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Caribbean Teachers' Perspectives on One-to-One ICT Programme for Enhancing Teaching and Learning: a Case Study of a Boys' High School

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Abstract
The purpose of this study was to document the perspectives of teachers who form an important stakeholder to the newly established eConnect and Learn (eCAL) programme in a Caribbean Island state. eCAL is a programme introduced by the government to enhance teaching learning in the country. A qualitative cross-sectional study was undertaken through a one-on-one structured interview with 7 teachers of different departments in the school who have been exposed to the programme since inception. Data was analysed using the Boyatzis (1998) thematic analysis strategies. Teachers provided varied and unreserved perspectives about the eCAL programme including the benefits. They also provided their concerns, and challenges of the programme among others. These results were discussed vis-à-vis the intentions of the programme as well as the literatures on the research issue. While recommend that a formal evaluation of the programme be carried out Island-wide, the researchers however provisionally recommend that the many useful benefits the programme currently enjoys should be further maximised by greater involvement of all the major stakeholders through adequate training and workshops on the programme.

Keywords: Caribbean, ICT, Teaching-Learning, Teachers-Education, Schools.

Introduction

The research project examined teachers' perspectives on a government's information Communication and Technology (ICT) one to one programme for secondary schools at a secondary school called the eConnect and Learn (eCaL) programme. The programme was introduced to aide teaching and learning at all secondary schools in the country, and laptop computer is given to each student upon entry into the secondary school. ICT has been seen as one the educational tools believed to have positive effects on education and also can be used for the development of the 21st Century skills (Roblyer & Doering, 2013). The integration of ICT in schools, "expands and enhances teachers' practice, as teachers are now required to design learning experiences that access wireless learning technology and diversify classroom practices"(Trinidad and Tobago, Ministry of Education, 2010, P.2).

ICT integration is an integral part of the school curriculum that can be used to enhance teaching and learning. The integration of technology into the curriculum motivates students to learn and also supplies relevant and meaningful contents that get students to reason and

solve problems. It also helps teachers to deliver their lessons faster and more efficiently. Furthermore, ICT integration in schools enhances and stimulates student's interest in school. It increases academic performance and teacher productivity, enhances problem solving, fosters creative and critical thinking, (Clarke, 2007; Maloy, Verock-O'Loughlin, Edwards & Woolf, 2011; Almadhour, 2010; Gundy & Berger, 2010; Roblyer & Doering, 2013).

The key success to programme implementation starts from proper planning and adequate installation of the needed infrastructures and provisions of resources (Ven Deusen, James, Gill, Mckenchnie, 2008; Samdal & Rowling, 2013). In addition, Samdal and Rowling (2013) expressed that one of the factors to successful school programme implementation is the interaction among the school setting, implementer's characteristics, implementation system characteristics and the organizational context. Mcisaac, Read, Veugelers and Kirk (2013) indicated that organizational factors such as in-service training positively influenced the implementation of a school programme. Communication is another factor to successful implementation of programmes; Rogers (2007) opined that when new ideas about innovation are shared with implementers, it helps them to understand what and how to implement.

The governments of some countries have introduced ICT integration in their educational systems. To improve the standard of education countries have provided personal laptop computers to students and in some cases to teachers for the enhancement of teaching and learning. Countries such as Canada, Australia, Uruguay, United States of America, Japan, China, Switzerland, and the United Kingdom have included ICT into their curriculum and adopted the one to one computer infusion into their curriculum.

The use of iPad is prevalent in US schools. For example, by October, 2011 Clarke and Svanaes (2012) indicated that about 1000 k-12 schools had one-to-one iPad program. Some schools in US have gotten stakeholders to help implement one to one laptop program while some parents provide laptops for their children. Also in USA, ICT integration into the curriculum comes under different names coined by different schools. In San Domenico Independent High School, California, the integration of ICT into the curriculum is called the Macbook program where every student is issued an Apple Mac book; the objective of this program is to provide every child with a Mac book so that they have equal access to technology and also to develop the 21st Century learning strategies and skills. A report from the National Endowment for the Arts in 2007 shows that technology integration into the curriculum has distracted students from academic learning, that is negatively affecting their achievement; also reading habits are in decline among US teenagers and young adults (Maloy, et.al 2011). The Australia Commonwealth Government Digital Education Revolution Initiative launched a program, "The Digital Education Revolution (DER)" in New South Wales (NSW). This program is to provide one-to-one wireless laptops to all students from nine to twelve years old by the year 2012. The program is funded by the Australian Government's National Secondary School Computer fund (Howard & Carceller, 2011). Also in Uruguay, their national policy makes provision of free laptops to every child and teacher through its El Ceibal project, this goal was achieved in 2009 (UNESCO, 2O12).

In the UK, there has been emphasis on the need for schools to integrate ICT into their curriculum because of the many benefits it has on teaching and learning. The UK Information Technology (IT) educational system has been criticized of wasting its technological talents due to inadequate IT integration into the curriculum, although integrating IT into the curriculum comes with a lot of distractions that hinder students'

learning (Hall, 2011). However, a focus group interviews using 18 teachers by Hennessy, Ruthven and Brindley (2005) indicated that teachers view ICT integration in schools as a means for enhancement of their classroom practice. On the other hand, Hertzler (2010) opined that there is need for further research to determine the effect ICT integration has on teaching, students' achievement and behavior because teachers are faced with problems while integrating ICT in their subject areas; such research will add in the successful ICT integration to yield results. Also, as Clarke (2007) explained that teachers are faced with the problem of a psychological tug-o-war because school leaders, technocrats and change facilitators pay little or no attention to their perceptions and the challenges that confront them while integrating ICT in their subjects.

Teachers and students are the major stakeholders to successful ICT integration in schools. Result from a research conducted in Singapore schools stated that some teachers perceive ICT integration as a novelty to be used to break the daily monitoring of chalk and board teaching. Hence they felt that they could teach better and quicker with the traditional teacher-centered approach (Lim & Khine, 2006). Similarly, according to Kemp-Jackson (2012), some secondary school teachers view technology integration as a tack-on for an already packed full program and they do not think they have time and space for it , that is because they cannot envision technology as being a means of delivering and improving the curriculum they teach. Buabeng-Andoh (2012) conducted a study on "Teachers' Perceptions and Practices of ICT in Teaching and Learning" in Ghana. Result from that study showed that teachers' teaching methods have not changed with ICT integration and also ICT integration has no impact on their teaching. Despite the many benefits of ICT integration on teaching and learning, there are reports that ICT integration into the curriculum comes with distractions and challenges that hinder learning and teaching.

Clarke (2007) articulated that the English speaking Caribbean Countries have taken ICT integration in the educational system seriously as a result its importance and benefits for teachers and students. The Jamaican educational sector has also recognized the importance of ICT integration into the curriculum that is why some private sectors have initiated one laptop per child (OLPC) program where they distributed laptops to students to use at home and school. Furthermore, computers have been placed in Jamaican school laboratories by a number of initiatives such as Jamaican 2000 Project, Ed Tech Project 2020 and the Ed Net Project. . An ICT Training needs Assessment Survey conducted in Jamaican in 2011 shows that putting ICT in school does not guarantee that it will be used effectively by teachers to improve teaching and learning. Malcolm-Bell (2011) stated that there is not enough study in Jamaica on technology integration process, its effects and teachers' perceptions of such in Jamaican schools and also there is a low level of ICT integration at all segments of the education sector. The government of St. Vincent and Grenadines promised one laptop per child to every secondary school student in 2010. Following up on that promise, in September 2013, their Prime Minister announced in September 2013, the government had sourced 15,000 laptops at the cost of US$6 million through its Ministry of Education and Technology (Searchlight, 2013).

However, although there might be high rate of ICT integration in the Caribbean schools as reported by UNESCO Institute for Statistics' Survey (UIS) on ICT integration (UNESCO, 2012), ICT integration in the region may not be improving teaching and learning for there might still be limitations to technology integration that hinder its effectiveness in the learning process, which are yet to be studied (UNESCO, 2012). Also Mason (2007) indicated that

there are not enough studies in the Caribbean on how ICT is used at the educational level including its integration. A study conducted by the Inter-American Development Bank (IDB), has indicated that provisions of one to one laptop to students will do little to improve the quality of education in Latin American and Caribbean countries. In its stead these countries should invest in teacher training and develop educational software for students. The study also found out that students with weak adult supervision at home may spend more time on their laptops on things that will not help them academically. So the study proposes more evaluation that will measure the effectiveness of such programs like one to one laptops in the region (Chong, 2011) and one of the ways to accomplish this is to explore teachers' perceptions on 1:1 laptop programs such as the eCAL program.

The eConnect and Learn Program (eCAL)

The government of Trinidad and Tobago introduced the eConnect and Learn Program in 2010, its implementation started in 2010/2011 academic year through the Ministry of Education. According to the Ministry of Education (MOE, 2010, p.1), the primary objective of the eCAL program is to "leverage the potential of Information and Communication Technology (ICT) to significantly enhance the Trinidad and Tobago education system through the provision of laptop computers to secondary school students".

Although there were trainings for teachers, supervisors and principals on the use and integration of the eCAL program, these trainings were not adequate, the first vice president of the Trinidad and Tobago Unified Teachers' Association (TTUTA), described these trainings as "Cascade Approach", teachers were trained for two days and they in turn became trainers of their fellow teachers although this cascade approach is not always a successful one. It was however indicated that this cascade approach to the eCAL may not be achieving its goals (Allaham, 2011). Subran (2010) also predicted that when teachers are not adequately prepared to use computers, it would have a negative effect on teaching and learning; and on how they integrate the eCAL program. There have been views and concerns expressed by stakeholders since the start of the eCAL program. Teachers and parents have concerns that form one student whom by nature of their ages, are not responsible enough to care for their laptops and distinguish between good and bad things learnt from laptops. As a result these, students see their laptops as technological toy to play with and this may affect their performances at school. In addition, parents and teachers have complained that their children and students spend most of their time with their laptops on games, YouTube, face book and other social networking (Leacock, 2012). TTUTA in 2010, through its president, Roustan Job expressed concerns about the eCAL program, including additional cost for electrical wiring, wireless internet, inadequate trainings for teachers, security and storage facilities for students who choose to leave their laptops at schools (Allaham, 2011).

On their study of teachers' perceptions of ICT integration, Almekhafi and Almeqdadi (2010), opined that most teachers, who were willing to use technology, expressed positive experiences with technology integration. These teachers increased their use of technology by integration in the classroom and used technology more creatively, thereby enhancing their teaching. Also, Murphy (2007) found out that use and integration of computer in foreign language comprehension have significant positive effects, contrasting Buabeng-Andoh, (2012) and Kwaku & Ansong-Gyimah,(2010) that found no significant difference in improving teaching and learning.

In other studies, Dunleavy, Dexter and Heinecket(2007), Makgato (2012) and Adeyinka, Majekodunmi and Ayodele(2007) showed that although the integration of ICT in schools improves teaching and learning there is still slow integration of ICT in the classroom due to lack of trainings, lack of expertise and technical support. However, the Great Britain's office for standards in Education (OFSHED) published a report indicated that integration of ICT in secondary schools' curriculum does not meet the needs of all students (OFSHED, 2012). The slow rate of ICT integration has led some educators to conclude that computers have not and will not produce substantive changes in teaching and learning. In an exploratory survey design that 45 teachers participated through questionnaire and interview done by Maiima, Ondigi and Mavisi (2013) in Kenya on teachers' perceptions about ICT integration showed that teachers understand the benefits of ICT integration but are not ready to adopt it due to various challenges.

In a study conducted by Drenoyianni and Selwood (1998) to determine teachers' perceptions of computer use in the classrooms, questionnaire and interview were used with 50 and 11 teachers respectively. It showed that 72.9% of teachers perceived that computer integration has positive effects on students' learning such as motivational effects as well as improving basic skills and concepts. Also 89% of the teachers said that computer integration did not change their teaching practices but it had a positive effect on the way they managed work in the classroom, this result concurred with other researchers like Cox and Rhodes (1990), Martin (1991), and Amshad (2012) found out from their studies. Also a survey study done by Gorder (2008) on teachers' perceptions of technology integration, in which 300 k-12 teachers were the participants, the Technology integrated matrix (TICM) was used to determine teachers integration of technology, the results shows that teachers use technology in class to facilitate and deliver instruction but do not integrate technology as well into their teaching and learning. Furthermore, the result also indicates that there is little difference in perceptions of integration based on demographic characteristics. The only significant difference in technology integration and uses is based on grade level as teachers in grades 9 – 12 tend to integrate and use technology more than those in grades 5 – 8. He calls for further research on teachers' perceptions of one- to- one computing where students have their own mobile computer. It is envisaged that the introduction of the eCAL programme will enhance teaching and learning. However literature, anecdotal evidence and opinions by stakeholders globally and locally suggest that ICT integration into the curriculum may have negative effects. ICT in schools but on the other hand has yielded positive results in that teachers, students and the society at large have benefited from it. To investigate the research issue, seven teachers were selected for the study. These teachers were interviewed to elicit the meaning they ascribed to the research problem. It has become necessary to document some of the perceptions of the teachers who have been engaged in this new programme introduced by the Government of Trinidad and Tobago. There has not been a formal evaluation of the effectiveness of the programme, and perhaps the result of this study will assist in the process.

Purpose: To examine teachers 'perspectives on the eConnect and Learn (eCAL) programme for the enhancement of teaching-learning in their school.

Research Question: What are teachers' perspectives on one to one ICT programme for enhancing teaching and learning?

Methodology

*Research Design***:** The researchers employed a qualitative case study in order to understand the research issue under investigation. The study is rooted in the qualitative paradigm research approach. Qualitative study is best suited for this research because the researchers wanted to understand the research issue from the meanings teachers ascribe to it and also from their experiences as it regards to the eCAL program as a way of enhancing teaching and learning. Also, the study is to provide an in-depth investigation into the participants' thoughts, experiences in relation to the research issue. The experiences and the meanings the participants ascribed to the research issue were important to answer the research questions of this study, because the participants are the ones that use the eCAL program through an integrated approach. The researcher interviewed the participants to elicit what they know and have experienced with the program in its natural setting. This supported what Denzin and Lincoln (2000) as cited in Creswell (2007, p.36) opined that "qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret phenomena in terms of the meanings people bring to them". The researcher explored the experiences, meanings and multiple realities of the participants in relation to the issue under study.

This is a case study that enabled the investigators to understand the research problem using the case of a specific Boys' Secondary School, as stated by Creswell (2007), case study research involves the study of a research problem explored through one or more cases within a bounded system. The case study was employed since the research issue was examined by exploring the eCAL program as to whether or not it is enhancing teaching and learning at the particular Boys' Secondary School. According to Merriam (1998), case study is appropriate when investigating and evaluating educational programs and innovations. It is also appropriate for informing policy. Furthermore, this research involved an in-depth description of the eCAL program whether or not it is an enhancement for teaching and learning at the selected Boys' Secondary School in Trinidad. Therefore, this study examined teachers' perceptions' of the eCAL program for enhancement of teaching and learning at the school.

Sampling Procedure: The researchers used purposeful sampling technique to select participants for the study. There are forty-five teachers at the selected school. From this population, seven teachers that teach forms one to four and with at least four years of teaching experience were selected for interview. The interview was conducted at the participants' school. This purposeful sampling was based on the criteria thatthe selected teachers would have been utilizing the programme and would have had the maximum exposure to the eCAL programme at the school. As stated earlier, the eCAL program started in 2010/11 academic year. At the time of this study, only forms one to four students are in possession of the eCAL laptops.

Five teachers were taken, one from these departments: Language, Social Science, Science, Visual and Performing Arts; and Mathematics Departments. Two teachers were selected from Information Technology (IT) Department that teach IT and Technology Education respectively. The participants were four male and three female teachers. We envisaged that the selected participants and site for the study can purposefully inform an understanding of the research problem. The selected seven participants have more than nine years of teaching experience and have been teaching at the selected school for more than four years. These participants also integrate the eCAL program into their lesson deliveries. They are in contact with students who are in possession of the eCAL laptops. Pseudonyms will be used in place

of the names of the participants. Therefore, throughout the study, the researchers will refer to these participants as: Teacher A, B, C, D, E, F and G.

Data Collection Methods: The main instrument for data collection was interview and it was conducted by a face-to-face, one-on-one and semi-structured. The questions for the interview were written in advance, reviewed and used to understand the research issue. The semi-structured interview allowed the voices of the interviewee to be less constrained and they were able to voice out their perceptions of the eCAL program for enhancing teaching and learning; and it also gave room for follow up questions. The interview questions started from general questions to specific questions and closing question. The questions were open-ended that allowed the participant to elaborate more of their perceptions of the research problem. The interviews were tape-recorded and later transcribed. This facilitated subsequent data analysis. The researcher made use of multiple data collection methods to enhance the validity of findings from this qualitative case study. Therefore, in addition to interview, the investigators explored the issue under investigation using other forms of data collection such as observation and artifacts. Creswell (2007) stated that in qualitative case study, the investigator explores a case overtime, through an in-depth data collection involving multiple sources of information like observation, interview and documents. Observation was used and it allowed the researchers to gather live information within its context and also for the purpose of triangulation, which is to add more validity to the study. According to Creswell (2008), researchers use triangulation to enhance accuracy of their study. The researchers observed forms one to four lesson periods. Furthermore, there was observation of documents like artifacts in relation to academic work such as animations produced with the help the eCAL program. The researcher looked at these artifacts because they were written and drawn representation of thoughts. The artifacts were academic tool for enhancing teaching and learning that showed students' creativity. Notes were taken during the observations. The interviews and observations were conducted for about three weeks.

Data Analysis Methods

Thematic analysis was used to analyze data from the interviews; according to Boyatzis (1998) thematic analysis is a process of developing codes that serves as labels for sections of data. Thematic analysis is a way of categorizing strategy for qualitative data which helps researchers in developing themes. For this study, codes and themes were developed from the interview and observation data. The participants' responses to the interview questions were transcribed verbatim. It was typed in the word document and printed out as transcript. The data were scrutinized line by line using the open coding method to form codes and categories. The codes and categories were scrutinized for similarities and differences, categories were formed from the codes. Themes were generated from the categories formed and story was built around the generated themes.

Results

This research project was conducted to determine teachers' views on one to one ICT programme introduced by the Trinidad and Tobago government in secondary schools for the enhancement of teaching and learning. To answer the research question, data was collected for a period of three weeks at the selected Boys' Secondary School. Seven teachers were interview at the school to elicit their opinion on the introduction of the one to one ICT programme called the "eConnect and Learn (eCAL) Programme.

The formed codes generated the following themes to answer the research question:

- Teaching and Learning Benefit and Disadvantage
- Teachers' Concern
- School Initiative
- Support
- Challenges

Teaching and Learning Benefits and Disadvantage

The eCAL programme can be used to enhance teaching and learning if applied well. There are a lot of benefits that can be derived from it for teachers and students. Teacher E expressed:

I think the expectation was that they tried to get people to be more familiar with the technology, so that when they go out in to the real world of work they can use technology, and of course to enhance their current situation. It will also help students to develop the 21st Century skills.

Similarly Teacher A said:

ICT integration can be a very useful tool to aid teacher delivery and students learning but it has to be carefully managed and well- thought out. Furthermore, the participants indicated that students and teachers can benefit from the programme. Some of the teachers are of the view that the programme enhances both teaching and learning while some did not agree on this view. To support this view, Teacher G stated:

I think it is enhancing teaching for those teachers who are acutely implementing it because students are getting to do things in a more exciting way by using web based software and educational games and all that…it makes teaching easier and faster. It limits writing on the chalkboard and reduces paperwork for the teachers because sometimes students do assignment on their laptops. So I think it is enhancing in that way.

As some teachers expressed that the eCAL programme enhances teaching and learning, some are of a contrary opinion, Teacher F expressed:

…it is not enhancing anything, the programme comes with many distractions for students and some of us do not use it because basically we do not know what to do.

Teachers' Concern

Teachers expressed concern about students' safety; according to them there are instances where students were attacked on their way back home and had their laptops taken from them by hoodlums. Some of these students were fortunate to escape injury while some were seriously harmed. Teacher D had this to say:

It is better for students to have their laptops kept in schools. There are cases of students attacked on their way home, some were badly wounded and at the same their laptops were taken from their attackers. ,

Data collected from the participants show that the programme can enhance teaching and learning, on the other hand, all the participants' voiced their concerns about the programme especially when the programme is not properly implemented and used inappropriately by students as it limits the time for a lesson, a lot of time is spent in trying to get the attention of students. Teacher A exclaimed:

In using the laptop in the classroom …we have to move around the classroom to make sure students stay on task because they are ready to go to Facebook or the YouTube or pull out

other website that may be more attractive , we use math games to engage the studs but sometimes the students complain that the games are boring , it is not as attractive as other things they are accustomed to over the internet, so we have their attention for a short period of time and they are quick to go to other sites. We use some of the time for our lesson to get students organised and focused.

In addition, Teacher C said:
Hmm, well it could enhance if certain things were put in place. You have to ensure that facilities are adequately fixed to support the programme. In a situation when the necessary facilities are not provided, it causes harm than good. Sometimes, a lot time is spent in ensuring that the laptops are working and that every student is on the same page.

This suggests that the time spent on fixing non-workable computers is a taking away considerable time the lesson time.

School Initiative
The participants indicated that their school have certain structures in place to ensure that teachers and students benefit from information communication and technology (ICT). This initiative is to support the government one to one ICT programme, this was indicated when Teacher F expressed:
We have projectors, each teacher has a computer in the classroom…the school provides textbooks of which some of them come with CD's , interactive things such as videos, simulations, even video educational games for the children . I have used those. I use the computer lab. I have taken students to the lab put CD, we watched the simulation, and they did activity on d computer…sometimes the school computers are used along with their government provided laptops.

Similarly Teacher C said:
Hmm, okay how can I put it,am, well we are asked to use the technology. We are expected to have lessons that involve students using technology in the classroom, so they have done trainings for us before. Training us on how to use power points presentation, doing a web quest, mostly power point presentation, and a lot of us benefitted from this.

The school trains teachers on their own on how use ICT in the classroom. Also, the teachers stated that their school provide them with ICT resource materials that are used. The school has a computer laboratory with about 35 desktop computers to accommodate the number of students in a class. In addition that, every teacher is assigned to one desktop computer and every classroom has a projector; all of these are used in the school to aid teaching and learning. There arealso Information and Technology teachers that teach forms one to six students.

Competition for Motivation
The participants are of the opinion that certain initiatives by the government in relation to the eCAL programme motivate teachers and students to use the technology for worthwhile purposes. The government introduced an innovative award for the eCAL programme and this enhances creative and critical thinking skills for both teachers and students. Teacher C said:
Well, we took part since 2011, otherteachers and I in an eCAL ICT award. It was a competition organised by the Ministry of Education for students and teachers in the country. And if you win you will be going for the global forum award. This competition is based on

how creative we are with the government's ICT programme for schools. This award is a source of motivation for us.

The government's eCAL ICT award also helps to motivate teachers and students to use their government provided laptops in innovative ways as they engage themselves in the various competitions for the award. The government's ICT award on eCAL programme is an event for primary and secondary schools students and teachers in the country introduced to inspire and encourage students in active learning.

Challenges

It was noted that teachers lack current information on the use and implementation of the eCAL programme. The teachers indicated that lack of information is limiting the effective implementation of the programme for enhancement of teaching and learning at their school. Teacher B exclaimed:

We do not know what is new on the use of the eCAL in classroom; some of us are a bit archaic when it comes to technology. The older teachers especially are not eager to use technology; they say it is for the younger teachers because they are not current with the use of technology. Let teachers know what new is around so that we too can look into it, it will help us. Let us be kept informed of any changes taking place so that we can change as well, you know to bring-up the children to better education.

Data from this study also reveals that some teachers are not competent in the use and implementation of the programme. The participants indicated that not much has been done to train teachers as teacher B expressed:

Some of us don't even know much about the programme, how to integrate it into our subjects. We have not been properly trained even in the initial training that was for about three days not every subject teacher was included like in my subject area, nobody was trained. I said to myself maybe the programme is not meant for my subject. So, it is difficult integrating this programme into my teaching.

Further on this theme, the participants were of the opinion that the lack of facilities to support the implementation of the programme is a big challenge. Teacher F stated:

This is a very good programme if schools are provided with the needed facilities like computer technicians to repair students' faulty laptops. Secondly, the bandwidth in our school should be increased to accommodate staff and students; this is a big issue in this school. Students especially are not able to do work with their computers as a result of limited internet connection.

The teachers are of the view that there are challenges which are hindering the success of the eCAL programme for its enhancement for teaching and learning.

Discussion of Findings

Data from the interview were scrutinized to form themes which were reported. The results from the study were marched against the literature. The five themes reported will be discussed in this sub-section.

Teaching and Learning Benefit and Disadvantage

Results under this theme show that the programme has some advantages. The programme enables students to acquire the 21stCentury skills and use those skills in the real world. It gives students the opportunity to interact with technology while engaging in active learning.

This supports Roblyer & Doering (2013) statement that ICT tools like laptops are used to enhance students' development of 21st Century skills that they can apply to succeed in life, at school and work, as well as fit into the global economy. The participants stated that the eCAL programme makes teaching easier and faster, as teachers do not need to write on the chalk always; similarly, Maloy et.al (2011) opined that ICT integration in schools makes teaching faster and increases teacher's productivity and students' academic performance. Students can be referred to sites where they get information and this reduces the time for coping notes, also it reduces paper work as students do not need to write on papers for their work to be assessed and some of the assignments are done on their laptops and teachers 'feedback are given through the same medium. ICT integration into the curriculum can be said to increase teachers' productivity.

However, some of the participants articulated that the eCAL programme distracts students from learning; as students are more interested in using the technology to play games and do non-academic activities. Students spent the time that they are supposed to engage in meaningful study in worthless activities. Likewise, report from the National Endowment for the arts and other studies indicated that infusing ICT in schools has a negative impact on students' learning because it comes with a lot of distractions (Maloy, Edwards & Woolf, 2011 Livingstone 2009; Oppenheimer, 2003,).In addition, result also show that teachers are of the opinion that the programme is not enhancing their teaching because of the distraction that come with it and lack of competency. This can be big setback for using the eCAL programme to enhance teaching and learning; this indicates that teachers need to be skilled in the use of computers and measures should be put in place to monitor students' activities on their laptop in order for the programme to achieve its objectives. Similarly, there are studies that showed that ICT integration in schools has no positive effect on teaching, these studies indicated that there is no significant difference between before and after the introduction of ICT in the classrooms, that the teaching methods remained the same (Amshad, 2012; Kwaku & Ansong-Gyimah, 2010)

Teachers' Concern

Although eCAL can be said to enhance teaching and learning in ways of making it easier for students to do their assignment, homework, work in groups, improve their technological skills, etcetera; it can as well hinder students from effective learning when not used in the appropriate ways. Furthermore, the use of the programme in classroom sometimes disrupt teachers' lesson because sometimes, half of the time can be used to check on students who are playing on their computers. The students sometimes get distracted from learning as a result of the programme; they play games and do other unrelated academic activities when they are supposed to leaning.

Also when the programme is not well implemented in terms of provision of adequate resources and facilities, it inhibits successful teaching like sometimes a lot of time is spent on fixing some technical problems associated with the technology. The successful implementation of programmes starts from planning and provision of the needed facilities and resources (Ven Deusen, James, Gill, Mckenchnie, 2008; Samdal & Rowling, 2013). The time spent to fix computers is another form of distraction to both the teachers and students. From this result, it appears that for lesson to be effectively delivered, the technologies to be used have to be in good working condition.

School Initiative

Data received from the teachers reveal that certain initiatives in the form of structures and organization be put in place by schools would help in effective implementation of the programme in schools. The school has a well-equipped computer laboratory and organized training for teachers on ICT integration. This initiative by the schools helps in the enhancement of teaching and learning for both teachers and students. ICT training for implementers of programme is very important to programmes to yield result. ICT training builds teachers' confidence and technology skills in delivery their subject using computer. There are school factors and cultures that facilitate the implementation of school programmes. This result suggests that school's supports in terms of building, equipping a computer laboratory and organizing training workshops for teachers help to enhance teacher's competency in the integration of the eCAL programme. When teacher have the needed skills; it goes a long way in their better delivery of their lesson with ICT to enhance teaching and learning. Samdal and Rowling (2013) affirmed to this when they expressed that one of the factors to successful school programme implementation is the interaction among the school setting, implementer's characteristics, implementation system characteristics and the organizational context. Likewise, results from a study conducted by Mcisaac, Read, Veugelers and Kirk (2013) showed that organizational factors such as in-service training positively influenced the implementation of a school programme.

Competition for Motivation

The organized eCAL ICT award by the government is a way of getting teachers and students involve in the use of technology for enhancement of teaching and learning. Teachers and students are given incentives for their participation in the competition. This event motivates and encourages schools in the use and implementation of the programme. Mcisaac, Read, Veugelers and Kirk (2013) articulated that leadership support in terms of the giving of incentives to implementers helps in the successful implementation of programmes to achieve expected outcomes. Also, as teachers and students participate in the competition, they are enhancing their computer, critical and thinking skills, as they have to design and present computer-based activities. ICT integration into the curriculum according to Roblyer & Doering (2013) encourages critical and creative thinking.

Challenges

It was noted that teachers need regular information to update them on the trend with the eCAL programme, so as to keep them informed with the current information with ICT implementation in schools. Communication is very crucial in implementation as it is one of the path ways to a programme's success, Roger (2007) echoed the same sentiment, he opined that when new ideas about innovation are shared with implementers, it helps them to understand what and how to implement. Teachers need the competency to effectively implement the programme; for teachers to be competent they have to be trained. Result from the study done by Durlak & Dupre (2008) indicated implementers need professional development and continuous training in order to effectively implement programmes. Teachers are faced with challenges when infrastructures are not provided for the implementation and when there is poor internet connection and lack of computer technicians to fix problems related to the technology. These issues negatively impact on the programme's effective implementation and its ability to yield positive outcomes; this concurred with Hertzler (2010) which stated that it is vital to look into any challenges teachers face in their bid to integrate ICT into their subject and provide solutions to them so as to help in the

successful teaching and learning. It further opined that there is need to investigate the effects of ICT integration on teaching and learning.

Conclusion

The study investigated teachers' perspectives on a government one to one ICT programme where every student is given a laptop to aid in teaching and learning activities. As a way to evaluate the programme, seven teachers at a Secondary School in the country were interviewed to elicit their opinions on this government ICT programme called the eConnect and Learn (eCAL) programme. The objective of the study is to ascertain teachers' perspectives on eCAL programme for the enhancement of teaching and learning. Literature was reviewed on global practices on ICT integration in schools, one to one ICT infusion into the curriculum in some Caribbean countries and in Trinidad and Tobago. In addition, the study reviewed literature on stakeholders' perceptions on ICT integration in schools. Results from some studies reviewed, indicated that one to one ICT programmes in schools enhances teaching and learning while results from other studies revealed the opposite. Results gotten through face to face interview with seven teachers in this study indicated that some of the teachers are of the view that the eCAL programme improves students' learning and teachers' delivery of the curriculum. Also, some of the participants expressed some negative effects of the eCAL programme on teaching and learning.

It is recommended that for ICT integration to be effective and successful, there should training which should on-going to enable teachers to be competent and confident in infusing ICT into their lessons. Also storage facilities where students can keep their laptops should be built in schools as well as providing schools with adequate human and material resources to aid in the successful implementation of the programme.

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