you to continue using those practices? 6. Please share with me about those literacy teaching practices you started during the project but have not continued since. 7. Why didn't you continue those literacy teaching practices? 8. In what ways do you think your literacy teaching practices have been influenced by the TIS project and how do you explain this influence? 9. Why do you think some practices have not been changed? 10. Is there anything else that you would like to share with me that might help me to understand more about your practices as a literacy teacher and how this TIS project has impacted your practices?	

Appendix D: Examples of Discrepancies Between Auto and Final Transcripts

Auto Transcript	Final transcript
Your incorporate the committed to your list,	You incorporate the tablet into your lesson.
It looks up that can teach reading	You use app that can teach reading
So foreign children	So, for the children
Was because they gave us our armor. Oh, and outline really like	Was because they gave us um an outline really like
Just exciting ready to start and our lowest	Just excited, ready to start and all those things
Weird one statue will do a tablet	one set of children will be with the tablet

Appendix E: Sample of First Cycle (Descriptive) Codes

Codes	# of Segments	Codes	# of Segments
Excited about the program	14	Something new	10
Tablet use	65	Nervous	1
Games	10	Memory lapse	6
Teacher fear	21	Assessment of students	13
Student	53	Research	6
Collaboration	24	learning	38
Lesson plan	27	home	11
Teacher	45	Useful	3
Parents	12	Tablet quality	12
Time	17	Tablet care	17
literacy	26	benefit	1
training	23	Too much	12
Class size	8	Independence	6
Critical thinking	2	Technology integration	13
Boys	7	Capture attention	7
Appropriate	11	Gone back	10
Class control	7	Behavior	4
Hands on	8	Manipulatives	2
Technology	20	Support	4
Repetition	2	Purpose	6
Confidence	6	Help students	1
A lot of work	16	feedback	5
Control	8	Politics	1

Appendix F: Excerpt From Composite Descriptive Coding Excel File

Document name	Code	Segment
Kera-B	want to learn	The whole aspect of wanting to learn about the apps that were, um, available on the tablets,
Kera-B	Stress	I'm trying to remember … it's not 28 students, it would be like 30 students. And each student would have a tablet that is labeled for them, and you will have to put on the apps on each of those tablets.
Lana-B	lesson implementation	When you are being accessed, you're talking technology, you cannot just put in that I'm using my laptop or I'm going to use the overhead projector. It has to be there that you are using it. So, you have to follow through. You are accountable.
Lana-B	lesson implementation	Don't bother to put it in there and you don't do it. You have to show! Because they are coming to check if you are really using the tablets. You can't put it in there that you are using it and you are not using it.
Kera-B	Difficult to understand	But then, from the teacher perspective, it was very difficult for me, to understand.
Georgia -D	support	by the way…a technology… a person who would oversee things. Yeah man, technological support… support for me and the students.
Georgia -D	support	Yeah, I think so. And we got donations over time.
Hannah -B	support	We pulled the ones who were not excited, and showed them how it can help them and how it works, and you know, Like pull them, meaning if I did something I shared with everybody what I did, and if they wanted to do the same thing, I go to their class, and I show them how to do it, or did it for them, and then give like am example of what I did in my class, so they can get to see what I did, and then let them start from there

Appendix G: Categorization Based on Overlapping Meanings Among Codes

Codes	Categories
Explicitly Stated in Plan, Scheduling Rooms, Selecting Apps for Grade Level, Setting up Apps, Teacher Charges Devices, Choosing Activities During Planning, Creating Support Materials, Finding Suitable Resources to Support Teaching, Including Technology in Planning, Lesson Plan, Researching About Technology	Teacher planning/preparing
Capture Attention, Children More Involved, Children Putting Letters Together, Children Viewing Videos, Activities On Tablets, Early Work, Letting Students Use Books, More Interactive Lessons, Student Collaboration, Student Excitement, Student Interest Improve, Student Research, Student Tablet Use, Student Work at Home, Students Behaving, Students Manipulating Apps, Students Observing, Students Reading Independently Or Collaboratively, Students Researching With Parents Assistance, Students Share, Students Unfamiliar With The Devices, Students Using Doodle App, Students Work With Tablets at Home, Students Working Independently, Organize And Manipulate Group Activities, Monitoring	Student engagement
Activities, Incorporating Phone, Lesson Implementation, Differentiating Instruction, Differentiated Activities, Flipped Classroom, Hands on Practical, Outdoor Play, Use Apps to Facilitate Student Literacy Learning, Use Tablets for Engagement Phase, Using Tablets for Outdoor Play, Using Stories to Enhance Literacy, Using the Smart Board, Using Videos to Support Teaching, Using Laptops, Using Other Devices, Using Other Forms of Technology Teacher Directed Tablet Use, Listen to stories, Phonics, Repetition, Videos, Games, Quizzes, Group Work	Literacy teaching
Boy Experiences Success, Boy is Spelling Words, Boy Writes Stories, Boys Motivated	Motivating Boys
Control, Class Control, Students Excited to Learn, Capture Attention, Children More Involved,	Classroom Management
Lack of Exposure, More Comfortable Over Time, Feeling Uncomfortable, Passionate, Having Challenges, Mood Impacts Teaching, Older Teachers, Comfortable/Uncomfortable, Confidence, Excited About Program, Teacher Fear of Technology, Teacher Mindset, Teacher Nervousness,	Mindset

Table continues…

Questioning Capabilities	
A Lot of Work, More Work, Longer Hours	Workload
Alternative Assessment, Assessing at Different Levels, Assessment of Student Learning, Conducting, Students Behaving Assessment at Different Points, Use Quizzes, Questionnaires.	Assessment
Develop Students' Technological Skills, Increase in Student Participation, Independence, Learning, Expand Student Knowledge, Makes Teaching Fun, Makes Work Easier, Expose Students to Technology, Help Student in General, Help Students, Improve Literacy/Learning	Benefits of project/technology
Bible App, Games, Making Use of Apps, Appropriate, App for Literacy, Apps, Downloading Apps for Use, Edmodo, Education City App, Evaluating Apps	Apps for literacy
Collaboration, Teachers Working Together, Group Work, Students Work in Groups, Teachers Share Ideas Collaborate, Training, Parents, Principal, Technology.	Collaboration and Support
Parents Irresponsible, Parents Not Helping, Parents Not Monitoring, Parents' Buy In	Parental involvement
Training, Training Enhance Prior Knowledge, Training Not Adequate, Training Was Good, Inhouse Training, Training for Parents, Training for Students	Training
Love Technology, Fear of Technology, Believe in Technology, Faith in Technology, Likes Technology, Tablets Enhances Learning, Technology Helps, Makes Teaching Fun, Technology Is Useful, Children's Interest in Technology, Fascinated with Technology.	Attitudes Towards Technology
Evaluate Apps, Choose Apps, Charging, Uploading, Playing Games, Quizzes, Stories, Reading, Take Pictures, Typing	Tablet Use
Hands On Practical, Go Back, Chalkboard, Writing, Seatwork, Printing, Charts, Still using	Reversion

Appendix H: Audit Trail of Data Collection

Date	Activity
November 2022	Successfully negotiated with the principals of 4 partner schools for permission to involve teachers in the study.
February 3, 2023	IRB approval for data collection.
February 9 to 15, 2023	Participant recruitment: Met individual teachers to share study information, invite them to participate and exchange contact details.
February 15, 2023	Email sent to potential participants for consent.
March 5 to 7, 2023	Practice interviews: interview two colleagues.
March 22 to May 1, 2023	Data collection – 13 interviews conducted.
March 8 to April 30, 2023	Transcription of Interviews.
May 10 to June 30, 2023	Member checks – Transcripts sent using email.
July 10 , 2023	Transcripts uploaded to MAXQDA for coding.

Appendix I: Sample Journal Entries

Sample Entry #1

Date: March 6, 2023

Event: Practice interview #1

Summary: I interviewed a senior colleague. The interview was done in her office and lasted for 30 minutes. I used the interview guide and asked the questions in order.

Insights: The questions were clear and easy to understand. However, I spoke too quickly so the interview was a bit rushed. Next time I will be careful to pace myself better. I realized very early in the interview that I will need to remind participants that the study focus is the tablets in school project of 2014 and not the tablets distribution program that occurred the COVID pandemic.

Sample Entry #2

Date: March 23, 2023

Event: Interview # 4

Summary: I interviewed the second participant from School A. We had to move to another space because the background was noisy, and we could hardly hear each other. There were many long pauses from the participant after I asked some of the questions. It seems that she was struggling to remember but, I did not push because I did not want her to become uncomfortable.

Insight: I remembered this teacher from her years as a student and I realized that I needed to remind her that I was interviewing in the capacity as researcher, not teacher-educator. I also recognized that I needed to remember the distinction for myself and not use my prior experiences to influence the interview or my interpretations. Noisy backgrounds will always be distracting. I've decided that if no suitable room is available at the research site, I may need to conduct the interview in my vehicle, to get some privacy and avoid the distractions.

There were opportunities for observing non-verbal communication: For instance, when the interviewee stated that she had a fear of technology, her body language (slumped shoulders, and a heavy sigh) seemed to support her statement.