A Situational Analysis Report of the e-Learning Tablets in Schools Pilot Project in Jamaica

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Executive Summary

Introduction

The rationale for the Tablets in Schools (TIS) Pilot Project was partly to achieve the vision of the Government of Jamaica which is to produce technology literate citizens who will compete globally in the 21st century, and partly to improve the teaching and learning process, and student performance in Jamaican schools. In 2014, the e-Learning Jamaica Company Limited in collaboration with the Ministry of Education (MOE) and the Universal Service Fund (USF), developed and implemented the pilot phase of the TIS Project in 38 selected educational institutions across the country. The main purpose of this study was to describe the current situation of the use of the tablet devices for teaching and learning process in the participating schools in the TIS Pilot Project, and to ascertain the extent to which the project has facilitated quick and easy access to the Internet by teachers and students. To achieve this purpose, 14 questions guided the study.

Methodology

The situational analysis was conducted to determine the current situation of the TIS project in the 38 participating schools in Jamaica. The Programme Evaluation Standards developed by the Joint Committee on Standards for Educational Evaluation (1994), were used in the study. Both probability (simple and stratified random sampling) and non-probability (purposeful sampling) methods were used to select the participants for the study (n= 5,317). As a result, both quantitative data through the use of questionnaires and school inventory, and qualitative data through the use of interviews,

focus group discussions and document reviews, which allowed for the collection of data from the different stakeholders. Similarly, both quantitative and qualitative data analysis methods were used to analyze the data collected.

Major Findings

The major findings include the following:

1. Operational documents were put in place which guided the implementation of the TIS project.
2. A vast majority of the teachers as well as some of the regional education officers were trained, but a small number still need training on how to use the tablets. The students and their parents were not trained.
3. Several sensitization sessions were held for the community members. However, some community members knew about the TIS project through the mass media.
4. The resources made available for the piloting of the TIS project were adequate.
5. Inadequate Wi-Fi access was a common complaint among the users across the 38 schools.
6. The users had mixed views about the quality of the tablets. Problems such as loss of battery power, freezing, shocks, and overheating were reported.
7. There was sufficient evidence to conclude that teachers used the tablets for lesson preparation and delivery, research, communication, among other activities.
8. There was also enough evidence to conclude that students used the tablets for learning activities such as conducting research, communication, and completing homework.

9. Short term benefits of the use of the tablets included having access to tablets and the Internet, easy access to information, improved interest in school work, improved school attendance, increase in research-related activities, and increase in reading, literacy and numeracy skills.
10. Short term impact of the TIS project included students' deeper understanding of contents being taught, faster feedback to students, and change in teachers' mindset toward the use of technology.
11. The challenges encountered by the users included poor Wi-Fi connectivity, lack of access to certain applications and sites, lack of full-time support staff, and slow response queries from the schools.
12. There were both positive and negative attitudes and views of the students and the teachers on the use of the tablets.
13. Community members liked the project and were willing to support it.
14. More students felt that the plan used for the piloting of the TIS project was effective when compared to the teachers.

Recommendations

The following recommendations are made:

1. More training sessions are needed for teachers and regional education officers who lack basic knowledge of the tablets.
2. Given the high rate of damaged tablets among the students, there is a need to formally train the students on the proper use and care of the tablets. The students should also be exposed to cyber ethics and safety, as well as on copyright issues.

3. Training sections should also be organized for parents and the community members to educate them on how to monitor their children's use and care of the tablets, cyber ethics and safety, as well as copyright issues.
4. A more permanent arrangement should be made for schools to have better trained implementation officers who can address basic tablets/technology-related needs within the schools before e-Learning Jamaica Company Ltd staff members are deployed.
5. The wireless service in the schools should be addressed.
6. Due to many complaints about the malfunctioning of the tablets by users, the tablet specifications should be revisited before new supplies are ordered.
7. Communication among the users, suppliers and e-Learning Jamaica Ltd should be improved.
8. Efforts should be made to properly document and capture teachers' usage so that data will be available for measuring the tablet impact over a period of time.
10. A more permanent solution should be found to address students' access to adult content, and to promote more use of the tablets for educational activities.
11. Plans should be put in place to address the use of the tablets by the relatives of the students when the tablets are taken home.
12. A better records management system is needed to record the number of teachers and students who were issued tablets.
15. Curriculum relevant e-content should be loaded on the tablets.
16. The threats and weaknesses of the TIS project should be addressed in order to strengthen the project.

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Abbreviations

e-Ljam	e-Learning Jamaica Company Limited
GOJ	Government of Jamaica
ICT	Information and Communication Technology
MSTEM	Ministry of Science, Technology, Energy and Mining
MOE	Ministry of Education
TIS	Tablets in Schools
USF	Universal Service Fund
UTech, Ja	University of Technology, Jamaica

Section 1 - Introduction

The World Summit on the Information Society (WSIS) was held in Geneva in 2003 and Tunis in 2005, to establish a Plan of Action to bridge the "global digital divide" by spreading access to the Internet in developing countries (St. Vincent & the Grenadines, Ministry for Telecommunication, Science, Technology & Innovation National ICT, 2010, p. 11). The Information and Communication Technology (ICT) development plan in Jamaica is in line with the WSIS plan. After this international agreement on ICT, several developing countries such as St. Vincent and the Grenadines, the Republic of Trinidad and Tobago, and Jamaica, began to put plans in place to develop their ICT sector.

The e-Learning Jamaica (eLjam) Company Limited was established as an agency of the Ministry of Science, Technology, Energy and Mining to implement technology-based programmes in Jamaica (eLjam Tablets in Schools Project Document, n.d.). This agency was charged with the responsibility to implement projects that utilize ICTs to improve education in Jamaica. The projects began with the e-Learning High School project, when schools were supplied with technology equipment, and teachers were trained in basic ICT skills as well as technology integration (Project document, n.d.). However, this move was not sufficient in producing a technology literate society that could compete adequately on the world stage. According to the CEO, e-Learning Jamaica Company Limited, "To compete globally in the 21st century, citizens have to become

knowledge-based and have the skills to allow them to become competitive" (Nex Generation, 2014, p. 55). Against this backdrop and to fulfill the vision of the Government of Jamaica (GOJ) for teachers and students to have quick and easy access to information, the idea of the Tablets in Schools (TIS) Project was developed (Personal Communication, Ministry of Education staff, 2015). According to the Ministry of Education (MOE) staff, the findings showed the need to strengthen students' performance at the primary and secondary levels. It was concluded that the TIS project will be a better solution since the students are already comfortable with technology through the use of handheld devices such as smart phones and tablet devices. It was also felt that the tablet technology could help to enhance students' learning, academic and social skills, and cyber ethics (Personal Communication, Ministry of Education staff, 2015).

The GOJ, through the Ministry of Science, Technology, Energy and Mining (MSTEM), and the MOE, and e-Learning Jamaica (e-Ljam) Company Limited implemented the pilot phase of the TIS Project in 2014 having commenced the preparatory work in 2013 (Project Document, n.d.). A part of the preparation was the establishment of a number of committees such as the TIS Planning Programme Development and Implementation Committee, the Advisory Steering (AS) Committee and other sub-committees. These committees are responsible for the planning and implementation of the TIS project (Personal Communication, Ministry of Education staff, 2015).

The aim of the TIS project is to use tablet devices to improve the teaching and learning process in Jamaican schools and to facilitate quick and easy access to the Internet by teachers and students. To achieve this broad aim, the Universal Service Fund

(USF) funded the project which made it possible for the supply of approximately 25,000 tablets (23,782 for the students and 1,245 for the teachers) to 38 selected schools across the country at the levels of infant/basic, primary, primary/all-age, primary/junior high, secondary, special education institutions, and a teacher training college (Project document, n.d.). These schools represent the different levels of the education system in Jamaica.

The project also provided other information and communication technologies, Internet connectivity, relevant e-content, and the training of teachers, instructors and facilitators at the various learning centres/access points in the surrounding neighbourhood of the selected project schools (Project Document, n.d.).

The results of the pilot project will inform the roll out of the full intervention of placing tablets as teaching-learning devices in the full complement of 1,000 plus Jamaican schools (Project Document, n.d.).

1.1 Project Objectives

The main objectives of the project as outlined in the e-Learning Jamaica Company Ltd documents are:

i. To provide children in the selected pre-primary, primary and secondary schools with appropriate tablets, based on agreed guidelines for e-Learning devices.

ii. To provide the pre-primary and primary schools with appropriate technology, appropriate e-content and training of teachers in technology integration.

iii. To assist teachers in all selected schools to acquire an appropriate e-Learning computing device.

iv. To provide learners at Libraries, CAPs, JFLL, state homes and other learning centres in the neighbourhood of the selected schools with access to relevant e-Learning content.

v. To ensure that teachers in selected schools and persons at the neighbourhood access points who are charged with the responsibility, have the necessary skills to facilitate the learners accessing online resources.

vi. To provide ubiquitous Internet access to school campuses and access points.

vii. To provide technical and implementation support to the schools and access points.

viii. To educate the school community in the use and value of the tablets and other technologies to job creation and the economic development of the community.

ix. To support student and teacher research and increase homework completion rates (self reports from teachers and students on impact of tablets on homework completion, hours spent on homework, ease of completion of homework, quality of homework).

x. To increase interest in school (improved attendance, positive statements about school learning).

xi. To increase willingness to read for leisure (number and types of material read).

xii. To foster improved parent/guardian/child relationship (parent and student self reports).

xiii. To build competence in the use of tablets (ease in navigating the tool).

The TIS pilot will:

i. Allow learners in and outside the classroom to collect, analyze, consider, synthesize, evaluate and communicate ideas and information from a pool of available resources, and apply it to complex and practical real-world problems.

ii. Change the teaching and learning process over time with students assuming more responsibility for their learning and teachers becoming coaches in the classroom rather than merely disseminating knowledge.

iii. Augment the e-Learning High School Project as students and teachers in designated communities will have the means of accessing e-Learning content at home or at community centres, libraries, etc., so they can continue to integrate technology into education.

iv. Support the roll-out of an e-Learning Primary School Project as students and teachers in designated schools will have the means to access e-Learning content.

v. Research students and adults who are outside the school system – for example, school dropouts, children and youth in state institutions, and adults seeking literacy/numeracy skills or high school equivalency certification. (Project Document, n.d.)

- **Learners (Children and Adults) will:**

    a. Have the opportunity to work on computers at schools, at home, and at various learning centres/access points in the community.

    b. Be encouraged to access e-Learning content by means of a range of public relations strategies, including edutainment.

c. Improve their ability to work productively outside the classroom, with homework assignments uploaded or delivered by mobile phone, with hotlines or Facebook pages for accessing help rapidly; and with feedback from teachers (grades and comments) as necessary.

d. Show measurable benefit from use of e-Learning content, improving weak areas, producing improved research projects; equipping themselves with the information needed for class discussion and analysis.

e. Be encouraged to protect computer devices, following guidelines for care, and reducing computer down time due to mishandling. (Project Document, n.d.)

- **Teachers/Instructors/Facilitators will:**

a. Have technological access and support including access to content, device, and connectivity.

b. Become increasingly comfortable with integrating technology into learning. (Project Document, n.d.)

- **School/Centre Administrators will:**

a. Be encouraged to use technology for record-keeping and other administrative purposes.

b. Be supported in impacting school discipline with respect to punctuality and attendance as well as students' attitudes, and attentiveness to learning.

c. Move towards e-maturity (effective use and management). (Project Document, n.d.)

- **Parents will:**

  Be encouraged to be more involved in their children's education, with increased responsiveness to communication from teachers and administrators. (Project Document, n.d.)

1.2 The Consultancy

The e-Learning Jamaica Company Limited (e-LJam), under the leadership of Mrs. Avrill Crawford, Chief Executive Officer and the University of Technology, Jamaica (UTech, Ja.) under the leadership of Ambassador Burchell Whiteman, OJ, acting President of the UTech Ja., signed a contract on April 15, 2015 for conducting the situational analysis of the Tablets in Schools Pilot Project. This contract was for five months. See Appendix A for the scope of the consultancy.

1.3 The University of Technology, Jamaica Team

The University of Technology, Jamaica assembled a three-member team of key experts (see Appendix B for brief profiles of the consultants) for the consultancy matching the Request For Proposal (RFP) requirements. The team planned and executed the consultancy with a large field staff for data collection and data entry (see Appendix C for the list of Field Officers and Data Entry Officers).

The team members are:

- Dr. Cynthia Onyefulu, Associate Professor and Team Leader
- Dr. Sybile Hamil, Senior Lecturer in Education and Team Member
- Ms. Grace Hughes, Lecturer in Education and Team Member

1.4 Purpose of the Situational Analysis

The main purpose of this study was to describe the current situation of the use of the tablet devices for teaching and learning process in the participating schools in the TIS Pilot Project. Furthermore, the study was aimed at ascertaining the extent to which the project has facilitated quick and easy access to the Internet by the users (teachers and students), and identifying the strengths and weaknesses as well as the opportunities and threats to help e-Learning Jamaica Ltd to implement and manage the project.

1.5 Conceptual Framework

The logic model framework was used to conduct the situational analysis of the TIS project. A logic model is "a visual representation of a plausible and sensible method of how a programme will work under certain conditions to solve identified problems and is fundamental to programme evaluation (Bickman, 1987; Dwyer, 1997; Julian, Jones, & Deyo, 1995, as cited in Renger & Titcomb, 2002, p. 493). This model offered a systematic method for conducting the situational analysis of the TIS project.

1.6 Programme Evaluation Standards

The *Programme Evaluation Standards* is a guide for consultants to ensure that the study is fairly done. It is for this reason that the consultants used the standards for the situational analysis of the e-Learning Jamaica Company Ltd Tablets in Schools Pilot Project. The standards are organized under the following four headings: utility, feasibility, propriety, and accuracy.

The ***Utility Standards*** are intended to ensure that the study will serve the information needs of the intended users. The ***Feasibility Standards*** are intended to ensure that a study be realistic, prudent, diplomatic, and frugal (economical). The ***Propriety***

Standards are intended to ensure that a study will be conducted legally, ethically, and with due regard for the welfare of those involved in the study, as well as those affected by the results. The ***Accuracy Standards*** are intended to ensure that a study will reveal and convey technically adequate information about the features that determine worth or merit of the program being evaluated (Fitzpatrick et al., 2004).

1.7 Guiding Questions

To identify the questions for the situational analysis, the divergent and convergent phases were used (Cronbach, 1982 as cited in Fitzpatrick et al., 2004). The divergent phase requires generating a list of questions by speaking with the client (e-Learning Jamaica Company Ltd). In the convergent phase, the consultants selected from the list, questions that were considered important by the clients.

The overarching question was: What is the current situation of the TIS project in the 38 schools? Listed below are the specific questions that guided the study which are arranged according to the logic model:

Input Questions

1. To what extent was a policy or policies (guidelines, operational documents, TIS framework, & ICT policy) put in place to guide the Tablets in Schools project?
2. To what extent were the teachers, the students and regional education officers provided adequate training on the use and care of the Tablets?
3. To what extent were the communities around the schools sensitized about the Tablets in Schools Project?

4. What resources (human, budget, facilities, equipment, training, hardware, software, etc.) were made available for the piloting of the Tablets in Schools Project?
5. How adequate is the Internet connectivity (network broadband/bandwidth, Wi-Fi) in the schools being used for the pilot of Tablets in Schools Project?
6. How adequate is the quality of the tablets used in the pilot phase of the Tablets in Schools Project?

Output Questions

7. To what extent are the teachers using the tablets for teaching and learning activities?
8. To what extent are the students using the tablets for their learning activities?

Outcome and Impact Questions

9. What are the short term benefits of the use of the tablets on student engagement and achievement?
10. What is the short-term impact of the use of the Tablets on student engagement and achievement?
11. What challenges encountered affected the realization of the intended deliverables of the Tablets in Schools project?
12. What are teachers' and students' attitudes and views on the use of the Tablets?
13. To what extent is the public/community supporting the Tablets in Schools Project?
14. How effective was the plan (strategy or preparation method) used for the piloting of the Tablets in Schools Project?

1.8 Delimitations of the Study

Based on the contract objectives, scope, and key indicators, the TIS study focused only on the 38 schools that participated in the pilot project. Data were collected only from the students and staff who received a tablet within the 38 schools, some parents and community members, four vendors, a USF staff, selected MOE staff, and e-Learning Jamaica Company Ltd staff who are directly involved with the project.

1.9 Limitations of the Study

A number of challenges were experienced during the study of the TIS Project. These challenges are listed below.

1. The timeframe for conducting the situational analysis (data collection and analysis) was short and too close to the end of the third term. Several schools were conducting end of term examinations as well as national tests, and some others were hosting end of term events (sports, graduations, etc.). This meant that some of the participants were occupied with these activities and were not available for data collection.
2. Although a sampling framework was developed in order to select the participants, in some schools, the sample size was either low or slightly higher than the anticipated number. For the schools with low sample size, the findings cannot be generalized.
3. Some principals gave dates (days set aside for tests, exams, and other activities). This made it impossible for the field officers to visit the schools and to collect data on the agreed date. As a result, many field officers were asked by some

school administrators to visit the schools several times for data collection. This delayed data processing.

4. Some teachers and older students (12-15 & 16-18) were unwilling to complete the questionnaires. Those who agreed to complete the questionnaires only responded to the close-ended questions.
5. Not enough community members were interviewed because several of them either did not know enough about the TIS Project and/or were unwilling to participate in the project.
6. Some students were unable to read and write. Questions were read to such students. This lengthened the data collection time for each visit.
7. Due to the damage of the tablets, some tablets were withdrawn for fixing before the data collection began. This meant that some of the users had short time usage of the device and were unable to respond to some of the questions in the questionnaires and interviews in great detail, and the field officers were unable to observe the teachers and students using the tablets in some of the class visited.

1.10 Organization of the Rest of the Report

The rest of this report is organized under four sections. In section two, the review of related literature is presented. This is followed by the methodology in section three. This includes the design, the sampling method used, the data collection, data analysis, criteria for ascertaining reliability and validity, criteria for ascertaining qualitative data,

data collection procedures, political and ethical issues in studies of this nature, timeline and budget.

In section four, the results are discussed. This is organized under three sub-sections: response rate, description of the participants' demography, and the findings according to the guiding questions. This is followed by the conclusions and recommendations in section five.

Section 2 - Literature Review

2.1 Introduction

The Ministry of Education (MOE) has long been interested in the use of technology in the classroom when it first established the Educational Technology Centre in 2003 (Kelly, 2014). Since then the Government of Jamaica (GOJ) has done a lot to promote technology integration through out the educational system, especially through e-Learning Jamaica Company Ltd.

In this section, a review of related literature is done. The section is organized under the following headings: (a) Vision 2030 Jamaica-National Development Plan, (b) Tablets in Schools, (c) Impact of ICT on Society, (d) Uses of Technology, (e) Barriers to Use of Technology, and (f) Perceptions about Technology.

2.2 Vision 2030 Jamaica-National Development Plan

To ensure that education in Jamaica is recognized internationally and to ensure that the resources are allocated for the implementation of the development plan, the MOE has established a framework for the implementation of the Education Sector Plan for Vision 2030. This was done by putting in place an action plan with six main elements: goals, outcomes, strategies, actions, agencies, and timeframe (Vision 2030 Jamaica-National Development Plan, 2009).

It was stated that "The Sector Plan for Education is influenced by the guiding principles in the *Vision 2030 Jamaica-National Development Plan* and is based on a shared vision of placing Jamaica prominently on the global map in terms of excellence in education" (p. 3). As outlined in the ICT Policy positions of the Vision 2030 Jamaica-

National Development Plan, the GOJ through the MOE is to ensure access to ICT to all students and that all students leaving school will be digitally literate. In the MOE ICT Policy Positions, it is stated that:

> Students leaving grade 11 after five years of secondary education must be computer literate which is defined as being able to use a computer safely to do the following:
>
> 1. compose a document using word processing functions, being able to copy, cut, paste, save and print;
> 2. prepare a simple spreadsheet;
> 3. send and receive an electronic mail message; and
> 4. access sites on the internet. (Vision 2030 Jamaica-National Development Plan, 2009, p. 81)

It is against this background that e-Ljam over the years has supplied schools with ICT facilities and resources such as desktop computers, laptops, multimedia, interactive white-boards, scanners, printers, and now tablets. While these resources will facilitate the integration of technology into the teaching and learning process, the tablets in particular, will enable the teachers and students easy and personal access to the Internet and information, and the opportunity to use the device anywhere within and outside the school compound.

2.3 Tablets in Schools

Parsons and Oja (2010) defined tablets as "portable computing devices featuring a touch-sensitive screen that can be used as a writing or drawing pad" (as cited in Huber, 2012, p.8). Although the tablet computers are relatively new, there are various types of

tablets in the market. Stewart (2013) identified two types of tablets as (a) convertibles, and (b) slates. Convertibles are similar to laptops, while slates lack keyboard and are "less suitable for younger students in the classroom" (Stewart, 2013, p. 13). The technical specifications of these devices are varied depending on the brand.

According to the Science Daily (2015), the use of tablets in the United States (US) skyrocketed last year. This increase was also noted by Huber (2012) who described the situation of iPads in schools in the US, Germany, and Austria, phenomenal. In the US, Huber noted that "hundreds of schools have been experiencing and using iPads …" (p.20). She noted that iPads are less expensive, easier to use, and more portable. This is why it is popular in schools in the US. She also noted that since 2011, "iPads have been used in almost all subjects" offered in the schools (p. 19). Additionally, she noted that students in Germany are used to some aspects of technology such as "working with blogs and doing internet research" (p. 19). She concluded that the use of iPads in the classrooms will further enhance the students' technological skills. This view was shared by the Madison administrators, who stated that "students who used iPads, were more engaged in the classrooms" (as cited in Huber, 2012). In another school in the US, Huber noted that the use of iPads increased student learning. Huber, however, noted that a study done by Kuznia (2012) showed that students' enthusiasm decreased over time with the use of iPads.

In Austria, two schools began using iPads in 2010. The idea was not to replace schoolbooks with the devices but to improve "lessons through interactive use" (Huber, 2012 p.22). To ensure that the project was successful, a software developer was

employed to work on suitable educational applications to be used in the device (Huber, 2012).

Advantages and disadvantages of using tablet devices. Stewart (2013) identified advantages of using tablets as follows:

> Reduction of time in preparing lessons; enhancement of the teaching of literacy and numeracy; enhancement of teacher planning and administration; ease of use in displaying previously covered material that would normally have been erased on a blackboard; no messy chalk or nasty fumes from dry erase markers; greater student motivation since the introduction of ICT and Tablet PCs into the curriculum. (p. 15)

According to Stewart (2013), due to the mobility of the tablets, students are able to take them anywhere, and are able to record "lectures or lessons while they wrote their own notes" (pp. 16-17). Other benefits of using the tablets are: (a) the reduction in the number of books to be taken to school, (b) students are able to write and send their work to their teachers, (c) students' different learning styles can be accommodated, (d) students are able to have their study resources with them everywhere, (e) learning becomes fun and more enjoyable, (f) there is improved attention span in class, and (g) students are motivated to learn.

On the other hand, the uses of tablet devices have some potential health risks. According to the Science Daily (2015), a study was conducted in the US among university students and staff who were regular users of the tablet device. The researchers established a "link between increased head and neck flexion and pain" (n. p.). They hypothesized that "tablet use would result in greater gravitational demand than a neutral

posture, particularly when used on a lap or flat on a desk." The researchers also reported that "tablet use increases mechanical demand on neck muscles by 3-5 minutes more than a neutral position." The researchers highlighted the need for the development of ergonomic guidelines for tablet use.

Holden (2015) wrote an article about the impact of smartphones and tablets on the thumbs and wrists. He referred to this as a condition called the "texting thumb." This condition, he claimed, results from the repetitive action of tapping on the devices and the extended usage which injures the tendon in the hand. This makes the hand painful or sore.

Another article titled, *Tablets Cause Injuries*, published online in 2014, reported an increase in the number of patients with musculoskeletal complaints as a result of the use of tablets. The author allured that the excessive rotation of the wrist and stretching of the thumbs, caused strains in the wrist and hand. In another online publication about smartphones and tablet usage, it was reported that the increased resolution in the electronic devices, with digital screen will result in a condition known as "digital eye strain."

2.4 Impact of ICT on Society

A study done by Wu, Fowler, Lam, Wong, Wong, and Loke (2014) stated that with the rapid advancements in digital technology (DT) such as the smartphones and tablets, children can use the DT devices anytime and anywhere. According to these authors, "DT use has both positive and negative impacts on preschool children's development in five domains" (n.p). These domains include (a) academics (positive attitude to learning), (b) cognitive (improvement in visual intelligence and motor skills),

(c) physical (less physically active), (d) psychological (development of addictive disorders), and (e) social (decrease in family time, and lack of communication). The impact of ICT can also be seen as economic benefits to the society. According to Olson et al. (2011), the economic benefits of e-Learning are (1) it will improve general education within a country, and (2) it will create a technology-immersed population. These authors also recognized that the rural and urban divide in terms of access to technology is reduced.

Apart from the economic benefits, Gaskell and Mills (2010), noted the role of mobile technologies in the world. They stated that:

> there is much evidence that mobile technologies are playing an increasing role in education and the use of mobile technologies is increasing in the developed world in a number of areas, for instance, in context-related education, and how hand-held devices can be used for basic language, skills, numeracy and health and safety training and some aspects of teaching and learning across the developing and developed world. (as cited in Goundar, 2011, p. 6).

This is in line with the aim of the TIS Project, which is to use the tablets in the teaching and learning process. On the other hand, Duma and Monda (2013), examined the growth of Internet and the impact of ICT tools in South Korea by using the Futures Wheel method. According to Duma and Monda, the use of tablet PCs in South Korea will have an impact in (a) developing collective knowledge, (b) easier communication, (c) increased efficiency in education, and (d) higher usage of ICT tools and digitizing teaching material. For developing collective knowledge, they believed that “students will

be able to react and send feedback more easily" (p. 44), and that "users will be able to make their own profiles, comment on the content and maybe upload new materials" (p. 44). For easier communication, Duma and Monda were of the view that "students can make voice and video calls and start chat sessions," while being mobile (p. 44), and this will strengthen their collective communication abilities. For increased efficiency in education, Duma and Monda were of the view that "information will be available instantly to students by the use of tablets," and this will facilitate group learning, and make use of digital texts and learning materials. Finally, for higher usage of ICT tools and digitizing teaching materials, Duma and Monda believed that by digitalizing learning material, it will be easier for users to access such.

According to Kelly (2014), "information and communication technologies (ICT) can be used to help poor and marginalized people and communities make a difference to their lives" (p. 39). Unwin (2009) added that:

> ICTs can make a difference to the lives of the poor and marginalized but depend in part on their contribution to economic growth, and also concerned with issues to do with access that people have to information, ways in which those from different backgrounds communicate with each other, and the content requirements that poor people need if they are to be able to transform their lives and livelihoods (as cited in Kelly, 2014, p. 40).

To Selinger (2009), "Technology in the classroom enhances students' access to understanding through the use of multi-modal representations of difficult to grasp

concepts" (as cited in Kelly, 2014, p. 41). The benefits of ICT/the use of tablets cannot be overemphasized.

2.5 Uses of Technology

In a study done by Hernandez, Estrera, Markovitz, Muyskens, Bartley, Bollman, Kelly, and Silberglitt (2015), they examined the uses of technology to support early childhood practice. The results of their study showed that there are several technologies that can be used in early childhood settings in three areas. These include both hardware and software used to (a) support instruction and assessment, and track progress and individualize instruction/services, (b) support parent, family, and community engagement, and (c) support professional development and informal learning. Although the focus of their study is on early childhood, these technologies are also useful to other levels of education such as primary and secondary schools.

2.6 Barriers to Use of Technology

Ihmeideh (2009) identified three main barriers to teachers' use of technology in Jordanian preschool settings: "lack of developmentally appropriate software, time, and rewards," while for the principals, the barriers were "inadequate funding, lack of knowledge about technology use, and lack of appropriate facilities" (as cited in Kelly 2014, p. 51). Obstacles to technology use at schools identified in the Project Tomorrow (2013) include (1) slow Internet access, (2) school filters and firewalls, (3) inadequate number of computers, (4) old computers, and (5) old software programs.

Other researchers who have investigated barriers to technology use include Morgan (2010), Yang (2012), and McKenny and Voogt (2012) (as cited in Kelly, 2014). For instance, Yang stated that in English schools, "teachers' attitudes tend to be more

adaptable despite the resistance in institutional curriculum and assessment in schools" (as cited in Kelly 2014, p. 51). For this reason, Yang saw teacher training and teacher attitude as very important to "harness technology's pedagogical potential." This point on teacher training was also supported by Wang, et al (2010) (as cited in Kelly 2014, p. 51).

Olson, Codde, deMaagd, Tarkleson, Sinclair, Yook, and Egidio (2010) identified physical factors that affect e-Learning technologies in schools as (a) climate related problems such as heat, humidity, and dust, (b) conditions of school building, (c) pest problems, (d) theft, (e) isolation of schools, (f) power supply, (g) broadband connectivity, (h) computer viruses, (i) lack of ICT trained professionals, and (j) high cost of equipment. The factors are also similar to the challenges experienced in Jamaica. Once these factors are addressed, then the TIS Project in Jamaica will be very successful.

Another barrier noted by Goundar (2011) in the use of mobile devices are "electrical power, network connectivity and user competency" (n.p.). Internet and Wi-Fi connectivity seem to be a major problem in Jamaica. On the other hand, Hernandez, Estrera, Markovitz, Muyskens, Bartley, Bollman, Kelly, and Silberglitt (2015) attributed the common barriers to successful use of technology to a lack of technology literacy as a result of a lack of professional development and technology support. It is for this reason that the MOE in one of their reports recommended on-going training for teachers and the regional education officers.

In a study done by Schoolwireless (2013) and Project Tomorrow (2013), the term "digital parents" was used. These are "mobile users who are texting, tweeting, social media devotees with children in grades ranging from kindergarten through high school" (p. 2). The company studied 39,000 parents and found out that 128% of the

parents used a smartphone or tablet computer. The company noted that 37% of the digital parents want teachers to be held accountable for technology integration in the classrooms. This supports the importance of on-going ICT training for both teachers and parents in Jamaica. The supply of tablets to schools is another way many Jamaicans can become digital parents.

2.7 Perceptions about Technology

Kelly (2014) conducted a study for her dissertation titled: *Perceptions, beliefs and practices about technology among teachers in a Jamaican infant school*. She studied four teachers who taught at an infant school in Jamaica. Her findings among other things showed that these teachers believed that the use of technology is for knowledge building, as well as for replacing paper charts.

According to Kelly (2014), due to the importance of the first five years of a child's development, there is an increased focus on technology integration research. For instance, the National Association for the Education of Young Children [NAEYC] (2011) published a statement on the use of technology with children. The association sees the teacher as a key decision maker on how to use the technology with children (as cited in Kelly, 2014). This view was also expressed by Barron, Cayton-Hodges, Bofferding, Copple, Darling-Hammond and Levine (2011), who stated that "the teacher is an important decision maker in the use of technology to enhance children's learning (as cited in Kelly, 2014, p. 17). To be able to use technology successfully, "the teacher's role is critical in thoughtful planning, implementation, reflection, and evaluation of decisions to guide the integration of technology into the classroom experience" (NAEYC, 2012, as cited in Kelly, 2014, p. 17).

Researchers like Mohammad and Mohammad (2012) and Schuler (2009) voiced their views on the influence of technology on children's interactions with teachers and peers in the classroom (as cited in Kelly, 2014). Kelly further stated that "The value teachers place on technology for young children's learning will influence their pedagogic choices for integrating technology in the classroom" (p. 12).

The advantage of mobile devices was clearly articulated in the Project Tomorrow Report (2013), where it was stated that:

> students can have access to a wide range of information and knowledge whenever they go online, and they come to school already equipped with many experiences and perceptions about the world gained through online interactions. The old school view was predicated on students as simple consumers of information; today's students place a higher premium on the learning experience of creating content, and sharing their discoveries, masterpieces and manuscripts with the world. (p. 3)

This is in line with what the MOE is trying to achieve, which is to have students have easy and quick access to the Internet and to promote the use of the constructivism approach to teaching and learning.

Section 3 - Methodology

3.1 Design

As indicated in section one, a situational analysis was conducted by using the logic model. A part from the systematic nature of this model, situational analysis is one of the steps in the logic model (Singletary, 2004). According to the FRESH Tools Effective School Health (2004) Report, a situational analysis is "an effort undertaken by programme planners to gather and analyze information that will help them to design, implement and evaluate interventions" (p. 1). Vrontis and Thrassou (2006) described situational analysis as an audit of a c current situation of an organization/company, which helps that organization to determine 'where they are now' as well as to identify the strengths, weaknesses, opportunities, and threats.

The logic model is defined as "graphic representation of a program showing the intended relationships between investments and results" (Board of Regents of the University of Wisconsin System, 2008). See Figure 3.1.

According to Worthen, Sanders and Fitzpatrick (2004), "a logic model starts with the long-term vision of how programme participants will be better off (changed) because of the programme" (p. 79). The logic model or programme theory allowed the consultants to "learn more about how the programme is intended to work and in identifying aspects of a programme (specific inputs, activities, outputs, and outcomes and impacts) that bear scrutiny" (Fitzpatrick et al., 2004, p. 80).

Figure 3.1. The Logic Model Framework

In the ***inputs phase***, the consultants focused on the resources (established project management and technology implementation teams, manuals, e-Learning technologies, Internet connectivity, budget, technical and implementation support, and other facilities and infrastructures) made available for the implementation by e-Ljam for the Tablets in Schools Pilot Project. The distribution of the tablets by vendors was also examined.

In the ***outputs phase***, the consultants examined the training and workshops (for teacher preparation processes and regional education officers), sensitization (students, teacher and community awareness and acceptance), and other related activities for the implementation of the project. The participation of the students and the teachers in the TIS project was also examined.

The last phase focused on the ***outcomes and impact*** of the pilot project. The outcomes are the specific short to mid-term benefits and changes that occurred as a result of the use of the tablets in schools while the impact is the intended or unintended changes. These changes included but were not limited to, the usage of the tablets by students (skills in tablet use and homework behavior), and usage by teachers (technology integration skills), as well as the safety, security and proper use and care of the tablets by the stakeholders, etc. The students' and teachers' research behavior, attitude to the tablets, use of tablets within and outside the school, and access to the Internet for school

work, student performance and better teacher engagement, in terms of the use of the tablets for instruction were also examined.

3.2 Population

To select the participants both quantitative and qualitative sampling methods were used. All the 38 schools that participated in the pilot project were classified according to the Ministry of Education regions and school types (see Table 3.1). The study population included the following stakeholder groups: principals, teachers and students from the 38 participating schools across Jamaica, MOE staff, e-Ljam staff, parents, community members and vendors who supplied the tablets.

As shown in Table 3.1, schools were selected from all six regions of the Ministry of Education in Jamaica. Furthermore, almost all types of public educational institutions were represented in the pilot phase of the TIS Project, except universities. This included Infant (15.8%); Primary (31.6%); All-Age, and Primary and Junior High (15.8%); High Schools, and Academy (31.6%), Special Education (2.6%); and Teachers' College (2.6%).

Table 3.1

Distribution of Institutions by Region and School Type

Region	Infant/ Basic	Primary	All Age, Pri./Jr. High*	High/ Academy	Special Education	Teachers' College	Total
1. Kingston	2	5	2	2	-	-	11
2. Port Antonio	1	1	-	-	-	-	2
3. Brown's Town	1	2	1	1	-	-	5
4. Mo Bay**	-	1	2	5	-	1	9
5. Mandeville	1	1	1	1	-	-	4
6. Old Harbour	1	2	-	3	1	-	7
Total	6	12	6	12	1	1	38

Note: *Pri/Jr High stands for Primary & Junior High Schools
**Mo Bay stands for Montego Bay

3.3 Sample

All participating schools in the TIS Project were sampled. The sampling frames used in the selection of teachers and students from the participating schools were obtained from e-Learning Jamaica Company Ltd. The selection of students was through the use of stratified random sampling, except for two schools where no sampling was done for the students due to the small sample size. In such schools, all the students were asked to participate in the study. Similarly, 22 schools with 50 or less teachers were not sampled, as all the teachers were asked to participate in the study. However, simple random sampling was used to select teachers from schools with large numbers. To obtain a representative sample of the students in schools with large numbers, the consultants

decided to use 20% of the population of this stakeholder group, where possible. Within the schools, the students were stratified by grade and then randomly selected. No sampling was done with the principals (N= 38) as well as the e-Ljam staff who had direct engagement with the project; and the vendors who supplied the tablets.

Purposeful sampling method was used to select six senior education officers, and 27 regional officers who had roles in the project. However, the convenience sampling method was used in selecting parents and members of the community around the schools. See Table 3.2 for the number of participants in both the population and sample. The sample size for the study was (n= 5,317). See Appendix D (1 to 4) for the detailed sample of the different stakeholder groups in the population and sample based on schools.

Table 3.2

Number of Participants in Population and Sample

Participants in Schools	Number in Population (N)	Number in Sample (n)
Infant (students & teachers)	1,339	268
Primary (students & teachers)	6,746	1,349
Secondary (students & teachers)	13,826	2,765
Teachers' College (students & teachers)	250	35
Principals	38	37
Parents	3,800*	603
Community members	3,800*	215
e-Learning Jamaica Company Ltd staff	17	17
Universal Service Fund staff	1	1
Ministry of Education staff	33	23
Vendors	4	4
Total	29,854	5,317

Note: * The total could not be determined

3.4 Data Collection

Due to the logic model framework used, there was a need to use several data collection methods. As a result, both quantitative data through the use of questionnaires and school inventory, and qualitative data through the use of interviews, focus group discussions and document reviews allowed for the collection of data from the different stakeholders.

Questionnaires. To collect data from the teachers and students, four different questionnaires were used. The teachers' and students (ages 15 to 16) questionnaires had five sections. Section A contained demographic items, while sections B to D contained items that represented the logic framework. For instance, section B had input items, section C contained items on activities, and section D contained items on output and impact. Section E had items that assessed the teachers' views on the Tablets in Schools Pilot Project. Sections A to D had multiple responses as well as "yes/no" responses for participants to select from, while section E had the Likert-type responses. The students (ages 3 to 15 years) had only three sections (A to C) that is, profile items in section A, input items in section B, and activities items in section C, without the output/impact items. It should be noted that the questionnaires for ages three to six and seven to 11 year olds, were largely administered as interviews, because some of the students could not read and write. See Appendices E1 to E5 for the teachers' and students' questionnaires.

Interviews and focus groups. The principals, two senior e-Ljam staff, a USF staff, six senior Ministry of Education staff, and four vendors were interviewed individually. The questions asked were also classified according to the Logic Model framework as well as general views and experiences of the pilot project. The parents and the community members were also interviewed individually through face-to-face or by phone, and through focus group discussion, depending on the number available at the time of the interview. See Appendices F1 to F7 for the interview schedules. Focus group discussions were done with the training and the implementation officers (e-Ljam staff) and the education regional officers. See Appendices F8 to F9 for the focus group schedules.

School inventory. The principals were asked to complete an inventory that captured the school context in section A, while sections B to E captured the four phases of the Logic Model (inputs, outputs, and outcomes). See Appendix G for a copy of the inventory.

Document reviews. The consultants reviewed documents provided by e-Learning Jamaica Company Ltd, MOE documents, and some documents from the school principals. These included the TIS Concept Document, the e-learning Jamaica TIS Project Document, the TIS Policy Manual, the ICT Education Policy Document, the Monitoring of the TIS Teacher Training Workshop Sessions Report, the TIS Parent Sensitization Report, the TIS Evaluation Feedback Report, the Teacher-Training Manual, and the TIS Manual. Other documents reviewed were lesson plans, attendance, records on student achievement, and capacity records.

3.5 Procedures

A letter of introduction from e-Learning Jamaica Company Ltd to the schools was sent in late April of 2015. This letter indicated the reason for the study and urged the schools to participate.

The questionnaires were pilot tested between the last week in May and the first week in June 2015, with three schools in region one, namely, Alpha Infant, Chetolah Park Infant and Primary, and Haile Selassie High. Some of the teachers and the older students who participated were asked to complete the questionnaires, while some of the younger and older students were interviewed, or had the questions read to them in order to obtain feedback on the quality of items as well as on the length of the instrument. As a result of the feedback received, all the questionnaires were reduced in length to make them

manageable. It was also decided that the field officers would read the questions where the students had problems with reading. It should be noted that the teachers and the students who were used during the pilot phase were not used in the main study.

The main study was conducted between June and early July, 2015. Each questionnaire took the teachers and the older students between 30 and 45 minutes to complete. The time was slightly shorter for some of the younger students (ages 7-11 years) who were able to read and write. However, the field officers had to read the items and write the responses for some of the three to six age group as well as for some of the younger students (ages 7-11 years) who were unable to read and write.

Documents were reviewed, and interviews and focus group sessions were conducted concurrently from June to July, 2015, and in October and November, 2015 for the MOE senior staff and the regional education officers, upon the request from the senior management staff of e-Learning Jamaica Company Ltd. The interviews with e-Learning Jamaica Company Ltd staff and the vendors were conducted by one of the consultants after the interviewees had identified venues, dates and times when they were available. Likewise, the interviews with the principals, and parents/community members, were conducted by the field officers. These interviews lasted approximately 60 minutes each. Probes were used to encourage the interviewees to elaborate on their responses, as well as to clarify responses where necessary. The interview responses were all hand written with permission. See Appendix H for the school visit schedule.

3.6 Reliability and Validity

The *Accuracy Standards* (A5 & A6) of the Programme Evaluation Standards developed by the Joint Committee on Standards for Educational Evaluation (1994), were

used for the study of the TIS pilot project. As stated in sections A5, “The information gathering procedures should be chosen or developed and then implemented so that they will assure that interpretation arrived at is valid for the intended use” (p. 126). While in A6 it is stated that “The information gathering procedures should be chosen or developed and then implemented so that they will assure that the information obtained is sufficiently reliable for the intended use” (p. 126). Described below are the procedures followed to ensure that the data collected were valid and reliable.

For the quantitative data collection, Sections C and D of the teachers’ and students’ questionnaires which contained the Likert Scale-type items, Cronbach alpha reliability was computed by using the Statistical Package for the Social Sciences (SPSS), version 21. See Table 3.3 for the reliability coefficients for the questionnaires for teachers, student teachers, and high school students.

Table 3.3

Reliability Coefficients for the Different Participants

Participants	Number of Items	Reliability Coefficient
Students	29	0.906
Student Teachers	29	0.839
Teachers	26	0.928

To achieve content validity, professional judgments by the consultants was used to determine the appropriateness of the contents of the data collection methods (Reynolds, Livingston, & Wilson, 2006). This was done to ensure that the items in the data collection methods were relevant and representative of the key indicators. Further,

every item was linked to a guiding question. See Appendix I for the matching of the data collection methods with the guiding questions.

3.7 Authenticity and Trustworthiness

For the qualitative data collection (interviews), it was important to validate the accuracy or credibility of responses of the interviews. In this section, how authenticity and trustworthiness were ascertained is described.

Authenticity can be achieved through five criteria. However, only one (fairness) was used in this study. By fairness, the consultants represented the different view points of the participants interviewed without taking sides (Creswell, 2013). Trustworthiness was ascertained through member checking and triangulation. Each is described below.

Member checking. It is the "process in which the researcher asks one or more participants in the study to check the accuracy of the account" (Creswell, 2013, p. 259). This procedure which is also called respondent validation was achieved by asking the interviewees whenever possible to verify the accuracy of their responses after the interview. All the interview transcripts were verified except two interviews which could not be sent to the interviewees due to time constraint. It should be noted that some MOE staff did not verify their interview responses, although such were sent to them.

Triangulation. This is the "process of corroborating evidence from different individuals (e.g., a principal and a student), types of data (e.g., observational fieldnotes and interviews), or methods of data collection (e.g., documents and interviews) in descriptions and themes in qualitative research" (Creswell, 2013, p. 259). This was achieved by using the interviews, document reviews, and school inventory to corroborate

the findings of the questionnaire responses in order to increase the validity of the findings.

3.8 Data Analysis

Close-ended items in the teachers' and students' questionnaires were coded and entered into the SPSS program, and were analyzed using the right statistical tests. For example, descriptive statistics was used to analyze the demographic data and items with responses that were classified as nominal data. Inferential statistics (Analysis of Variance) was used with the Likert-type items and the Chi-Square test was used with some of the categorical items. These tests were used to test for differences between teachers' and students' responses, and between school responses. Further, the tests allowed for generalization of the findings across school types.

For the qualitative data (documents, interviews and focus groups), the five steps as outlined by Taylor-Powell and Renner (2003) were used. These include: (a) understanding the data by reading and re-reading the texts/transcripts; (b) looking at how the respondents responded to each question; (c) assigning abbreviated codes, or labels to exclusive word(s), or phrases, organizing the data into categories, and sub-categories where possible; (d) identifying patterns and connections within and between categories or themes; and (e) interpreting the data by attaching meaning and writing the narrative.

3.9 Political and Ethical Issues

The political and ethical considerations of a study of this nature were guided by *Propriety Standards* as outlined by the Joint the Committee on Standards for Educational Evaluation (1994), and ethical guidelines as outlined by Leedy and Ormrod (2012). First,

there was a contract signed by the client and the University of Technology, Jamaica, which provided legal backing for the project.

Second, to ensure that the different stakeholders' views and interests were represented, the lead consultant met with the senior e-Learning Jamaica Company Ltd staff and the MOE staff, to go through the study plan. It was after this meeting that the consultants were able to start the study, and kept regular communication with e-Learning Jamaica Company Ltd.

Third, all key stakeholder groups were represented in the study. This included the primary users (students and teachers), principals, parents, community members, vendors, MOE staff, USF staff, and the staff of e-Learning Jamaica Company Ltd.

Fourth, the ethical issues in research as outlined by Leedy and Ormrod (2012) were observed. This includes protecting the participants from harm, maintaining participants' right to privacy, and being honest. For instance, the participants were not forced to complete the questionnaire or answer interview questions. Those who agreed to participate were allowed to keep the pen and/or pencil provided by e-Learning Jamaica Company Ltd as well as those provided by the consultants. Each participant was not exposed to any physical or psychological harm since they were only required to complete a questionnaire, as well as answer interview questions. Participants' rights to privacy were also respected. Each participant was assigned a code in order to maintain confidentiality, and pseudonym was used to assure anonymity (Leedy & Ormrod, 2012). All data collected were stored in a safe place and only the consultants had access to the data sets. The field officers were made to sign an integrity form before data were collected (see Appendix J), while the data entry officers were made to sign an agreement

form (see Appendix K). Data collected were analyzed and reported in an honest manner. Each field officer who had to travel was asked to record the mileage (see Appendix L). The principals were asked to verify the data collection log sheet by signing and stamping it after the field officers had completed the data collection process within a school (see Appendix M for the log sheet).

3.10 Timeline

Time management is an important skill to have when undertaking any study. The pilot phase of the project began on May 27, 2015 even though the contract was signed on April 15, 2015. The delay was because the introduction letter to the participating schools was sent out late. According to Creswell (2013), "when planning a study, investigators should anticipate the time required for data collection and data analysis" (p. 62). For this reason, the consultants had created a timeline which should have guided the data collection phase. However, the timeline helped the consultants to complete tasks within an estimated time frame, that is, April 15 to August 31, 2015. It should be noted that upon the request of e-Learning Jamaica Company Ltd, additional interviews were conducted with the MOE staff in the last week of October and early November, 2015.

3.11 Budget

Creswell (2013) stated that "investigators need resources such as funds for equipment, for participants, and for individuals to transcribe interviews" (p. 62). He also stated that it is important to have a budget. The approved budget for the study is Five Million One Hundred Thousand Jamaican Dollars (JMD$5,100,000.00) with the provision of recoverable expenses not exceeding Three Million Three Hundred Sixty Thousand Jamaican Dollars (JMD$3,360,000.00). According to the Joint Committee on

Standards for Educational Evaluation (1994), “the Feasibility Standards are intended to ensure that an evaluation will be realistic, prudent, diplomatic, and frugal” (p. 63). The consultants adhered to this standard under F3, which deals with cost effectiveness of a study. It is for this reason that the consultants kept the budget for the recoverable expenses below JMD$3,360,000.00.

Section 4 – Discussion of the Results

4.1 Overview

In this section, the results of the study are presented. It is organized under three main sub-sections: participation rate, demographic of participants, and findings. The findings are organized according to the logic model framework.

4.2 Participation Rate

A total of 38 principals participated in the Pilot Project. However, 37 actually participated in the study of the TIS Project. The participation rate for the principals was 97.4%. For the students, 5,076 were selected and a total of 4,688 actually participated. The overall participation rate for the students was 92.4%. See Table 4.4 for the number of students participating in each school.

Table 4.4

Participation Rate of Students in each School

School	No of Students	Number Selected	Number Participating
Rennock Lodge Primary	167	43	43
St. Benedicts Primary	740	149	165
Parry Town Primary	404	96	96
Stephen James Basic	230	46	31
Alpha Infant	367	73	71
Cambridge High	1,447	289	247
Granville All Age	414	83	82
Winston Jones High	768	154	142

Haile Selassie High	675	135	125
Cavaliers Primary	83	83	68
Clan Carthy Primary	948	189	189
Herbert Morrison Technical High	1,434	287	260
Marie Cole Primary	621	124	121
NazarethAll Age	223	45	63
Salt Savannah Primary	236	47	47
Cumberland High	961	193	193
The Cedar Grove Academy	400	79	79
Windsor Special Education	320	64	20
Holy Trinity High	1,420	200	191
St. Joseph Infant	351	120	120
John Mills Infant, Primary & Jr. High	736	186	186
Mona Heights Primary	1,125	225	221
Lowe River Primary & Jr. High	700	140	141
St. James High	2,015	403	276
Sir Clifford Campbell Primary	621	124	124
Central High	1,901	380	358
Aintree Basic	230	46	50
Chetolah Park Infant & Primary	120	24	23
Porus Infant	123	25	25
Happy Hour Basic	117	23	51
Homestead Primary	229	46	51
Galina Infant & Primary	220	44	57
Rio Bueno Primary	58	58	58
Sam Sharpe Teachers' College	250	50	24
Irwin High	2,100	420	216
Sandy Bay Primary & Jr. High	597	119	147
Belmont Academy	496	99	182
Steer Town Academy	826	165	159
Total	24,673	5,076	4,702

Seven hundred and fifty four teachers in the 38 participating schools were selected from a total of 1,324. Of this number, 506 actually participated. The overall participation rate for the teachers was 67.1%. See Table 4.5 for the number of teachers participating in each school.

Table 4.5

Participation Rate of Teachers in each School

School	No of Teachers	Number Selected	Number Participating
Rennock Lodge Primary	11	5	5
St. Benedicts Primary	25	5	4
Parry Town Primary	18	18	16
Stephen James Basic	7	7	5
Alpha Infant	17	17	9
Cambridge High	76	16	17
Granville All Age	25	12	12
Winston Jones High	46	29	29
Haile Selassie High	41	41	35
Cavaliers Primary	8	8	4
Clan Carthy Primary	32	32	19
Herbert Morrison Technical High	87	13	11
Marie Cole Primary	15	15	8
Nazareth All Age	10	10	9
Salt Savannah Primary	14	14	8
Cumberland High	56	23	23
The Cedar Grove Academy	17	17	12
Windsor Special Education	34	34	5
Holy Trinity High	109	22	18
St. Joseph Infant	17	17	10
John Mills Infant, Primary & Jr. High	43	43	20

Mona Heights Primary	37	37	14
Lowe River Primary & Jr. High	35	35	16
St. James High	104	21	20
Sir Clifford Campbell Primary	22	22	4
Central High	113	23	18
Aintree Basic	11	11	10
Chetolah Infant and Primary	11	11	11
Porus Infant	11	11	7
Happy Hour Basic	9	9	6
Homestead Primary	11	11	5
Galina Infant & Primary	10	10	6
Rio Bueno Primary	6	6	6
Sam Sharpe Teachers' College	50	50	11
Irwin High	80	16	16
Sandy Bay Primary & Jr. High	22	22	9
Belmont Academy	37	37	35
Steer Town Academy	47	24	33
Total	1,324	754	506

Thirty six staff members of the participating schools completed the inventory. This resulted in 94.7% response rate. Of the 33 MOE staff selected, 23 (69.7%) participated. A total of 603 parents and 215 community members participated in the study. The response rate could not be determined for these participants as the population was unknown.

4.2 Demographic of Participants

Of the number of participants (teachers and students) that indicated their gender, 54.7% are females, while 45.3% are males. This showed that there were more females among the participants. See Table 4.6 below.

Table 4.6

Gender Distribution of Participants

Participants	Male	Female	Total
Students	1,951	2,089	4,040*
Teachers	88	381	460*
Total	2,039	2,470	4,509

*No Response (Students, n=662 & Teachers, n = 46)

The students who participated were across the different grades (infant/basic school to grade 11). Their ages ranged from three years old to 18 years, while the student teachers were between less than 20 and 21-25 years old. For the teachers, the vast majority were between 31 and 35 years of age. See Table 4.7 for the age range of the teachers.

Table 4.7

Age Range of Teachers

Age Range	Frequency	Percent
Below 30 years	86	18.9
31-35 years	134	29.5
36-40 years	74	16.3
41-45 years	67	14.7
46-50 years	35	7.7
Above 50 years	59	12.91
Total	455	100

No Response (n = 51)

Of the 506 teachers surveyed, 437 (97.5%) indicated that they were trained teachers, while 11 (2.5%) said they were untrained. Fifty eight of the teachers did not answer the question on teacher training.

The vast majority (62.5%) of the teachers had a Bachelor's degree. This is followed by 20.3% with diploma. Forty nine teachers did not indicate their qualifications. See Figure 4.2 for the teachers' qualifications.

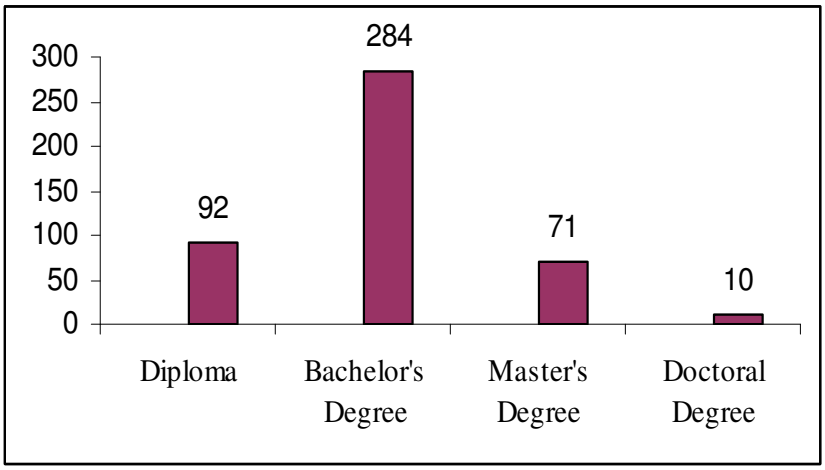

Figure 4.2. Teacher Qualifications

Of the 463 teachers who indicated their teaching experience, 122 (26.6%) has been teaching for six to 10 years. This is followed by 94 (19.6%) with one to five years of teaching experience. See Table 4.8 for the years of teaching experience of the teachers.

Table 4.8

Teachers' Teaching Experience

Teaching Experience	Frequency	Percent
Less than 1 year	9	1.9
1-5 years	94	20.3
6-10 years	122	26.3
11-15 years	88	19.0
16-20 years	67	14.5
Above 20 years	83	17.9
Total	463	100

No Response (n = 43)

Presented below are the findings according to the logic model. The guiding questions are presented first, followed by the questionnaires and interviews findings, as well as the findings of the inventory and document reviews where applicable. The Strengths, Weakness, Opportunities and Threats analysis is reported at the end of the findings of the logic model.

4.3 Findings of the TIS Pilot Project

Input Findings

There were a total of six guiding questions under the inputs phase of the logic model. The first guiding question is presented below.

Guiding question one: **To what extent was a policy or policies (guidelines, operational documents, TIS framework, & ICT policy) put in place to guide the**

Tablets in Schools project?

To answer the above guiding question, documents from e-Learning Jamaica Company Ltd and the MOE (the GOJ, MOE ICT in Education Policy) were reviewed. The findings showed that due to the national goals, as highlighted in Vision 2030 and the National Education Strategic Plan (NESP), the GOJ, MOE ICT in Education Policy (2013), which in part, guided the development and implementation of the TIS Project. The policy was developed to "provide the framework for the Government to keep pace with technological advancements, so that all learners and educators will have equitable access to relevant, current and emerging technologies" (the GOJ, MOE ICT in Education Policy, 2013, p. 10).

The policy goals are as follows:

1. Learning opportunities for all.
2. Transforming teachers and teaching.
3. Transforming learning
4. Empowering education management and administration.
5. Nurturing talent and innovation (ICT in Education Policy, 2013, p. 18).

The review of the literature on ICT policy in education shows that many countries have similar ICT policies. For instance, in 2005, Trinidad and Tobago in the Caribbean, developed its ICT framework based on its Vision 2020 (The Ministry of Education of the Republic of Trinidad and Tobago, 2005). In St. Vincent and the Grenadines, the Ministry of Telecommunications, Science, Technology and Innovation (2010), outlined the national information and communication technology strategic and action plan: 2010-2015 for the island. Ghana in Africa, established an

ICT framework in 2008 (Frempong, 2010), and Republic of Korea (Hwang, Yang, & Kim, 2010). These countries saw the need to establish a regulatory framework that guided the use of ICT as the vehicle for transforming the education system so as to have a society that is technology-driven.

The ICT policy in Jamaica, in part, guided the implementation of the TIS Project, as outlined in the e-Ljam TIS Pilot Project Document (n.d.). In this document, the implementation of the TIS Pilot included:

1. *Project set up*, which include the establishment of a project management team.
2. *Provision of the tablets* by vendors and *broadband connectivity* by the USF.
3. Technology infrastructure, which involved going through the government procurement guidelines.
4. *Content management and delivery* which involved the identification of relevant e-books and applications (apps) through the Core Curriculum Unit of the MOE.
5. *Training* of principals, teachers, and regional education officers.
6. Providing *implementation support* to the different stakeholders.
7. *Project monitoring and evaluation* which is, in part, the reason for this study.

From the interviews conducted with the staff of the e-Ljam, it can be concluded that there are policies put in place that guided the implementation of the TIS Pilot Project.

Guiding question two: **To what extent were the teachers, the students and regional education officers provided adequate training on the use and care of the Tablets?**

To answer this question, the teachers, students, e-Ljam trainers, and regional education officers were asked in their questionnaires to indicate if they were trained on how to use and care for the Tablets, while the regional education officers were asked the same question during the focus group discussion.

Teachers' views on training. Of the 506 teachers surveyed, 459 responded to this question. A total of 428 (93.2%) teachers said that they were trained on how to use the Tablets. Of the 428 teachers who said they were trained on how to use the Tablets, 421 (98.4%) said they were trained on how to care for the Tablets. On the other hand, all 17 regional education officers stated that the focus of the training that they received was on how to use and care for the tablets but not on how to supervise or monitor and report on teachers' use of the tablets in their various regions.

Three hundred and eighty two or 83.9% of the teachers trained said they were trained by e-Ljam staff as well as other facilitators from different institutions. The staff of e-Ljam later confirmed that some facilitators were contracted to do the training. The main aim of the training was to enable teachers to understand how to integrate the tablets into the teaching and learning process, and how to care for the tablets.

Students' and parents' views on training. The students were not formally trained by e-Ljam staff or by the external facilitators contracted by e-Ljam. Special effort was made by the training officers to introduce the use and care of the tablets to students and parents during the Parents-Teachers Association meetings and through the sensitization

or orientation sessions when and where possible. These sessions were required by the parents before the tablets were issued to them.

Based on the questionnaire data, most of the students were either self-taught or were tutored by their (1) teachers, (2) family members, especially mothers and fathers, (3) friends, (4) classmates, and the distributors (vendors).

e-Ljam trainers' views on training. The e-Ljam training officers with the help of some external facilitators conducted trainings across schools in Jamaica. The facilitators were from the teachers' colleges and institutions such as College of Agriculture, Science and Education; G. C. Foster College of Physical Education; Sam Sharpe Teachers' College; Shortwood Teachers' College, St. Josephs Teachers' College, Moneague Teachers' College, and HEART Trust/NTA. Some of the training sessions were done at the office of e-Ljam in Kingston and others were done in locations such as Montego Bay, Trelawny, and Portland.

The e-Ljam trainers also did random inspections of the schools, and based on their findings, recommendations were made on how to correct the faults/errors discovered. These training officers also gave technological support to schools, and one-to-one coaching when and where necessary.

The types of training/workshops done included: (1) Basic ICT Training for teachers, (2) a three-day Mind Set Training for Board Chairpersons, Principals and Education Officers, (3) a two-day Mind Set Training for teachers, (4) a three-day Integration Training for teachers, education officers and special trainers (train the trainers), (5) on-going (one-day) Professional Development workshops which covered Tablet usage and other technologies based on feedback from teachers.

The Republic of Korea since the 1980s, has trained teachers in ICT literacy and integration. They have since made this a part of their teacher training curriculum for student teachers to be trained in e-Learning and ICT (Hwang, Yang, & Kim, 2010). This shows that the training of teachers and regional education officers by e-Ljam is in line with what happens internationally when ICT tools are introduced in schools.

Training manual. It should be noted that e-Ljam developed a manual for the training sessions. This was acknowledged by the participants who were interviewed. The manual covers three main sections (basic, intermediate and advanced) to be delivered in 18 lessons (e-Ljam Tablets in Schools Pilot Project, Teacher-Training Manual, 2013). Some participants indicated that they found the manual useful while others indicated otherwise.

Regional education officers' views on training. The regional education officers who attended some of the training sessions expressed the following positive comments:

- "I learnt a lot during the training."
- "The trainers were knowledgeable."

Other comments made were:

- The short notice given for the training sessions
- All-day Saturday training was inconvenient to most participants
- Lack of prior knowledge of ICT for some, which made it difficult to comprehend the intermediate and advanced content of the training
- The pace of the training which was too fast for some participants without the background knowledge of technology use
- Individual attention was lacking for participants without basic ICT skills

- Malfunctioned tablets made it impossible for all participants to practice during training
- Inability to complete assigned tasks due to time constraints
- Absence of a personal tablet to continue with the practice after the training ended
- Lack of focus on monitoring and reporting mechanism for teacher usage of the tablets
- Lack of information on the roles to be played by the MOE regional officers

Some of these findings are consistent with the observations made in the MOE Monitoring of the TIS Teacher Training Workshop Sessions Report (2014), which among other things, noted that the participants commented on the following: the competency of the trainers/facilitators, the malfunctioned tablets, the attendance pattern, and the absence of assigned tablets to the participants. The findings were also consistent with the observations noted in the MOE Monitoring of the TIS Parents Sensitization Sessions Report (2014), regarding the confusion about the MOE regional officers roles in he project.

Additional training. Even though a high percentage of the teachers and regional education officers said they were trained, several of the teachers and their principals indicated that they needed additional training to be able to integrate the technology into the teaching and learning process. For instance, a teacher stated in the questionnaire “I do not feel comfortable using the tablet in class as I need to understand it more to do so.” A principal stated that “more workshops are needed to educate teachers on how to use the tablets and the Internet.” A regional education officer said “the training was good,

although it was rushed. I cannot remember what I learnt because we were not given any tablets after the training to practice what we learnt."

Without teachers and the regional education officers being comfortable with their ability to use the tablet, integration of this device in teaching and learning will be difficult. For the reasons reported above, in the MOE Monitoring of the TIS Teacher Training Workshop Report (2014), it was recommended that additional and on-going training and technical support be provided.

Guiding question three: **To what extent were the communities around the schools sensitized about the Tablets in Schools Project?**

The community members (n=215) and the MOE regional education officers (n=17) were interviewed, in order to answer the above guiding question. One hundred and forty or 65.1% of those interviewed said that they knew about the TIS project through the mass media (television, radio & newspaper) and other members of the community, while 60 (27.9%) had seen students around the community using the tablet devices, and/or have relatives who received the e-Ljam tablet devices, while 15 (6.97%) learnt of it through e-Ljam meetings. It should be noted that there had been several sensitization meetings for community members organized by e-Ljam.

Extracts of the comments from the community members are stated below.

- "Many know that students were given tablets and many see it as a good initiative. However, many of these persons also see it as a distraction since many students use it for non-educational purposes." (Parent 1)
- "I heard of it and I am grateful for it." (Parent 2)
- "I felt so good about the tablets in schools project. I was really excited." (Parent 3)

- "I was grateful for it until I learnt that the students had to return it." (Parent 4)
- "Good foundation for the children in Jamaica." (Parent 5)
- "I heard about it; it is a great concept and a brilliant idea. The students should educate parents on how to use the tablets and Internet." (Parent 6)

The findings were consistent with the observations made in the MOE Monitoring of the TIS Parents Sensitization Sessions Report (2014), which stated that all parents were not fully sensitized, but were supportive of the project.

Apart from the sensitization meetings, there are other initiatives designed to inform the general public about the TIS project. These included the development of an interactive website hosted on the MOE site, the Nex Generation Magazine, and media (television and newspaper) coverage. For instance, on the RJR News Online website, in an article published on January 19, 2015, under the caption "Government confident in success of Tablets in Schools programme," Mr. Julian Robinson, the Minister of State in the Ministry of Science, Technology, Energy, and Mining commented on the viability of the programme. Another report was published on the Jamaica Observer.Com website, on August 27, 2014, under the caption "Tablets issued to 1200 secondary school teachers – Paulwell." These have shown that the staff members of e-Ljam have made efforts to educate and inform the general public about the pilot project.

Guiding question four: **What resources (human, budget, facilities, equipment, training, hardware, software, etc.) were made available for the piloting of the Tablets in Schools Project?**

The TIS Pilot Project is funded through the USF, which is a part of the money collected as levy on the termination of overseas telephone calls in Jamaica

(RJRNewsonlin.com). The budget for the TIS Project as outlined in the e-Learning Jamaica TIS Pilot Project document was estimated at J$1,367,063,729.80 for the period April 2014 to August 2015. In an interview with a staff of the Universal Service Fund, it was noted that the Government of Jamaica spent $1.25 billion on the TIS Project. See Table 4.9 for the expenses as provided by the staff of e-Learning Jamaica Company Ltd.

Table 4.9

Budget for TIS Pilot Project

Expenses	Amount
Total audited expenses ending March 31, 2015	J$1,187,785,000.00
Total unaudited expenses ending April-June, 2015	J$47,771,678.00
Total expenses ending June 30, 2015	J$1,235,556,678.00

Based on the figures as shown above, the project cost is below the $1.25 billion projected by the USF, that is, as of the time of this study.

For other resources, during the interviews with the principals and from the school inventory data, there was sufficient evidence to show that e-Ljam had on various occasions supplied the schools with different technologies for teaching and learning before the TIS Pilot Project began. The resources supplied included tablets, charging carts, and storage cabinets. Other related technology resources were computers, laptops, multimedia projectors, smart interactive boards, and Mimio interactive suite. According to some of the principals, storage cabinets and charging ports were supplied just before the end of the third term in 2015. These supplies were confirmed by e-Learning Jamaica Company Ltd staff as well as the teachers. Some of the principals showed the consultants

some of the technology devices which are stored away in secured rooms. It should also be noted that some principals also showed the consultants the monitoring system put in place to document the usage of the technology recourses in their schools.

The human resources needed for the project were supplied by e-Ljam. These included the trainers and implementation officers, the assistant implementation officers in the 38 participating schools, and other project team members. It can be concluded that the resources (human, budget, facilities, equipment, training, hardware, software, etc.) made available for the piloting of the Tablets in Schools Project was adequate.

***Guiding question five*: How adequate is the Internet connectivity (network broadband/bandwidth, Wi-Fi) in the Schools being used for the pilot of Tablets in Schools Project?**

This question was posed to all the participants (teachers, students, principals, and e-Ljam staff), all of whom commented on the inadequacy of the Internet and the Wi-Fi in most of the schools during the TIS Pilot Period. Only one Academy and the Teachers' College got both Internet and up-graded broadband (Wi-Fi connectivity). The former got the Wi-Fi on May 27, 2015 from "Flow." It was not clear when and where the College got their Wi-Fi. It should be noted that the lecturers in the College reported that they did not have enough bandwidth for the use of the tablets. These claims were supported by the students who also expressed the need for better Internet access.

It should be noted that the staff members of the Academy which claimed to have up-graded broadband, still have problems accessing the wireless in various parts of the school compound. Both teachers and principals complained that their students gathered around the "hot spots" on the school compound. This, they said slows down the wireless

when needed by the teachers. Some principals expressed concerns about the access of the wireless by community members, which they said also slows down the already poor Internet service that they have. One principal showed the consultants the buildings within the school compound that once had wireless access points which were vandalized by some community members. This was confirmed by the USF staff who indicated that a report was received from that particular school regarding the vandalized equipment.

An interview with the USF staff showed that all 38 schools used for the TIS Pilot Project had Internet connectivity. However, what was lacking was adequate broadband for the Wi-Fi. The USF staff indicated during the interview that regular checks were done to determine which school needed an up-grade of its broadband. It is not clear when all the schools will have an up-graded broadband in order to have a more effective Wi-Fi access. A document provided by a staff of USF showed that the Wi-Fi deployment for the schools participating in the TIS Pilot Project was between 10 and 100 Mbps bandwidth. Only one high school had the highest bandwidth of 100 Mbps. At the time of this study, 21 schools had the lowest Mbps of 10. This may affect Wi-Fi accessibility if every teacher and student had to use the tablet.

The majority of the teachers surveyed stated that to work around the Internet and wireless problem, they saved documents downloaded from the Internet for teaching on jump drives before coming to school. Presented below in Figures 4.3 and 4.4, are the teachers' and students' responses on the adequacy of the Internet and Wi-Fi connectivity.

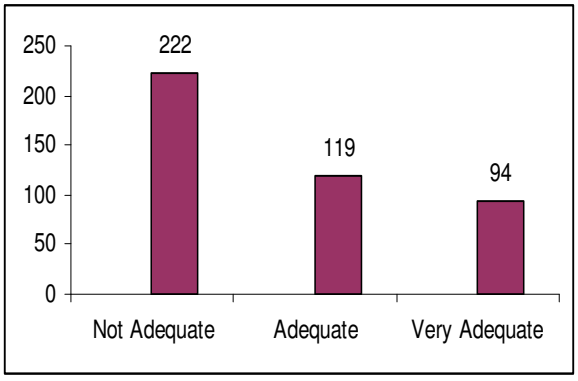

Figure 4.3. Teachers' Responses on the Adequacy of the Internet & Wi-Fi

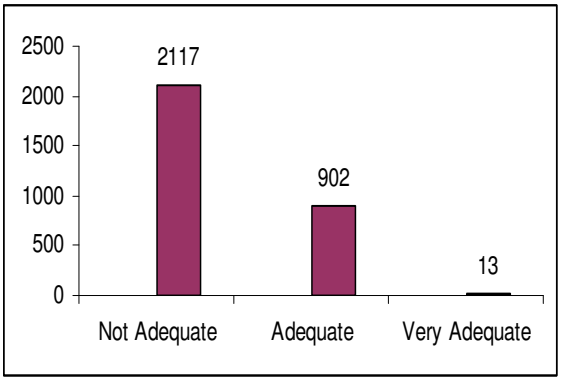

Figure 4.4. Students' Responses on the Adequacy of the Internet & Wi-Fi

Of the 506 teachers surveyed, 435 responded to this item. As shown in Figure 4.3, 51% of the teachers indicated that the Internet and Wi-Fi connectivity in their schools were not adequate, 27.4% said it was adequate, and 21.6% said it was very adequate. On the other hand, of the 4,702 students surveyed, 3,032 responded to this item. Of this number, 69.8% said the Internet and Wi-Fi connectivity was not adequate, 29.7% said it was adequate, and 0.43% said very adequate (see Figure 4.4). Some parents who were interviewed also lamented about the poor Internet service in the schools.

Another Internet problem reported was with the expiration of the chip in Digicel tablets. A student reported that the chip that they got "expires very quickly." A parent stated that "her child never really got any service from it. Digicel keeps calling whenever the funds on it is low." Another parent in one of the primary schools suggested that "the Internet service should be added to the tablet and parents can be asked to pay towards the service since they do not have such service at home."

Unlike in Jamaica, 40% of middle school students and 52% of high school students in the United States of America (USA) have regular access to the Internet

outside the school, and while in school, access points are provided (Project Tomorrow Report, 2013). This is why the Internet and Wi-Fi connectivity in Jamaican schools needs to be examined for the sustainability of the TIS Project.

Guiding question six: **How adequate is the quality of the Tablets used in the pilot phase of the Tablets in Schools Project?**

This question was posed to all participants (teachers, students, parents, principals, vendors, MOE staff, and the staff of e-Ljam). Quality in this study is defined as the adequacy of the physical features of the tablet device.

Vendors' and *e-Ljam staff views on quality of tablets.* During the interview with the e-Ljam staff, it was stated that the quality of the tablets was good. This was confirmed by the four vendors during the interview. According to one of the vendors, e-Ljam provided the specifications of the tablets, which guided their supply. The specifications of the tablets came with accessories (Bluetooth, keyboard, case: leather or rubber). One vendor stated that "the tablets come in a box. Each box contained a manual, a charger, USB cable, Stylus (pen), ear phone, and a protective case, which may be leather or rubber. The leather case was supplied to the older students and teachers, while the rubber case was given to the younger students." Another vendor stated that the case colours for the basic school children are "bright colours and rugged rubber to suit their age range, while black leather folder case with Bluetooth keyboard was mostly used for the older users; example, high school students."

The vendors were asked to rank the quality of the tablets out of five. Two vendors ranked the tablets four out of five. One vendor added that "the quality of the tablets is such that if used properly, can last more than three years." This was also said by another

vendor who stated that “if used carefully, the tablets can last up to four to four and a half years.” “Out of a scale of one to five, five being the highest, I will rank the tablets at four,” said another vendor.

Still on the issue of quality, one vendor stated that the specific complaint received was on the tablets supplied by another vendor whose tablets had problems with the start buttons, which were replaced as soon as the complaints were made. However, this vendor noted that some students tried to fix this problem by themselves which resulted in more damage to the tablets. It was also noted that tablet breakage for two providers is still below the 10% allocation, that is, in terms of the use of the warranty, while the other two providers have gone over the 10% breakage based on damages reported by the schools.

MOE staff views on quality of tablets. According to a MOE staff,

> “the tablets specifications were generally good. There was a balance between cost and quality. A certain percentage of the mal-functioned tablets was expected due to mass production. What should be examined is if the rate of breakage is beyond what is accepted internationally, as well as the rate of breakage that was expected by e-Learning Jamaica Ltd. It should be anticipated that if the tablets are being used then there would be some amount of breakage due to factory defects.”

Teachers’ and students’ views on quality of tablets. Presented in Figures 4.5 and 4.6, are the teachers’ and students’ responses on the adequacy of the quality of the tablets.

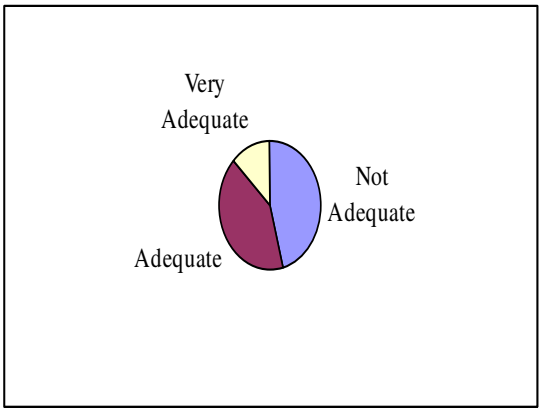

Figure 4.5. Teachers' Responses on the Adequacy of the Quality of the Tablets

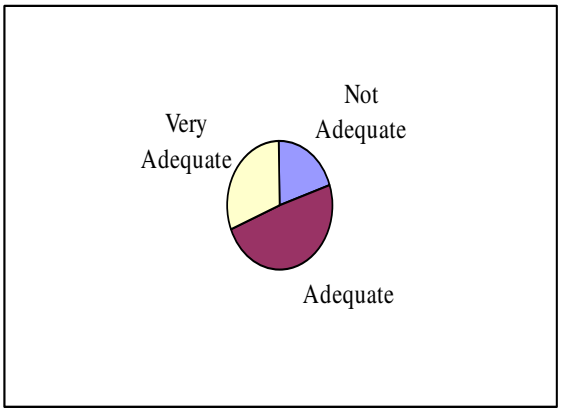

Figure 4.6. Students' Responses on the Adequacy of the Quality of the Tablets

Of the 506 teachers surveyed, 473 responded to the item on quality of the tablets. As shown in Figure 4.5, 216 (45.2%) indicated that the quality was not adequate, 198 (41.9%) said it was adequate, and 61 (12.9%) said it was very adequate. On the other hand, 2,567 of the 4,702 students responded to the same item. Of this number, 1, 240 (48.3%) said the tablet quality was adequate, 806 (31.4%) said it was very adequate, while 521 (20.3%) said it was not adequate (see Figure 4.6). Some of the reasons for the perceived inadequacy by the teachers are listed on the next page.

To examine whether there was an association between the views of the 12-15 and 16-18 year old students, a Chi-Square goodness of fit test was used. The Pearson Chi-square result showed that there was no significant difference in the views of the two groups of students on the quality of the tablets they received ($\chi 2 = 4.558$, $df = 1$, p=.472).

Parents' views on quality of tablets. When the parents were asked about the quality of the tablets, several of them had mixed views. One parent stated that the "quality was good, my child did not have problems with the tablets." Another parent said the tablet given to her child "malfunctioned all the time. It shuts off or freezes. Give the

students better tablets." A similar comment was made by another parent who also said that the tablet the child received "freezes up, or shuts down." This parent added that "the charger not charging, the earphone not working, it takes a long time to come back on." It should be pointed out that these complaints were also common among the teachers and students.

Comments on problems with the tablets. Apart from the freezing and charging problems as mentioned above, other common faults identified by the participants were (a) loss of battery power easily, (b) receiving shocks when the tablet is in use, (c) the tablet power off at 50% when being charged, (d) getting a blank screen when in use, (e) faulty buttons, (f) overheating of the tablet when being used after a short time, (g) faulty USB cord, and (h) inability to access jump or flash drive. It should be noted that if the basic rules of operating the tablets are not carefully followed as outlined by the manufacturers as well as in the manual, it will result in some of the problems mentioned.

Some of these problems are consistent with the feedback obtained by the TIS Monitoring and Evaluation Working Group (2015), which listed keyboard issues, freezing, poor picture quality, poor visibility on screen, battery problem, lack of sockets for charging, Internet and Wi-Fi connectivity, etc.

Output Findings

Two guiding questions guided the activities and participants phase of the logic model. The first guiding question is presented below.

Guiding question seven: **To what extent are the teachers using the Tablets for teaching and learning activities?**

To provide answers to this question, the teachers and the principals were asked to comment how their teachers used the tablets. From the school visits and data collected from the school inventory, teacher questionnaire and principal interview, the tablets were used by some of the teachers (n=247) despite the challenges experienced with poor Internet and Wi-Fi connectivity, lack of access to some apps, and the presence of what the teachers referred to as "irrelevant content" loaded on the tablets.

Teachers' views on use of the tablets. The general ways the teachers used the tablets within the short period they had, are presented in Table 4.10. This is followed by the principals' views.

Table 4.10

Ways Teachers Used the Tablets (n=247)

Ways of Using Tablets	Frequency	Percent
Surfing the Internet	221	89.5
Reading	205	82.9
Demonstration	194	78.5
Explanation	157	63.6
Presentation	154	62.3
Interaction	149	60.3
Videos	147	59.5
Collaboration	117	47.4
Tutorials	105	42.5
Games	103	41.7
Social media	95	38.5
Music	75	30.4
Other*	30	12.1

*Other included communication (emails & Schoology, Whatapps, etc.), downloading assignments

Some of these comments were consistent with the feedback obtained by the TIS Monitoring and Evaluation Working Group (2015), which had similar comments by the teachers who stated that the tablets were used for communicating with students, doing assignments with the students, and as a teaching aid.

The use of social media by some students in the TIS Project is consistent with the findings in the Project Tomorrow Report (2013). In this report, it was stated that "social media provides the context for the digital learners to connect, collaborate and create content in ways that are especially meaningful for them" (p. 5). It was also noted that students are using a wide range of social media tools. For example, 71% of high school students are texting, and 63% of middle school students are communicating with others via text messages. Other social media being used are "3 out of 10 students in grades 6-12 are using Twitter to follow others or to share 140 characters about their daily life on a regular basis," …. 26% of students in grades 6-8 participate in massively multiplayer online games." (p. 5).

The result of the One Way Analysis of Variance (ANOVA) statistics showed that there was no statistical difference in the ways the teachers across the four school types used the tablet devices, $F(3, 243) = .842$, $p = .475$).

It should be noted that 165 (32.6%) of the teachers stated that they needed help with the basic operations of the tablets before they can use the tablets often. These basic operations include: navigating the tablet, accessing apps from the Internet, using tablet features, and using offline applications as outlined in the TIS Teacher-Training Manual, n. d.). These basic operations were covered during the training sessions.

Range of time spent on tablets. The majority of the teachers (n=220) indicated that they spent between 30 minutes a day to over three hours on the tablets. Summarized below are the ranges of hours teachers in the different schools spent per day using the tablets.

Table 4.11

Range of Time Teachers' Spent Using the Tablets

School Type	Range of Time
Infant/Basic School	30 minutes – 3 hours
Primary School	1- 5 hours
All-Age/Primary & Jr. High	1- 3 hours
Academy/High School	30 minutes – 4 hours
Special Education	30 minutes – 3 hours
Teachers' College	1 to 3 hours

Less than half of the teachers (n=236) surveyed thought that the use of the tablets for teaching and learning improved their confidence (38.1%), self esteem (32.2%), and motivation (29.7%). One teacher stated "I am more technologically aware, and I am confident in using technology devices in the teaching and learning process. I feel a sense of achievement equipping my students for the digital age."

Personal injury. The teachers were asked if they experienced any personal injury as a result of using the Tablet in their classrooms. Less than eight percent said "yes." The common complaint were eye and wrist pain.

Principals' views on use of the tablets. The principals' general views were that most of the teachers used the tablets for teaching and learning activities such as planning lessons, preparing reports, sending emails, saving documents in cloud computing or on jump drives, downloading apps using Google Plays Store, using the camera to video as well as take pictures during school events and field trips, and using Schoology, and e-books.

One principal added that in his school, "the teachers were time-tabled each week on days when the students would bring their tablets to school. At least three lessons per week were taught using the tablets." Another principal stated that her "teachers gave students web-based assignments to research and discuss in class." Another principal stated that the teachers who used the tablets had "increased morale," while another principal noted that "the younger teachers were more inclined to use the tablets more than the older teachers." On the contrary, some of the teachers were of the view that principals who are technologically inclined, supported the use of technology in the classrooms.

Guiding question eight: **To what extent are the students using the tablets for their learning activities?**

To provide answers to this question, the students, teachers, parents, and principals were asked to comment. From the students' questionnaire responses, it was clear that the tablets were being used despite the challenges experienced with poor Internet and Wi-Fi connectivity in their schools and lack of access at some of the students' homes.

The findings showed that the vast majority (n=2,566) of the students were comfortable with the use of the tablets. Presented below are ways the students across the schools used the tablets.

Table 4.12

Ways Students Used the Tablets (n=4,162)

Ways of Using Tablets	Frequency	Percent
Surfing the Internet	4,085	98.1
Doing homework	4,001	96.1
Playing games	3,827	91.9
Doing class work	3,806	91.4
Reading	3,775	90.7
Downloading	3,529	84.8
Using social media	2,882	69.2
Watching videos	2,617	62.9
Listening to music	2,445	58.7
Taking pictures	2,101	50.5
Other*	2,064	49.6

*Other includes interaction, doing presentation, sending emails, using Schoology, Skyping, & using Whatsapp.

According to one principal, the students used the tablets "to explore and research information for projects such as Junior Schools' Challenge Quiz, and Spelling Bee, and sites such as GoGSAT and GSATready." Another principal of a high school stated that "the grade 11 students did not use the tablets a lot because they were preparing for their exams and that they were already on their way out." A different view was expressed by another principal who stated that the older students (ages 16-18 years and above) used the tablets in doing the following: taking pictures instead of copying notes in class, taking pictures of events and activities, communicating with friends and relatives through emails and Whatsapp, using social media (FaceBook, YouTube, Instagram, etc.), accessing educational sites for the Languages (Spanish), and Mathematics.

In one of the basic schools, a teacher stated that students are able to construct their own learning at their own speed by using the tablets." Another teacher added that "younger students used the tablets to do group work in class, listen to rhymes and songs, take pictures, surf the Internet, and play games."

Some of these comments were consistent with the feedback obtained by the TIS Monitoring and Evaluation Working Group (2015), with similar comments from the students, who stated that the tablets were used for accessing information, interacting with friends, and reduction in the number of books carried to school. Further, the findings of this study are also consistent with those reported in the Project Tomorrow Report (2013), which stated that students' use of technology for schoolwork included accessing the Internet for information, accessing assignments, grades and class information, preparing for multi-media presentations, taking online tests, accessing online databases, using online textbooks, watching videos created by the classroom teachers, and conducting virtual experiments or simulations (Project Tomorrow Report (2013).

Parents' views on usage. Although the parents agreed that their children used the tablets, their views on the usage were mixed. For instance, a parent stated that the use of the tablet has "improved her child's ability to read properly." Another parent said "access to information on the Internet has helped her child with the school work." On the other hand, a parent described the tablets as "a waste of time," and added that "the kids are using the tablets on the streets, listening to music and playing games all day long." Other parents who commented made the following remarks:

- "It can be very distracting as the child only play games and it keeps the child away from school work." (Parent 1)

- "Students play the 'Charlie Charlie' game on the Internet." (Parent 2)
- "The child plays a lot with the tablets. The teachers should test students every week on what they learnt over the weekend by using the tablets." (Parent 3)
- "Teachers need to give the students more homework to do with the tablets since all that they do, is to play games and use social media. (Parent 4)

Another parent stated that the tablets were not only used by the students but also by their parents and/or relatives. For instance, the parent stated that some "parents carry the tablets to street parties, fights, and funerals to take pictures."

Apps usage. It should be noted that e-Ljam and MOE have provided resources (apps and hardware) that teachers can use or access from the tablets. Hardware provided by e-Ljam has already been discussed under guiding question four. However, see the list of apps provided below.

Table 4.13

List of Apps for Schools

School Type	Resource Title
Infant/Basic School	Math Buddies
Primary/All Age/Junior High	Bright Sparks
	EduFocal GSAT
	GSAT Tutor
	EZLearner
	Scholastic Learning Zone
	Up You Mighty Race
High Schools	Copia Class – New English
	EPave Math Mobile
	Investigating Science for Jamaica 3
	Up You Might Race

Source: Tablets in Schools: Teacher-Training Manual (n.d.)

Range of time spent. Some students (n = 4,160) indicated that they spent between one hour to more than six hours per day on the tablets. Those students who spent a lot of time on the tablets also complained about the tablet battery dying quickly. Presented below is the number of hours students across the different age range spend on the tablets.

Table 4.14

Range of Time Students Spent on Tablets

Age Range	Average Per Day
3-6 years	3 hours
7-11 years	5 hours
12-15 years	6 hours
16-18 years	3 hours

Improving students. It should be noted that more than half of the students (n=2,235) thought that using the tablets improved their confidence, self esteem, and motivation. See Table 4.15 for the percentages.

Table 4.15

Improving Students

Variable	Frequency	Percentage
Confidence	2,148	96.1
Motivation	2, 141	95.8
Self-esteem	1,973	88.3

Personal injury. A total of 77 students which is less than two percent of the 4,688 students, reported that they had an injury while using the tablets. These injuries were pains in their fingers and wrists, eye pain, headaches, and electric shock. As shown in Table 4.16, more injuries were reported at the primary school level. It should be noted

that the some of the students used the tablets for very long periods of time per day and this may be a reason for these injuries.

Table 4.16

Number of Participants with Injuries

Age Range of Students	Frequency	Percent
3-6 years	77	35.7
7-11 years	109	50.5
15-16 years	30	13.9
Total	216	100

These findings are consistent with the articles published online on the potential health risks of excessive use of smartphones and tablets, which they said may result in increased head and neck flexion and pain (Science Daily, 2015), injures to the tendons in the hands (Holden, 2015), and digital eye strain (Lee, n.d.).

Students' expressions. The basic/infant and the primary school students were asked how they felt about getting the tablet device. As shown in Table 4.17, the majority of the students were mostly excited, good, nice and happy. Those who were sad, bad or mad, when asked, said that the tablets were no longer available for their use.

Table 4.17

Students' Expressions of the Tablets

Expression	Age Range of Students		Total
	3-6 years (n=348)	7-11 years (n=1,263)	(n=1,611)
Excited	345 (21.4%)	1,257 (78.0%)	1,602 (99.4%)
Good	344 (21.3%)	1,255 (77.9%)	1,599 (99.2%)
Nice	327 (20.3%)	1,217 (75.5%)	1,544 (95.8%)
Happy	294 (18.2%)	1,200 (74.5%)	1,494 (92.7%)
Cool	181 (11.2%)	1,007 (62.5%)	1,188 (73.7%)
Fine	124 (7.69%)	769 (47.7%)	893 (55.4%)
Sad	24 (1.48%)	33 (2.05%)	57 (3.53%)
Bad	20 (1.24%)	40 (2.48%)	60 (3.72%)
Mad	17 (1.06%)	31 (1.92%)	48 (2.98%)

Outcomes and Impact Findings

The following questions guided the outputs and impact phase of the logic model. The first guiding question is presented below.

Guiding question nine: **What are the short term benefits of the use of the Tablets on student engagement and achievement?**

To answer the above question, the different participants (students, teachers, principals, parents, and MOE staff) were asked to state the short term benefits of the use of the tablets. Extracts of some of the participants' views of the TIS short term benefits are stated below.

Typical Students' Comments on Benefits

- "Owning a tablet."
- "Accessing online information."
- "Researching topics covered in class."
- Communicating with teachers and peers."

Typical Teachers' Comments on Benefits

- "Promoting independent learning."
- "Motivating students to learn and to explore."
- "Participating in class activities."
- "Promoting individual learning."
- "Increasing parental involvement and interest in school work."

Typical Principals' Comments on Benefits

- "Increase in students' self confident."
- "Increase reading and knowledge of world affairs."
- "Increase in student enrollment."
- "Increase in parental involvement."
- "Access to teaching resources."
- "Improvement in completion of assessments."
- "Improvement in research capabilities."
- "Improvement in independent and collaborative learning."
- "Reduction in non-contact noise level."
- "Improvement in punctuality due to access to Wi-Fi."
- "Uplifting of school's image."

Typical Parents' Comments on Benefits

A parent stated that "it saved me money that I give to my child to go to the Internet café or the library." Another parent added that "It is an invaluable learning opportunity at the finger tips of my child." Another parent saw it as "an opportunity to improve and educate the community." Other comments made by parents are listed below.

- "Reduction in the cost of books."
- "Increase in child's school work."
- "Access to information when needed."

Typical MOE staffs' Comments on Benefits

- "Easy communication between teachers and their students."
- "Students are able to own a tablet."
- "Improved and increased teachers' and students' knowledgeable of technology."
- "Improved reading ability and literacy level of students."
- "Improved students' interest in school work."
- "Easier preparation of lesson plans."
- "Improved school attendance."
- "Beneficial to students with special needs and A-Step students.

Being able to own a tablet device was also noted in the study done by the MOE Monitoring and Evaluation Unit, and is also consistent with the advantages of using tablets as outlined by Stewart (2013).

Guiding question 10: **What is the short term impact of the use of the Tablets on student engagement and achievement?**

The extracts from the comments on impact of the TIS Pilot Project made by the different stakeholders are presented below.

Typical Teachers' Comments on Impact

- "Students have deeper understanding of the contents being taught." (Teacher 1)
- "Students are able to collaborate digitally with each other." (Teacher 2)
- "Students are knowledgeable on how to use multiple apps." (Teacher 3)
- "Students are able to contribute more to lesson discussions." (Teacher 4)
- "Students are more engaged in class." (Teacher 5)
- "A few have used the tablets to improve themselves educationally." (Teacher 6)
- "Students are always finding videos related to the topics learnt and add additional information to what they have been taught." (Teacher 7)
- "I have seen improvement in my students' vocabulary." (Teacher 8)
- "My students are able to think critically." (Teacher 9)

Typical Principals' Comments on Impact

- "Increase in the number of teachers and students who are technology literate."
- "Production of independent learners."
- "Improved quality of School-based assessment submissions."
- "Greater level of student involvement."
- "Faster feedback from teachers to students."
- "Improved teacher time management."
- "Change towards student-centered approach."

Typical Parents' Comments on Impact

- "My daughter has improved on Mathematics, English, and Spelling, but after a while it stopped working." (Parent 1)
- "It motivated my son to do his work. He learnt colours, shapes and other things." (Parent 2).
- "My child is reading better and pronouncing words better. I like the nursery rhymes on it." (Parent 3).
- "The children used it to access the dictionary, to solve math problems." (Parent 4)
- "My child got better grades in Spanish even though she plays a lot of games on the tablet." (Parent 5)
- "The tablet assisted my child with English Language." (Parent 6)
- "It is a good asset for my son. He has learnt to spell and read by using the tablet." (Parent 7)
- "It has helped to improve my child's performance. She even came first in her class." (Parent 8).

Typical MOE staffs' Comments on Impact

- "Equality to education due to access to information."
- "Changing the mind set of teachers and students."
- "Assist teachers with STEM infusion."

Some of these comments were consistent with the feedback obtained by the TIS Monitoring and Evaluation Working Group (2015), with similar comments from the teachers, students, and parents.

Guiding question 11: **What challenges encountered affected the realization of the intended deliverables of the project?**

There were several challenges noted by the participants. The challenges that were common across all participants are:

- Poor Internet and Wi-Fi connectivity
- Inability to prevent students from accessing inappropriate sites and content (pornography either as videos or still pictures, non-educational games, music, etc.)
- Difficulty in monitoring the usage of tablets by teachers and students
- Limited memory storage space
- Removal and/or blockage of access to certain apps
- Students' distraction from school work due to the time spent on the Internet
- Insufficient number of functioning tablets due to damages
- Lack of relevant content loaded in the tablets
- Early withdrawal of the tablets from schools
- Slow response to reports on tablets
- Lack of appropriate early childhood apps/content
- Parents' inadequate knowledge and preparation to use and care for the device
- Absence of classroom management tool
- Lack of full-time support staff
- Location of some schools and lack of quick access
- Lack of standards on how to monitor and report on the usage of the tablets

- Ability of the students to bypass the password and access inappropriate contents and websites
- Lack of sanctions on the misuse of tablets
- Gaps in the timeline for the training and supply of the tablets
- Some teachers' unwillingness to use the technology and its indirect influence to the students
- There is a lack of clarity among the planners about what is to be done by the MOE staff
- Lack of communication between MOE and e-Ljam
- Lack of adequate time for planning, training, sensitization, and implementation of the TIS Project
- The absence of cultural-relevant content for the Caribbean in general
- Lack of policies for digital citizenship and the orientation of the students
- Lack of full responsibility and management on the part of the school administration
- Lack of adequate care and protection of the tablets
- High level of reported damaged tablets from the schools
- Parental concerns about cost of damaged tablets

With regard to security, the Firstlook-Go Jamaica website indicates that each tablet will be controlled by a central Device Management Application (DMA) which would provide the following security functions:

- Restrictions on browsing the Internet
- Restrictions on the type of apps that can be installed on the tablets

- Identification and disabling of tablets that bypass the security
- Installation of additional filters on the Internet connection in each school that will guard against access to inappropriate sites
- Flagging and notifying schools if tablets are not online for two or more weeks
- Disabling a tablet device that is found to be in breach of DMA
- Providing constant feedback to vendors for improvement on the DMA

It is not clear the extent to which the DMA secured the tablets that were distributed since the data showed a wide spread of the complaints on the misuse of the devices by a majority of the students.

Additionally, the findings on care and protection were consistent with that of the MOE Monitoring of the TIS Parents Sensitization Sessions Report (2014), which stated that parents were concerned about the safety and security of the students when they were in possession of the tablets. Parents were also concerned about the cost of replacing the tablets if their child/children damaged the ones they received (MOE Monitoring of the TIS Parents Sensitization Sessions Report, 2014). According to Wu, Fowler, Lam, Wong, Wong, and Loke (2014), even though digital technologies are seen as a part of daily life, parents should play an important role in fostering appropriate and safe use of these technologies.

Parents' Comments on Challenges

The following are extracts from the parents' interview comments:

- "Lack of Internet at schools and homes." (Parent 1)
- "Students overuse the tablets for non-educational activities (games, social media, etc.)." (Parent 2)

- "The pilot phase was short and my child did not get a chance to use the tablet for long before it was taken away." (Parent 3)
- "The tablet was taken away after two months and wiped clean. The poor child could not access any content." (Parent 4)
- "The kids are exposed to pornography by peers, and other adult contents." (Parent 5)
- "Even when they blocked the X-rated sites, he still has some adult X-rated pictures on the tablet." (Parent 6)
- "It slowed my child's learning up in school. She used it for the wrong things and didn't pay attention to her work. I would not mind if she does not get it back." (Parent 7)
- "My child regressed in his school work. He just plays games." (Parent 8)
- "From they got the tablet, they stop doing well in school. The tablet is not helping one bit." (Parent 9)
- "My child was ganged and beaten. He was badly affected by this. As a result he could not do the GSAT." (Parent 10)
- "Children still could download Play Store after it was taken off." (Parent 11)
- "Older kids steal the tablets or rough up the younger ones." (Parent 12)

Please note that more challenges are reported under the SWOT analysis section.

Guiding question 12: **What are teachers' and students' attitudes and views on the use of the Tablets?**

The teachers and the students were asked about their views on the use of the tablets. See Figures 4.7 and 4.8 for the responses.

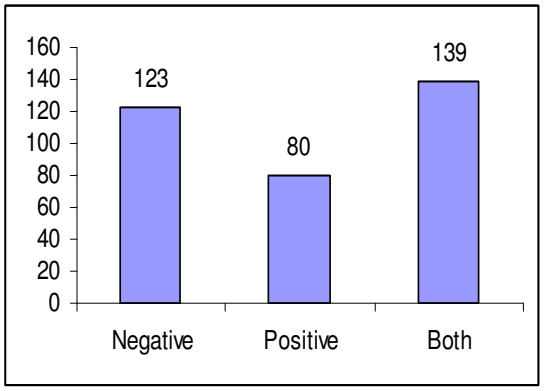

Figure 4.7. Teachers' Views on Tablets

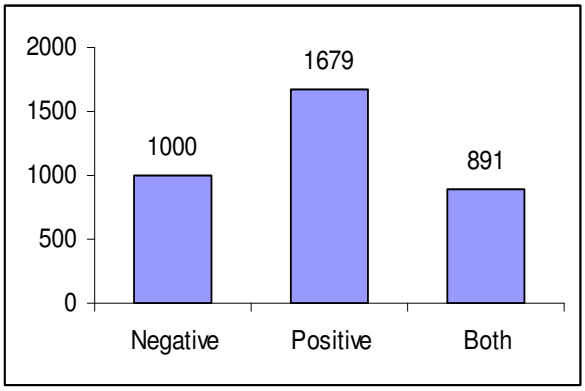

Figure 4.8. Students' Views on Tablets

As shown in Figure 4.7, a majority of the teachers had a mixed view of the tablets. This is compared to the number of the students who had positive views (see Figure 4.8).

Additional data were collected using teacher questionnaire (section F). Twenty three of the items in this section were used to assess the teachers' general views. The items were analyzed by summing them and using a One-Way Analysis of Variance (ANVOA) test to determine if the views of the teachers differed by school. The descriptive statistics results showed that the minimum mean value of the teachers' views was 23 and the maximum mean value was 92. However, the overall mean for the teachers' views was 61.5, and the standard deviation was 11.9. See Table 4.18 for the results of the ANOVA test.

Table 4.18

One Way Analysis of Variance Summary Table for Teachers

Source	Sum of Squares	*df*	Mean Square	*f*	*p*
Between Groups	6474.250	36	323.712	2.718	0.000
Within Groups	17629.750	338	119.120		
Total	24104.000	358			

Although the Levene's test showed a significant result for the homogeneity of variance test due to unequal numbers of teachers in the various schools, the ANOVA test was used because of its robustness (Glass & Hopkins, 1996; Bryman & Cramer, 2011). The result of the ANOVA statistics showed that there was a statistical significant difference in the views expressed by the teachers on the tablets, $F(36, 338) = 2.718$, $p = 0.00$. This can also be seen with the standard deviation of 11.9 that showed that there were variations in the teachers' responses. It can be concluded that some of the teachers had a positive view while others had a negative view of the TIS Project. A similar analysis was done for the students. The findings are presented below.

The descriptive statistics was used as an initial analysis for the students' data. The results showed that the minimum mean value for the students' views was 29 and the maximum mean value was 116. However, the overall mean for the students' views was 79.5, and the standard deviation was 17.5. See Table 4.19 for the result of the ANOVA.

Table 4.19

One Way Analysis of Variance Summary Table for Students

Source	Sum of Squares	*df*	Mean Square	*f*	*p*
Between Groups	2270.062	5	1135.031	4.000	0.022
Within Groups	20714.925	112	283.766		
Total	22984.987	117			

The result of the ANOVA statistics as shown in Table 4.19, showed that there was a statistical significant difference in the views expressed by the students (ages 16-18) who responded to the items on their views about the tablets, $F(5, 112) = 4.000$, $p = 0.02$. This difference can also be seen with the standard deviation of 17.5, which showed that there were variations in the students' responses. It can be concluded that some of the students had positive views while others had negative views of the tablets.

It should be pointed out that most of the students (ages 16-18) and the ones in the teachers' college were almost out of the school due to examinations and long vacation, and did not use the tablets very much before the situational analysis of the pilot project.

Guiding question 13: **To what extent is the public/community supporting the Tablets in Schools Project?**

To answer this question, interviews were conducted with the members of the community (n=215). From the responses provided, it can be said that the majority of the community members liked the project and are willing to support it. For instance, a community member said "it is a good thing that happened to this community." However,

there were those who had different views. Extracts of the responses provided by some community members are stated below.

- "Due to students' access to non-educational sites, the government should withdraw the tablets."
- "It is a waste of money, many students are destroying the tablets, they drop it, step on it and crack the screen, etc."
- "Too many use the camera to record bad things. The tablets should be kept only in the schools."
- "Call parents once a term and speak to them about the general use of the tablets and how they can monitor their children's use of the tablets."

Guiding question 14: **How effective was the plan (preparation method) used for the piloting of the Tablets in Schools Project?**

To answer this question, the teachers and their students were asked if the plan used for the pilot was adequate. The teachers' responses are presented in Figure 4.9, followed by those of the students in Figure 4.10.

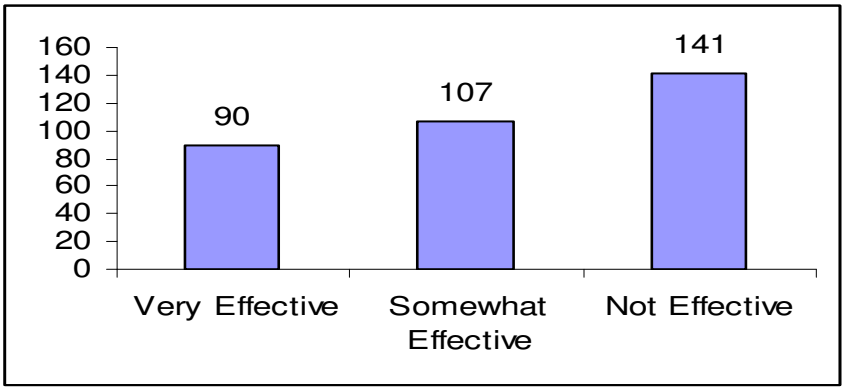

Figure 4.9. Teachers' Views of the Plan used in the TIS Pilot Project

As shown in Figure 4.9, 338 teachers responded to this question. Of this number, 41.7% indicated that the plan used in the implementation of the TIS Project was not

effective. This is followed by 31.7% that felt it was somewhat effective, and 26.6% that said it was very effective. The students' views on the plan used in the TIS Pilot Project are presented in Figure 4.10.

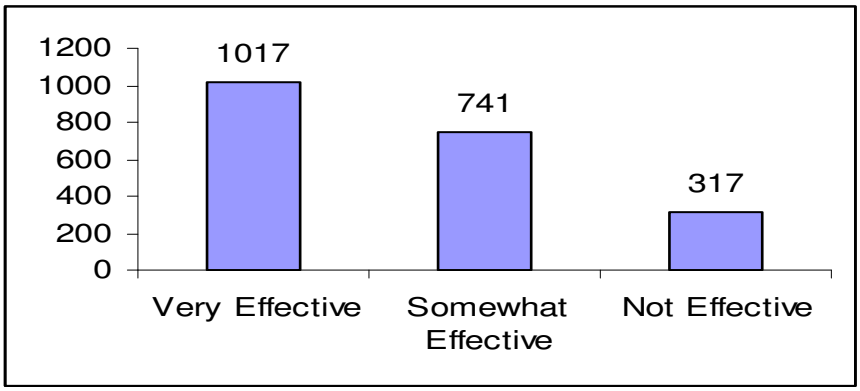

Figure 4.10. Students' Views of the Plan used in the TIS Pilot Project

Two thousand and seventy five students responded to this question. Of this number, 49% indicated that the plan used in the implementation of the TIS project was very effective. This is followed by 35.7% that felt it was somewhat effective, and 15.3% that said it was not effective. The students' views on the plan used in the TIS Pilot Project were certainly more favourable than those of the teachers.

However, it should be noted that some of the participants (parents and principals) complained that the dates that were given to them to collect the tablets were changed a number of times. Other reasons provided were the delay in the collection of the tablets for fixing, and the withdrawal of the tablets by e-Ljam for maintenance.

4.4 The Strengths, Weaknesses, Opportunities and Threats (SWOT) of the TIS Pilot Project

The Strengths, Weaknesses, Opportunities and Threats (SWOT) of the TIS Pilot Project is presented in this section. The idea is to present the four elements side by side to enable the staff of e-Ljam to compare and contrast areas of strengths and weaknesses, and opportunities that they must capitalize on, and the threats that they must guard against for the project to be even more successful.

SWOT Analysis – Strengths. The strengths based on the SWOT Analysis are listed below.

1. Project cost is below the estimated budget
2. Supply of "free tablets" to users who may not have had the opportunity to own one
3. Training of teachers and regional education officers
4. Fast access of information
5. Students ability to learn at their own pace and independently
6. Increase in students' interest in school work
7. Students' exposure to different learning styles (visual, auditory, and kinesthetic)
8. Teachers use of tablets for preparation and delivery of lessons
9. Students use of tablets for research and completing assignments
10. Increase in use of student-centred strategies by some teachers
11. Faster completion and submission of assignments by students
12. Increase in communication between users, via email, and sharing of information
13. Students' learning of contents faster due to multi-sites with better examples
14. Improvement in reading and writing skills

15. Better learning of languages (Spanish, etc.) and Mathematics
16. Preparation for GSAT (GOGSAT, Edufocal) and Grade 4 Literacy test
17. Better understanding of lessons taught by the teachers
18. Transfer of learning from one sibling to the other
19. Development of cognitive and motor skills (typing, searching, etc.) in younger students (ages 3-6 years)
20. Better student engagement and enthusiastic learners
21. Improved reading, speech development, vocabulary among the younger students
22. Increase in self confidence, self efficacy, excited and empowered learners
23. Reduction in disciplinary problems in the classroom because students are engaged with the use of the tablets
24. Better parent-student bonding/relationship; sharing knowledge with friends and relatives
25. Improved student academic performance
26. Provision of e-books and contents and less stress for carrying books

SWOT Analysis –Weaknesses. The weaknesses based on the SWOT Analysis are listed below.

1. Distraction due to access to the Internet, social media, games, entertainment
2. Lack of training for students
3. Inadequate Internet connectivity
4. Inadequate community sensitization to warrant full support
5. Students' ability to access non educational sites and adult contents
6. Delays in communicating with schools, vendors and other agencies involved with the project

7. Malfunctioning of tablets (defective chargers, freezes, slow speed, lack of memory space, and broken keyboard)
8. Turnaround time on reported faulty devices
9. Managing time efficiently when using the tablet
10. Students changing password/codes to avoid parental or teacher interference
11. Lack of access to some content and educational apps (mathematics and science)
12. Gap between training of teachers and when the tablets were supplied
13. Lack of relevant curriculum-related contents
14. Increase in the number of criminal behaviours such as stealing of the tablets, Sim cards, gambling, and fighting
15. Improper records management of the tablets
16. Parental concerns about cost
17. Absence of a formal monitoring and reporting mechanism

SWOT Analysis – Opportunities. The opportunities based on the SWOT Analysis are listed below.

1. Greater chance of educating parents on use and care of tablets
2. Greater chance of educating community members for lifelong learning
3. Continuous training of teachers on the use of technological devices
4. Greater chance for improving parental and community support and involvement
5. Increase the number of technology literate users by supplying better quality tablets
6. Customize the tablet device for educational uses only
7. Use community centres as access points for users without Internet
8. Provide contents that are relevant to the curriculum

9. To add effective security features for monitoring of usage and tracking stolen devices
10. Access to more learning games and other learning material

***SWOT Analysis –Threats*.** The threats based on the SWOT Analysis are listed below.

1. High rate of damaged tablets (faulty buttons, loosing charge, freezes, broken screen, blank screen, etc.)
2. Lack of adequate technical support in schools
3. Teachers' resistance to change and to students using the tablets in the classrooms
4. High demand for and use of non-educational sites
5. Parents disallowing their children from taking the tablets to school for fear of damaging it
6. Students leaving the tablets at home when it is needed in the classrooms
7. Heavy download of apps and contents that occupies space and threatens copyright laws
8. Parents moving away from the community with the tablets, and without contact addresses
9. Misuse of the tablets by parents
10. Cost of tablets to parents
11. Students becoming less sociable with others due to time spent on the tablets
12. Reduced motor function (mobility) due to prolonged use of tablets
13. Thieves targeting and threatening students in and outside of the schools
14. Lack of electricity supply in some areas where students live

Section 5 – Conclusion

5.1 Overview

In this section, conclusions are drawn from the major findings. The section is organized in three sections: conclusion, recommendations, and suggestions for further studies.

5.2 Conclusion

A high percentage of the teachers said that they were trained on how to use the Tablets, and 83.9% of those trained were trained by e-Ljam staff. The students were not trained. Even though a high percentage of the teachers were trained, several of them would need additional training to be able to integrate the technology into the teaching and learning process. Some community members learnt of the project through the mass media, from other members of the community, from relatives who received the tablets and during a meeting with e-Ljam staff.

The resources made available for the piloting of the Tablets in Schools Project was adequate due to the funds provided by the Universal Service Fund ($1.25 billion). The human resources (e-Ljam implementation and training officers as well as implementation officers in the schools) mobilized for the project was somewhat adequate. There is a need to increase the number for better service. There is Internet service in all 38 schools. However, the wireless service in the schools appears to be inadequate. This has affected the teachers and students easy and quick access to the Internet. Some of the school compounds seem not to be properly secured to protect against damaging of the

resources (Wi-Fi equipment, etc.) needed for the successful implementation of the project, and the location of some schools makes it hard for quick response to requests, etc. The expiration of the chip in the tablets supplied to some schools is another problem to be addressed. There were many complaints about the malfunctioning of the tablets by users. These include faulty start buttons, earphones, USB cord and chargers, shutting down of the tablets while in use, low battery capacity, mild shocks from the tablets, getting a blank screen when in use, and overheating of the tablet when being used.

There was enough data to suggest that some teachers integrated the tablets into the teaching and learning process for a short time before the tablets were withdrawn. The usage by teachers included accessing Internet resources for lesson preparation and using the tablets for lesson delivery. For the students, the tablets were used for assignments; learning languages, mathematics, etc.; using websites like GoGSAT and GSATready, etc., for exam preparation. There was also enough data to suggest that the students used the tablets for non-educational activities. There was evidence on the use of the tablets by the relatives of the students. This is a major concern that needs to be addressed.

However, several teachers still need training on the basic operations of the tablets before they can use the tablets sufficiently. Some students also need training on the basic operations of the tablets before they can use the tablets successfully.

The benefits of the tablets include but are not limited to the following: access to Internet by a large number of teachers and students, completion of assignments, improvement in research skills, and improvement in independent learning. The impact includes having a technology-educated population, and increase in the number of students who now have interest in school work and attendance. Some of the immediate challenges

encountered by the teachers and students include slow Internet/Wi-Fi access, access to pornography by the students, playing non-educational games by the students, overuse of social media, and the absence of a formal monitoring of the usage by the MOE staff.

The teachers had a mixed view of the tablets. This was supported by the ANOVA result which showed that there was a statistical significant difference in the views expressed by the teachers on the tablets. However, it should be noted that more teachers and principals of infant/basic schools had more favourable views of the tablets. Overall, the students had a more favourable view of the tablets than the teachers, although the ANOVA result of the students' views showed a statistical significant difference. Some community members pledged to support the TIS Project, and commended the government's efforts, but some were also critical about the project.

Some of the teachers were of the view that the plan used in the implementation of the TIS project was not effective while the students' views of the plan were more positive. In concluding, the goal to "improve the teaching and learning process in Jamaican schools and to facilitate quick and easy access to the Internet by teachers and students," to an extent was achieved. This is supported by the SWOT analysis which showed that there were more strengths than weakness of the TIS Project. However, there are more threats than opportunities. If the threats are taken seriously and if the opportunities are considered, the project will be more successful in meeting all its objectives.

5.3 Recommendations

Based on the findings, the following recommendations are made:

1. To ensure that the full benefits of the training are achieved, there is a need to harmonise the programmes so that the skills needed by the trainees to better do their jobs can be provided.
2. More training sessions are needed for teachers and regional education officers who lack basic knowledge of the tablets. It is equally important to educate the teachers on technology integration (usage) and care of the tablets, and copyright issues.
3. Given the high rate of damaged tablets among the students, there is a need to formally train the students on the proper use and care of the tablets. The students should also be exposed to cyber ethics and safety, as well as on copyright issues.
4. Training sections should also be organized for parents and the community to educate them on how to monitor their children's use and care of the tablets, cyber ethics and safety, as well as copyright issues.
5. A more permanent arrangement should be made for schools to have better trained implementation officers who can address basic tablets/technology-related needs within the schools before e-Learning Jamaica Company Ltd staff members are deployed.
6. If the project is to succeed, there is a need to address the Internet/wireless service issues in almost all the schools. The bandwidth needs to be expanded to enable users to have easy and fast access to the Internet.

7. There were many complaints about the malfunctioning of the tablets by users. It is recommended that the tablet specifications be revisited, and the quality of the tablets supplied be examined. The project cannot be sustained if the tablet breakage rate remains high.
8. There is a need for the staff of e-Learning Jamaica Company Ltd to communicate better with other stakeholders in the project. Ineffective communication could impact negatively on the project if not addressed.
9. Although some teachers integrated the tablets into the teaching and learning process, efforts should be made to properly document and capture teachers' usage so that data will be available for measuring the tablet impact over a period of time. Teachers who lack the courage needed to integrate tablets/technology in their classes should be targeted and encouraged during the training sessions.
10. A more permanent solution should be found to address students' access to adult content, and to promote more use of the tablets for educational activities.
11. Plans should also be put in place to address the use of the tablets by the relatives of the students when the tablets are taken home.
12. There is a need to address teachers' mixed views of the tablets. If addressed, more teachers will be willing to support the project.
13. Given the fact that more teachers and principals of infant/basic and primary schools find the tablets more useful and are more excited, perhaps, it will be more cost effective for the government to limit the distribution of the tablets to these schools.

14. A better records management system is needed to record the number of teachers and students who were issued tablets.
15. Curriculum relevant e-content be load on the tablets. This will go a long way to assist the teachers and the students in their classes.
16. Based on the SWOT analysis, there is a need for e-Ljam to put plans in place to address the threats that will affect the project, capitalize on the opportunities and address the weaknesses to strengthen the project.

5.4 Suggestions for Further Studies

Based on the study limitations, it is suggested that a study be done to establish baseline data that can be used to better assess student engagement and achievement as a result of the use of the tablets, as well as the mid and long term benefits, challenges, and impacts of the tablets on teachers, students, parents, and the community.

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Appendix A

Scope of the Consultancy

According to the contract, the Consultant will conduct data gathering and summarized the findings using a variety of techniques. This is aimed at establishing the existing characteristics in a situational analysis on the dimensions of expected/anticipated change for all schools and communities in the pilot.

Specifically, the project Evaluator will:

i. Become familiar with the project implementation through desk reviews of existing documentation, reports and interviews of key personnel of e-L.Jam and MOE – specially the Tablets in Schools project documents and reports.

ii. Identify measurement criteria/indicators and develop survey instruments to make quanitative and qualitative assessment of key variables.

iii. Develop a survey design and evaluation plan and obtain approval from the Research, Evaluation and Monitoring (REM) Working Group of the TIS Planning Programme Development and Implementation (TPPDI) Committee.

iv. Submit a draft final; report of existing situational analysis measures as at April 30, 2015, for approval by the REM Working Group and the Monitoring and Evaluation Committee of the e-LJam Board, with specific references to devices, recourses, skills and processes.

v. Conduct intermediate field surveys and analyse electronic-based user report.

vi. Report to the REM Working Group on a Monthly basis through the education specialist.

vii. Submit a draft report on intermediate measures as at July 1, 2015, for approval by the REM Working Group and the Monitoring and Evaluation Committee of the e-LJam Board.

viii. Conduct end of period field surveys and analyse electronic-based user reports.

ix. Submit a draft final report on final measures, for approval by the REM Working Group and the Monitoring and Evaluation Committee of the e-LJam Board.

x. Submit a final report, including recommendations for further roll-out of the TIS Project, with specific references to 1) achievements, 2) constraints, 3) analysis of training, content and technology components, and 4) recommendations for change. (Contract Document, 2015)

Outputs/Deliverables

i. Approval Evaluation Plan

ii. Approved Survey Design

iii. Approved Situational Analysis Report

iv. Approved Report on Immediate Measures

v. Field Survey Analysis

vi. Approved Draft Periodic Report

vii. Final Report

viii. Periodic Reporting (minimum monthly). (Contract Document, 2015)

1.5 Key Indicators for Monitoring and Evaluation

i. Teacher technology integration skills

ii. Community awareness and acceptance

iii. Students' homework behaviour

iv. Teacher research behaviour

v. Students' interest in school

vi. Students' reading behaviour

vii. Parent-Child interaction

viii. Students' skill in tablet-use

ix. Teacher and training preparation processes

x. Community sensitization processes

xi. Students' sensitization processes

xii. Students' attitude development

xiii. Students' skill development

xiv. Risk and safety awareness

xv. Participant awareness of cyber ethics issues

xvi. School administrators' views on the Tablets in Schools Project

xvii. Other uses (non-academic) of Tablets

xviii. Device status

xix. Resource availability

xx. Teacher skills

xxi. Processes, instructional and administrative

xxii. Participation satisfaction

Other indicators mutually agreed by the contractor and the client. (Contract Document, 2015)

Appendix B
Brief Profiles of Consultants

1. Dr. Cynthia Onyefulu (Lead Consultant)
Associate Professor and Vice Dean, Faculty of Education and Liberal Studies

Qualifications
Doctor of Philosophy (PhD.) Educational Psychology, 2001
University of Alberta, Canada
Specialization: Program Evaluation/Psychometrics

Master of Education (M.Ed.) Curriculum Studies, 1993
University of Benin, Benin City, Nigeria
Specialization: Curriculum Studies

Bachelor of Education (B.Ed.) Fine Arts (Second Class Upper Division), 1986
University of Benin, Benin City, Nigeria
Specialization: Fine Arts/Education

Knowledge and Skills
Quantitative Data Analysis using the SPSS program
Qualitative Data Analysis using the WEFT program
Project Management

Publications:
- 20 Peer-reviewed scholarly journal articles between 2001 and 2015
- 2 Book chapters in 2009
- 3 Articles published as conference proceedings between 2004 and 2009
- 10 Commissioned evaluation studies and technical reports
- 3 Sponsored research studies
- 6 Monographs

Membership of Professional Bodies:

2013 to Present:	Mixed Methodology Research Association
2007-Present:	International Association for Educational Assessment
1998-2014:	Canadian Evaluation Society
1999-Present:	American Educational Research Association
1999-2001:	Canadian Society for the Study of Education

2. Dr. Sybile Hamil, Faculty of Education and Liberal Studies (Postgraduate Studies Unit)

Qualifications:

PhD – Policy Studies: Economics of Education, Institute of Education, University of London (Awarded 2010)

MA – Policy Studies: Economics of Education, Institute of Education, University of London (Awarded 1999)

MA –Education (Curriculum, Educational Administration), Faculty of Education, University of the West Indies (Awarded 1997)

Diploma – Educational Measurement and Evaluation, - Centro de Perfeccionamiento Experimenation e Investigaciones, Ministro de Education, Santigo, Chile, 1991

MA – Business and Higher Education, School of Education, Health, Nursing and Arts Profession, New York, 1984

BA – Social Sciences with Language and Literature, Faculty of Arts and General Studies, University of the West Indies, Mona Campus, 1980

Diploma of Education (Technical) – Business Education major, Althouse School of Education, University of Western Ontario, London Ontario, Canada, 1974

Experience:

- *Special Project Assistant* for the period, September 2014 to August 2015.
- *Lecturer and Coordinator of Postgraduate Studies Programmes*, Postgraduate Studies Unit, Faculty of Education and Liberal Studies, University of Technology, Jamaica, September 2010-August 2014 (Post-retirement employment)
- *Principal Lecturer* in the Business Teacher Education/Education programmes, 2007-2008 (Retired from University of Technology, Jamaica in February 2009, but continued to lecture part-time; returned to full-time employment at the University in September 2010 as Lecturer and Coordinator of Postgraduate Studies Programmes, Postgraduate Studies Unit, Faculty of Education and Liberal Studies).
- *Principal Lecturer* in the Business Teacher Education programme and Head of School of Technical and Vocational Education Division, Faculty of Education and Liberal Studies, University of Technology, Jamaica, 2001-2007.
- *Principal Lecturer* in the Business Teacher Education programme and Head of Business Education Division, Technical Education Department, College of Arts, Science and Technology, 1991-1998.
- *Senior Lecturer* in the Business Teacher Education programme and Head of Business Education Division, Technical Education Department, College of Arts, Science and Technology, 1980-1991.
- *Lecturer* in the Business Teacher Education programme and Head of Business Education Division, Technical Education Department, College of Arts, Science and Technology, 1976-1980.
- *Lecturer* in the Business Teacher Education programme Technical Education Department, College of Arts, Science and Technology, 1976-1976.
- *Teacher* of Business Education, Merl Grove High School, Kingston, Jamaica, 1971-1973.

- *Teacher* of Business Education, Kingston Technical High School, Kingston, Jamaica, 1970-1971.

Part-Time Lecturer - Postgraduate Studies

Education and Society (Seminars) and Managing Educational Resources

3. Ms. Grace Hughes, Faculty of Education and Liberal Studies (Postgraduate Studies Unit)

Qualifications:

PhD Psychology (in progress), Wilmington College, Wilmington, Delaware, USA
Master of Science in community Counselling
Master of Science in Personnel Management
Bachelor of Arts General Studies, UWI
Teacher's Certificate, MICO Teachers' College, Jamaica

Experience:

2004 - Present: Lecturer in the Faculty of Education and Liberal Studies in delivering the following modules:
- Adolescent and Adult Psychology
- Introduction to Psychology
- Introduction to Counselling
- Learning Theories and Practice

2004-2015: Teaching Practice Coordinator in the Faculty of Education and Liberal Studies, University of Technology, Jamaica

2015 – Present: Programe Leader
Postgraduate Diploma in Education programme

Membership:

2006 – Present: Member, Jamaica Association of Guidance Counsellors in Education
Member, Jamaica Psychological Association
2001-Present: President National Certificated Counsellor

Appendix C
List of Field Officers and Data Entry Officers

Field Officers:
Dr. Hayden Hamil
Mr. Hendon Hamil
Dr. Sybile Hamil
Mr. Hayne Cooper
Ms. Sharna Grandison
Mrs. Anatol Clark Allwood
Ms. Marcelle Fenton
Ms. Tanisha Lewis
Mr. Howard Cole
Mr. Anjikui Simon Yalams
Ms. Christine Pratt
Ms. Georgia Brown
Ivy Cummings
Mr. Steve Cummings
Mr. Kris Richards
Ms. Danielle Lee
Ms. Natasha Lee
Mr. Clive Lee
Ms. Grace Hughes
Dr. Cynthia Onyefulu

Data Entry Officers:
Dr. Sybile Hamil
Mr. Hayne Cooper
Mrs. Anatol Clark Allwood
Mr. Howard Cole
Mr. Steve Cummings
Mr. Kris Richards
Ms. Grace Hughes
Dr. Cynthia Onyefulu

Appendix D1
Different Stakeholders in Population

		Participants					
Parish	School	Principal	Students	Teachers	Parents	Community	Total
Kingston (N=6)	Holy Trinity High	1	1420	109	30	30	1590
	Haile Selassie High	1	675	41	30	30	777
	Alpha Infant	1	367	17	30	30	445
	Chetolah Park Primary	1	120	10	30	30	191
	Rennock Lodge Primary	1	167	11	30	30	239
	St. Josephs, Infant	1	351	17	30	30	429
St. Andrew (N= 5)	Cavaliers Prim & All Age	1	83	8	30	30	152
	John Mills Infant, Primary & Jnr High	1	736	43	30	30	840
	Clan Carthy Primary	1	948	32	30	30	1041
	Mona Heights Primary	1	1125	37	30	30	1223
	St. Benedicts Primary	1	740	25	30	30	826
St. Mary (N=2)	Galina Primary & Infant	1	220	10	30	30	291
	Happy Hour Basic School	1	117	9	30	30	187
St. Ann (N=2)	Steer Town Academy	1	826	47	30	30	934
	Parry Town	1	404	18	30	30	483

	Primary						
Trelawny (N= 3)	Rio Bueno Primary	1	55	6	30	30	122
	Stephen James Basic	1	138	7	30	30	206
	Lowe River Primary	1	700	35	30	30	796
St. James (N= 6)	St. James High	1	2015	104	30	30	2180
	Cambridge High	1	1447	79	30	30	1587
	Herbert Morrison Technical High	1	1434	87	30	30	1582
	Granville All Age	1	414	25	30	30	500
	Sam Sharpe Teachers College	1	250	50	30	30	361
	Irwin High	1	2100	80	30	30	2241
Hanover (N-1)	Sandy Bay Prim & Jr. High	1	597	22	30	30	680
	Belmont Academy	1	496	37	30	30	594
	Sir Clifford Campbell	1	621	22	30	30	704
St. Elizabeth (N=1)	Marie Cole Primary	1	621	15	30	30	697
Manchester (N= 3)	Winston Jones High	1	768	46	30	30	875
	Nazareth All Age	1	223	10	30	30	294
	Porus Infant schools	1	123	11	30	30	195
Clarendon (N=2)	Central High	1	1901	113	30	30	2075
	Salt Savannah Primary	1	236	14	30	30	311
St. Catherine (N=5)	Cumberland High	1	961	56	30	30	1078
	Homestead Primary	1	229	11	30	30	301

	Anitree Basic School	1	230	11	30	30	302
	The Cedar Grove Academy	1	400	17	30	30	478
	Windsor School of Special Education	1	320	34	30	30	415
	Total	38	24,578	1,326	1,140	1,140	28,222

Appendix D2
Tablets in Schools Pilot Project
Sample

		Participants					
Parish	School	Principal	Students	Teachers	Parents	Community	Total
Kingston (N=6)	Holy Trinity High	1	284	22	30	30	367
	Haile Selassie High	1	135	41	30	30	237
	Alpha Infant	1	73	17	30	30	151
	Chetolah Park Pimary	1	24	10	30	30	95
	Rennock Lodge Primary	1	33	11	30	30	105
	St. Josephs, Infant	1	70	17	30	30	148
St. Andrew (N= 5)	Cavaliers Prim & All Age	1	83	8	30	30	152
	John Mills Infant, Primary & Jnr High	1	147	43	30	30	251
	Clan Carthy Primary	1	190	32	30	30	283
	Mona Heights Primary	1	225	37	30	30	323
	St. Benedicts Primary	1	148	25	30	30	234
St. Mary (N=2)	Galina Primary & Infant	1	44	10	30	30	115
	Happy Hour Basic School	1	23	9	30	30	93
St. Ann (N=2)	Steer Town Academy	1	165	47	30	30	273
	Parry Town Primary	1	81	18	30	30	160

Trelawny (N= 3)	Rio Bueno Primary	1	55	6	30	30	122
	Stephen James Basic	1	28	7	30	30	96
	Lowe River Primary	1	140	35	30	30	235
St. James (N= 6)	St. James High	1	403	21	30	30	485
	Cambridge High	1	289	16	30	30	366
	Herbert Morrison Technical High	1	287	17	30	30	365
	Granville All Age	1	83	25	30	30	169
	Sam Sharpe Teachers College	1	50	50	30	30	161
	Irwin High	1	420	16	30	30	497
Hanover (N-1)	Sandy Bay Prim & Jr. High	1	119	22	30	30	202
	Belmont Academy	1	99	37	30	30	197
	Sir Clifford Campbell	1	124	22	30	30	207
St. Elizabeth (N=1)	Marie Cole Primary	1	124	15	30	30	200
Manchester (N= 3)	Winston Jones High	1	154	46	30	30	261
	Nazareth All Age	1	45	10	30	30	116
	Porus Infant schools	1	25	11	30	30	97
Clarendon (N=2)	Central High	1	380	113	30	30	554
	Salt Savannah Primary	1	47	14	30	30	122
St. Catherine (N=5)	Cumberland High	1	192	56	30	30	309
	Homestead Primary	1	46	11	30	30	118
	Anitree	1	46	11	30	30	118

	Basic School						
	The Cedar Grove Academy	1	80	17	30	30	158
	Windsor School of Special Education	1	64	34	30	30	159
	Total	38	5,025	959	1,140	1,140	8,302

Appendix D3
Infants & Primary Sample

		Participants					
Parish	School	Principal	Students	Teachers	Parents	Community	Total
	Alpha Infant	1	73	17	30	30	151
	Chetolah Park Primary	1	24	10	30	30	95
	Rennock Lodge Primary	1	33	11	30	30	105
	St. Josephs, Infant	1	70	17	30	30	148
St. Andrew	Cavaliers Prim & All Age	1	83	8	30	30	152
	John Mills Infant, Primary & Jnr High	1	147	43	30	30	251
	Clan Carthy Primary	1	190	32	30	30	283
	Mona Heights Primary	1	225	37	30	30	323
	St. Benedicts Priamry	1	148	25	30	30	234
St. Mary	Galina Primary & Infant	1	44	10	30	30	115
	Happy Hour Basic School	1	23	9	30	30	93
	Parry Town Primary	1	81	18	30	30	160
Trelawny	Rio Bueno Primary	1	55	6	30	30	122
	Stephen James Basic	1	28	7	30	30	96
	Lowe River Primary	1	140	35	30	30	235
	Granville All Age	1	83	25	30	30	169

Hanover	Sandy Bay Prim & Jr. High	1	119	22	30	30	202
	Sir Clifford Campbell Primary	1	124	22	30	30	207
St. Elizabeth	Marie Cole Primary	1	124	15	30	30	200
	Nazareth All Age	1	45	10	30	30	116
	Porus Infant schools	1	25	11	30	30	97
	Salt Savannah Primary	1	47	14	30	30	122
	Homestead Primary	1	46	11	30	30	118
	Anitree Basic School	1	46	11	30	30	118
	Windsor School of Special Education	1	64	34	30	30	159
	Total						

Appendix D4
High Schools and Teacher Training College Sample

		Participants					
Parish	School	Principal	Students	Teachers	Parents	Community	Total
Kingston (N=6)	Holy Trinity High	1	284	22	30	30	367
	Haile Selassie High	1	135	41	30	30	237
St. Ann (N=2)	Steer Town Academy	1	165	47	30	30	273
St. James (N= 6)	St. James High	1	403	21	30	30	485
	Cambridge High	1	289	16	30	30	366
	Herbert Morrison Technical High	1	287	17	30	30	365
	Sam Sharpe Teachers College	1	50	50	30	30	161
	Irwin High	1	420	16	30	30	497
Westmoreland	Belmont Academy	1	99	37	30	30	197
St. Elizabeth	Marie Cole Primary	1	124	15	30	30	200
Manchester	Winston Jones High	1	154	46	30	30	261
Clarendon	Central High	1	380	113	30	30	554
St. Catherine	Cumberland High	1	192	56	30	30	309
	The Cedar Grove Academy	1	80	17	30	30	158
	Total						

Appendix E1

Tablets in Schools Questionnaire for Teachers

To ensure that the Tablets in Schools Pilot Project is meeting its objectives and to maintain high project quality, there is a need to conduct a situational analysis at this time. This questionnaire is designed to collect data from all schools and communities involved in the pilot phase of the Tablets in Schools Project in Jamaica. The findings of the study will be used for project improvement. Anonymity of participants will be maintained. **Do not write your name on this questionnaire.**

Section A: Personal Profile

Instructions: The items listed below are designed to obtain information on your profile. Please read the items carefully then tick (√) the appropriate response and/or write the response in the space provided where necessary for items 1 to 7.

1. What is your gender? Male ☐ Female ☐

2. What is your age range?

Below 30	☐	41 – 45	☐
31 – 35	☐	46 – 50	☐
36 – 40	☐	Above 50	☐

3. Are you a trained teacher? Yes ☐ No ☐

4. If yes, which of the following **best** describes your level of teacher training? (Please select the highest level obtained).

Diploma	☐
Bachelors Degree	☐
Masters Degrees	☐

Other (Please specify) _____

5. How many years of teaching experience do you have?

Less than 1 year	☐	11 to15 years	☐
1 to 5 years	☐	16 to 20 years	☐
6 to 10 years	☐	More than 20 years	☐

6. Do you know how to use a computer/laptop? Yes ☐ No ☐

7. Do you know how to use a Tablet? Yes ☐ No ☐

Section B: Inputs

Instructions: The items listed below are designed to obtain information on inputs. Please carefully tick (√)/or write your responses in the space provided.

1. Were you trained in how to use the Tablets? Yes☐ No☐

2. Were you trained in how to care for the Tablets? Yes☐ No☐

3. If yes to items 1-2, were you trained by the staff of e-Learning Jamaica Limited? Yes☐ No☐

4. If yes to item 3, what type of training was offered?
   - Initial training Yes☐ No☐
   - On-going training Yes☐ No☐

5. Have you received other Information and Communication Technology (ICT) related training? Yes☐ No☐

6. If yes, to item 5, please state other training received:

7. Do you get technical support from e-Learning Jamaica Limited for the use of the Tablet? Yes☐ No☐

8. If yes, to item 7, please state the technical support being received:

9. What resources (hardware, software, equipment, etc.) were made available for the piloting of the Tablets in Schools Project? (Please state):

10. Do you have Wi Fi/Internet access in your school? Yes☐ No☐

11. If no, to item 10, how do you access the Internet? (Please state):

		Not Adequate	Adequate	Very Adequate
12.	If you have the Internet, how adequate is the connectivity (network broadband/bandwidth, Wi-Fi) in your school?	1	2	3
13.	How adequate is the quality of the Tablets used in the pilot phase of the Tablets in Schools Project?	1	2	3

Section C: Activities

Instructions: The items listed below are designed to obtain information on activities. Please carefully tick (√)/or write your responses in the space provided.

1. Did you need help to know how to use the Tablet? Yes☐ No☐

2. If yes, what type of help did you need? (Please state): _____

3. Did your students need help on how to use the Tablets? Yes☐ No☐

4. If yes, what type of help did your students need? (Please state): _____

5. Can your students multi-task using the Tablets? Yes☐ No☐

6. How do you use the Tablets?

	Yes	No		Yes	No
Presentation	☐	☐	Interaction	☐	☐
Explanation	☐	☐	Collaboration	☐	☐
Demonstration	☐	☐	Internet access	☐	☐
Drill and practice	☐	☐	Tutorials	☐	☐
Other (Please state):					

7. Do you think that the use of the Tablets for teaching and learning improved the following?

Confidence	Yes☐	No☐
Self esteem	Yes☐	No☐
Motivation in teaching	Yes☐	No☐

8. How many hours per day do you spend using the Tablets in the classroom? (Please state):

9. Can you use the Tablets outside the school premises? Yes☐ No☐

10. How committed are you to using the Tablets for teaching and learning?
    - Very Committed ☐
    - Committed ☐
    - Not Committed ☐

11. How excited are you in using the Tablets for teaching and learning?
    - Very Excited ☐
    - Excited ☐
    - Not Excited ☐

12. How frequently did you use computer technology before the introduction of the Tablets?
    - Very Frequently ☐
    - Frequently ☐
    - Not Frequently ☐

13. Have you experienced any personal injury (pain, hurt, etc.) as a result of using the Tablet in your classroom? Yes☐ No☐

14. If yes, what type of injury was experienced? (Please state):

15. Was your Tablet stolen? Yes☐ No☐

16. Has there been any report on the stealing of Tablets in your classroom/school of which you are aware? Yes☐ No☐

17. If yes, when and where did this occur? (Please state):

18. Do you use the Tablets for the following activities? (Please tick all that apply)

Using social media	☐	Watching videos online	☐
Reading	☐	Chatting	☐
Surfing the Internet	☐	Texting	☐
Playing games	☐	Listening to music	☐

Other (Please state): _____

19. Is there a shift or change in pedagogy (from teacher-centered to student-centered) as a result of using the Tablets? Yes☐ No☐

20. If yes, please explain:

21. What evidence do you have to show that ***you*** are actively using the Tablet for teaching and learning activities (planning, delivering, sending/receiving messages, etc.)? (Please state)

22. What evidence do you have to show that your ***students*** are actively using the Tablets for learning activities? (Please state)

Section D: Outputs

Instructions: The items listed below are designed to obtain information on outputs. Please carefully tick (√)/or write your responses in the spaces provided.

1. What are the short or mid term ***benefits*** of the use of the Tablets on students' ***engagement and achievement?*** Please comment on evidence.

Students' Engagement	Students' Achievement

2. What are the ***immediate challenges*** encountered by the users (teachers and students) as a result of the use of the Tablets in Schools? Please comment on the challenges.

Teachers' Challenges	Students' Challenges

Section E: Outcomes

Instructions: The items listed below are designed to obtain information on outcomes. Please carefully tick (√)/or write your responses in the spaces provided.

1. To what extent is the public/community supporting the Tablets in Schools Project? The community is supporting the project to a:
   - Large extent ☐
   - Reasonable extent ☐
   - Small extent ☐

2. What are the teachers' overall attitudes on the use of the Tablets?
   - Positive ☐
   - Negative ☐
   - Both Negative & Positive ☐

3. How effective was the plan (method) used for piloting of the Tablets in Schools Project?
   - Very Effective ☐
   - Somewhat Effective ☐
   - Not Effective ☐

4. What changes, if any, in the user behaviors, skills, and knowledge can be achieved in the short term, mid-term or long term? Please comment on the changes.

5. Is there a better or alternative way to have piloted the Tablets in Schools Project? Please comment on alternatives.

Section F: Views on Tablet in Schools

Instructions: Please read the following statements carefully, and then circle the number that expresses the degree to which you agree with each of the statements.

Key: Strongly Disagree (SD) 1, Disagree (D) 2, Agree (A) 3, & Strongly Agree (SA) 4.

		Responses			
		SD	**D**	**A**	**SA**
1.	I am motivated to teach my lessons with the Tablet.	1	2	3	4
2.	I have insufficient confidence to use the Tablet for my classes.	1	2	3	4
3.	I do not have enough time to use the Tablet in my classes.	1	2	3	4
4.	The Tablet I got meets my Internet-related needs for teaching.	1	2	3	4
5.	The Tablet makes me aware of current issues around the world.	1	2	3	4
6.	I am learning as much as I expect to learn from the Tablet.	1	2	3	4
7.	I am satisfied with the services provided by the Tablet.	1	2	3	4
8.	I find the Tablet useful in communicating with my students.	1	2	3	4
9.	I find the Tablet useful in communicating with other teachers.	1	2	3	4
10.	The Tablet exposes me to modern technology.	1	2	3	4
11.	The Tablet offers quality services (e.g., speed) that I need in the classroom.	1	2	3	4
12.	I am comfortable using the Tablet in my classroom.	1	2	3	4
13.	It is easy to access educational sites using the Tablet.	1	2	3	4
14.	I was made aware of cyber-related crimes on the Internet during training.	1	2	3	4
15.	I am aware of the risks of using Tablet for teaching.	1	2	3	4
16.	I was made aware of the risks and safety issues associated with the Tablet.	1	2	3	4
17.	The use of the Tablet improves my students' higher level thinking.	1	2	3	4
18.	Information on the Tablet was received on time.	1	2	3	4
19.	I was sensitized about the Tablets in Schools Project before the pilot.	1	2	3	4
20.	My research skills have improved since I began using the Tablet.	1	2	3	4
21.	The amount of time given to cover the material during training was adequate.	1	2	3	4
22.	With the use of the Tablet, I was able to use student-centered approach.	1	2	3	4
23.	I was able to integrate the use of the Tablet into my regular teaching.	1	2	3	4
24.	The use of the Tablet makes it easier to deliver my lessons.	1	2	3	4
25.	I have seen more evidence of parental involvement in students' work since the Tablets in Schools Project began.	1	2	3	4
26.	Overall, I am satisfied with the Tablets in Schools Pilot Project.	1	2	3	4

Thank you for your cooperation in completing this questionnaire.

Appendix E2

Tablets in Schools Questionnaire for Kids: Ages 3 to 6

Section A: About Me

Instruction: Please read the items carefully then tick (√) the appropriate response and/or write your responses in the spaces provided.

1. Are you a:  Boy? ☐  Girl? ☐

2. How old are you? (Please state):_____

5. What is your grade? (Please state): _____

Section B: Inputs

Instruction: Please carefully tick (√)/or write your responses in the spaces provided.

1. Do you know how to use computers?  ☺Yes☐ ☹No☐

2. Do you know how to use the Tablet?  ☺Yes☐ ☹No☐

3. If yes, show or tell me how you use the Tablet? (Please state):

I can turn it on	☐	I can go in and out of programs	☐
I can turn it off	☐	I can put in my password	☐
I can adjust the brightness	☐	I can turn up/down the volume	☐

Other (Please State): _____

6. Who showed you how to use the Tablet? (Please tick):

Self	☐	Mother	☐
Teacher	☐	Father	☐
Classmate	☐	Sister	☐
Friend	☐	Brother	☐
Relative	☐	Other (Please state): _____	

5. Do you know how to care for the Tablet? ☺Yes☐ ☹No☐

6. If yes, show or tell me how you take care of the Tablet? (Please tick):

I should no drop it	☐	I should not leave it on the floor	☐
I should not eat or drink near the Tablets	☐	I should charge it when the battery is low	☐
I should hold the Tablet with the cover	☐	Other (Please State): _____	

7. Do you have the Internet in your house? ☺Yes☐ ☹No☐

8. If no, how do you access the Internet? (Please state):

Section C: Activities

Instruction: Please carefully tick (√)/or write your responses in the spaces provided.

1. Did you need help on how to use the Tablet? ☺Yes☐ ☹No☐

2. If yes, what type of help did you need? (Please state):

3. Can you do different things (send email, reading, listening, etc.) with the Tablet?
☺Yes☐ ☹No☐

4. If yes, tell me how you use the Tablet? (Please state):

5. Who else uses your Tablet? (Please state): _____

6. How many hours per day do you use the Tablet? (Please state): _____
   - On an average at school: _____ hours
   - On an average at home: _____ hours

7. Can you use the Tablet outside the school premises? ☺Yes☐ ☹No ☐

8. If yes, tell me where you use the Tablet? (Please state):

9. Have you experienced an injury (pain, hurt, etc.) as a result of using the Tablet?

☺Yes☐ ☹No☐

10. If yes, tell me what type of injury was experienced? (Please state):

11. How do you use the Tablet? (Please tick on all that apply)

Send emails	☐	Surf the Internet	☐
Play games	☐	Watch videos	☐
Do homework	☐	Download programs	☐
Take pictures	☐	Read	☐
Listen to music	☐	Skype	☐

Other (Please state): _____

12. How do you feel about the Tablets?

Excited	☐	Happy	☐	Sad	☐
Good	☐	Cool	☐	Bad	☐
Nice	☐	Fine	☐	Mad	☐

13. General Comments (Please state):

Thank you!

Appendix E3

Tablets in Schools Questionnaire for Kids: Ages 7 to11

Section A: About Me

Instruction: Please read the items carefully then tick (√) the appropriate response and/or write your responses in the spaces provided.

1. Are you a: Boy? ☐ Girl? ☐

2. How old are you? (Please state):_____

7. What is your grade? (Please state): _____

Section B: Inputs

Instruction: Please carefully tick (√)/or write your responses in the spaces provided.

1. Do you know how to use a computer/laptop? Yes☐ No☐

2. Do you know how to use the Tablet? Yes☐ No☐

3. If yes, show or tell me how you use the Tablet? (Please state):
   - I can turn it on ☐
   - I can turn it off ☐
   - I can adjust the brightness ☐
   - I can go in and out of programs ☐
   - I can put in my password ☐
   - I can turn up/down the volume ☐
   - Other (Please State): _____

8. Who showed you how to use the Tablet? (Please tick):
   - Self ☐
   - Teacher ☐
   - Classmate ☐
   - Friend ☐
   - Relative ☐
   - Mother ☐
   - Father ☐
   - Sister ☐
   - Brother ☐
   - Other (Please state): _____

5. Do you know how to care for the Tablet? Yes☐ No☐

6. If yes, show or tell me how you take care of the Tablet? (Please tick):
   - I should no drop it ☐
   - I should not eat or drink near the Tablets ☐
   - I should hold the Tablet with the cover ☐
   - I should not leave it on the floor ☐
   - I should charge it when the battery is low ☐
   - Other (Please State): _____

7. Do you have the Internet in your house? Yes☐ No☐

8. If no, how do you access the Internet? (Please state):

Section C: Activities

Instruction: Please carefully tick (√)/or write your responses in the spaces provided.

1. Did you need help on how to use the Tablet? Yes☐ No☐

2. If yes, what type of help did you need? (Please state):

3. Can you do different things (send email, reading, listening, etc.) with the Tablet? Yes☐ No☐

4. If yes, tell me how you use the Tablet? (Please state):

5. Who else uses your Tablet? (Please state): _____

6. How many hours per day do you use the Tablet? (Please state): _____
   - On an average at school: _____ hours
   - On an average at home: _____ hours

7. Can you use the Tablet outside the school premises? Yes☐ No ☐

8. If yes, tell me where you use the Tablet? (Please state):

9. Have you experienced an injury (pain, hurt, etc.) as a result of using the Tablet? Yes☐ No☐

10. If yes, tell me what type of injury was experienced? (Please state):

11. How do you use the Tablet? (Please tick on all that apply)

Send emails	☐	Surf the Internet	☐
Play games	☐	Watch videos	☐
Do homework	☐	Download programs	☐
Take pictures	☐	Read	☐
Listen to music	☐	Skype	☐

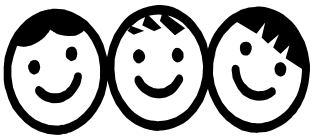
Other (Please state): _____

12. How do you feel about the Tablets?

Excited	☐	Happy	☐	Sad	☐
Good	☐	Cool	☐	Bad	☐
Nice	☐	Fine	☐	Mad	☐

13. General Comments (Please state):

Thank you!



Appendix E4

Tablets in Schools Questionnaire for Young Students: Ages 12-15

To ensure that the Tablets in Schools Pilot Project is meeting its objectives and to maintain high project quality, there is a need to conduct a situational analysis at this time. This questionnaire is designed to collect data from all schools and communities involved in the pilot phase of the Tablets in Schools Project in Jamaica. The findings of the study will be used for project improvement. Anonymity of participants will be maintained. **Do not write your name on this questionnaire.**

Section A: Personal Profile

Instructions: The items listed below are designed to obtain information on your profile. Please read the items carefully then tick (√) the appropriate response and/or write your responses in the spaces provided.

1. What is your gender? Male ☐ Female ☐

2. What is your age? (Please state): _____

9. What is your grade? (Please state): _____

4. Do you know how to use computers? Yes ☐ No ☐

5. Do you know how to use the Tablet? Yes ☐ No ☐

Section B: Inputs

Instructions: The items listed below are designed to obtain information on inputs. Please carefully tick (√)/or write your responses in the spaces provided.

1. Are you trained on how to use the Tablet? Yes ☐ No ☐

2. Are you trained on how to care for the Tablet? Yes ☐ No ☐

3. If yes to items 1-2, who trained you?
   - My Class Teacher ☐ A Friend ☐
   - The Information Technology Teacher ☐ My Classmate ☐
   - Other (Please State): _____

10. What type of training did you receive? (Please state):

5. What resources (hardware, software, equipment, etc.) were made available for the piloting of the Tablets in Schools Project? (Please state):

A Tablet ☐ Applications ☐

Other (Please State): _____

6. Do you have Wi Fi/Internet access in your school? Yes☐ No☐

7. If no, how do you access the Internet? (Please state):

8. If you have the Internet, how adequate is the connectivity (network broadband/bandwidth, Wi-Fi) in your school?

Very Adequate ☐
Adequate ☐
Not Adequate ☐

9. Do you like the ***quality*** of the Tablet given to you? Yes☐ No☐

10. If no to item 9, what do you not like about the Tablet? (Please state):

Section C: Activities

Instructions: The items listed below are designed to obtain information on activities. Please carefully tick (√)/or write your responses in the spaces provided.

1. Did you need help on how to use the Tablet? Yes☐ No☐

2. If yes, what type of help did you need? (Please state): _____

3. Can you do different things (multi-task) with the Tablet? Yes☐ No☐

4. How do you use the Tablet to learn? (Please state):

5. Do you think that the use of the Tablet for learning improved the following?

Confidence	Yes☐	No☐
Self esteem	Yes☐	No☐
Motivation	Yes☐	No☐

6. How many hours per day do you spend using the Tablet? (Please state): _____

7. Can you use the Tablet outside the school premises? Yes☐ No☐

8. If yes, where do you use the Tablet? (Please state): _____

9. How committed are you to using the Tablet for learning?

Very Committed	☐
Committed	☐
Not Committed	☐

10. How excited are you about using the Tablet for learning?

Very Excited	☐
Excited	☐
Not Excited	☐

11. How frequently did you use computer technology before the introduction of the Tablets in schools?

Very Frequently	☐
Frequently	☐
Not Frequently	☐

12. Have you experienced any personal injury (pain, hurt, etc.) as a result of using the Tablet in your classroom? Yes☐ No☐

13. If yes, what type of injury was experienced? (Please state):

14. Was your Tablet stolen? Yes☐ No☐

15. Has there been any report on the stealing of Tablets in your classroom/school of which you are aware? Yes☐ No☐

16. If yes, when and where did this occur? (Please state):

17. Do you use the Tablet for the following activities? (Please tick on all that apply)

Social media	☐	Watching TV	☐
Surfing the Internet	☐	Playing computer games	☐
Watching videos online	☐	Chatting	☐
Texting	☐	Doing homework	☐
Listening to music	☐	Other (Please state): _____	

Section D: Outputs

Instructions: The items listed below are designed to obtain information on outputs. Please carefully tick (√)/or write your responses in the spaces provided.

1. What are your overall views on the use of the Tablets?
   - Positive ☐
   - Negative ☐
   - Both Negative & Positive ☐

2. How effective was the plan (method) used for piloting of the Tablets in Schools Project?
   - Very Effective ☐
   - Somewhat Effective ☐
   - Not Effective ☐

3. What are the ***benefits*** of using the Tablets? Please comment.

4. What are the ***challenges*** encountered as a result of the use of the Tablets in Schools? Please comment.

Thank you for your cooperation in completing this questionnaire.

Appendix E5

Tablets in Schools Questionnaire for Older Students: Ages 16-17/18

To ensure that the Tablets in Schools Pilot Project is meeting its objectives and to maintain high project quality, there is a need to conduct a situational analysis at this time. This questionnaire is designed to collect data from all schools and communities involved in the pilot phase of the Tablets in Schools Project in Jamaica. The findings of the study will be used for project improvement. Anonymity of participants will be maintained. **Do not write your name on this questionnaire.**

Section A: Personal Profile

Instructions: The items listed below are designed to obtain information on your profile. Please read the items carefully then tick (√) the appropriate response and/or write your responses in the spaces provided.

1. What is your gender? Male☐ Female ☐

2. What is your age? (Please state): _____

11. What is your grade? (Please state): _____

4. Do you know how to use computers? Yes☐ No☐

5. Do you know how to use the Tablet? Yes☐ No☐

Section B: Inputs

Instructions: The items listed below are designed to obtain information on inputs. Please carefully tick (√)/or write your responses in the spaces provided.

1. Are you trained on how to use the Tablet? Yes☐ No☐

2. Are you trained on how to care for the Tablet? Yes☐ No☐

3. If yes to items 1-2, who trained you?
   - My Class Teacher ☐ A Friend ☐
   - The Information Technology Teacher ☐ My Classmate ☐
   - Other (Please State): _____

12. What type of training did you receive? (Please state):

5. What resources (hardware, software, equipment, etc.) were made available for the piloting of the Tablets in Schools Project? (Please state):

A Tablet ☐ Applications ☐

Other (Please State): _____

6. Do you have Wi Fi/Internet access in your school? Yes☐ No☐

7. If no, how do you access the Internet? (Please state):

8. If you have the Internet, how adequate is the connectivity (network broadband/bandwidth, Wi-Fi) in your school?

Very Adequate ☐
Adequate ☐
Not Adequate ☐

9. Do you like the ***quality*** of the Tablet given to you? Yes☐ No☐

10. If no to item 9, what do you not like about the Tablet? (Please state):

Section C: Activities

Instructions: The items listed below are designed to obtain information on activities. Please carefully tick (√)/or write your responses in the spaces provided.

1. Did you need help on how to use the Tablet? Yes☐ No☐

2. If yes, what type of help did you need? (Please state): _____

3. Can you do different things (multi-task) with the Tablet? Yes☐ No☐

4. How do you use the Tablet to learn? (Please state):

5. Do you think that the use of the Tablet for learning improved the following?

Confidence	Yes☐	No☐
Self esteem	Yes☐	No☐
Motivation	Yes☐	No☐

6. How many hours per day do you spend using the Tablet? (Please state): _____

7. Can you use the Tablet outside the school premises? Yes☐ No☐

8. If yes, where do you use the Tablet? (Please state): _____

9. How committed are you to using the Tablet for learning?

Very Committed	☐
Committed	☐
Not Committed	☐

10. How excited are you about using the Tablet for learning?

Very Excited	☐
Excited	☐
Not Excited	☐

11. How frequently did you use computer technology before the introduction of the Tablets in schools?

Very Frequently	☐
Frequently	☐
Not Frequently	☐

12. Have you experienced any personal injury (pain, hurt, etc.) as a result of using the Tablet in your classroom? Yes☐ No☐

13. If yes, what type of injury was experienced? (Please state):

14. Was your Tablet stolen? Yes☐ No☐

15. Has there been any report on the stealing of Tablets in your classroom/school of which you are aware? Yes☐ No☐

16. If yes, when and where did this occur? (Please state):

17. Do you use the Tablet for the following activities? (Please tick on all that apply)

Social media	☐	Watching TV	☐
Surfing the Internet	☐	Playing computer games	☐
Watching videos online	☐	Chatting	☐
Texting	☐	Doing homework	☐
Listening to music	☐	Other (Please state): _____	

18. What evidence do you have to show that you are actively using the Tablet for learning activities (sending/receiving messages, etc.)? (Please state:

Section D: Outputs

Instructions: The items listed below are designed to obtain information on outputs. Please carefully tick (√)/or write your responses in the spaces provided.

1. What are your overall views on the use of the Tablets?
   - Positive ☐
   - Negative ☐
   - Both Negative & Positive ☐

2. How effective was the plan (method) used for piloting of the Tablets in Schools Project?
   - Very Effective ☐
   - Somewhat Effective ☐
   - Not Effective ☐

3. What are the ***benefits*** of using the Tablets? Please comment:

4. What are the ***challenges*** encountered as a result of the use the Tablets? Please comment.

Section E: Views on Tablet in Schools

Instructions: Please read the following statements carefully, and then circle the number that expresses the degree to which you agree with each of the statements.

Key: Strongly Disagree (SD) 1, Disagree (D) 2, Agree (A) 3, & Strongly Agree (SA) 4.

		Responses			
		SD	**D**	**A**	**SA**
1.	My interest in school has increased since the introduction of the Tablet.	1	2	3	4
2.	The use of the Tablet in my classrooms improved my attendance.	1	2	3	4
3.	Since the introduction of the Tablet, I participate more in classes.	1	2	3	4
4.	I use the Tablets carefully.	1	2	3	4
5.	I am able to complete my homework on time due to the use of the Tablet.	1	2	3	4
6.	I am motivated to learn with the Tablet.	1	2	3	4
7.	I have insufficient confidence to use the Tablet for my classes.	1	2	3	4
8.	I do not have enough time to use the Tablet in my classrooms.	1	2	3	4
9.	The Tablet I got meets my Internet-related needs for learning.	1	2	3	4
10.	The Tablet makes me aware of current issues around the world.	1	2	3	4
11.	I am learning as much as I expect to learn from the Tablet.	1	2	3	4
12.	I am satisfied with the services provided by the Tablet.	1	2	3	4
13.	I find the Tablet useful in communicating with fellow students.	1	2	3	4
14.	I find the Tablet useful in communicating with my teachers.	1	2	3	4
15.	The Tablet exposes me to modern technology.	1	2	3	4
16.	The Tablet offers quality services (e.g., speed) that I need in the classroom.	1	2	3	4
17.	I am comfortable using the Tablet in my class.	1	2	3	4
18.	It is easy to access educational sites using the Tablet.	1	2	3	4
19.	I was made aware of sites that I should not use in the classroom.	1	2	3	4
20.	I was made aware of how to take care of my Tablet.	1	2	3	4
21.	I was made aware of the safety issues associated with the Tablet.	1	2	3	4
22.	The use of the Tablet improves my higher level thinking.	1	2	3	4
23.	Information on the Tablet was received on time.	1	2	3	4
24.	I was sensitized about the Tablets in Schools Project before the pilot.	1	2	3	4
25.	My research skills have improved since the introduction of the Tablet.	1	2	3	4
26.	With the use of the Tablet, I was able to learn at my own speed.	1	2	3	4
27.	Since I got the Tablet, my parents are more involved with my school work.	1	2	3	4
28.	My parents have expressed their satisfaction with the Tablet.	1	2	3	4
29.	Overall, I am satisfied with the Tablets in Schools pilot project.	1	2	3	4

Thank you for your cooperation in completing this questionnaire.

Appendix F1
Interview Schedule for Principals

Interviewer:		**Interviewee:**	
Date:		**Venue:**	
Time Started:		**Time Ended:**	

Stage One: Introduction

Greetings: Thank you in advance for agreeing to do this interview.

Purpose: This interview is a part of the formative assessment being done to ensure that the Tablets in Schools Pilot Project is meeting its objectives and to maintain high project quality. This interview is designed to collect data from you as a stakeholder who is involved in the pilot phase of the project.

Ethical Issues: Participation is voluntary and should you decide to withdraw from the study at any time, you may do so without prejudice. If you agree to participate, I will ask you some questions. The responses given will be hand written as well as audio taped. During the writing stage, you will not be identified by name.

Stage Two: Getting to know the interviewee (ice breaker)

Stage Three: Guiding Questions

1. Could you describe for me the technology (Wi Fi/Internet, Tablets, programs, etc.) needed for the project?
2. What other e-learning resources are needed for the Tables in Schools project?
3. Describe how the Tablets are used for teaching and learning by teachers and their students.
4. What type of support (technical & human) resources are needed for this project?
5. Please state if there has been any reported personal injury/injuries experienced by the teachers or the students as a result of using the Tablet?
6. Please explain if any of the Tablets have been reported stolen or destroyed.
7. Please explain if there has been any reported misuse of the Tablets?
8. What are your views on the quality (memory and speed) of the Tablets?
9. Please describe the overall attitudes of teachers towards the Tablets in Schools Project.
12. Please describe the overall attitudes of students towards the Tablets in Schools Project.
13. Please describe the overall attitudes of parents towards the Tablets in Schools Project.
14. Please describe the impact of the use of Tablets on students?
15. Please describe the impact of the use of Tablets on teachers?

16. Do you know if the Tablets are used for non-academic activities by the teachers and their students? If yes, what type of activities?
17. What are the major benefits of the Tablets in Schools Project to your school?
18. What are the major challenges of the Tablets in Schools Project in your school?
19. What suggestions do you have for improving the Tablets in Schools Project?
20. How would you rate the Tablets in Schools Pilot Project?
21. Do you have any questions or comments that you would like to make at this point?

Stage Four: Concluding remarks:

Thank you for your cooperation. If there is a need for clarification, I will contact again by phone. If you feel there is a need to provide us with additional information, do not hesitate to call us at _____.

Appendix F2
Interview Schedule for Parents

Interviewer:		**Interviewee:**	
Date:		**Venue:**	
Time Started:		**Time Ended:**	

Stage One: Introduction

Greetings: Thank you in advance for agreeing to do this interview.

Purpose: This interview is a part of the formative assessment being done to ensure that the Tablets in Schools Pilot Project is meeting its objectives and to maintain high project quality. This interview is designed to collect data from you as a stakeholder who is involved in the pilot phase of the project.

Ethical Issues: Participation is voluntary and should you decide to withdraw from the study at any time, you may do so without prejudice. If you agree to participate, I will ask you some questions. The responses given will be hand written as well as audio taped. During the writing stage, you will not be identified by name.

Stage Two: Getting to know the interviewee (ice breaker)

Stage Three: Guiding Questions

1. Were you trained by the staff of e-Learning Jamaica Limited on how to use the Tablet?
2. Could you describe for me how you feel about the Tablet given to your child?
3. Describe how your child is using the Tablet at home.
4. What type of support (technical & human) resources does your child need in order to use the Tablet?
5. Please explain if your child or children experienced any injury as a result of using the Tablet?
6. Please explain if your child's or children's Tablets has/have been stolen or damaged since receiving it?
7. What do you think are the major benefits of the Tablets in Schools Project?
8. What do you think are the major challenges of the Tablets in Schools Project?
9. What suggestions do you have for improving the Tablets in Schools Project?

Stage Four: Concluding remarks:

Thank you for your cooperation. If there is a need for clarification, I will contact again by phone. If you feel there is a need to provide us with additional information, do not hesitate to call us at _____.

Appendix F3
Interview Schedule for Community Members

Interviewer:		**Interviewee:**	
Date:		**Venue:**	
Time Started:		**Time Ended:**	

Stage One: Introduction

Greetings: Thank you in advance for agreeing to do this interview.

Purpose: This interview is a part of the formative assessment being done to ensure that the Tablets in Schools Pilot Project is meeting its objectives and to maintain high project quality. This interview is designed to collect data from you as a stakeholder who is involved in the pilot phase of the project.

Ethical Issues: Participation is voluntary and should you decide to withdraw from the study at any time, you may do so without prejudice. If you agree to participate, I will ask you some questions. The responses given will be hand written as well as audio taped. During the writing stage, you will not be identified by name.

Stage Two: Getting to know the interviewee (ice breaker)

Stage Three: Guiding Questions

1. Have you heard about the Tablets in Schools Pilot Project?
2. What do you know about the project?
3. Could you describe how you feel about the project?
4. How do you think you can lend your support to the project?
5. Please tell me how the Tablets will benefit the community.
6. What do you think are the challenges of the project?
7. What suggestions do you have for improving the Tablets in Schools Project?

Stage Four: Concluding remarks:

Thank you for your cooperation. If there is a need for clarification, I will contact again by phone. If you feel there is a need to provide us with additional information, do not hesitate to call us at _____.

Appendix F4
Interview Schedule for Vendors

Interviewer:		**Interviewee:**	
Date:		**Venue:**	
Time Started:		**Time Ended:**	

Stage One: Introduction

Greetings: Thank you in advance for agreeing to do this interview.

Purpose: This interview is a part of the situational analysis being done to ensure that the Tablets in Schools Pilot Project is meeting its objectives and to maintain high project quality. This interview is designed to collect data from you as a stakeholder who is involved in the pilot phase of the project.

Ethical Issues: Participation is voluntary and should you decide to withdraw from the study at any time, you may do so without prejudice. If you agree to participate, I will ask you some questions. The responses given will be hand written as well as audio taped. During the writing stage, you will not be identified by name.

Stage Two: Getting to know the interviewee (ice breaker)

Stage Three: Guiding Questions

1. What role do you play in Tablets in Schools project?
2. What type of tablets did your company supply to the schools used for the pilot project?
3. Please describe the quality of the tablets that your company supplied.
4. What type of customer relations did you have with the schools during the pilot phase of the Tablets in Schools Project?
5. What type of customer relations did you have with e-Learning Jamaica Company Ltd staff during the pilot phase of the Tablets in Schools Project?
6. What are the major benefits of the Tablets in Schools Project to schools?
7. What type of challenges, if any, did your company experience during the pilot phase of the Tablets in Schools Project?
8. What suggestions to the challenges being experienced?
9. Do you have any questions or additional comments that you would like to make at this point?

Stage Four: Concluding remarks:

Thank you for your cooperation. If there is a need for clarification, I will contact again by phone. If you feel there is a need to provide us with additional information, do not hesitate to call us at _____.

Appendix F5
Interview Schedule for Senior e-Ljam Staff

Interviewer:		**Interviewee:**	
Date:		**Venue:**	
Time Started:		**Time Ended:**	

Stage One: Introduction

Greetings: Thank you in advance for agreeing to do this interview.

Purpose: This interview is a part of the situational analysis being done to ensure that the Tablets in Schools Pilot Project is meeting its objectives and to maintain high project quality. This interview is designed to collect data from you as a stakeholder who is involved in the pilot phase of the project.

Ethical Issues: Participation is voluntary and should you decide to withdraw from the study at any time, you may do so without prejudice. If you agree to participate, I will ask you some questions. The responses given will be hand written as well as audio taped. During the writing stage, you will not be identified by name.

Stage Two: Getting to know the interviewee (ice breaker)

Stage Three: Guiding Questions

1. What role do you play in Tablets in Schools project?
2. Could you tell me who is responsible for installing the technology (Wi Fi/Internet, Tablets, programs, etc.) needed for the TIS project?
3. What other e-learning resources are needed for the Tables in Schools project?
4. Can you describe the intended usage of the Tablets by the teachers and students?
5. What type of support resources does your office provide to the schools used for the pilot project?
6. Please state if there has been any reported personal injury/injuries experienced by the teachers and/or the students as a result of using the Tablet?
7. What percentage of the Tablets has been reported stolen and what percentage is destroyed.
8. Has your office received any report on misuse of the Tablets?
9. What has been done to address the misuse of the tablets by the students?
10. What are your views on the quality of the Tablets?
11. What are the major benefits of the Tablets in Schools Project to schools?
12. What are the major challenges of the Tablets in Schools Project to schools?
13. How were the challenges experienced resolved?
14. Please comment on the vendors and their services.

15. Do you have any questions or additional comments that you would like to make at this point?

Stage Four: Concluding remarks:

Thank you for your cooperation. If there is a need for clarification, I will contact again by phone. If you feel there is a need to provide us with additional information, do not hesitate to call us at _____.

Appendix F6
Interview Schedule for MOE Staff

Interviewer:		**Interviewee:**	
Date:		**Venue:**	
Time Started:		**Time Ended:**	

Stage One: Introduction

Greetings: Thank you in advance for agreeing to do this interview.

Purpose: This interview is a part of the Situational Analysis being done to ensure that the Tablets in Schools Pilot Project is meeting its objectives and to maintain high project quality. This interview is designed to collect data from you as a stakeholder who is involved in the pilot phase of the project.

Ethical Issues: Participation is voluntary and should you decide to withdraw from the study at any time, you may do so without prejudice. If you agree to participate, I will ask you some questions. The responses given will be hand written as well as audio taped. During the writing stage, you will not be identified by name.

Stage Two: Getting to know the interviewee (ice breaker)

Stage Three: Guiding Questions

1. Could you describe for us your role in the Tablets in Schools Project?

2. What do you think are the major benefits of the Tablets in Schools Project?

3. What do you think are the major challenges of the Tablets in Schools Project?

4. What suggestions do you have for improving the Tablets in Schools Project?

Stage Four: Concluding remarks:

Thank you for your cooperation. If there is a need for clarification, I will contact again by phone. If you feel there is a need to provide us with additional information, do not hesitate to call us at _____.

Appendix F7
Interview Schedule for USF Staff

Interviewer:		**Interviewee:**	
Date:		**Venue:**	
Time Started:		**Time Ended:**	

Stage One: Introduction

Greetings: Thank you in advance for agreeing to do this interview.

Purpose: This interview is a part of the situational analysis being done to ensure that the Tablets in Schools Pilot Project is meeting its objectives and to maintain high project quality. This interview is designed to collect data from you as a stakeholder who is involved in the pilot phase of the project.

Ethical Issues: Participation is voluntary and should you decide to withdraw from the study at any time, you may do so without prejudice. If you agree to participate, I will ask you some questions. The responses given will be hand written as well as audio taped. During the writing stage, you will not be identified by name.

Stage Two: Getting to know the interviewee (ice breaker)

Stage Three: Guiding Questions

1. What role do you play in Tablets in Schools project?
2. Could you tell me who is responsible for installing the technology (Wi Fi/Internet, Tablets, programs, etc.) needed for the TIS project?
3. Kindly clarify why the Internet/Wi-Fi in the schools are described as poor.
4. Please state if there have been any reported damages to the Internet/Wi-Fi in the 38 schools used for the TIS project?
5. What has been done to address this problem?
6. What are your views on the budget provided for the project?
7. What are the major benefits of the Tablets in Schools Project to schools?
8. What are the major challenges of the Tablets in Schools Project to schools?
9. Do you have any questions or additional comments that you would like to make at this point?

Stage Four: Concluding remarks:

Thank you for your cooperation. If there is a need for clarification, I will contact again by phone. If you feel there is a need to provide us with additional information, do not hesitate to call us at _____.

Appendix F8
Focus Group Schedule for Training and Implementation Officers

Interviewer:		**Interviewee:**	
Date:		**Venue:**	
Time Started:		**Time Ended:**	

Stage One: Introduction

Greetings: Thank you in advance for agreeing to do this interview.

Purpose: This interview is a part of the formative assessment being done to ensure that the Tablets in Schools Pilot Project is meeting its objectives and to maintain high project quality. This interview is designed to collect data from you as a stakeholder who is involved in the pilot phase of the project.

Ethical Issues: Participation is voluntary and should you decide to withdraw from the study at any time, you may do so without prejudice. If you agree to participate, I will ask you some questions. The responses given will be hand written as well as audio taped. During the writing stage, you will not be identified by name.

Stage Two: Getting to know the interviewee (ice breaker)

Stage Three: Guiding Questions

1. Who did you train for the Tablets in Schools Pilot Project?
2. What type of training did the trainees need in order to use the Tablet?
3. How long was the training?
4. What do you think are the major benefits of the training for the Tablets in Schools Pilot Project?
5. What do you think are the major challenges of the training for the Tablets in Schools Pilot Project?
6. What suggestions do you have for improving the training for the Tablets in Schools Pilot Project?
7. Do you have any questions and/or questions that you may want to ask me at this time?

Stage Four: Concluding remarks:

Thank you for your cooperation. If there is a need for clarification, I will contact again by phone. If you feel there is a need to provide us with additional information, do not hesitate to call us at _____.

Appendix F9
Focus Group Schedule for MOE Regional Officers

Interviewer:		**Interviewee:**	
Date:		**Venue:**	
Time Started:		**Time Ended:**	

Stage One: Introduction

Greetings: Thank you in advance for agreeing to do this interview.

Purpose: This interview is a part of the situational analysis being done to ensure that the Tablets in Schools Pilot Project is meeting its objectives and to maintain high project quality. This interview is designed to collect data from you as a stakeholder who is involved in the pilot phase of the project.

Ethical Issues: Participation is voluntary and should you decide to withdraw from the study at any time, you may do so without prejudice. If you agree to participate, I will ask you some questions. The responses given will be hand written as well as audio taped. During the writing stage, you will not be identified by name.

Stage Two: Getting to know the interviewee (ice breaker)

Stage Three: Guiding Questions

1. Could you describe for us the training you received for the Tablets in Schools Project?

Probes

2. As an education officer in region x, to what extent have you used the knowledge and skills acquired from the training in the schools(s) participating in the Tablets in Schools Project?

Probes

3. What do you think are the major benefits of the Tablets in Schools Project?

4. What do you think are the major challenges of the Tablets in Schools Project?

5. What suggestions do you have for improving the Tablets in Schools Project?

Stage Four: Concluding remarks:

Thank you for your cooperation. If there is a need for clarification, I will contact again by phone. If you feel there is a need to provide us with additional information, do not hesitate to call us at _____.

Appendix G
School Inventory

This inventory should be completed by the field staff before any data is collected from the participants (students, teachers & principal) in the schools. Data collected will be used for school context description as well as to determine project impact.

Name of Field Staff: _____

Date of School Visit:_____ **Time Start:** _____ **Time End**:_____

Section A: School Context

Instructions: The items listed below are designed to obtain information on the school being observed. Please carefully tick (√)/or right where necessary during the observation.

1. **Name of School:** _____

2. **Parish:** _____ 3. **Region:** _____

4. **Owner of Property:** ☐ Government ☐ Government Leased ☐ Independent ☐ Church (Please state): _____

5. **School Type:** ☐ Traditional ☐ Upgraded ☐ Technical ☐ Academy ☐ Other (Please state): _____

6. **School System:** ☐ Shift ☐ Whole Day
Comments: _____

7. **Exist Examination:** ☐ CSEC ☐ CVQ ☐ NVQJ ☐ City & Guilds ☐ CAPE ☐ Other (Please state): _____

8. **Teacher-Student Ratio** (Please state): _____

9. **Number of Teaching Staff:** Male:_____ Female: _____

10. **Number of Students:** Male:_____ Female: _____

11. Identify contextual constraints that may affect the pilot of the Tablets in Schools Project.

Section B: Inputs

Instructions: The items listed below are designed to obtain information on inputs. Please carefully tick (√)/or write the responses in the space provided where necessary.

1. Number of teachers trained on how to use the Tablets:

Grade	Male	Female

2. Number of students trained on how to use the Tablets:

Grade	Male	Female

3. Number of Teaching Staff who received the Tablets:

Grade	Male	Female

4. Number of Students who received the Tablets:

Grade	Male	Female

5. What other resources were made available for piloting of the Tablets in Schools Project? (Please state):

6. Does the Tablet come with the following?

A. Smart cover for protection	Yes☐	No☐
B. Earplug	Yes☐	No☐
C. Loud speakers	Yes☐	No☐
D. Battery	Yes☐	No☐
E. Keyboard	Yes☐	No☐
F. Screen that is easy to read	Yes☐	No☐
G. Touch screen	Yes☐	No☐
H. Copy right agreement for programs & apps	Yes☐	No☐
I. Programs and applications	Yes☐	No☐
J. Storage (memory)	Yes☐	No☐
K. Other (Please State): _____		

9. How many learning applications are there in the Tablet? (Please state): _____

10. Did the cost of the Internet coverage in your school go up as a result of the use of the Tablets? Yes ☐ No ☐

Section C: Activities

Instructions: The items listed below are designed to obtain information on activities. Please carefully tick (√)/or write the responses in the space provided.

1. Please provide student performance data ***before*** Tablets in Schools Project.

2. Please provide student performance data ***after*** Tablets in Schools Project.

3. Please provide student attendance data ***before*** Tablets in Schools Project.

4. Please provide student attendance data ***after*** Tablets in Schools Project.

5. Please provide evidence to show that teachers are actively using the Tablet for teaching and learning activities.

6. Please provide evidence to show that students are actively using the Tablets for learning activities.

Section D: Outputs

Instructions: The items listed below are designed to obtain information on outputs. Please carefully tick (√)/or write the responses in the space provided where necessary.

1. What are the ***benefits*** of using the Tablets on students' ***engagement?***

2. What are the ***benefits*** of using the Tablets on students' ***achievement?***

3. What are the ***immediate challenges*** encountered by the users (teachers and students) as a result of the use of the Tablets in Schools? Please comment on the challenges.

Teacher Challenges	Student Challenges

Section E: Outcomes

Instructions: The items listed below are designed to obtain information on outcomes. Please carefully tick (√)/or write the responses in the space provided where necessary.

1. What is the long term impact of the Tablets in Schools Project in the pilot schools? Please comment on impacts.

2. What changes, if any, in the user behaviors, skills, and knowledge can be achieved in the long term? Please comment on changes.

3. Other General Comments:

Thank You!

Appendix H
School Visit Schedule

Parish	School			**Field Officers**	**Comments**
		Date	Time	**Names**	**Name**
Kingston (N=6)	Hailie Selassie High	June 1	9am	C. Onyefulu Sharna Grandison Hayne Cooper	
St. Mary (N=2)	Galina Primary & Infant	June 2	9am	Howard Cole A. Simon Yalams	
St. Mary (N=2)	Happy Hour Basic School	June 3	10am	Hayden Hamil Hendon Hamil Sybile Hamil	
St. Andrew (N= 5)	Cavaliers Prim & All Age	June 3	1pm	Howard Cole Tanisha Lewis	**REVISIT: JUNE 12**
St. Catherine (N=5)	Aintree Basic School	June 4	8am	Howard Cole Tanisha Lewis	
St. Andrew (N= 5)	Clan Carthy Primary	June 4	1pm	Howard Cole Georgia Brown Ivy Cummings	
St. Catherine (N=5)	Homestead Primary	June 5	10am	Ivy Cummings Howard Cole	

St. Elizabeth (N=1)	Marie Cole Primary	June 5	1pm	Clive Lee Natasha Lee Danielle Lee	
Westmoreland (N=2)	Sir Clifford Campbell	June 8	9am	C. Onyefulu Grace Hughes	
Westmoreland (N=2)	Belmont Academy	June 8	1pm	C. Onyefulu Grace Hughes	
Manchester (N= 3)	Nazareth All Age	June 8	1pm	Anatol Clark Allwood M. Fenton Sharna Grandison	
St. James (N= 6)	Granville All Age	June 9	9am	Clive Lee Natasha Lee Danielle Lee	
Kingston (N=6)	Rennock Lodge Primary	June 10	9am	Howard Cole Tanisha Lewis Georgia Brown	
Kingston (N=6)	St. Josephs Infant	June 11	7:30am/ 8:00am	Howard Cole Ivy Cummings Georgia Brown	
Trelawny (N= 3)	Lowe River Primary	June 12	9am	Grace Hughes C. Onyefulu	

St. Catherine (N=5)	Cumberland High	June 12	9am	Howard Cole Sharna Grandison Hayne Cooper	**CONFIRMED**
St. James (N= 6)	Cambridge High	June 12	9am	Clive Lee Natasha Lee Danielle Lee	**CONFIRMED**
St. Andrew (N= 5)	John Mills Infant, Pry & Jr. High	June 15	9am	Howard Cole Tanisha Lewis Georgia Brown	
Manchester (N= 3)	Winston Jones High	June 15	9am	Sybile Hamil Hendon Hamil Hayden Hamil	
St. James (N= 6)	Irwin High	June 16	9am	Clive Lee Natasha Lee Danielle Lee	
Trelawny (N= 3)	Rio Bueno Primary	June 17	9am	Grace Hughes C. Onyefulu	
St. Andrew (N= 5)	St. Benedicts Primary	June 17	9am	A. Simon Yalams Georgia Brown	

				Tanisha Lewis	
Clarendon (N=2)	Central High	June 17	EXAMS	Sybile Hamil Hendon Hamil Hayden Hamil	
Clarendon (N=2)	Salt Savannah Primary	June 18	9am	Howard Cole Tanisha Lewis	
Trelawny (N= 3)	Stephen James Basic	June 19	9am	Grace Hughes C. Onyefulu	
St. Ann (N=2)	Steer Town Academy	June 22	9am	Howard Cole A. Simon Yalams Tanisha Lewis	CONFIMED Students will finish exam at 11am
Manchester (N= 3)	Porus Infant schools	June 23	9:30am	M.Fenton Anatol Clark Allwood Sharna Grandison	
Hanover (N-1)	Sandy Bay Prim & Jr. High	June 23	9am	Howard Cole A. Simon Yalams Tanisha Lewis	CONFIRMED
St. Ann (N=2)	Parry Town Primary	June 24	9am	Sybile Hamil Hayden Hamil Hendon Hamil	

St. Catherine (N=5)	Windsor School of Special Education	June 24	9am	Howard Cole A. Simon Yalams	CONFIRMED Acting Principal won't be there but available on June 26 & 30th on location
St. Catherine (N=5)	The Cedar Grove Academy	June 25	9am	Howard Cole A. Simon Yalams B. Tanisha Lewis	
St. Andrew (N= 5)	Mona Heights Primary - Mr. Ashley (e-Learning Coordinator) and reschedule	June 9	9am	Georgia Brown Howard Cole Ivy Cummings	A. Simon Yalams
St. James (N= 6)	Herbert Morrison Tech. High Ms. Williamson - To Reschedule due to graduation	June 25	9am	Howard Cole Tanisha Lewis A. Simon Yalams Christine Pratt	
SCHOOLS TO RESCHEDULE / FOLLOW-UP VISITS St. James (N= 6)	St. James High	June 1	12pm	Clive Lee Natasha Lee Danielle Lee	
St. James (N= 6)	Sam Sharpe Teachers	**June 12**	**Online**	Hayne Cooper	**To create web-based**

	College		**survey**	Sharna Grandison Christine Pratt	**form by June 12**
FOLLOW-UP ADMIN DUTIES	Request Parents Phone Numbers				
	• Cavaliers Primary and All Age • Clan Carthy Primary • Happy Hour Basic • Cambridge High				
PILOT SCHOOLS – ALREADY VISITED Kingston (N=6)	Holy Trinity High	May 27	9am	Anatol Clark Allwood Sharna Grandison Howard Cole Ivy Cummings	
Kingston (N=6)	Alpha Infant	May 26	9am	Howard Cole Georgia Brown Ivy Cummings	
Kingston (N=6)	Chetolah Park Primary	May 28	9am	Sybile Hamil Hendon Hamil Hayden Hamil	

Appendix I
Matching of Guiding Questions with Data Collection Methods and Deliverables

Guiding Questions		Data Collection Methods & Deliverables
Inputs		
1.	To what extent was a policy or policies (guidelines, operational documents, TIS framework, & ICT policy) put in place to guide the Tablets in Schools project?	Interview (e-Learning Jamaica Company Ltd & USF Staff)
2.	To what extent were the teachers and the students provided adequate training on the use and care of the Tablets?	**Deliverables: (1) Students' Sensitization Processes, (2) Teacher Skills** ➢ Interview (e-Learning Jamaica Company Ltd Staff) ➢ Questionnaire Items (section A)
3.	To what extent were the communities around the schools sensitized about the Tablets in Schools Project?	**Deliverables: (1) Community Awareness & Acceptance, (2) Community Sensitization Processes (3) Parent-Child Interaction** ➢ Interview (e-Learning Jamaica Company Ltd Staff) ➢ Interview (Parents & Community Members)
4.	What resources (human, budget, facilities, equipment, training, hardware, software, etc.) were made available for the piloting of the Tablets in Schools Project?	**Deliverables: (1) Device Status, (2) Resource Availability** ➢ Interview (e-Learning Jamaica Company Ltd Staff) ➢ Questionnaire Items (Section B)
5.	How adequate is the Internet connectivity	**Deliverables: (1) Device Status, (2) Resource Availability**

	(network broadband/bandwidth, Wi-Fi) in the Schools being used for the pilot of Tablets in Schools Project?	➢ Interview (Principal) ➢ Interview (e-Learning Jamaica Company Ltd & USF Staff) ➢ Questionnaire Items (Section B)
6.	How adequate is the quality of the Tablets used in the pilot phase of the Tablets in Schools Project?	**Deliverables: (1) Device Status, (2) Resource Availability** ➢ Interview (e-Learning Jamaica Company Ltd Staff) ➢ Questionnaire Items (Sections B, E, & F)
Outputs		
7.	To what extent are the teachers using the Tablets for teaching and learning activities?	**Deliverables: (1) Teacher Technology Integration Skills, (2) Teacher Research Behaviour, (3) Teacher & Training Preparation Process, (4) Participation Satisfaction** ➢ Interview (Principal) ➢ Questionnaire Items (Section B)
8.	To what extent are the students using the tablets for their learning activities?	**Deliverables: (1) Students' Home Work Behaviour, (2) Students' Interest in School, (3) Students' Reading Behaviour, (4) Students' Attitude Development, (4) Participation Satisfaction** ➢ Interview (Principal) ➢ Questionnaire Items (Sections E & F)
Outcomes and Impact		
9.	What are the short term benefits of the use of the Tablets on student engagement and achievement?	➢ Interview (Principal) ➢ Questionnaire Items (Section D)

10.	What is the short term impact of the use of the Tablets on student engagement and achievement?	➢ Interview (Principal) ➢ Questionnaire Items (Section D)
11.	What challenges encountered affected the realization of the intended deliverables of the project?	**Deliverables: Other uses (non-academic) of Tablets** ➢ Interview (Principal) ➢ Questionnaire Items (Sections C & D)
12.	What are teachers' and students' attitudes and views on the use of the Tablets?	**Deliverables: (1) Students' Skill Development, (2) Risk & Safety Awareness, (3) Awareness of Cyber Ethics Issues** ➢ Interview (Principal) ➢ Questionnaire Items (Sections E & F)
13.	To what extent is the public/community supporting the Tablets in Schools Project?	➢ Interview (Parents & Community Members)
14.	How effective was the plan (preparation method) used for the piloting of the Tablets in Schools Project?	➢ Interview (Principal) ➢ Questionnaire Items (Section D)

Appendix J
Integrity Form
Tablets in Schools Pilot Project

By signing this paper, I affirm that I will collect data objectively and honestly. I also affirm that no data existed before the beginning of the data collection phase for the Tablets in Schools Pilot Project; and that no one else will collect data on my behalf.

Name: _____

Signature: _____ **Date:** _____

Appendix K
Data Entry Agreement

I, _____ collected _____ envelopes for _____ schools from Dr. Cynthia Onyefulu on July ___, 2015. I will enter the collected data into the SPSS program. The envelopes will be returned on July _____, 2015 to Dr. Cynthia Onyefulu.

Signature: _____ **Date: _____**

Appendix L
Mileage Log

Name of Field Officer: _____

Type of Car: _____ Model of Car: _____

School	Date	Beginning Mileage	Ending Mileage	Comments

Signature:_____ Date: _____

Appendix M
Log Sheet

Name of Field Officer: _____

School Name: _____

Date of Visit: _____ Signature: _____

Unit of Analysis	Data Type	Number of Participants	Comments
Principal	Interview		
Infants (kids)	Observation/interview		
Younger students	Questionnaire/observation		
Older students	Questionnaire		
Teachers	Questionnaire		
Parents	Interview/focus group		
Community Members	Interview/focus group		
School	Observation of classroom Activities with teachers and students & Inventory		

Principal's Name: _____ Signature:_____

School Stamp: