UNIVERSITY OF EDUCATION, WINNEBA

COLLEGE OF TECHNOLOGY EDUCATION, KUMASI

TECHNOLOGICAL SOCIAL INTERVENTION, THE CASE OF "BETTER GHANA AGENDA" LAPTOP ON TEACHING AND LEARNING AT THE BASIC SCHOOLS IN THE WENCHI MUNICIPALITY

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AUGUST, 2016

DECLARATION

STUDENT'S DECLARATION

I, HASSAN ABDUL-RAHMAN, declare that this Dissertation, with the exception of quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

SIGNATURE: ……...

DATE: ……...

SUPERVISOR'S DECLARATION

I hereby declare that the preparation and presentation of the Dissertation was supervised in accordance with the guidelines on supervision of Dissertation as laid down by the University of Education, Winneba.

NAME OF SUPERVISOR: MR. YARHANDS DISSOU ARTHUR

SIGNATURE: ……

DATE: ……....

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I acknowledge my sponsors, parents, siblings, and loved ones whose contributions either directly or indirectly resulted in the success of this study.

To all, I say a big thank you.

DEDICATION

This study is dedicated to the unforgotten God for the many wisdom and blessings bestowed on me to undertake this study. My sponsors and loved ones for their financial, physical and emotional support during my course of study. I say God bless you.

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LIST OF ACRONYMS / ABBREVIATION

JHS	=	Junior High School
GES	=	Ghana Education services
NAGRAT	=	National Association of Graduate Teachers
GNAT	=	Ghana National Association of Teachers
DST	=	District Support Team
EFA	=	Education For All
STME	=	Science, Technology and Mathematics Education
ICT	=	Information Communication Technology

ABSTRACT

Technological intervention is seen as any electronic item or equipment or application that is used to increase or maintain and or improve daily living work/productivity capabilities of children/students. The study assessed the impact of the –Better Ghana agenda laptops" on teaching and learning in basic schools in the Wenchi municipality, the challenges in the implementation of the policy and to find out the criteria used for the distribution of the laptops. Specifically, 100 students from Junior High School (JHS) were randomly selected together with 19 ICT teachers in Wenchi municipality in Brong Ahafo region of Ghana. Both questionnaire and interview were used for gathering data. The data collected were analyzed using statistical package for social science (SPSS). Findings of the study showed both ICT teachers and students said that there is no clear cut lay down criteria used in the distribution of the laptops but the laptops has improved both students and ICT teacher's application of ICT knowledge in teaching and learning. However, the implementation of the policy met some challenges like the lack of ICT laboratories, lack of electricity in most schools; lack of internet connectivity among others is preventing the smooth implementation of the policy. Therefore, to have a smooth implementation of such an important policy in the Wenchi Municipality, it is important that all these challenges are brought to the barest minimum. It is recommended that, ICT laboratories should be provided in each basic school or ICT resource centres should be provided in each district to be used by both students and ICT teachers. Again, clear criteria should be provided to the Municipal Directorate of Education to be used in the distribution of laptops to ensure transparency.

CHAPTER ONE

INTRODUCTION

This chapter covers the background to the study, the statement of the problem, the purpose of the study, educational significance of the study, and the research questions. It also contains the limitations and the delimitations of the study. The chapter concludes with the description of the organization of the research report.

1.1 Background to the Study

Technological intervention is seen as any electronic item or equipment or application that is use to increase or maintain and or improve daily living work/productivity capabilities of children/students (Hagiwara and Myles, 1999).

It is in this regard that developing countries role out programmes to assist less privileged in the society to bridge the gap between educating children from well to do families who could provide every facility that the children may need in their education and educating children from less privileged in the society. The incorporation of Information and Communication Technologies (ICT) with provision of ~~–b~~etter Ghana Agenda" laptops in basic schools in the country is seen as one of such technology intervention that could drive the growth of this country.

To enhance its ability to achieve fundamental and sustainable improvement, Ghana like many other countries have made huge investment and drafted policies that help the country utilize technology for its economic growth (Hitachi, 2009). As a result, ICT is

now part of the Strategic Plan of Ghana Education Service. The Government of Ghana (GoG) has also introduced an intervention programme dubbed –One Laptop per Child Policy "(OLPCP) or the –Better Ghana Agenda" laptops to sustain the interest of pupils in ICT as well as enhance teaching and learning in basic schools. Ghana's 2007 budget statement and economic policy of the government of Ghana (page 299, paragraph 1310) indicates that government will enhance the usage of computers in schools. The Ministry of Education Science and Sports in collaborate with Ministry of Communication has been tasked to oversee the implementation of this program. Several basic schools have already benefited from this policy including some schools in the Wenchi Municipality the programme which started in the year 2008 and since has been on-going (ICT in Education Policy, 2008).

As Ololube, Ubodu & Egbezor (2007) observed that, the introduction of ICT usage, integration and diffusion at such level has initiated a new age in educational methodologies, thus it has radically changed traditional method of information delivery and usage patterns in the domain as well as offering contemporary learning experience for both instructors and students. It can be concluded that the deployment of ICT contributes to effective learning through expanding access, promoting efficiency, improving the quality of learning and improving management systems (Draxier and Haddad, 2002).

In an attempt to embrace this global phenomenon and to build the capacity of its human capital, the GoG has instituted a policy of a laptop per child in basic schools popularly

known as ―Better Ghana Agenda laptop policy". This seeks to support teaching and learning, as capped in Ghana's ICT Education Policy of 2008.

1.2 Statement of the Problem

In recent years many, countries have made substantial investments in One Laptop per Child (OLPC) programs, while others are about to start implementing this type of interventions. Ghana started implementing this policy since 2008 (ICT in Education Policy, 2008) but it is however yet to derive the maximum benefit most of the developed economies have gained from investing in ICT. It is against this backdrop that further empirical findings were necessary to study the impact of the program/policy on teaching and learning, the factors affecting implementation of the programme and the criteria used in the distribution of the Better Ghana Agenda Laptops to basic schools in the Wenchi Municipality.

Several studies have been conducted on this policy, but they seemed not to have covered the impact of the laptop on teaching and learning of beneficiary schools. Fairlie and Robinson (2013) find that the use of computers at home has no effect on children's educational outcomes, while Vigdor and Ladd (2010) and Malamud and Pop-Eleches (2011) report a negative effect. Similarly, studying the impact of computers at school, Angrist and Lavy (2002) find a negative impact, while McNally & Silva (2007) find the contrary.

1.3 Aims and Objectives of the Study

I. to assess the impact of the ―Better Ghana Agenda" Laptops on teaching and learning of the beneficiary Schools in the Wenchi Municipality.

II. to explore the factors affecting the implementation of the ―Better Ghana Agenda" laptops policy in the Wenchi Municipality.

III. to examine the factors used as criteria in the distribution of the" Better Ghana Agenda" laptops to schools

1.4 Research Questions

Research questions are formulated in such a way that answers found to them would serve as the solution to the research problem. Base on that, the following research questions have been formulated to enable the research achieve the specific objectives.

1. What are the impacts of the ―Better Ghana Agenda" Laptops on teaching and learning of the beneficiary Schools in the Wenchi Municipality?
2. What are the factors affecting the implementation of the ―Better Ghana Agenda" laptops policy in the Wenchi Municipality?
3. What are the factors used as criteria in the distribution of the ―Better Ghana Agenda" laptops?

1.5 Significance of the Study

For any research to be useful it must contribute to the volume of existing knowledge of the field under investigation. In view of this, it is my conviction that information obtained from this study will help address some of the challenges that confront the effective

teaching and learning of ICT at the JHS level of education. It is to suggest remedies to challenges that confront the implementation of the –Better Ghana Agenda" policy.

Teachers on the other hand will identify the problems with their methods of instruction and their effect on the learning behaviour of their students. It is also to provide information to the Ministry of Education, the government and other educational stakeholders to embark on interventions to promote the teaching of ICT at the JHS level.

The researcher hopes to help the Regional and Municipal Coordinators of this policy at the education offices to adopt better modalities to be used as criteria for the distribution of the laptops and evolve more innovative strategies for in-service training programmes for ICT teachers.

Additionally, the findings will augment the pool of data required by other educational researchers in their bid to design interventions to solve educational problems in the teaching and learning of ICT.

1.6 Delimitation of the Study

In order to work successfully within the limited time and available resource, the study focused on the –Better Ghana Agenda" laptop policy as implemented at the Wenchi Municipality. Data were also collected from the managers of the policy at district level of the Wenchi municipality so as to ascertain the effectiveness and challenges facing the implementation of the policy. It is however, hoped that although the study is atomistic, it will present a generalized information to all the stakeholders that are involved in the ongoing policy implementation.

1.7 Limitation

The study was supposed to cover all basic schools in the Wenchi Municipality but due to inadequate resources, the researcher sampled only two and sometimes three schools in each educational circuit. Also, private basic schools were not considered since this particular Government intervention was not extended to the private schools in Wenchi Municipality.

Moreover, some of the respondents might give false answers and this is likely to affect the results of the findings and generalization.

1.8 Organization of the Study

The research aspect is categorized into five chapters. Chapter one deals with the background to the study, statement of the problem, purpose of study, research questions, educational significance of the study, delimitation of the study, limitation and finally the organization of the study.

Chapter two covers review of the relevant literature on the study, whilst chapter three focuses on the methodology. The methodology is made up of the design of the study, population, sampling and sampling techniques used, instrument and data collection procedure as well as the procedure for analysing the data.

Chapters four presents the results presentation and discussions of the study.

Chapter five contains the summary, conclusion, recommendations and suggestions for further studies on the problem area.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction of ICT in Education

Information technology (IT) refers to all equipment, cognitive operations, procedures and organizations used to furnish and support information systems (both computerized and manual) within an establishment and those reaching out to clients and suppliers (Shelley S. C. Young and Hsin-Ho Ku, 2006).The term information and communication technology (ICT) was coined to reflect the seamless intersection of digital processing and telecommunications (Negroponte, Bender, Battro & Cavallo, 2006). ICTs include hardware, procedures and organisations that are used for storing, managing, communicating and sharing information (ICT in Education Policy, 2008).ICTs are indispensable and have been taken as part of the contemporary world, especially in the industrialized society (Hawkins, 1998). ICT education is a term used in Ghana, and many other developing countries, to describe the pedagogy of computers at a basic stage of agreement. The goal of ICT education on a larger scale is described as leaving for greater student interactivity in and out of the classroom.

On the UNESCO (United Nations Educational, Scientific and Cultural Organization) website, ICT education curriculum is explained as addressing challenges of access, inclusion, and quality of learning (UNESCO.org). Teaching ICT is essentially taught the ways in which digital devices can set aside for a greater connectivity to information, communication between people, and greater understanding of the devices and applied sciences that allow for that increased access.

The pervasiveness of ICT has brought about rapid change in technology, social, political and global economic transformation thus, cultures and societies must be adapted to match the challenge of the knowledge age (Yusuf, 2005). It is widely recognised that ICTs can be applied to ameliorate the calibre of instruction and learning in schools (Owusu-Ansah, 2013).

The government‘s motivations to educate the youth in computers became particularly evident with the implementation of the 2010 standardized testing reforms for entrance into senior high school, also known as the Basic Education Certificate Examination (BECE). The new test combined Agricultural Science and General Science into one category (Integrated Science) and added new subjects such as Basic Design and Technology and ICT. It is a further reading of the government‘s agenda for modernization, reform, a common rhetorical practice within not only Ghana, but many growing states.

2.2 Brief Overview of the Role of ICTs

Currently, there is worldwide recognition on the effective role of Information Communication Technologies (ICTs) in addressing some of the constraints which educational system such as Ghana is facing. The role of ICT education in recent years has become policy spheres in many countries. A number of countries have developed ICT strategies either independently or as strands embedded in national development strategies for education and for the development of the information society as a whole (Scheuermann and Pedro 2009). The rationale given in many of these countries in

investing ICT in education has common features. Kozma (2005) identified that the important reasons given for investing ICTs in education by many countries are to support education provisions, mainly by developing human capital and increasing the productivity of the workforce.

UNESCO (2006) cited in Anderson (2008) claim that the use of ICTs have vast prospective benefits for African Governments which are failing to meet a growing demand for education, increasing shortage of teachers, limited access and escalating High Education cost. The technology has proven to provide remote learning resources to previously underserved constituencies, and deprived population, people traditionally excluded from education as a result of cultural or social reasons and are unable to enrol on campus (Toro and Joshi, 2012; Tinio, 2002). In addition, ICT can be multi-media for instructional delivery. Instructional content can be delivered in textual, audio, visual, and audio-visual forms. Thus, equity can be ensured for all categories of learners (Yusuf, 2007). Information and communication technologies significantly improve students' problem-solving skills, provide opportunities for student-constructed learning, increase students' collaboration on projects, increase mastery of vocational and workforce skills, improve confidence and attitude of students (Cradler & Bridgforth, n.d).

ICTs can help in teachers' development. For instance the Internet can be used to provide-learning for both initial and continuing development teachers' through courses, workshops, and other activities, formal and informal, where students and practicing teachers learn about integrating ICTs across curriculum to support learning (Yusuf,

2007). There are several global gateways of on-line resources to support teachers‘ and students development. These include: ICTs in Education (developed by UNESCO, Paris), Education Network of Australia (developed by Education Institute, Adelaide), Institute of Education Technologies in Education (developed by UNESCO, Moscow) and so on. These portals provide opportunities for users to ask questions, post materials, and submit assignments (Anderson, 2004). ICT solves the challenges of faculty shortage in higher education. With the current state of critical shortage of academic facilities and faculty lectures of tertiary education, ICT can leverage these constraints via video conferences so that students on various campuses pursuing the same or similar course could be linked to benefit from lesson, which they lack faculty (Nwosu and Ogbomo, 2011).

From the foregoing argument, it can be inferred that ICTs are essential for contemporary educational development of any nation. This recognition led to the Government of Ghana designing and implementing various ICT Policy intervention Programmes in Public Education. The promotions of e-learning (Pan-African e-network, E-campus network etc.) are among the most important interventions. It is believed that the implementation of these e-learning projects will ease some of the constraints facing Higher Education in Ghana.

2.3The Role of ICT in Teaching and Learning

As noted by Swarts (2006) ICTs is powerful and essential tools for ascertaining, understanding, reading and communicating about the real world or they can be black holes into which we pour our money, intelligence and time, getting very little in return.

Effectively used, ICTs can amongst other things: Provide multiple avenues for professional growth of both pre-service and in-service teachers, especially through distance training. This means as the teachers get the skills of using the ICT related tools they would be able to impact it on the pupils (Amoaful, 2011). The application of ICT also helps to improve educational management processes because all the core activities would be done with the employment of management information systems (Swarts, 2006).

In increase, the role of ICT could improve the consistency and quality of educational activity, both for conventional and non-formal training, and increase opportunities for more student centred pedagogical approaches that is advancing education by addressing inequalities in gender, speech communication, and disability among others (Pallof and Pratt, 2005). Furthermore, the use of ICT has widen the traditional sources of information and knowledge by fostering collaboration, creativity, higher order thinking skills and providing flexibility of delivery of lessons as well as reaching student populations outside traditional education systems (Ebner, et al., 2011).

Nevertheless, effectively integrating ICTs into educational planning and delivery can be a complicated procedure, contributing to further disparities and challenges in the system. These may include lack of focus on educational objectives where ICTs are considered as an end itself, sooner than a means (tools) to an end. Towards this end, the inclusion of ICT in Education Policy can help carry out solutions within a coordinated end to end system- by looking at the combined inputs of educational objectives and multi-stakeholder (Swarts, 2006).

David (2005) ascertains that, students become more cognizant of how to determine when using ICT because they must interact with the data processor. ICT has also altered the relationship between students and lecturers and has made it open and familiar. The thought of sharing knowledge and the capability of using new sources for learning are enhanced by using ICTs. This is imputable to the fact that there is a national policy supporting ICTs in schools, lecturers and students will then come down closer to the repose of the world (Heeks, 2008).ICT has enhanced students‘ curiosity, motivation and preparedness to seek further instruction while it has compelled lecturers to seek more knowledge so that they can impact it on their students.

2.4 Challenges of Deploying ICT in the Education Sector

Provision for the efficient utilization of these technologies is essential if they are to take in the positive impact expected. Investing in ICTs is a costly decision for whatever state, whether developed or growing. For developing countries such as Ghana, investing in ICTs presents the dilemma of spending scarce/valuable resources on ICTs or consequently suffering from widening technological gap (Yusuf, 2005).

The ultimate objective of the Ghana ICT for Accelerated Development (ICT4AD) is to _accelerate Ghana‘s socio-economic development process towards the actualization of the vision to transform Ghana into a high income economy and club that is predominately information-rich and knowledge-based within the next two to three decades or less‘ (Ghana ICT4AD Policy, 2008).

In the Ghanaian basic and secondary points of instruction, established teaching practices are still a deep-seated menace. ―Only if you were to compare the classroom of a hundred years ago with an average classroom today, you would realize it immediately: students lined up in rows, paper and pencil in hand; a teacher at the blackboard jotting down important facts; students furiously copying all that is written and sounded out, expecting to memorize the facts and spit them out on an exam'. While a great deal has been commuted by the introduction of ICT and the path that students learn and teachers' teach have remained largely unchanged'' (Hawkins, 2009).

Another challenge is Teacher training. Hawkins says that the failure of many past programs was that schools were supplied with expensive equipment only with petty or no support for teachers' professional development, national ICT-in-education policies, or community involvement.' Teachers are also not conforming to the varying trends of ICT integration in schools. It is but the ICT teachers that are adapting to change, Short provision of computers and laboratories in schools in both the urban and rural regions. The government should make more ICT facilities available and ensure smooth implementation. In a recent survey of teachers in developing countries led by SRI International for World Links, the majority of instructors in African and Latin American countries reported that the lack of adequate hardware and software as well as unreliable Internet access were significant barriers to using computers in instruction (Bjorn, Herren, &Hollow, 2007).

This report reflects the fact that many schools in growing nations including Ghana have a student-teacher ratio as high as 80:1, and must contend with a computer lab often to twenty computers for the entire school if they are lucky.‘ Lack of adequate hardware and software reduces the whole objective of Ghana‘s ICT4AD to absurdity. Because, it is ridiculous to think of integrating ICT as a subject into the basic school curriculum, without necessarily offering the basic resources that will expose kids to the _know-how‘ i.e. the virtual prospects. The outcome is that pupils get out of school without the requisite skills needed for productivity. This goes a long way to affect productivity (Simon, 2008).

2.5 Better Ghana Agenda Policy

The mission of One Laptop per Child (OLPCP) is to empower the children of developing countries to learn by providing one connected laptop to every school-age child. In society to attain this goal, people demand to believe in and prioritize education for the world‘s children (www.laptop.org)

In Ghana, OLPCP‘s mission is to offer a means for learning, self-expression, and exploration to the nearly two billion children of the developing world with slight or no access to education. While youngsters are by nature eager for knowledge, many rural areas have insufficient resources to dedicate to teaching; sometimes less than $20 per yr per child (compared to an average of $7,500 in the United States). By making kids their very own connected XO laptop, they are unfolded in a window to the external world by accessing information, a means to get in touch with each other, and a point of departure into their future (Leeming, 2008).

CHAPTER THREE

RESEARCH METHODOLOGY

As stated in the research objectives, the study investigated the Impact of the –Better Ghana Agenda" Laptop on Teaching and Learning at the Basic Schools in the Wenchi Municipality. This section presents a detailed account of the methodology used for the research. It includes the research design, population and sample size, sampling technique, instrumentation, mode of data collection, method of data analysis and presentation of results.

3.1 Research Design

Based on the nature of the research objectives set out in this study, a survey design will be most appropriate in answering the specific questions in this study. In survey, the approach is either qualitative or quantitative. The choice of either of these approaches is determined by the tool used in collecting data in the study. As indicated by Kvale (2004), the overall success of research is determined by the choice of research method. Thus, the choice of a survey method was important to the overall success of the research. Specifically, the study adopted a quantitative survey approach because of the following reasons:

- It is credited for its flexibility in asking questions and its analysis of responses.
- It provides for a comprehensive examination of people's attitude towards specific issues.
- It affords the researcher(s) the opportunity to gather broad and quantifiable data.

- It allows a small sample to be selected and then used to generalize the findings of the large group.

The study used a cross-sectional descriptive survey design to provide a general framework for the collection of appropriate data (Aina, 2004). This helped to collect data for inferences about the population of interest (universe) at one point in time (Hall, 2008).

3.2 Population and Sample Technique

The research was conducted by collecting data from District Administrators of the Better Ghana Agenda Laptop in the Wenchi municipality, Heads of selected schools, students and ICT teachers within the Wenchi Municipality who uses the Better Ghana Agenda laptops.

One thousand three hundred and forty-seven (1,347) students from selected basic schools in the Wenchi Municipality in the Brong Ahafo Region of Ghana constituted the target population. The selected schools had benefited from the Better Ghana Agenda Laptop policy. The database of the schools was obtained from the Wenchi Municipality Ghana Education Service Office. One hundred (100) students and nineteen (19) ICT teachers were selected through random sampling technique to ensure that the sample used was highly representative (Levin, 2006). A standardized questionnaire, comprising both open and close ended questions was administered to the respondents.

In addition to the student respondents, two (2) Educational Officers were purposively selected and interviewed because of their particular knowledge and understanding the nature of the problem and their tendency to recommend solutions to the problems being

explored (Dzisi and Ofosu, 2014; The Access Project, 1996; USAID Centre for Development and Information Evaluation, 1996). Using the Statistical Package for Social Sciences (SPSS) as an analysis tool.

3.3 Data Collection Instruments

The main measuring instrument to be used for this study is the questionnaire and Interview. According to White (2000), the two instruments are important tool, which are useful for eliciting information on a specific problem from knowledgeable informants. The use of these instruments was appropriate because, it provides the opportunity for respondents to express their opinions and views freely. It also guaranteed the anonymity of the respondents, leading to unbiased data. Thus, the instruments selected will allow respondents to relax and provide information they will not provide during observation, thereby allowing the researchers to obtain more data. The questionnaires were made up of both open-ended and close ended questions and were administered to students, teachers and educational officers. Bryman [30] argued that probing can be very important when open-ended questions are asked. The most important goal of a survey research is to let the respondent have his/her say, to let him/her tell the researcher what he/she means and not the other way round. Open-ended questions therefore give the chance of allowing for detailed responses and also for flexibility.

Unstructured, free-response questions allow respondents to state what they know and think. However, in open-ended questions, respondents may respond too much or too little. The main advantage of close-ended questions is that it is easy to answer and takes

little time. Another advantage is that answers are easy to compare and computerize since all responses fall into predetermined categories. All questionnaires and interviews will be self-administered with assistance from colleagues.

3.4 Data Collection Procedure

In accordance with research ethics, institutional approval were sought from selected organizations before data collection began. After institutional approval is granted, the consent of participants were sought before questionnaires were administered to them. Response rate is very important in research and to ensure a good and acceptable response rate in this study, the following measures were incorporated in the data collection. First, a verbal pre-survey consent were sought from the heads of department to announce the intention of using their Department for the study, and to ask for assistance and cooperation. Secondly, an appointment schedule were drawn in consultation with the school heads that have consented to be part of the study. Finally, the questionnaire and interviews were administered to respondents who consented to participate in the study.

Prior to the actual collection of data, the questionnaire and interview guide were pre - tested to find out whether they would be able to help gather the information needed for the research work. Subsequently the researchers used the pilot study to check if there were data collection problems.

3.5 Ethical Considerations

The Standard ethical considerations were observed in the conduct of this study. As such the questionnaire did not request any form of identification. Also, the participants were assured that information received would be treated as confidential as possible and were not been used for any other purpose than what it is intended for.

3.8 Data Analysis and Presentation of Results

The data were sorted out according to the various respondents involved in the research. The data were then be coded using the Statistical Package for the Social Science (SPSS) and/or Excel software. Information gathered from the data were analysed and presented descriptively. Tables below were used, specifically cross-tabulation, to show type of respondents against their responses. The entire results as depicted were organized and presented in chapter four of this study.

CHAPTER FOUR

RESULTS PRESENTATION AND DISCUSSIONS

This chapter presents analysis of the data collected from respondents, who were either staff or students in the Wenchi Municipal who have some idea and knowledge about the Better Ghana Agenda Laptop. The outcome of the thesis was based on both the quantitative and qualitative approaches of investigations. As was mentioned in chapter three, the sample size of the study respondents was 100 students, the Wenchi Municipal deputy Director of education, the ICT Coordinator of the municipality and 19 ICT teachers in the Wenchi municipality. The first section of the analysis contain the analysis of the socio-demographic characteristics and background information of the study area and that of the respondents. This is then followed by main objectives of the survey. Finally, the last section discusses the summary of overall views of the respondents on Technological Social Intervention, the case of the ―Better Ghana Agenda" Laptop on Teaching and Learning at the Basic Schools in the Wenchi Municipality.

4.1 Socio-Demographic Characteristics of the Respondents

This section begins with the presentation and analysis of the data on the Age and gender distribution of the respondents. A total of 121 respondents comprising of students, Wenchi municipal deputy director of education, municipal ICT coordinator and ICT teaching staff took part in the questionnaire survey

4.1.1Wenchi Municipality in Perspective

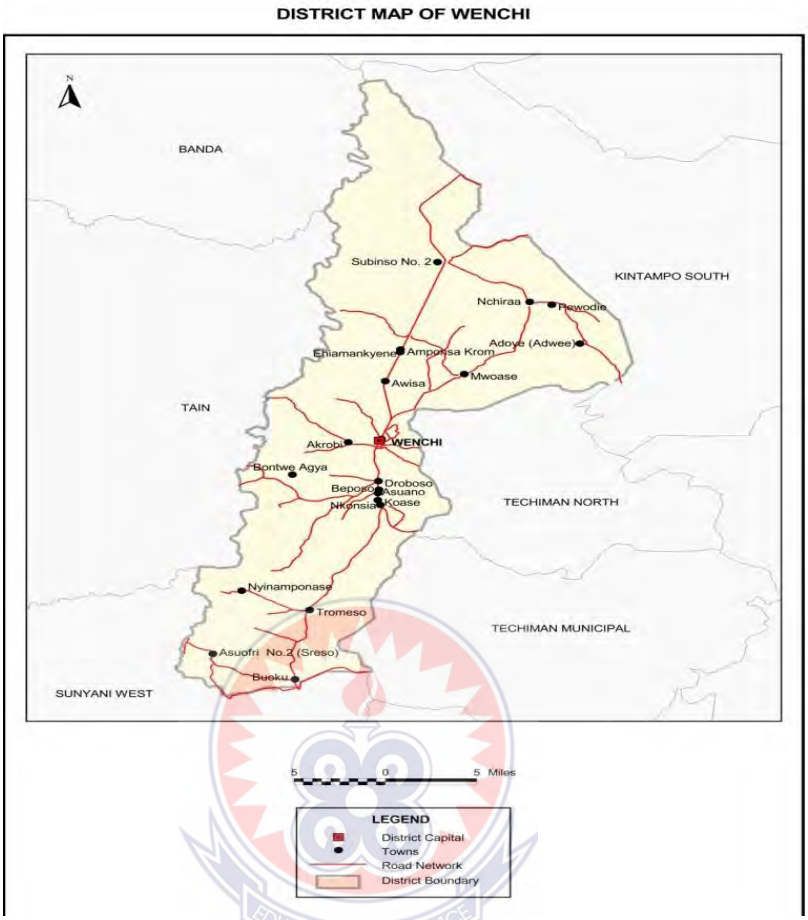


Figure 4.1a: Map of Wenchi Municipal

Source: Ghana Statistical Service (2010)

The population of Wenchi Municipal, according to the 2010 Population and Housing Census, is 89,739 representing 3.9 percent of the region's total population. Males constitute 50.9 percent and females represent 49.1 percent.

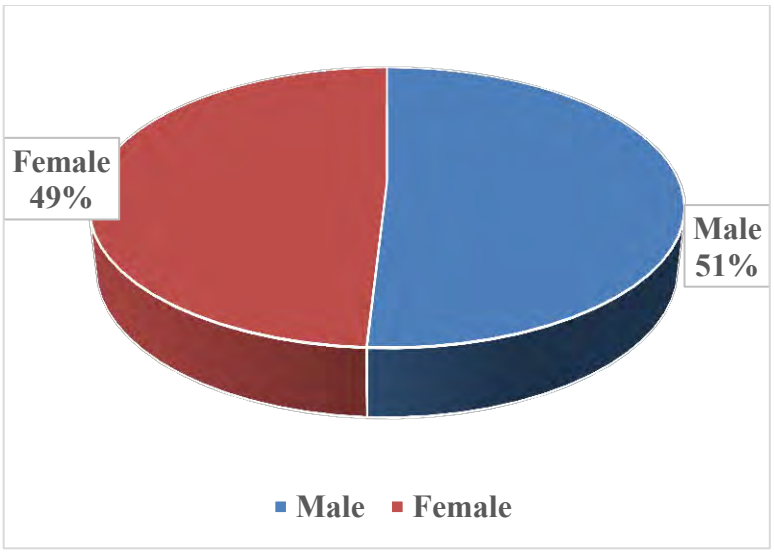


Figure 4.1b: Gender Distribution of the Population in the Wenchi Municipality

Source: Ghana Statistical Service (2010)

This clearly shows that in the case of the study, the males' population is greater than the females' population and this is basically due to the dominance of males as household heads in the municipality. More than sixty percent of the population is rural (63.3%).

Of the population aged11 years and above, 63.6 percent are literate and 36.4 percent are no literate. Seven out of ten people (70.7 %) could read and write both English and Ghanaian languages. Of the population aged 3 years and older, 39.6 percent is currently attending school; 28.9 percent have attended school in the past whilst 31.5 have never attended school (Ghana Statistical Service, 2010)

Of the population aged12 years and above, 40.2 percent have mobile phones. Men who own mobile phones constitute 47.9 percent as compared to 43.6 percent of females. About 2.8 percent of the population aged 12 years and older use internet facilities in the municipality. Only 4.4 of households in the municipality have desktop/laptop computers.

Table 4.1: Students' population in the Wenchi municipality

Gender	Frequency	Percentage
Male	20,497	59.0
Female	14,220	41.0
Total	**34,699**	**100**

Source: *field survey September, 2016.*

From Table 4.1 the study conducted revealed that majority of the people (20,497) in the Wenchi municipality representing 59.0% that were of Basic school going age were male while 14,220 students representing 41% were female. The implication could be that, schools had more males than females in terms of enrolment.

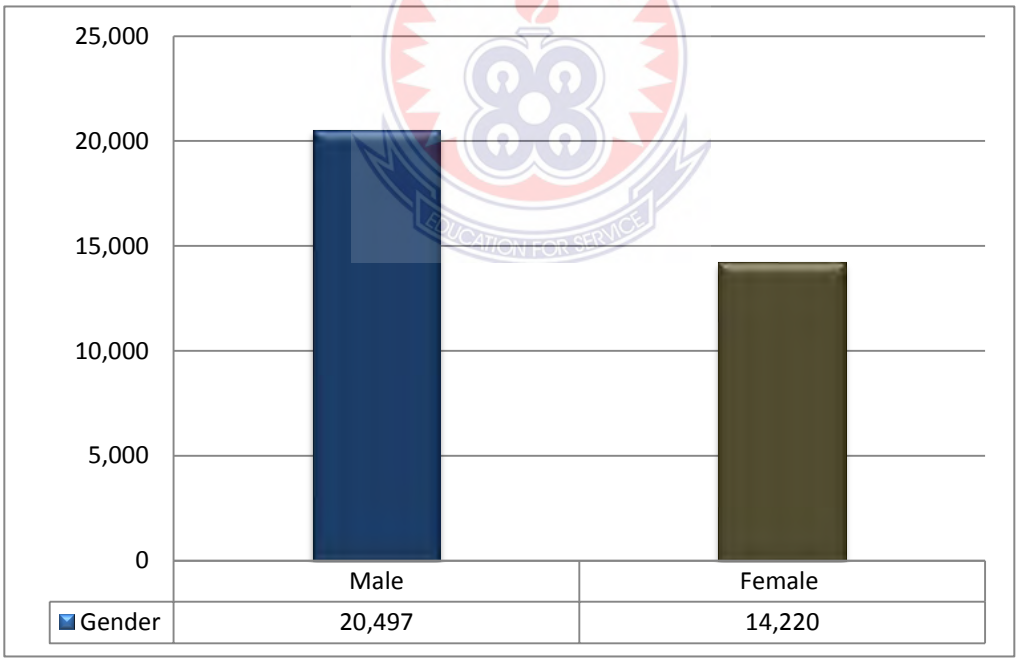


Figure 4.2: Students' population in the Wenchi municipality

Table 4.2: Number of schools in Wenchi Municipality

Name of Circuit	Number of schools in the circuit
Asuogya	16
Wenchi West	11
Wenchi East	11
Wenchi Central	8
Tromeso	7
Nchiraa	9
Subinso	12
Buoku	12
Total	**86**

Source: *field survey September, 2016.*

The Wenchi municipality is made up of 8 administrative circuits. Table 4.2 above shows the various circuits and the number of schools in each circuit.

The Asuogya circuit has the highest number of schools (16 Basic schools) in the municipality while Tromeso has 7 basic schools out of the total number of schools in the municipality. The educational level of the population, to some extent, reflects the level of social and economic development of a country or a community. This implies that the more schools in a district the more likely people in that district to attend schools thereby increasing the educational level of the population.

Table 4.3: Age Distribution of Respondents

Age in Years	Students		Teachers		Deputy Director	
	Freq.	%	Freq.	%	Freq.	%
Between 10 and 13	18	18.0	-	-	-	-
Between 14 and 17	78	78.0	-	-	-	-
Between 18 and 20	4	4.0	-	-	-	-
Between 21 and 25	-	-	2	10.5	-	-
Between 26 and 30 years	-	-	9	47.6	-	-
Between 31 and 35 years	-	-	6	31.5	1	50.0
Between 36 and 40 years	-	-	1	5.2	1	50.0
41 years and above	-	-	1	5.2	-	-
Total	**100**	**100**	**19**	**100**	**2**	**100**

Source: Field survey, September, 2016

As indicated in Table 4.3 above, majority of students 78 representing 78.0% were between the ages of 14-17 years while 18.0% representing 18 students were between 10-13 years of ages. This suggests that the current educational system is providing opportunity for pupil.

From the information gather, it clearing shows that younger ICT teachers in the district outnumber the relatively older generation of teachers (41years and above) in the sample schools. As indicated in the table 4.3 above less than half of the respondents who take part in the survey were between the aged 31 to 35 years representing 31.5% of the total population. Thus 14 out of the 19 ICT teachers being male while 5 out of the total ICT teacher respondents being female.

The study also identified that majority of the ICT teachers in the basic education level in the Municipality falls within the ages of 26-30years representing 47.6% whilst 10.5% representing 2 teachers were between the ages of 21-25. This shows that most of the ICT teachers have considerable years to gain more experience because of their ages.

More so, the researcher investigated into the years of experience teachers have taught in their respective schools. The number of years spent in school by teacher enables them to identify the individual differences of learners to help in choosing the appropriate teaching style thus direct and indirect teaching as given by Flanders et al., (1970). In terms of teachers, the study identified that none of the teachers have spent more than 5years in the school. However, 70% of the teachers have taught in the school for 2-5years and the remaining 30% being one year. The number of years teachers have taught in the various schools is generally low and as such will affect teaching in terms of supervision and

guiding learners in finding solutions to the problems of life. However, if the teachers have acquired experience before being posted to the schools, then there is a propensity that they can assist the less experienced pupils to learn.

Table 4.4: Gender of Respondents

Gender of Respondents	Male		Female	
	Freq.	%	Freq.	%
Students	58	58.0	42	42.0
Teachers	14	73.6	5	26.4
Deputy Director/ICT Coordinator	2	100	0	00
Total	**74**	**61.1**	**47**	**38.9**

Source: Field survey, September, 2016

In terms of ICT teachers, 73.6% representing 14 teachers were males whilst 26.4% were females. This shows a total gender imbalance with respect to the sex composition of ICT teachers in the District. A study conducted by Agyenim-Boateng, (2011) revealed that male teachers dominate in Basic School in the country. Again, the Education Directorate of the District data provided that the ratio of male teachers to females is 2:1. This is attributed to the educational bias (socio-cultural bias) which restricts many women from going to school.

The study also considered the sex composition of pupils in the basic schools in the District. Out of the sampled population of 100 pupils, 58.0% representing 58 students were males whilst 42.0% representing 42 students were females. This finding was affirmed by the data collected from the Municipal Education Directorate where the percentage of pupils who were males constituted 59.0% (20,497) while females representing 41.0% (14,220). Here, Casely-Hayford & Wilson (2001) attributed it to the low number of female teachers in basic schools who might have serve as a role models

for pupils especially females to ensure gender sensitive approaches and as well encourage the females to acquire basic education. OECD (2005) reported that the effects of feminization of teaching on education offer a greater potential and therefore efforts must be made to identify the source of the discrepancy.

Table 4.5: Education Level of Teachers

Teachers	No. of Respondents	percent
SSCE	5	26.3
Diploma	14	73.7

Source: Field Survey, September, 2016

This section presents the academic/professional qualification of teachers in the selected schools in the District. Teachers are key elements in the teaching and learning process as they serves as the agent of transmission of knowledge and skills to pupils and therefore it become prudent to assess their level of qualification.

The study investigated into academic qualification of teachers in the selected basic schools in the Municipality. Out of the total 19 respondents in table 4.5 above, fourteen (14) representing 73.7% responses were teachers who had attained diploma Education while 26.3% representing only 5 respondents were ICT teachers who had attained SSCE Education. This implies that schools were managed and taught by persons with high qualification in the teaching profession. However, the study finding contradicts the assertion of Brown, (2003) that one-third of teachers of some African countries are either unqualified or without formal teaching qualification.

Ankomah and Amoako-Essien contended that quality of teaching and learning conditions does not lie on the high qualification of teachers but rather the availability of

professionally qualified teachers and their readiness to offer quality teaching, effective school leadership and management.

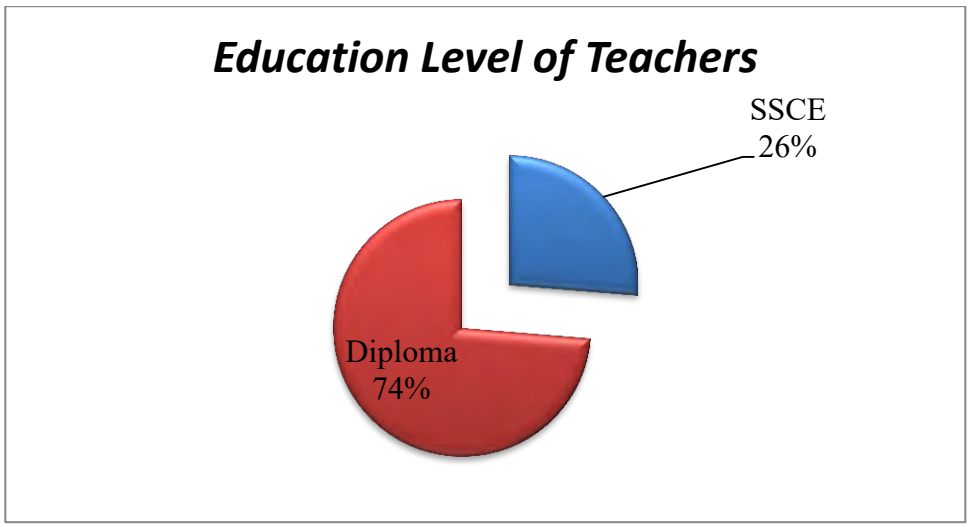


Figure 4.3: Education Level of Teachers

4.2 Assessment of the impact of the "Better Ghana Agenda

Table 4.6: Access to Better Ghana Agenda Laptops by Both Teachers and Students

Variable	Students		Teachers	
	Frequency	Percent	Frequency	Percent
Yes	94	94.0	17	89.4
No	6	6.0	2	10.6
Total	**100**	**100.0**	**19**	**100**

Source: Field Survey, September, 2016

Table 4.6 above shows whether students and teachers have access to the better Ghana agenda laptops. The study found that the majority of both students and teachers have access to the better Ghana agenda laptops in the sampled schools. From the above table 94% of the respondents representing 94 students and 89.4% representing 17 of the teachers indicating agreed that they have access to better Ghana agenda laptops while 6% (6) of students and 10.6% (2) of teachers disagreed (No) that they have access to the

better Ghana agenda laptops. This implies that majority of students in the sampled schools have access to the better Ghana agenda laptops in the Wenchi Municipality.

It was also worth noting that, most of the sampled schools did not have an ICT laboratory and their computers either in the Staff Common Room or the headmaster's office. In spite of the fact that some schools had access to better Ghana agenda laptops, only one school had access to the internet. Majority of the schools had access to electricity. School administrators however, complained of intermittent power supply as a challenge hindering students and ICT teachers ability to make efficient use of available laptops, adding that some computers had malfunctioned parts as a result of frequent power failures.

Table 4.7: Use of better Ghana Agenda Laptop by Both Teachers and Students

Variable	Students		Teachers	
	Frequency	Percent	Frequency	Percent
Once a week	27	27.0	8	42.1
2 times a week	67	67.0	5	26.3
3 times a week	6	6.0	6	31.6
Total	**100**	**100.0**	**19**	**100**

Source: Field Survey, September, 2016

It is worth noting that according to majority of the respondents both pupils and ICT teachers uses the Better Ghana Agenda Laptops two times in a week for teaching and learning of ICT subject in all sampled schools. The time available for students to use the laptops in the classroom during ICT lessons ranged between 30 and 60 minutes per week which was not enough.

As shows in the above table 4.7, More than half of the respondents representing Sixty-seven percent (67.0%) 67 of the students said they use the laptops 2 times in a week

while 42.1% (8) of the teachers said they use the better Ghana Agenda laptops once a week. However, twenty-seven per cent (27.0%) representing 27 students and 26.3% (5) indicated that they the use the better Ghana Agenda laptops once a week and 2times a week respectively while 31.6% and 6.0% representing 6 students and teachers respectively that they use the better Ghana Agenda laptops3times a week.

Table 4.8: Do the laptop work well when you are using it

Variable	Frequency	Percent
Yes	94	94.0
No	6	6.0
Total	**100**	**100.0**

Source: Field Survey, September, 2016

The researcher is keen in finding out from the respondents whether the Better Ghana Agenda laptop works well when used without any problem. Responses received are shown in Table 4.8 above give evident that 94.0%representing 94 of the students indicating ―Yes" whilst 6.0% representing 6 students indicating ―No" that Better Ghana Agenda laptops works well when used without any problem.

It can be deduced that a reasonable number of the Better Ghana Agenda laptops works without any challenges as at the time of data collection. This situation would enhance the teaching and learning of the ICT in the Wenchi municipality.

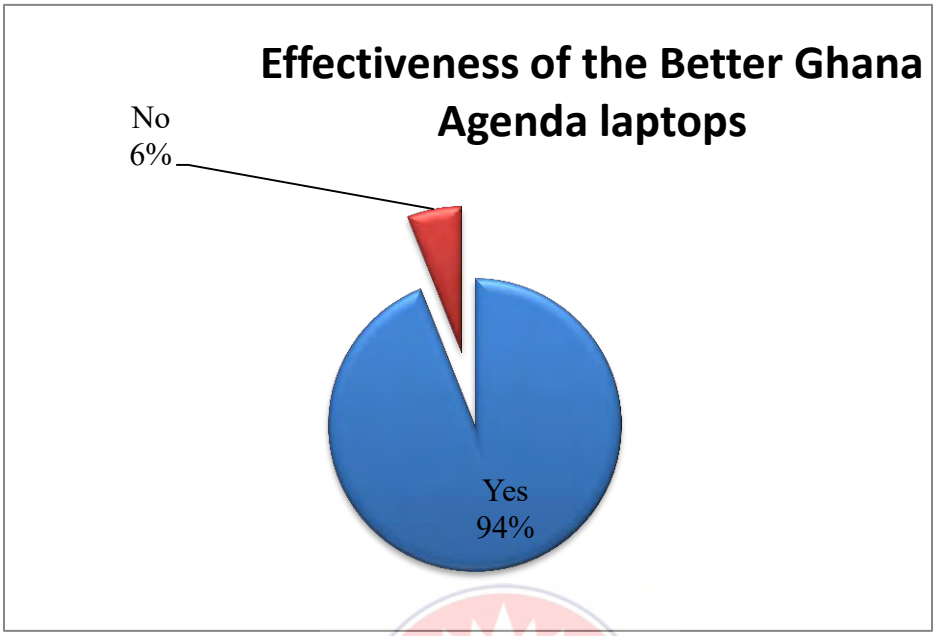


Figure 4.4: Do the laptop work well when you are using it

4.3 Impact of Better Ghana Agenda Laptops on Teaching and Learning

The respondents were required to use a 5-point Likert scale anchored on Strongly agree (1),Agree (2), Neutral (3), Disagree (4) and Strongly disagree (5) to measure the Impact of Better Ghana Agenda on teaching and learning in the various basic schools. The variables measured were; Improvement in school performance in the ICT subject, Improvement in practical ICT Skills, Improvement in teaching and learning methods, Improvement in the use of ICT applications. Finding of the various variables measured are presented below.

Table 4.9: Improvement in school performance in the ICT subject

Response	Students		Teachers	
	Frequency	Percent	Frequency	Percent
Strongly Agree	52	52.0	10	52.8
Agree	20	20.0	6	31.6
Undecided	27	27.0	2	10.4
Disagree	-	-	1	5.2
Strongly Disagree	1	1.0	-	-
Total	**100**	**100.0**	**19**	**100**

Source: Field Survey, September, 2016

As indicated in the above table 4.9, students were to rate from 1 to 5 the impact of better Ghana Agenda Laptops on teaching and learning. From our study the finding as it relates to the research questions, showed that there is a significant relationship between the Better Ghana Agenda Laptops and Improvement in school performance in the ICT subject. A further breakdown of the result shows that 52 respondents representing 52.0% of the students and 52.8% (10) of teachers strongly agreed respectively to the statement that the introduction of the Better Ghana Agenda laptops has improved the school performance in the ICT subject. However, 20 students representing 20.0% and 31.6% representing 6 teachers agreed respectively whilst 27.0%(27) of students and 10.4% (2) of teachers undecided to the statement that the introduction of the Better Ghana Agenda laptops has improved the school performance in the ICT subject. Only 1% of the students and teacher disagreed and strongly disagreed respectively to the same issue.

The implication was that the Technological Social Intervention had improved the ICT knowledge of the students. The interview conducted among the ICT teachers revealed that most of the students are now far better in the use of ICT related subjects, since the introduction of the Technological Social Intervention in terms of ICT was implemented.

This was in line with the findings of Hawkins (1998) that ICTs are indispensable and have been accepted as part of the contemporary world especially in the industrialized society. Again these finding concur with that of Swarts (2006) who had a strong view that, the benefits of ICT cannot be overestimated in all spheres of life.

Table 4.10: Improvement in practical ICT Skills of Students

Response	Students		Teachers	
	Frequency	Percent	Frequency	Percent
Strongly Agree	32	32.0	7	36.9
Agree	47	47.0	9	47.5
Undecided	20	20.0	1	5.2
Disagree	-	-	2	10.4
Strongly Disagree	1	1.0	-	-
Total	**100**	**100.0**	**19**	**100**

Source: Field Survey, September, 2016

In analysing the responses obtained from the respondents on the impact of Better Ghana Agenda Laptops on teaching and learning on their practical ICT Skills, the findings showed in table 4.10 above indicated that the majority of the respondents, 47.0% representing 47 of the students and 47.5% representing 9 of teachers respectively agreed that the Better Ghana Agenda Laptop policy had an impact on their practical ICT Skills whilst 32 students representing 32.0% and 36.9% representing 7 teachers strongly agreed respectively. Also, 20% (20) students undecided whether the Better Ghana Agenda Laptop policy had an impact on their practical ICT Skills However, a small percentage (1%) believed otherwise. This result indicates that the Technological Social Intervention clearly focuses on practical skills and, thus, skill development is emphasized.

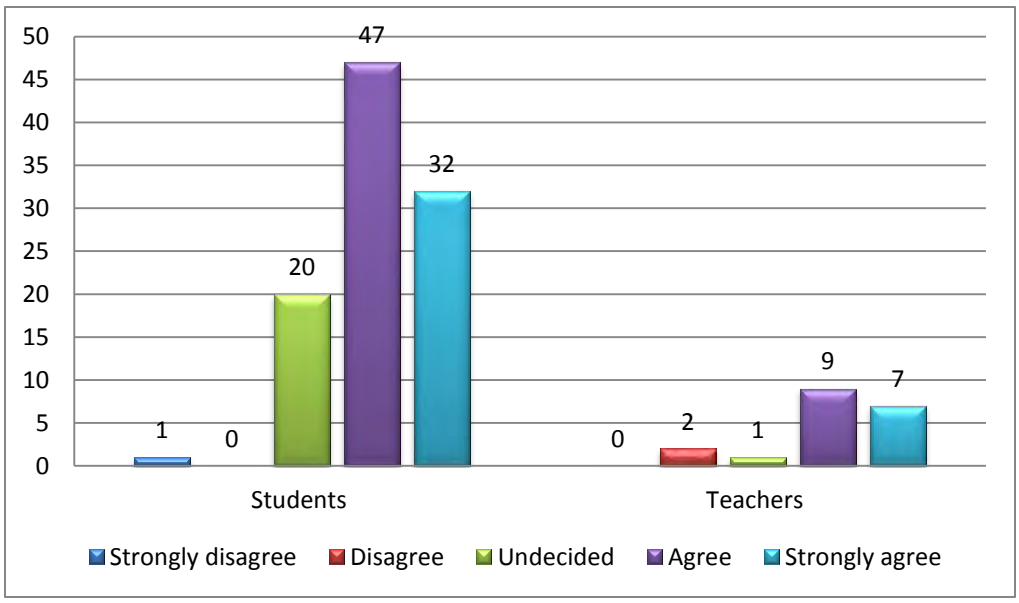


Figure 4.5: Improvement in practical ICT Skills of Students

Table 4.11: Improvement in Teaching and Learning Methods

Response	Students		Teachers	
	Frequency	Percent	Frequency	Percent
Strongly Agree	32	32.0	6	31.6
Agree	47	47.0	9	47.6
Undecided	20	20.0	1	5.2
Disagree	-	-	2	10.4
Strongly Disagree	1	1.0	1	5.2
Total	**100**	**100.0**	**19**	**100.0**

Source: Field Survey, September, 2016

Table 4.11above presents the responses given by the respondents on the impact of the Technological Social Intervention on teaching and learning methods. The findings indicate that majority of the respondents 47.0% representing 47 of the students and 47.6% representing 9 of teachers respectively agreed with the statement that the Technological Social Intervention with regard to ICT has brought improvement in teaching and learning methods in their respective schools whilst 32 students representing 32.0% and 31.6% representing 6 teachers strongly agreed respectively. Also, 20% (20)

students and 5.2% (1) teacher undecided with the statement that the Technological Social Intervention with regard to ICT has brought improvement in teaching and learning methods in their respective schools. On the other hand, the 1respondent representing a 5.2%teacher and 1.0% students strongly disagreed respectively. This result indicates clear strong and a significant relationship between Technological Social Intervention in ICT and teaching and learning methods in the selected schools in the Wenchi municipality of Ghana.

Table 4.12: Improvement in in the use of ICT applications

Response	**Students**		**Teachers**	
	Frequency	**Percent**	**Frequency**	**Percent**
Strongly Agree	35	35.0	3	15.8
Agree	30	30.0	10	52.7
Undecided	25	25.0	6	31.5
Disagree	10	10.0	-	-
Strongly Disagree	-	-	-	-
Total	**100**	**100.0**	**19**	**100.0**

Source: Field Survey, September, 2016

Table4.12above also reports that, the results from the impact of the better Ghana agenda laptop policy respondent use of ICT applications. Majority of the respondents (35 students representing 35.0% and 10 teachers representing 52.7%) strongly Agree and Agree respectively on the issue of Technological Social Intervention in ICT have significantly improved the use of ICT applications such as Microsoft word, Excel, and also their typing skills. This result is in line with the result earlier reported on the impact which the intervention is having on students and teachers general knowledge in ICT. However, 30 students representing 30.0% agreed and 6 teacher representing 31.5% undecided while 10% (10) disagreed.

4.4 Factors Affecting the Implementation of the Better Ghana Agenda Laptop Policy

In order to answer the second part of this study, 100 respondents were usedby the researcher to indicate by rating using 5-point Likert scale anchored on Strongly agree (1),Agree (2), Neutral (3), Disagree (4) and Strongly disagree (5)to various factors affecting the implementation of the better Ghana Agenda Laptop policy in the Wenchi Municipality. The results are presented as follows:

4.4.1 Lack of enough time for ICT periods affects the implementation of the better Ghana Agenda laptop policy

Table 4.13: Lack of enough time for ICT periods

Variable	Students		Teachers	
	Frequency	Percent	Frequency	Percent
Strongly disagree	2	2.0	0	00
Disagree	4	4.0	3	15.8
Undecided	35	35.0	1	5.2
Agree	33	33.0	7	36.9
Strongly agree	26	26.0	10	52.7
Total	**100**	**100.0**	**19**	**100**

Source: Field Survey, September, 2016

From table 4.13 above, both students and teachers sampled for the study were asked whether lack of time for ICT periods on the schools timetable is a factor affecting the implementation of the Better Ghana Agenda Laptop Policy in the Wenchi Municipality, their responses are presented in table 4.13 above:

Findings in table 4.13 indicate that a significant number representing 35.0% (35) of students were neutral and indecisive about whether Lack of instructional time for ICT affects the implementation of the better Ghana Agenda laptop policy while 33.0% (33)

and 36.9% (7) teachers agreed respectively. However, 52.7% representing 10 teachers and 26.0% (26) students strongly agreed respectively that Lack of adequate time for ICT instructional periods is affecting the implementation of the better Ghana Agenda laptop policy since the instructional period allocated to the use of the laptops is not significant to help teacher impact the much needed knowledge in ICT.

The findings also show that students and teachers in the sampled schools in the Wenchi municipality see the significance of instructional time in order to achieve the optimum benefits of the policy.

4.4.2 Limited access to internet connection affects the implementation of the better Ghana Agenda laptop policy

Table 4.14: Limited access to internet connection

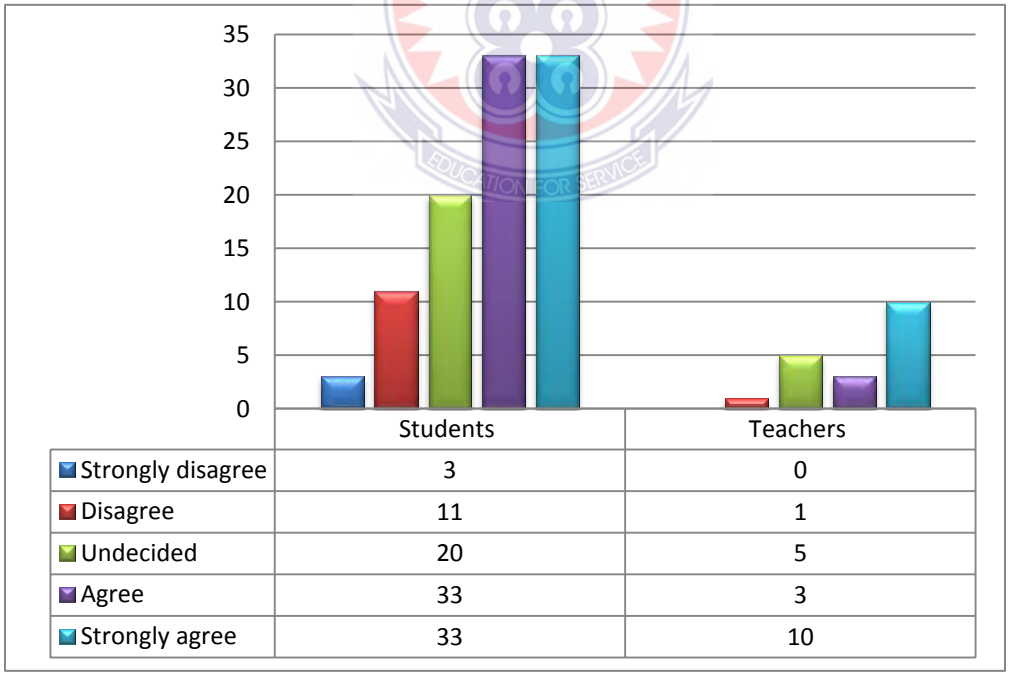
Variables	Students		Teachers	
	Frequency	Percent	Frequency	Percent
Strongly disagree	3	3.0	0	0
Disagree	11	11.0	1	5.2
Undecided	20	20.0	5	26.4
Agree	33	33.0	3	15.8
Strongly agree	33	33.0	10	52.7
Total	**100**	**100.0**	**19**	**100**

Source: Field Survey, September, 2016

The researcher was interested in finding out whether access to internet connection affects the implementation of the better Ghana Agenda laptop policy. The findings in table 4.14 above indicated that 3 students representing 3.0% and 33.05 representing 33 students strongly disagreed agreed respectively to the statement that access to internet connection affects the implementation of the better Ghana Agenda laptop policy. This is against

33.0% (33) of the students and 52.7% (10) of the teachers who strongly agreed respectively that access to internet connection is affecting the implementation of the better Ghana Agenda laptop policy in the Wenchi municipality. On the other hand 20% (20) of the students and 26.4% representing 5 teachers were undecided on the issue whilst 11% (11) disagreed.

The findings in table 4.14 supports Simon, 2008 assertion that lack of adequate hardware and software reduces the whole objective of Ghana's ICT4AD to absurdity, because it is ridiculous to think of integrating ICT as a subject into the basic school curriculum, without necessarily offering the basic resources that will expose kids to the _know-how' i.e. the virtual prospects.



	Students	Teachers
Strongly disagree	3	0
Disagree	11	1
Undecided	20	5
Agree	33	3
Strongly agree	33	10

Figure 4.6: Limited access to internet connection

4.4.3 Financial constraints to buy ICT tools affect the implementation of the better Ghana Agenda laptop policy

Table 4.15: Financial constraints to buy ICT tools

Variable	Students		Teachers	
	Frequency	Percent	Frequency	Percent
Strongly disagree	4	4.0	4	20.8
Disagree	5	5.0	4	20.8
Undecided	34	34.0	0	00
Agree	23	23.0	7	36.9
Strongly agree	34	34.0	4	20.8
Total	**100**	**100.0**	**19**	**100**

Source: Field Survey, September, 2016

Another issue examined by the researcher is whether financial constraints to buy ICT tools is affecting the implementation of the better Ghana Agenda laptop policy. The responses of the students and teachers are presented in table 4.15 above.

In Table 4.15, it indicates that, a significant number (34.0%) representing 34 students were neutral (indecisive) and strongly agreed respectively about whether financial constraints to buy ICT tools are factors that is affecting the implementation of the better Ghana Agenda laptop policy. while 4.0% (4) students and 20.8% representing 4 teachers strongly disagreed and strongly agreed respectively that financial constraints to buy ICT tools is a factor that is affecting the implementation of the better Ghana Agenda laptop policy in their school. Twenty point eight per cent (20.8%) and 36.9% of teachers strongly agreed and agreed respectively to the importance of financial support in buying ICT tools to the success of the policy of the better Ghana agenda laptops.

The findings future shows that the students and teachers at the Wenchi municipality do see and acknowledge the importance of financial support toward a successful implementation of the technological social interventions by the government of Ghana.

4.4.4 Inadequate ICT Text Books Affects the Implementation of the Better Ghana Agenda Laptop Policy

Table 4.16: Inadequate ICT Text Books

Variable	Students		Teachers	
	Frequency	Percent	Frequency	Percent
Strongly disagree	9	9.0	2	10.4
Disagree	9	9.0	1	5.2
Undecided	22	22.0	5	26.4
Agree	34	34.0	7	36.9
Strongly agree	26	26.0	4	20.8
Total	**100**	**100.0**	**19**	**100.0**

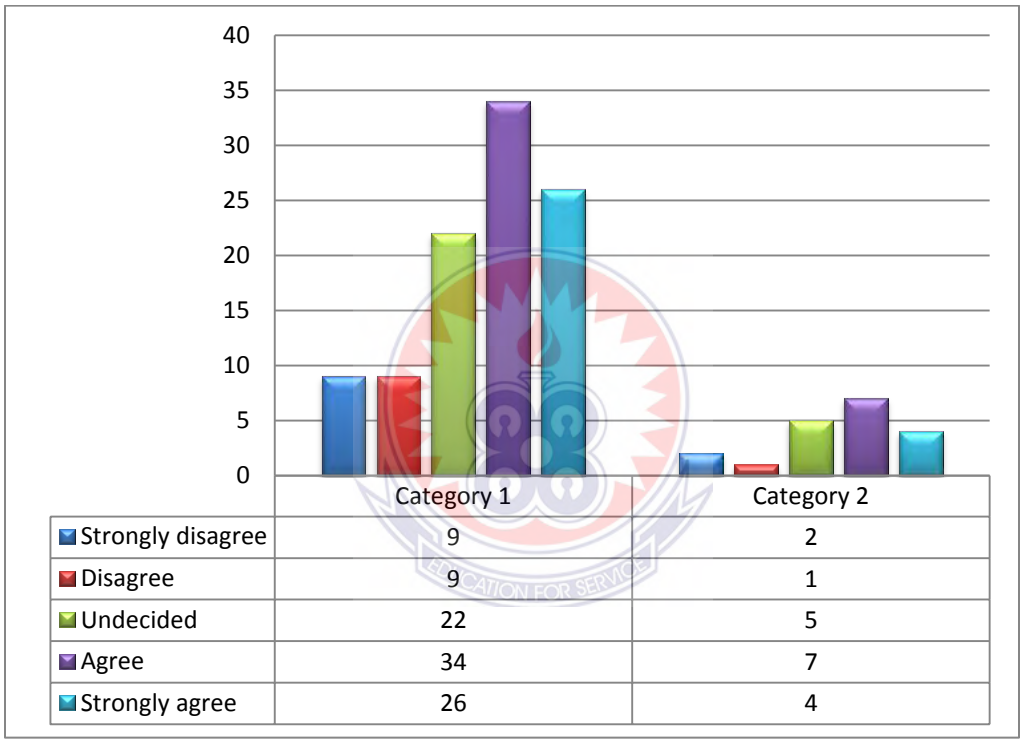
Source: Field Survey, September, 2016

From Table 4.16,26 out of the total 100 respondents (students) representing 26.0% strongly agreed with the view that inadequate ICT text books supply affects the implementation of the better Ghana Agenda laptop policy. However, 34(34%) agreed, 22 (22%) undecided, 9(9%) disagreed, while another 9(9%) strongly disagreed on the same issue.

On the part of teachers 7 (36.9%) agree while 26.4% representing 5 teachers undecided and 29.8% representing 4 teachers strongly agreed that inadequate text books in ICT is hampering the implementation of the policy in ICT. Likewise, 10.4% (2) and 5.2% (1) teacher strongly disagreed and disagreed respectively. From the results it is realistic to say that, the respondents agreed that, lack and inadequate ICT text books are affecting the

smooth implementation and realisation of the full benefits of the technological social intervention in the area of ICT in the Wenchi municipality.

Again these finding concur with that of Swarts (2006) who had a strong view that, the benefits of ICT cannot be attained if the necessary teaching and learning and materials such as textbooks in ICT are not available to students and teachers.



	Category 1	Category 2
Strongly disagree	9	2
Disagree	9	1
Undecided	22	5
Agree	34	7
Strongly agree	26	4

Figure 4.7: Inadequate ICT Text Books

4.4.5 Lack of Technical Support Affects the Implementation of the Better Ghana Agenda Laptop Policy

Table 4.17: Lack of Technical Support

Variable	Students		Teachers	
	Frequency	Percent	Frequency	Percent
Strongly disagree	3	3.0	0	0
Disagree	8	8.0	2	10.4
Undecided	25	25.0	3	15.8
Agree	28	28.0	11	57.9
Strongly agree	36	36.0	3	15.8
Total	**100**	**100.0**	**19**	**100.0**

Source: Field Survey, September, 2016

As indicated in Table 4.17 above, 36.0% representing 36 students were of the view that lack of Technical Support and opportunities toward the ICT better Ghana Agenda Policy is a major factor affecting the implementation of the Policy in the Wenchi municipality and 57.9% representing 11 ICT teachers sampled for the study agreed to the same issue of lack of technical support for the programme whilst 3% (3) students strongly disagreed. Again, 10.4% representing 2 teachers and 8% (8) respectively disagreed that lack of technical support is affecting the implementation of the policy whereas 25% (25) of students and 15.8% (3) of teachers were undecided.

Another challenge is lack of Teacher training and technical support for teachers and equipment supply towards the policy. Hawkins states that the failure of many past programs was that schools were provided with expensive equipment but with little or no technical support for teachers‘ and equipment.

4.4.6 Negative attitude towards ICT Subjects affects the Implementation of the Better Ghana Agenda Laptop Policy

Table 4.18: Negative attitude towards ICT Subjects

Variables	Students		Teachers	
	Frequency	Percent	Frequency	Percent
Strongly disagree	6	6.0	2	10.4
Disagree	6	6.0	6	31.6
Undecided	23	23.0	1	5.2
Agree	29	29.0	8	42.1
Strongly agree	36	36.0	2	10.4
Total	**100**	**100.0**	**19**	**100**

Source: Field Survey, September, 2016

From Table 4.18, it can be observed that 36.0% representing 36 students strongly agreed while 10.4% representing 2 teachers strongly agreed and strongly disagreed respectively that Negative attitude towards ICT subjects is an influencing factor in implementation of the policy on ICT in the Wenchi Municipality. This is against 6.0% (6) of the student respondents who strongly disagreed and 23% representing 23 students was undecided on the issue. The researcher probed further to find out from teachers in the sampled schools in the study area through an interview session (See Appendix B) what they think or perceive of attitude of people and students toward ICT subjects, majority of the teachers representing 42.1% (8) agreed to the issue that Negative attitude towards ICT subjects is affecting the implementation of the policy in the Wenchi municipality. Also 31.6% (6) of the teacher respondents disagreed that Negative societal attitudes towards ICT is a factor that is hindering the smooth implementation of the policy.

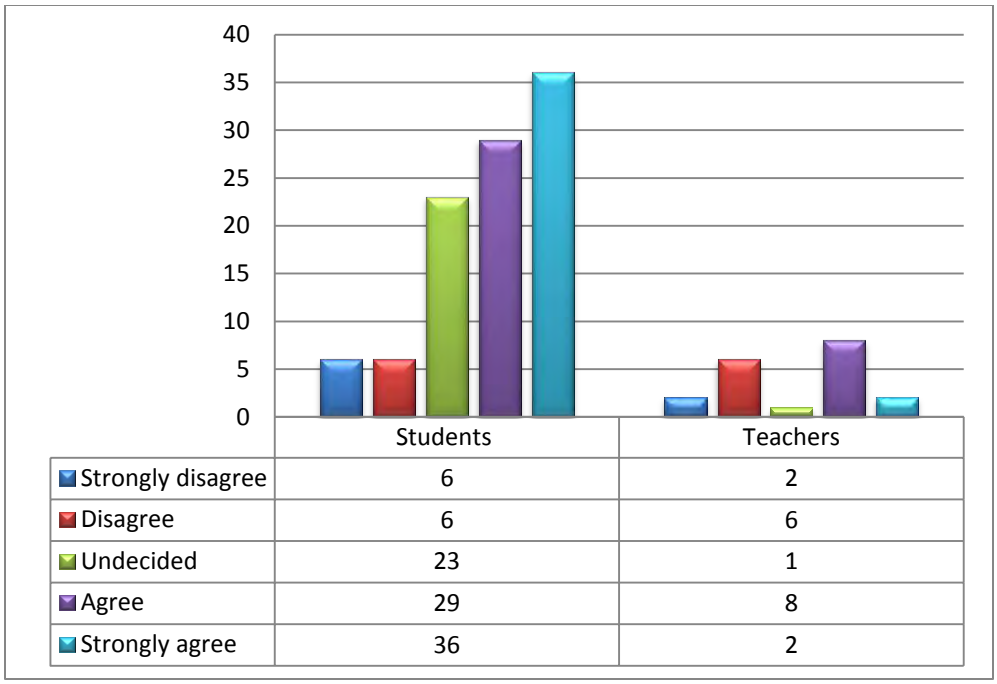


Figure 4.8: Negative attitude towards ICT Subjects

Table 4.19: Lack of Reliable Electricity affects the Implementation of the Better Ghana Agenda Laptop Policy

Variable	Students		Teachers	
	Frequency	Percent	Frequency	Percent
Strongly disagree	0	00	0	00
Disagree	3	3.0	0	00
Undecided	19	19.0	1	5.2
Agree	40	40.0	9	47.3
Strongly agree	38	38.0	9	47.3
Total	**100**	**100.0**	**19**	**100.0**

Source: Field Survey, September, 2016

Information gather from table 4.19 above indicating that majority of the respondents representing 38.0% (38) and 40.0% (40) of students strongly agreed and agreed respectively that Power cut as the challenges hindering the attainment of the goals of the policy, which is to promote one-to-one computing at the basic level of education whilst 19.0% representing 19 students undecided. Likewise, 47.3% representing 9 teachers

strongly agreed and agreed respectively. From the results it could be useful to say that, the beneficiaries had the view that they are more challenges hindering the goals of the policy.

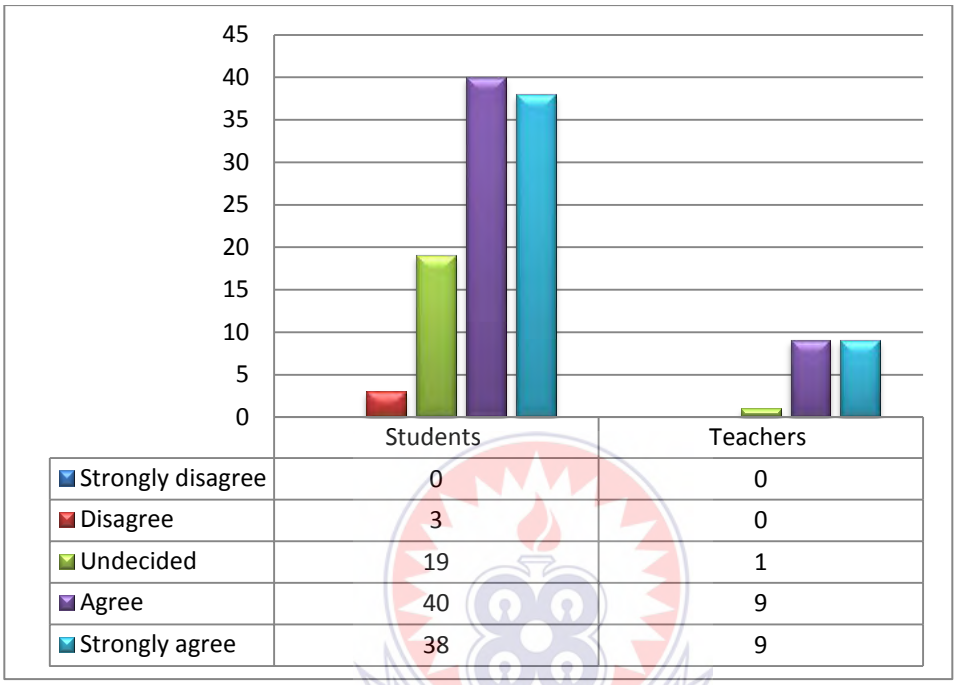


Figure 4.9: Lack of Reliable Electricity

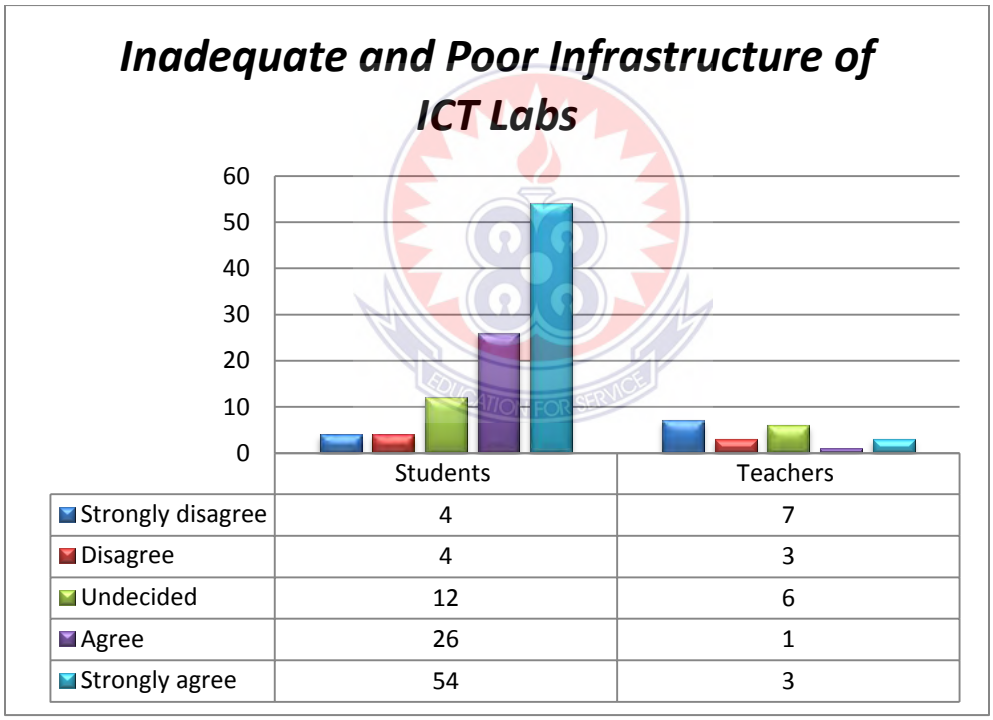
Table 4.20: Inadequate and Poor Infrastructure and ICT Labs affects the Implementation of the Better Ghana Agenda Laptop Policy

Variable	Students		Teachers	
	Frequency	Percent	Frequency	Percent
Strongly disagree	4	4.0	7	36.9
Disagree	4	4.0	3	15.8
Undecided	12	12.0	6	31.6
Agree	26	26.0	1	5.2
Strongly agree	54	54.0	3	15.8
Total	**100**	**100.0**	**19**	**100.0**

Source: Field Survey, June 2016

From table 4.20 above, the study also found out that, inadequate supply of computers and laboratories in schools is a major issue that was prominent among students and teachers

in the sampled schools. Fifty-four students representing 54.0% and 26.0% (26) students strongly agreed and agreed respectively that inadequate poor infrastructure and ICT Labs affects the implementation of the better Ghana Agenda Laptop policy. However, 12.0% (12) student‘s undecided while 4.0% (4) strongly disagreed and disagreed respectively. Also, majority of teachers representing 36.9% (7) strongly disagreed while 31.6% (6) teachers undecided. Likewise, 15.8% representing 3 teachers strongly agreed and disagreed respectively with one (1) teachers agreed. Government should make more ICT facilities available and ensure smooth implementation.



	Students	Teachers
Strongly disagree	4	7
Disagree	4	3
Undecided	12	6
Agree	26	1
Strongly agree	54	3

Figure 4.10: Inadequate and Poor Infrastructure and ICT Labs

4.5 Criteria for Distribution of the Better Ghana Agenda Laptops in the Wenchi Municipality

Table 4.21: Criteria for Distribution of the Better Ghana Agenda Laptops in the Wenchi Municipality

Criteria for Distribution of the Laptops	Not Important at all (%)	Slightly Important (%)	Moderately Important (%)	Important (%)	Very Important (%)
Performance of the school in the BECE	1	3	5	42	49
Government Decision	1	36	32	17	14
Enrolment of the school	-	9	30	43	18
Infrastructure of the school	-	5	7	31	57

Source: Field Survey, September, 2016

The respondents were required to use a 5-point Likert scale anchored on Not Important at all, Slightly Important, Moderately Important, Important, Very Important to measure the criteria for Distribution of the Laptops in the various basic schools in the Wenchi municipality. The variables measured were Performance of the schools in the BECS exams, Government Decision, Enrolment of the school and the Infrastructure status of the school. The responses are presented in Table 4.21.

Table 4.21 above presents the responses given by the respondents on the Criteria for Distribution of the Better Ghana Agenda Laptops to basic schools in the Wenchi Municipality. The findings indicate that the majority of the respondents 49% said Performance of the school in the BECE is very important as a criteria in the distribution of the Better Ghana Agenda Laptops. On the contrary to this assertion by the students,

the educational Co-ordinator of the ICT through the interview said that Performance of the school in the BECE is not a Criteria for Distribution of the Laptops to the various schools. The Criteria for Distribution of the Laptops is that the school should be Junior High School rather than Performance of the school in the BECE.

Any other factor (Government Decision) was rated the 36% as Slightly Important when it comes to the Criteria for Distribution of the better Ghana agenda Laptops in the Wenchi municipality. The educational Co-ordinator of the ICT when interviewed indicate that since the policy was initiated by the government, it's solely a Government Decision in the Distribution of the better Ghana agenda Laptops and the schools have no control to the number and the time these laptops are given to the schools.

The Enrolment of the schools according to the Educational Co-ordinator of the ICT is not a criteria in the distribution of the laptops rather the enrolment of the schools only give the education office on the number of laptops to be sent to individual school. On the other hand majority of the students believe that enrolments of the schools are Criteria for Distribution of the Better Ghana Agenda Laptops in the Wenchi Municipality. According to the Educational Co-ordinator of the ICT, priority is given to Model Schools in the Municipality when distributing the Better Ghana Agenda Laptops.

It was evident from the interview that what students consider as the criteria in the distribution the Better Ghana Agenda Laptops are totally different from what the Educational Co-ordinator of ICT indicates. While majority students said the

Infrastructure of the school Very Important in the distribution the Better Ghana Agenda Laptops, the Educational Co-ordinator of ICT in the municipality said they do not consider the Infrastructure of the schools which received the laptops. From the results it could be inferred that, the beneficiaries were not in any position to confirm the criterion for the distribution of the laptops.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter contains summary of the research findings, recommendations and conclusions that are emanated from the study with regards to the public perception about –Better Ghana Agenda" Laptop on Teaching and Learning at the Basic Schools in the Wenchi Municipality.

5.1 Summary of Findings

This study sought to investigate the Technological Social Intervention, as in the case of the –Better Ghana Agenda" Laptop on Teaching and Learning at the Basic Schools in the Wenchi Municipality. The study examine the factors used as criteria in the distribution of the laptops, the challenges confronting the implementation of the –Better Ghana Agenda" laptops policy in the Wenchi Municipality and the impact of the –Better Ghana Agenda" Laptops on teaching and learning of the beneficiary students in the Wenchi Municipality.

The study revealed that the policy implementers had their own criterion for the distribution of the laptop. Again, it also came to light that the policy had helped improved the knowledge of beneficiary schools in the Wenchi municipality. Also there were challenges hindering the attainment of the goals of the policy with respect of funds, lack of electricity in the schools and also lack of computer labs to keep these laptops.

5.2 Conclusion

In a nutshell the study was conducted in Wenchi municipality of the Brong Ahafo Region of Ghana to examine the technological social intervention, the case study of the –Better Ghana Agenda" Laptop on teaching and learning at the basic schools in the Wenchi Municipality.

The study further revealed that the policy implementers had their own criterion for the distribution of the laptop. It come to light that the policy had helped improved the knowledge of beneficiary schools in the Wenchi municipality although there were challenges hindering the attainment of the goals of the policy with respect of funds, lack of electricity in the schools and also lack of computer labs to keep these laptops.

5.3Recommendation

- ✓ Similar research could be done in the senior high school (SHS) and higher institutions.
- ✓ The government should as a matter of urgency build I.C.T laboratories in all basic schools or provide two ICT resource centres in each district to serve all pupils in the district.
- ✓ The implementers of the policy should have clear guidelines for the distribution of laptops to enhance transparency.
- ✓ Government should make available funds to offer technical support and maintenance of the laptops.

- ✓ The government should make conscious effort to provide electricity and internet connection to all basic schools especially, at the rural areas where the national grid is not there.

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APPENDIX A

Survey Form onTechnological Social intervention, the case of "Better Ghana Agenda" Laptop on Teaching and Learning at the Basic Schools in the Wenchi Municipality

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Dear Respondent:

I am conducting a study on Technological Social intervention, the case of "Better Ghana Agenda" Laptop on Teaching and Learning at the Basic Schools in the Wenchi Municipality. The objective of this research is an attempt to understand the impact of the laptops on teaching and learning of beneficiary schools. Through your participation, it will help us achieve this objective. Attached is a questionnaire that ask a variety of questions about the impact, factors affecting implementation of the policy and criteria for distributing the laptops to various schools.

In order to ensure that all information will remain confidential, please do not include your name. We do not need to know who you are and no one will know whether you participated in this study. Kindly answer all questions as honestly as possible. Your responses will not be identified with you personally, nor will anyone be able to determine which school you are. Nothing you say on the questionnaire will in any way influence your present or future of your work or education.

We hope you will take a few minutes to complete this questionnaire. We truly appreciate your help! Thank you!

Sincerely,

Abdul-Rahman Hassan

(Masters of Technology in Electrical/Electronic Tech. Education UEW-K)

APPENDIX B

UNIVERSITY OF EDUCATION, WINNEBA

COLLEGE OF TECHNOLOGY EDUCATION – KUMASI

DEPARTMENT OF ELECTRICAL AND AUTOMOTIVE TECHNOLOGY EDUCATION

Interview guide on Technological Social intervention, the case of "Better Ghana Agenda" Laptop on Teaching and Learning at the Basic Schools in the Wenchi Municipality

SECTION A: DEMOGRAPHICS

1. Tell me about yourself.
2. How long have you been working here?
3. What is your job specification?

SECTION B: Impact of the "Better Ghana Agenda" Laptops on teaching and learning of the beneficiary schools in the Wenchi Municipality.

4 Do you think the teachers are using these laptops for the intended purpose?

5 Do the schools have the facilities to enable them use these laptops?

6 Do the teachers have the Level of Skills to Use Laptops to teach the students?

7 How do the "Better Ghana Agenda" Laptops impact on teaching and learning of the beneficiary schools in the Wenchi Municipality?

SECTION C: challenging factors confronting the implementation of the "Better Ghana Agenda" laptops policy in the Wenchi Municipality.

8 How do the following factors affect implementation of the policy?

I. Inadequate and Poor Infrastructure

II. Inadequate and Poorly Trained ICT Teachers

III. Lack of Reliable Electricity

IV. Non interactive learning activities

V. Internet Connectivity

VI. Projectors For Teaching

VII. ICT Text Books

VIII. Financial Constraints

IX. Lack of Support By Parents and Government

X. Negative Attitude Towards ICT

SECTION D: factors Used as Criteria in the Distribution of the' Better Ghana Agenda' Laptops

9 When your outfit receives new "Better Ghana Agenda" Laptops, what processes does it go through before the distribution to individual schools?

10 What criteria/factors do your outfit used in the distribution of the laptop?

11 How do the following factors influence the distribution of "Better Ghana Agenda" Laptops:

a. Performance of the school in the B.E.C.E.

b. Government Decision

c. Population of the school

d. Selected Pilot communities (schools)

e. Infrastructure of the school

f. Any other factors (Influence of assemblyman, The District Chief Executive, Member of Parliament, Chiefs, etc.)

APPENDIX C

UNIVERSITY OF EDUCATION, WINNEBA

COLLEGE OF TECHNOLOGY EDUCATION – KUMASI

DEPARTMENT OF ELECTRICAL AND AUTOMOTIVE TECHNOLOGY EDUCATION

Student's Questionnaire on Technological Social intervention, the case of "Better Ghana Agenda" Laptop on Teaching and Learning at the Basic Schools in the Wenchi Municipality

Please mark (√) where necessary

SECTION A: DEMOGRAPHICS

1. Name of your School……
2. Location of your School……
3. Gender: Male [ ] Female [ ]
4. Which of these age range do you belong to? 10-13 [ ] 14-17 [ ] 18-20 [ ] 21 and above [ ]

SECTION B: Assessment of the impact of the "Better Ghana Agenda" Laptops on teaching and learning of the beneficiary schools in the Wenchi Municipality.

5. Do you have access to the Better Ghana Agenda" Laptop in your school?
   Yes [ ] No [ ]
6. How many times do you use the laptops in a week? Once a week [ ] 2 times a week [ ] 3 times a week [ ] 4 times a week [ ] Not at all [ ]
7. Does Better Ghana Agenda Laptops help you to learn? Yes [ ] No [ ]

8. Do the laptops work well when you are using them? Yes [ ] No [ ]

9. After school, which of the following tools do you use to access information for your assignment? Text Book [ ] Mobile Phone [ ]

Desk Top Computer [ ] Better Ghana Laptops [ ]

10. Will you like to take ICT as a course in your future career? Yes [ ] No [ ]

The following items ask about your general opinion on the impact of ``Better Ghana Agenda`` Laptops on teaching and Learning in your school. Please indicate your level of agreement with the following statements. (Rating Scale: 1=strongly disagree; 2=Disagree; 3=Undecided; 4=Agree; 5=strongly agree).

Impact of "Better Ghana Agenda" Laptops on teaching and learning	**Rating Scale**				
	1	2	3	4	5
a) Improved School Performance in ICT Subject					
b) Improved Competency in Practical ICT Skills					
c) Increased Teaching and Learning Methods					
d) Increased Areas of ICT Application in the school					

SECTION C: Factors affecting the implementation of the "Better Ghana Agenda" laptops policy in the Wenchi Municipality.

11. Do you feel free to use the Better Ghana Agenda" Laptops at school?

Yes [ ] No [ ]

12. Do you have enough Better Ghana Agenda laptops in your school?

Yes [ ] No [ ]. If yes, how many?….....

The following items ask about your general opinion on the factors affecting the implementation of ``Better Ghana Agenda`` Laptops policy in your school. Please indicate your level of agreement with the following statements. (Rating Scale: 1=strongly disagree; 2=Disagree; 3=Undecided; 4=Agree; 5=strongly agree).

Factors affecting the implementation of the "Better Ghana Agenda" laptops policy	**Rating Scale**				
	1	2	3	4	5
13. Lack of Enough time for ICT periods					
14. Limited Access to Internet Connectivity					
15. Inadequate ICT Text Books					
16. Financial Constraints(to buy ICT tools)					
17. Lack of Enough Technical Support(repairs)					
18. Lack of Support by Parents and Government					
19. Negative Attitude Towards ICT Subjects					
20. Lack of Projectors for Teaching					
21. Lack of Reliable Electricity					
22. Inadequate and Poor Infrastructure(ICT Labs)					

23. Any others….....

SECTIONT D: Factors Used as Criteria in the Distribution of the Better Ghana Agenda Laptops

24. Which of the following would you find most important factors used as criteria in the distribution of the laptops? Rate the statements using the following rating scale:

    1 = Not at all important

    2= Slightly Important

    3= Moderately Important

    4= Important

    5= Very Important

Criteria used in the Distribution	Degree of Importance				
	1	2	3	4	5
25. Performance of the school in the BECE					
26. Government decision					
27. Enrolment of the school					
28. Infrastructure (ICT Lab)					

29. Any others specify……

30. Do you think Traditional rulers or opinion leaders could influence the distribution processes?

    Yes [ ] No [ ] if yes, could you specify……

31. How will you rate the political influence (Member of Parliament (MP) and DCEs) in the distribution of the laptops?

    Very high [ ] High [ ] Very low [ ] low [ ] Not at all [ ]

APPENDIX D

UNIVERSITY OF EDUCATION, WINNEBA

COLLEGE OF TECHNOLOGY EDUCATION – KUMASI

DEPARTMENT OF ELECTRICAL AND AUTOMOTIVE TECHNOLOGY EDUCATION

ICT Teacher's Questionnaire on Technological Social intervention, the case of "Better Ghana Agenda" Laptop on Teaching and Learning at the Basic Schools in the Wenchi Municipality

Please mark (√) where necessary

SECTION A: Demographics

1. Name of school …….
2. Circuit ……..
3. Gender Male [ ] Female [ ]
4. Which of this age group do you belong to?

   20-25 [ ]26-30 [ ] 31-35 [ ] 36 – 40 [ ] 41 and above [ ]
5. What is your highest qualification?

   SSCE [ ]Teachers Certificate A' [ ] Diploma [ ] Degree [ ]

   Others Specify …….
6. What is your highest professional qualification in ICT?

   Certificate [ ] Diploma [ ] Degree [ ]

   Others specify……..

SECTION B: Assessment of the impact of "Better Ghana Agenda" Laptops on teaching and learning of the beneficiary schools in the Wenchi Municipality.

7. Have you received the "Better Ghana Agenda Laptops in your school?

Yes [ ] No [ ], If yes, how many pieces did you receive?.....

8. How many times do you use the laptops to teach in a week?

Once a week [ ] 2 times a week [ ] 3 times a week [ ] 4 times and more [ ]

9. Do you have free access to the laptops?

Yes [ ] No [ ] sometimes [ ]

The following items ask about your general opinion on the impact of ``Better Ghana Agenda`` Laptops on teaching and Learning in your school. Please indicate your level of agreement with the following statements. (Rating Scale: 1=strongly disagree; 2=Disagree; 3=Undecided; 4=Agree; 5=strongly agree).

Impact of "Better Ghana Agenda" Laptops on teaching and learning	**Rating Scale**				
	1	2	3	4	5
10. Improved School Performance in ICT Subject					
11. Improved Competency in Practical ICT Skills					
12. Improved Teaching and Learning Methods					
13. Increased Area of ICT Application					

14. Have there been any programmes such as this where computers or laptops have been distributed to your school? Yes [ ] No [ ]. If yes, Name the programme …….....

SECTION C: Factors affecting implementation of the "Better Ghana Agenda" Laptops policy in Wenchi Municipality

15. How frequent do you attend ICT workshops?

Once a year [ ] twice a year [ ] thrice a year [ ]

Others specify……

16. Who maintains the laptops when they develop faults?

Coordinators of ~~–B~~etter Ghana Agenda laptops [ ] GES Office [ ]

Schools [ ] PTA [ ]

The following items ask about your general opinion on the factors affecting the implementation of ``Better Ghana Agenda`` Laptops policy in your school. Please indicate your level of agreement with the following statements. (Rating Scale: 1=strongly disagree; 2=Disagree; 3=Undecided; 4=Agree; 5=strongly agree).

Factors affecting the implementation of the "Better Ghana Agenda" laptops policy	Rating Scale				
	1	2	3	4	5
17. Lack of Enough time for ICT periods					
18. Limited Access to Internet Connectivity					
19. Inadequate ICT Text Books					
20. Financial Constraints(to buy ICT tools)					
21. Lack of Enough Technical Support(repairs)					
22. Lack of Support by Parents and Government					
23. Negative Attitude Towards ICT Subjects					
24. Lack of Projectors for Teaching					
25. Lack of Reliable Electricity					
26. Inadequate and Poor Infrastructure(ICT Labs)					

27. Any others.....

SECTION D: Factors used as criteria in the distribution of the "Better Ghana Agenda" laptops

In Which of the following would you find most important factors used as criteria in the distribution of the laptops? Rate the statements using the following rating scale:

1 = Not at all important

2= Slightly Important

3= Moderately Important

4= Important

5= Very Important

Factors used as criteria in the distribution of –Better Ghana Agenda" laptops	Degree of Importance				
	1	2	3	4	5
28. Performance of the school in the BECE					
29. Government Decision					
30. Enrolment of the school					
31. Infrastructure (ICT Lab.)					

32. Any others specify…….....

33. Do you think Traditional rulers or opinion leaders could influence the distribution processes?

Yes [ ] No [ ]; If yes, could you specify ……

34. How will you rate the political influence (Member of Parliament (MP) and DCEs) in the distribution of the laptops?

Very high [ ] High [ ] Very low [ ] low [ ] Not at all [ ]

APPENDIX E

UNIVERSITY OF EDUCATION, WINNEBA

COLLEGE OF TECHNOLOGY EDUCATION – KUMASI

DEPARTMENT OF ELECTRICAL AND AUTOMOTIVE TECHNOLOGY EDUCATION

Interview Guide for Wenchi Municipal Deputy Director of Education

1. What is your job specification?
2. How long have you been working in the municipality?
3. When was education office established?
4. How many circuits are there? Name them
5. How many schools are there in each circuit?
6. How many primary schools and JHS are in the municipality?
7. How many religious education units are there? Eg. Islamic, Anglican, SDA, ETC
8. How can you describe the relationship between the units?
9. What is the current student population?
10. What is the male student population?
11. What is the female student population?
12. As a policy, how many workshops are you supposed to organize for ICT teachers in a year?
13. How many have you done so far? If it‘s less what is the reason or factors that accounted for the short fall?

14. How many schools have ICT Laboratory?
15. How many schools have been connected to the national grid?
16. How the schools are supposed to pay their electricity bills?
17. Has the office ever received any better Ghana agenda laptops for distribution? How many?
18. When the office receives the laptops, what criteria do you use to distribute them?
19. How do the following factors affect the distribution process?
20. Can you tell me in your opinion what factors is preventing the implementation of ICT policy in the Wenchi municipality?
21. How do you access the impact of better Ghana agenda laptops in our various schools in the municipality?
22. How does the influence of opinion leaders and politicians affect the distribution process?
23. Any advice as you are highly experienced in education?

APPENDIX F

PICTURES OF SOME STUDENTS IN ICT LABORATORY

Students in Methodist basic school performing practicals

Students in Aswaq basic school using better Ghana agenda laptops

Students in SDA basic school using better Ghana agenda laptop