THE EFFECTS OF ICT INTEGRATION IN KUMASI HIGH SCHOOLS, GHANA – TEACHERS' AND STUDENTS' PERSPECTIVE

Ebenezer Boahen[1],
Emmanuel Atuahene[2i]
[1]Department of Science and ICT,
Otumfuo Osei Tutu II College,
Tetrem Ashanti,
Ghana
[2]Department of Mathematics and ICT,
Offinso College of Education,
Offinso, Ashanti,
Ghana

Abstract:

This work looks at the impact of ICT integration in Kumasi High Schools. The educational potential of information and communication technology (ICT) can be pragmatic in a diversity of ways. ICT is influencing education by changing the way of teaching and learning. Schools are making efforts to benefit from the potential power of ICT by integrating it into teaching and learning in their activities. This paper gives a meta-analysis of the literature that aims to present the supposed barriers to ICT integration in the school. The findings indicate that most of the teachers had a strong desire to integrate ICT into teaching and learning. ICT integration in schools has encountered several problems and challenges. External barriers related to access to ICT, environmental supports and teacher ICT literacy and internal barriers related to teacher cognition. When the external barriers are determined, the resolution regarding whether and how to use ICT rests on the shoulders of teachers. The study established that the availability of the ICT facilities is still inadequate in the schools for the students to use. Because of the limited number of functional computers in the computer laboratories, accessibility is timetabled and doesn't help a smooth integration into the curriculum of teaching and learning. The study recommends that further research needs to be done to appraise the impact of ICT integration fully in teaching and learning in schools.

Keywords: ICT integration, barriers, curriculum, functional computers, teaching and learning

[i] Correspondence: email atuaemma@yahoo.com, ebpanisha2@gmail.com

1. Introduction

The modern world has been named as the information era on a knowledge-based economy. Information in the modern world is mostly computer-based and this has lead to increased use of computers in schools and at home. The use of computers in schools for pedagogical activities and information sourcing has led to the belief that access to computers could give learners an advantage in academic performance and the job market (Delen and Bulut, 2011). ICT may be outlined as PC primarily based tools and techniques for gathering and using data/information appropriately. It involves components such as hardware and software, the network and several other devices such as video and audio, pictorial camera, etc. which can change information, images, and sound into common digital form. It entitles electronic information in processing technologies such as computer and internet and fixed-line telecommunication networks. ICT is an assorted application of computing, communication, telecommunication, and satellite technology (Yusuf, 2000).

Technologies can promote innovation, increase productivity and enrich the quality of lives through digital information access. ICT in education is wide, full of meaning and rapidly growing field of study (Moursund, 2005). ICT utilizes a spacious compass of technologies that are used in the process of collecting, storing, editing, retrieving and transfer of information in various forms. Education is one of the major factors of national development and global competitiveness.

The background of the study on the effects of information and communication technology (ICT) integration in Kumasi High Schools, because it is a difficult task to investigate. There are a lot of factors which manipulate it, because it is closely associated to the society, the political background and also deals with the decision making, and it is deeply dependent on the previous history of 'schools' and the values and norms of education. Teachers and other professionals see the school as a place of work for them by providing an exceptional learning environment for students.

In this study, the school approach is to consider it in its whole by investigating it from several perspectives to reach important issues about the success of school and ICT. To commence with, the fusion of ICT in the Ghana educational system, there was several views from policy-makers and educational researchers that there would be a vast change in the educational curriculum due to the integration of ICT.

One of the most important driving forces one of the driving forces which are promoting economic growth is the Information and Communication Technology (ICT). However, there is less of a concession among economists on whether the impact of ICT also stems from higher total factor productivity (TFP) growth and improved efficiency of production due to a better-educated population. During the last two decades, countries have invested heavily in ICT, especially my country Ghana. The usage of ICT in education and training has been a key priority in Ghana in the last decade, although progress has been uneven. There have been a lot of impacts in ICT both positive and negative on the educational sector, organization and teaching and learning methods. Yet

there are considerably different ICT cost levels between institutions within the country. Most of the schools in Ghana have integrated ICT into the curriculum, and demonstrate high levels of effective and appropriate ICT use to support teaching and learning across a wide range of subject areas.

On the other hand, some other schools have now adopted ICT into its teaching and learning processes, characterized by important enhancements of the learning process, some developments of e-learning (ICT-enabled learning), but without any profound improvements in learning and teaching (Balanskat et al., 2006).

According to Alhaji Haroon (2009), the integration of ICT into the Ghanaian Educational Curriculum should have successes, failures and the way forward. Alhaji Haroon mentioned that this is the first time government policy is including ICT in the context of education as a matter of national priority. He further explained that due to the importance of ICT in Education, the Ministry of Education has been facilitating the process of integrating ICT in the educational system because this will facilitate Teaching and learning at all levels of education.

According to Reiser (2001), two major tracks arose in educational technology at the commencement of major ICT use in education, from the 1980s on computer-supported learning also known as computer-aided learning and computer-based training and the use of the computer as a tool. The former consisted of diverse ways of educational software, which still has a strong demonstration of learning objects.

Despite the reality on the ground that there have been several developmental projects, experiments and pilot studies on using ICT in school, the studies about the long term and deep-going effects of ICT are not many (Kozma, 2003; Venetzky & Davies, 2001). Altogether 15–20 years' experience in school and classroom practices, as well as research evidence show that something changes in education when Information and Communication Technology (ICT) is used (e.g. Bayraktar, 2000–2001; Korte & Hüsing, 2007; Kozma, 2003) but the content, the direction and the depth of the change are still under discussion and linger issues for investigation. The use of Information Communication Technology (ICT) in Ghanaian schools and African countries is generally increasing and dramatically growing (Tella & Adeyinka, 2007; Crook, 1994). However, there is a great deal of knowledge about how ICTs are being diffused and used in High Schools in developed countries, there is not much information on how ICTs are being diffused and used by teachers in Ghanaian schools.

There has been a strong emphasis by the Government of Ghana on the role of ICT in contributing to the country's economy. The country's medium-term development plan captured in the Ghana Poverty Reduction Strategy Paper (GPRS I&II) and the Education Strategic Plan 2003-2015 all suggest the use of ICT as a means of reaching out to the poor in Ghana (Government of Ghana, 2003). There was a law which was passed on in 2004 by Ghana's ICT for Accelerated Development (ICT4AD) policy, which is presently at various stages of implementation. The Ministry of Education produced an ICT in education framework document to integrate ICT in schools out of this policy. Teachers interviewed indicated a transformational there has been a change in the pedagogical approaches of

teachers because they do not only begin to integrate technology into their everyday practices.

Be it for its newness or its effectiveness, the inclusion of technology seems to facilitate the move towards more student-centred pedagogies that allow students to develop higher-order thinking skills. The use of technology, particularly among teachers has helped in motivating them and access to ICT has improved among students and teachers, and both at home and school. One of the costs is the change in how ICT skills are understood because they were first defined as merely technical skills, e.g., the ability to use a database application or word processing application, sometimes even programming skills.

There have been several forms of ICT in schools during the years it has been used. Technology inventions did not appear out of blue into school; all technology is a variety of the previous experiments and experiences of technology, stimulated by socioeconomic and cultural factors (Basalla,1987). The use of computers elsewhere led to the integration of ICT in schools because it was mostly used in society and these practices were also introduced into educational applications. The existing pedagogical paradigm and conceptions then formed the structure and the practices of using these applications. Over the years, there has been a lot of variety of applications that have been invented but only a few of them have remained in large-scale use which is very typical for all technology-related innovations (Rogers, 1995).

The following are some of the positive impacts of ICT integration in education:

- There has been an increase in computer awareness among students.
- ICT in schools has made teaching and learning very easy.
- High IQ students can now find something to engage them meaningfully instead of involving themselves in some social deviances or vices.
- There is a link between educational institutions and organizations as a whole.
- There is a keen and healthy competition among schools in ICT knowledge sharing.
- There is further training in the Universities and any other training Institutions due to the ICT at the Kumasi High Schools level.

Below are some of the challenges of ICT integration in education:

o There are inadequately trained personnel to handle the facilitation of the subject ICT.
o Teaching and learning materials are inadequate.
o Lack of infrastructure is a challenge which makes ICT integration in school curriculum very difficult.
o Lack of Administrative support is also a major factor to consider.
o Electrification in rural areas is inadequate or poor because most of them do not have a power supply.
o Users find it difficult to access information to broaden their knowledge due to the lack or poor internet connectivity.
o ICT components and services are very costly.
o The brain drain condition in the area of ICT professional.

1.2 Problem Statement

The study is about the effects of ICT integration in the Kumasi High Schools on the teachers and students Perspective. As learning remains pivot in any academic success debate, there is the need to integrate ICT in schools. Organization and other institution have tied together to complement and support the teaching and learning process because they have seen that ICT gives a clear opportunity for them. However, there has been massive support of ICT aided teaching and learning, investment and donation of ICT equipment to most of the Kumasi High Schools, but still, the schools face the challenges of how to transform students learning process to provide students with the skills to function effectively in this dynamic, information-rich, and continuously changing environment because they lack certain amenities which will help them to improve upon it.

Investment in the development of ICT in the school is going to be put to waste and improvement in the quality of teaching and learning is going to be sluggish, because unless these problems are well addressed. Without this, it may make the school fail to achieve its mission to integrate ICT into its teaching and learning activities and to produce graduates who are ready for the world of work which is increasingly dependent on ICT aided generation and dissemination of knowledge. Given this inconsistency, there is the need to examine the particular effects of availability, accessibility and user-ability of ICT resources on students learning in the Kumasi High Schools which will help the schools to properly integrate ICT into its curriculum to promote smooth lesson delivery.

1.3 Objectives of the Study

1) To know the original phenomenon when ICT is implemented in teaching and learning practices.
2) To know whether students and teachers have a special ICT competence and good access to ICT in the school.
3) What are some of the issues related to activities in classrooms using ICT and its implementation in education.
4) To know how genders and generations vary related to ICT.

2. Literature Review

Information and Communications Technology (ICT) includes any communication gadget or applications which is made up of television, cellular phones, computer and hardware and software, television, cellular phones, satellite systems and so on. Information technology can also be put as all equipment, processes, events and systems used to provide and support information systems, both programmed and manual within an association and those getting out to customers and suppliers. The term information and communication technology ICT was coined to reflect the faultless union of digital processing and telecommunications. Hardware, processes and systems that are used for storing, managing, communicating and sharing information are all made up of ICT. It is

amazingly complicated to identify a straight and constantly applied definition of ICT integration despite its having been an aim of educational systems for some time (Cuttance & Stokes, 2000; Milton, 2003 as cited in Lloyd, 2005) and one of increasing contemporary interest (MCEETYA, 2005). The term ICT integration describes a range of learning environments from a stand-alone computer in a classroom to a condition where the teaching is done by the computer through pre-packaged teacher-proof courseware (Laferrière, 1999, p. 3). There is proof to propose that the term integration is often used interchangeably with the more popular use. It is usually taken, however, to add a change in an educational approach to make ICT less marginal to schooling and more vital to student learning. This is summarized in the views that not only can technology help children learn things improved but it also can help them learn better things (Roschelle, etc, 2000, p. 78) and that better learning will not come from finding better ways for teachers to inculcate but from giving the learner better chance to create (Papert, 1989, in Lechner, 1998, p. 22). The term **integration** concerning ICT in education is illustrated by the titling of two influential U.S. teacher education texts. One of these, Integrating Educational Technology into Teaching(Roblyer, 2004), is in its third edition while the other, **Integrating Technology for Meaningful Learning** (Grabe & Grabe, 2004), is in its fourth edition. Neither text defined the term **integration** but instead spoke of it in circuitous ways. For example, Roblyer (2004) globally offered that like teaching itself, integrating technology into educational practice is challenging work, full of exciting possibilities and complex problems. The meaning and the cost of the term are acknowledged.

When planning for effective use of these technologies it is essential if they are to have a positive impact expected than a negative impact. Whether developed or developing country, it is a costly decision when investing in ICT. For developing countries such as Ghana, investing in ICTs presents the predicament of spending scarce/valuable resources on ICTs or consequently suffering from widening technological gap. As noted by Swarts (2006), ICTs can be powerful, essential tools for learning: understanding, interpreting 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.

ICT in Education, World over, computers are becoming important tools for everyday use in many sectors, in education and in school setup where learners may have similar uses of the ICT technology depending on exposure. Kang et al (2011) refer to a new generation of children who grew up in an environment of ICT, the New Millennium Learners (NMLs), as people who are likely to refer to the internet whenever faced with a question and that ICT among students was therefore used in a variety of ways such as to construct and acquire knowledge, to solve complex problems, to acquire new skills among other functions. This study required to show that the new generation of learners would suitably identify with the method of teaching that incorporates ICT in the learning process.

Millennium Development Goals (MDGs) and the Education (EFA) that is Education for All initiatives targeted the year 2015 to achieve universal primary education access for all citizenry of Ghana to achieve universal primary education access for all citizenry of Ghana. There is a shortage of teachers, infrastructure, and resources which is pulling most of the countries, including Ghana is far from reaching these goals. One way which governments employ to improve, expand instructional objectives and increase quality education accessibility is the use of ICT because it allows students interests, needs, strengths and weaknesses to drive the learning process with the teacher facilitating rather than dictating (Rogers, 1995). ICT has the power to dramatically remake American schooling, raising performance standards while potentially simultaneously cutting costs as findings in America has revealed. The report established that ICT materialization of a new kind of pedagogy that was focused on meeting the needs of individual student mass customization. This (Kozma, 1992) said, ICT enabled approach marks a departure from the current pedagogy in which all learners are treated more or less like mass production. In this study integration of ICT as a teaching pedagogy was used to evaluate the performance impact of ICT on teachers and students' perception. The new technology in education where students use ICT to personalize learning can produce even stronger results, enable and empower students to pursue their knowledge, provide asynchronous learning and enhance content and information-rich resources that are not limited to one physical copy that resides in only one location. Given the role ICT plays in the global economy, educationists would not accept to reduce investment in ICT based learning resources and the ICT infrastructure in the educational institutions, (Morrison, 1998).

In his study on the extent of ICT in education, (Kozma, 1992) observed that while ICT continues to advance in the developed western countries, Africa and other developing countries still experience a lag in its implementation in education. ICT usage in South African schools however, results indicated that although still in the early stages, the nation had made significant progress towards the integration of ICT in schools according to a survey. In the context with these findings and like the rest of African countries, Ghana is no exception and has made strides through the MoE by recognizing the role played by the ICT in education noting that in the current globalized economy, a country needs an ICT literate workforce that will enhance its participation in the knowledge economy. ICT in education was the natural platform for equipping nations with ICT skills for dynamic and sustainable economic growth as admitted by the Ministry of Education in Ghana. The ministry warns that any country that fails to integrate ICT risks serious marginalization on the global scene, (MoEST, 2006).

There is a lot of effective use of ICTs, these are some of them:
- Both pre-service and in-service teachers, especially through distance education provides multiple avenues for professional development;
- Teaching and learning processes and delivery are enhanced;
- Teacher knowledge, skills and attitudes and even inquiry are improved;
- Educational management processes are also improved;

- Both formal and non-formal education consistency and quality of instructions are also improved;
- Opportunities for more student-centred pedagogical approaches are also enhanced;
- Addressing inequalities in gender, language and disability-inclusive in education;
- Conventional sources of information and knowledge are broadened;
- It leads to creativity, collaboration and other higher thinking skills;
- Delivery is flexible;
- A lot of student populations are reached outside normal education systems.

2.1 ICTs integration Impact on Teachers

The teachers I interviewed indicated a transformational process through which they not only begin to integrate technology into their everyday practices but also to change their pedagogical approaches. Be it for its newness or its effectiveness, the besieged use of technology seems to facilitate the move towards more student-centred pedagogies that allow students to develop higher-order thinking skills. The use of technology, particularly among teacher help in motivating them and improve teacher-student communications. Also, to new skills, teachers are impacted in other ways. Teachers use their newly acquired skills in another searching for other job opportunities alongside teaching. Moreover, there is a communicate sense of self-confidence and increased excitement about teaching per the teachers' interview.

2.2 ICTs Integration Impact on Students

Majority of students' respondents felt that the integration of ICTs in their education institutions has had a positive impact both on them and on their teachers. According to the students, ICTs are enhancing their learning process and also opening their minds and taught in most of their courses. Information gathered on subject-based courses on the internet, radio and the television were used as extra reference materials that help to intensify their understanding of the subjects being taught in the classroom. Approximately all of the respondents feel the use of ICTs in learning and research have improved the development of higher-order skills has been achieved. By higher order skills the respondents meant their computer skills have been enhanced and have resulted in using those skills in other areas of the discipline. They cited online cooperation projects like interactive projects have enhanced their global awareness and knowledge of other cultures as positive benefits. Many also feel that online resources have helped them in their academic achievements.

The Assistant Headmaster of St. Charles Minor Seminary in Tamale, Mr George Nego Fugluu, during the introduction of ICT into the Ghanaian Educational Curriculum seminal in 2009, he gave a background of educational reforms since the colonial days and educational reforms since independence. He said on January 7, 2002, a committee composed of 29 knowledgeable Ghanaians drawn from across a section of stakeholders in the education sector chaired by Prof. Jophus Anamuah-Mensah then Vice-Chancellor

of University of Education Winneba were to address deficiencies of the 1987 Reforms in the area of Objectives, Content, Administration and Management, quality, equitableness and economic utility, to discuss among other issues of the structure of education and some of the issues affecting the development and the delivery of teaching in education and learning, constrained access to different levels of the educational ladder, Information and Communication Technology, and distance education, Professional Development, Management, and financing of education. At the basic level, the introduction of ICT is mandatory to begin pupils to Computer hardware and other peripherals such as touching, feeling and manipulation of the hardware components for them to have fun with it, games, and creative works such as drawing etc. By using the computer, the inclusion of ICT at High School Education Level aimed at the acquisition of students with basic ICT literacy, developing interest and use ICT for learning in other subjects, acquisition of knowledge for the application of ICT in education and business, the use of the Internet to communicate effectively and the ability to follow basic ethics in the use of ICT.

2.3 Impact on Learning and Teaching in the Classroom

There has been more investment that has gone into the introducing of ICT into schools, such as a building of the computer laboratory, hardware, software, networking and staff development. With these amenities, there has been evidence that it has made an adequate impact on the performance levels and progress of pupils and students. To conclude on the available literature drawing, it is important to acknowledge the extent and nature of the evidence available. While large-scale surveys such as those undertaken as part of the evaluation of Curriculum Online, much of the evidence is drawn from small-scale case studies and large-scale, methodologically precise research is scarce from which generalizations may be drawn. In general, the impact is most clearly observed where tasks have clear educational aims, are planned to take full advantage of the potential of the ICT in use and are perceived as purposeful by students.

2.4 Impact of Specific Technologies on Learning and Teaching

The variety of technologies existing for use in the classroom has increased rapidly as more infrastructures have been added into schools. Interactive whiteboards (IWBs) or marker boards have been the focus of a considerable number of studies, large and small, in no small part due to government support for them. They are relatively common in schools compared with other technologies and the reports from studies of their impact draw similar conclusions. The outcomes are almost universally positive, mostly where they are used in concurrence with other technologies and there are clear pedagogical reasons for their use. Display and presentational software, including animation and simulations, combined with the marker boards to display it to the students and help students to develop an understanding of abstract concepts through concrete examples and graphical image such as microscopic processes. Mobile technologies are growing in availability and, given their attractiveness to students and are gradually being introduced to support

various educational initiatives, usually with a focus on communication. They are effective in supporting learning for disaffected and 'hard to reach students. The Government of Ghana in 2009 started given teachers and students laptops to enable them to get more knowledge about ICT. Laptops, which teachers have found particularly useful for management and administration, have been less excitedly received by students, who prefer smaller technologies such as PDAs and multi-function mobile phones. Mobile technologies are being developed for use with hard-to-reach learners and in projects aimed at improving access to ICT for those students without a computer in the home. The educational software developers are beginning to capitalize on student's eagerness for games and gaming, potentially benefiting the development of a range of skills small-scale studies of the students. The very nature of the problems faced by the students involved means that the initiatives tend to be relatively intensive in terms of individual support. As a result, while the evidence may point to gains for the pupils involved, issues of scale and sustainability arise.

There is evidence on the positive impact that ICT has help students learning with special educational needs, whether through adaptive or assistive technologies particularly designed to support students with specific disabilities or through the use of normal technologies such as digital video and photography.

2.5 Summary

The development of ICT in schools is succeeding erratically across and within schools and technologies. Some schools seem to be content with achieving the government targets in terms of the computers and laptops supply to the schools and its connectivity, while others are yet to receive a single computer or laptop. As schools grow in electronic-confidence, ICT becomes embedded in the curriculum of the everyday practices of the school that is using technology to draw and also to support learning and teaching processes. The literature is very positive about some aspects of ICT use, rarely positive and negative, but mainly incomplete or inconsistent. Further studies, particularly with a longitudinal element, should throw light on the processes that schools go through in becoming electronic-confident and electronic-capable, the impact on relationships within the school, between home and school and across networks, and on pedagogical practice. Using ICT effectively in schools is about more than changing resources; it is about changing practices and culture.

3. Methodology

This research work adopted the use of both qualitative and quantitative research approaches focusing on the cross-sectional research design. Observation, interviews and questionnaires are the instruments used. As part of the researcher's effort to obtain a fair representation of the size of the study and ensure an equitable, reliable and accurate information, five classes offering different courses in different schools were used to provide experimental groups which cover a headteacher, 20 teachers, 3 technology

coordinators (Computer laboratory teacher) and 200 students from different High Schools in Kumasi. In all, a total of 224 respondents were randomly selected from 104 staff which includes both academic and non-academic staff, student of about 2000 and the Directors of Kumasi Metro Science and Computer Resource Centre of Ghana Education Service based on their availability and willingness.

4. Results and Discussion

The study aims at finding the impact of ICT integration in the Kumasi High Schools – Ghana, from the teachers and the student's perception. It is important to conduct a situational analysis of current practices in the use of computers and IT in Kumasi High Schools. The government and the school bodies in promoting IT in teaching in schools indicate that there are a barrier and incentives in promoting IT in the teaching and learning in schools which were identified based on the information from the data collected during the intervention.

In the study, the total number of 200 students, 20 teachers, 3 ICT facilitators and a headteacher was sampled, which summed up giving a total of 224 questionnaires that were distributed. A total of 169 (75.4%) fully completed questionnaires were returned of which 153 (68.3%) were students, 13 (5.8%) teachers, 2 ICT facilitators (0.9%) and 1 headteacher (0.4%) filled the questionnaire.

In all the total is 75.4% is illustrated in Table 4.1 below:

Table 4.1: Total of respondents

Respondent category	Number of the issued questionnaire	Number of the returned questionnaire	Percentage
Students	200	153	68.3%
Teachers	20	13	5.8%
ICT facilitators	3	2	0.9%
Headteacher	1	1	0.4%
Total	**224**	**169**	**75.4%**

Information obtained was analyzed in terms of tables of frequencies, percentages and graphs. Administrative staff interviews and discussions were used to supplement responses from the closed-ended questionnaires. The response rate was considered reasonable because at least more than 50% of the besieged respondents participated in the study. The researcher felt that the views expressed in the reports are therefore representative of the target population.

4.1.1 Background Analysis of the Data

Table 4.2: Distribution of respondents based on gender and year of study

Attributes	Category	Count	Percentage
Gender of Students	Male	153	67.3%
	Female	50	32.7%
	Total	153	100%
Year of students	First	40	26%
	Second	52	34%
	Third	61	40%
	Total	153	100%
Course of students	General Science	35	22.9%
	Business	39	25.5%
	General Arts	38	24.8%
	Visual Arts	21	13.7%
	Agric Science	20	13.1%
	Total	153	100%

The findings in Table 4.2 shows that majority of the respondents of the students were males. It can also be noted that majority of the respondents (40%) were third-year students. This is associated with the fact that a greater number of the schools' population were the third years. The business courses were more than the other courses which took part in the research.

Table 4.3: Distribution of respondents' according to title and duration of service

		Count	Percentage
Designation	Head of the Department	5	18.5%
	Teachers	22	81.5%
	Total	27	**100%**
Duration of service in Kumasi High Schools	1 year	3	11.1%
	2 years	5	18.5%
	3 years	6	22.2%
	4 years	6	22.2%
	5-10 years	7	25.9%
	Total	27	100%

The findings from Table 4.3 shows that majority (81.5%) of the teaching staff were teachers. About 18.5% were HOD's implying they were more senior in terms of qualification and experience than their other teaching counterparts. The above is also supported by the duration of service of which the majority (25.9%) of the respondents have spent between 5-10 years of teaching in the School. About 22.2% of the respondents have spent more than two to three years and an equally small number of 18.5% have spent less than two years teaching in the school. The teaching staff are considered central in this study because they are directly involved in the teaching and learning process using ICT.

The findings from Table 4.4 shows distribution of respondents' by the opinion of students and teachers on the availability of ICT resources, that majority of the respondents went in for inadequate and not sure whether the resources are inadequate to help for the integration of learning in the school.

Table 4.4: Distribution of respondents by the opinion of
students and teachers on the availability of ICT resources

ICT Resources	Status	Frequency	Percentage
Computers/PC in Classroom	Not sure	160	71.4%
	Fairly available	20	8.9%
	Available	44	19.6%
	Total	**224**	**100%**
Internet and email	Inadequate	190	84.8%
	Fairly adequate	15	6.7%
	Adequate	19	8.5%
	Total	**224**	**100%**
Computer laboratory	Inadequate	111	49.6%
	Fairly adequate	97	43.3%
	Adequate	16	7.1%
	Total	**224**	**100%**
Projector	Inadequate	217	96.9%
	Fairly adequate	5	2.2%
	Adequate	2	0.9
	Total	**224**	**100%**

Table 4.5: Distribution of respondents by opinions
on special ICT competence that some students seem to have

ICT Competence	Opinion	Frequency	Percentage
Use the computer to complete course works. projects. report etc.	Yes	188	83.9%
	No	36	16.1%
	Total	**224**	**100%**
Own learning using computers and the internet	Yes	191	85.3
	No	33	14.7%
	Total	**224**	**100%**
Use the computer to type course works and assignments	Yes	209	93.3%
	No	**15**	**6.7%**
	Total	**224**	**100%**
Use the internet/computer to look for information	Yes	208	92.9%
	No	16	7.1%
	Total	**224**	**100%**
Use the internet to collaborate with others/team	Yes	217	96.9%
	No	7	3.1%
	Total	**224**	**100%**

Table 4.6: Distribution of respondents by opinion
on issues related to activities in classrooms using ICT

Activities	Opinion	Frequency	Percentage
Helping to access information	Never	2	8.3%
	A few times	4	16.7%
	Everyday	18	75%
	Total	**24**	**100%**
Using pedagogical skills in ICT in the classroom	Never	1	4.2%
	A few times	**2**	8.3%
	Everyday	21	87.5%
	Total	**24**	**100%**
Process and analyze data	Never	**2**	8.3%
	A few times	5	20.8%
	Everyday	17	7.1%
	Total	**24**	**100%**

4.1.2 Age of Respondents

Table 4.7: Age of respondents

Attributes	Category	Count	Percentage
Educational qualification of respondents	Head of the school	1	0.6%
	Teachers	15	8.9%
	Students	153	90.5%
	Head of the school	1	**0.6%**
	Total	169	100%
Teachers of the school	24-30 years	6	40%
	31-35 years	4	26.7
	36-40 years	3	20%
	41-45 years	2	13.7%
	Total	**15**	**100%**
Students	13-15 years	53	34%
	16-20 years	100	65.40
	Total	**53**	**100%**

4.1.3 Occupation of Respondents

Table 4.8: Occupation of the respondents

Category	Occupation of Respondents
Administration	Administrator
Teaching staff	Teaching
Students	Student

5. Conclusions

From the discussions, the following conclusions are drawn:
- The ICT infrastructure of the school is poorly developed, unevenly distributed and inadequate. However, some ICT resources like computer lab, etc. sets were considered to be fairly available. Though not fully adequate, the school recognizes the need for ICT resources in its academic endeavour and as such, there is already something to build on.
- The biggest challenge still affecting easy access to ICT facilities in the school remains the limited number of ICT resources which does not allow smooth integration of ICT in teaching and learning in the school. But there was at least something in place to build on though still was limited to computers.
- To a large extent, students training in ICT in the school were mainly limited to Microsoft Office suits but not skill acquisition that led to ICT skill transfer to use ICT both for learning and in other settings.
- Moreover, some of the students were not abrasive with ICT.
- Most of the teachers also lack knowledge of ICT.
- Most of the Computers in the computer lab of the school were not functioning; that's when they go to the computer lab the ratio of the student to the computer wasn't 1:1 but rather 2:1.

6. Recommendations/Suggestions

Ponging on the findings of this study, to develop on ICT integration in school and learning curriculum, the following recommendations may be considered.

There is the need for the school to invest more in computers and associated technology as a means of not only solving accessibility problem but improving on the presence of the facilities especially computers in the classroom and computer lab. More equipment such as printers, computers, projectors, etc. should be put in place for more practice and utilization.

There is a need to maintain an internet connection in the school and connect more computers to the internet. The school should then open accessibility of internet and e-mail for the students in the school so that they can easily access it wherever in the school which will help them to do the assignment of teachers and their personal studies whiles in the school. All in all, the school shall take time and even not get there to afford a 1:1 ratio of Student - ICT access to facilities thus students should also endeavour to acquire themselves what can be afforded or visit commercial ICT providers like internet café to access ICT facilities so that they can integrate their classroom studies with the internet and makes compares' of what is being taught in the class for better understanding of their topics.

Training in ICT skills should not be limited to Microsoft Office suits; the schools should go ahead to integrate the other programs and packages as recommended by

UNESCO (2000, a) curriculum for schools. Noticeably a basic level of ICT skill must be achieved but this should be followed by an integrated approach to ICT and learning. The aim should be for embedding ICT firmly into the teaching and learning process so that it is no longer considered a separate and discrete element. Such changes may offer the potential to improve teaching and learning using modern technology.

There should also be teacher training programs. An evaluation of the current teacher-training program is needed to determine its efficiency and effectiveness. Actual school practice should shift from drill and rote memorization of knowledge to interactive learning dominated by learner activity and construction of knowledge.

Disclaimer
The authors wish to declare that they have no conflict of interest.

About the Authors
Ebenezer Boahen is an Integrated Science as well as Information and Communications Technology teacher in the Otumfuo Osei Tutu II College, Tetrem Ashanti, Ghana. He is a holder of Bed. Agricultural Science from the University of Education, Winneba and MSc. Information Technology from Sikkim Manipal University respectively. Ebenezer has taught High School students for several years.

Emmanuel Atuahene obtained MSc Information Technology from the Sikkim Manipal University, India. He also holds other professional qualifications from different disciplines. He is a Tutor at the Offinso College of Education of Ghana in the Department of Mathematics and ICT. He has over 10 years of professional experience as a teacher, Academic Counsellor and researcher. He teaches IT/Computer-related courses and Information Literacy as well.

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