



The Challenges Facing the Integration of ICT in Ghanaian Educational System: A Systematic Review of Literature

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Abstract: This paper uses a configurative synthesis approach to systematic reviews of qualitative secondary data to examine the challenges facing the integration of Information and Communication Technology (ICT) in the Ghanaian educational system. Search of published journal articles and books was done through google.com and Ask.com search engines. This was done around keywords emanating from the research topic. A total of 112 publications stored in Research Gate, Sage, Routledge, ERIC, IISTE, and Springer databases were accessed through the search. Twenty-four (24) publications dated between 2007 and 2020 were selected for an in-depth analysis based on their relevance to the current study and their consistency in addressing its research questions. Literature available suggests that many studies have been conducted on the use of ICT/computers in education in Ghana and have come out with diverse findings. The study found out that the use of ICT/computers in education in Ghana was championed by the government of Ghana and implemented through its 2003 ICT for Accelerated Development (ICT4AD) policy. It was revealed that the use of ICT/computers in education could improve the Ghanaian educational system significantly. Thus, the government of Ghana made a lot of investment towards effectively integrating ICT/computers in education in Ghana. However, it was discovered that the lack of ICT infrastructure, high cost of computers and other technologies, poor internet connectivity, intermittent power fluctuations, and teachers' inadequate knowledge or technical know-how in using ICT tools in teaching were the challenges associated with the integration of ICT/computers in education in Ghana. The study then recommended that the government of Ghana should invest more in the education sector to improve access to ICT/computers education in Ghanaian schools by equipping schools nationwide with the needed ICT infrastructure and computer laboratories. Also, teachers should be given ICT/computer training to equip them with the skills and knowledge to effectively use ICT in school.

Keywords: Information and Communication Technology (ICT); use of computers in education; computer-aided instruction; Human-computer interaction (HCI); Computing/technology policy.

1. INTRODUCTION

In recent times, the world has witnessed a rapid increase in technological innovations with educational institutions and homes spending considerable sums of money on computers, software, internet connections, and other technology for educational purposes (Education, U.S. Department of, 2012). These modern technologies promise to transform the traditional classroom into a digital classroom aimed at giving learners a more enjoyable learning experience (Garavaglia, Garzia, & Petti, 2013). The introduction of computers and their related technologies commonly known as Information and Communication Technologies (ICT) into education ushers learners into the information era and promises to broaden learners' experiences (Mandoga, Matswetu, & Mhishi, 2013).

In most developed countries, the use of computer-related technology in education is a reality. In the USA for instance, in almost every public school, computers with internet access are available for instructional purposes (Education, U.S. Department of, 2012). This is because the introduction of computer-related technologies in education has improved both teachers' and learners' skills and knowledge of ICT, promoted knowledge sharing, and facilitated teaching and learning in schools (Danso & Kesseh, 2016). Computer-related technologies are very powerful technological tools and resources in the hands of the teachers and learners which take learning beyond the boundary of the physical classrooms, support and transform it positively (Peprah, 2016). With the use of technologies,

one does not need to be present in the classroom meaningfully can ensure meaningful quality and efficient teaching and learning in the classroom because ICT arouses and sustain learners' interest in the lesson as well as promote distance education, flexibility, interaction, active learning, and cooperation (Farajollahi & Sanaye'I, 2009 cited in Mahini, Forushan, & Haghani, 2012).

Ghana like many other countries in the world believes that ICT can play a significant role in preparing individuals in school for the job market and ensuring social, political, and economic development in the country (Hennessy et al., 2010 cited in Peparah, 2016). Given this, the Government of Ghana has developed a national ICT policy and has invested a lot of resources to make ICT education accessible to all Ghanaian students across the country (Ministry of Education, 2013). This ICT policy is backed by legal and legislative instruments and aims at integrating ICT into the Ghanaian educational system. With this policy, educational institutions in Ghana are mandated by law to integrate ICT into their curricula and to ensure that all students have access to ICT resources in school (Ministry of Education, 2008). Schools are expected to plan and facilitate the use of computers and related technologies to help teaching and learning and other activities in education in different ways. For instance, using E-learning through offline and online or browser-based applications (Siadati & Taghiyareh, 2006 cited in Mahini, Forushan, & Haghani, 2012).

Successful integration of computers and their related technologies into education would have enormous benefits on the educational systems. However, the processes towards such integration suffer a lot of setbacks in Ghana (Mubashir-Ahmed, 2009). Hence, the systematic reviews carried out in the paper seek to identify the previous studies that dwelled on the use of computers or ICT in education in Ghana. This paper exposes the opportunities and challenges associated with the use of ICT/computers in Ghanaian schools at all levels. Thus, this paper seeks to answer the following specific questions:

- (1) How can ICT influence education in Ghana?
- (2) What are the challenges associated with the integration of ICT in education in Ghana?

2. METHODOLOGY

2.1. Search Strategies

The search was done using well-known search engines such as google.com and Ask.com. Search themes included keywords emanating from the research topic like the Use of ICT/computers in education in Ghana –ICT policy in Ghana– Challenges in using ICT/computer in education in Ghana. The search lead to a good number of online databases including UDS off-campus library access databases, Research Gate, Sage, Routledge, ERIC, IISTE, and Springer where a total of 112 publications on the above themes were accessed.

2.2. Selection Criteria

24 publications were selected for an in-depth analysis of the use of computers or ICT in education in Ghana. These publications are dated between 2007 and 2020. This was done intentionally to include the 2007 educational reforms and Ghana's Strategic Education Plan 2015-2020. All publication selected publications were published in the English language and included publications from the government of Ghana, research reports from national and international organisations, e-books, and peer-reviewed published journal articles. The publications were selected based on their relevance to the current study and their consistency in addressing its research questions.

Table1. *Overview of the search results*

Themes	Total search results	Selected Publications
Use of ICT/computers in education in Ghana	31	9
ICT policy in Ghana	30	4
Challenges in using ICT/computer in education in Ghana	51	11
Total	112	24

2.3. Data Analysis

Configurative synthesis approach to Systematic Reviews of secondary data was used to analyse qualitative data on the use of computers or ICT in education in Ghana. This was done by reading and

re-reading different published studies on the topics of interest to find some quality data and then exploring the relationship of similarities and disparities and some configurations emerging from the data which can be integrated, associated, and translated to better understand and explain the phenomena under investigation, answer the current research questions and produce new synthetic accounts of the phenomena of interest in this new study (Thomas et al. 2017b cited in Newman & Gough, 2020). Thus, appropriate inferences were made with regard to the research questions.

3. RESULTS AND DISCUSSION

3.1. How can ICT Influence Education in Ghana?

Far from being an isolated solution, the introduction of computers in education was well thought of as a dependable solution to the core educational challenges of our time and an enabling tool that could help teachers meet the educational needs of their students (Gilakjani, 2014). The government of Ghana through the Ministry of Education (MoE) and the Ghana Education Service (GES) has clearly outlined its vision and goals for the education sector in the MoE Education Strategic Plan (ESP 2003–2015; ESP 2010–2020; and now 2018–2030). The Ghana ICT for Acceleration Development (ICT4AD) Policy 2003 marked the introduction of computers and their related technologies in the Ghanaian educational system. This is a bold step towards achieving the MoE Education Strategic Plan (Ministry of Education, 2008).

3.1.1. Promoting Computer Literacy

Information and communications technologies (ICT) in schools refer to computer hardware, software, internet connectivity, and smart technologies which facilitate computer-aided instruction in the context of school and household (Bulman & Fairlie, 2016). The introduction of ICT in education aims at making the majority of students computer literate. That is, equipping them with the needed skills to use basic computer applications to get work done (Ajibade, 2006 cited in Tayo, Ajibade, & Ojedokum, 2009). Also linked to basic or functional literacy, computer literacy is key in achieving curriculum objectives in school (Selwyn, 2011 cited in Ruqiyabi, 2012). A computer literate should be able to use a computer and its related technologies in a meaningful manner to achieve professional, social, and civic life goals (Ertmer & Ottenbreit – Leftwich, 2010).

Aikins & Arthur-Nyarko (2019) report that the objectives of the government of Ghana's ICT policy were among others to ensure that pupils have ICT literacy skills before coming out at each level of education and to facilitate training of both teachers and pupils in ICT. In the same vein, Danso & Kesseh (2016) assert that the study of ICTs in schools has generated knowledge and skills to enable learners to use modern technologies in learning. It has also equipped teachers with the knowledge and skills to integrate ICT into the school curriculum.

It follows that the introduction of computers in education in Ghana aims at giving most young people especially those from disadvantaged homes, the golden opportunity to acquire some basic computing skills necessary for academic, social, and professional daily endeavours. With this policy, one would not need to attend computer school after basic or secondary school to become computer literate. Right from school, one is equipped with the knowledge and skills to use a computer comfortably to complete academic tasks in school and home and function properly in this technologically fast-changing world. This is in line with Tayo, Ajibade, & Ojedokum (2009) who found out that teachers and students can use a computer as a tool to get all kinds of scholarly and administrative works done using applications such as word processing applications, Spreadsheet, programming languages, and electronic network systems and to engage learners in e-learning.

3.1.2. Transforming the Traditional Classroom into a More Effective and Interactive Classroom

One characteristic of the traditional classroom is the workload in terms of thought or intellectual processes in getting the right information and transmitting it. But today, with computers in education learning activities and knowledge are achieved automatically within a short time and it allows students to focus on other aspects of learning, improve their cognition, and expand the existing knowledge (Suzic, 2009 cited in Iskrenovic-Momcilovic, 2018). Computer use in education happens both in school with computer-assisted learning in the classroom and at home with students using a computer and other digital technologies to complete assignments (Bulman & Fairlie, 2016). The use

of computers in education motivates, stimulates, and sustains learners' interest in the learning activities and it provides instant feedback which improves communication and information sharing (Fazeli, 2007 cited in Mahini, Forushan, & Haghani, 2012). Computer-aided instruction has the potential to improve and augment the amount of teaching and learning that goes on in the classroom (Barrow, Markman, & Rouse, 2009).

It appears clearly that, the government of Ghana has the vision to transform education in Ghana by introducing ICT in schools. Thus, with the integration of ICT in education, the traditional, one-way, and boring teaching and learning situations in most of our schools are expected to give way to a modern, computer-aided, and interactive classroom where students are directly and actively involved with learning through a variety of computer applications, access and share information with ease. As observed by Iskrenovic-Momcilovic (2018), traditional teaching is teacher-centered in nature where the teacher does most of the talking. With the use of computers in education, the shortcomings of the traditional classroom are overcome as learning becomes more interactive and students can express their interests and abilities and teachers can adapt learning to learners' daily experiences or prior knowledge.

3.1.3. Promoting Equality Education through the Integration of ICT in Education

The objectives of the government Ghana's ICT policy were among others to promote ICT as a learning tool in the school curriculum at all levels by providing means of standardising ICT resources for all schools and determining the type and level of ICT needed by schools for teaching and administrative purposes as well as providing guidelines for integrating ICT tools at all levels of education (Government of Ghana, 2005 cited in Aikins & Arthur-Nyarko, 2019). The use of computers and the Internet promises to take classroom instruction to thousands of homes in densely populated communities where fewer schools are available through online access via television or computer-assisted learning (Amenyedzi, Lartey, & Dzomeku, 2011). The integration of ICT in Ghana's educational systems is a major step towards promoting innovative teaching and learning in our schools. This is because, the effective use of ICT in education promotes greater collaboration, communication, and information sharing in the learning environment resulting in better academic achievement in schools (Victoria, 2011 cited in Mandoga, Matswetu, & Mhishi, 2013).

Also, a computer is suitable for all categories of learners including the slow ones. It allows students to have control over their own learning and study individually at their own pace. It provides easy record-keeping on students' progress, generates a huge amount of information for both teacher and learners' consumption. It is reliable, motivating, significantly time-saving compared to traditional classroom instruction, and gives appropriate and quick feedback (Tayo, Ajibade, & Ojedokum, 2009).

From the above literature, one can argue that the ultimate goal behind the Ghana government's integration of ICT in education is to improve the quality of education in Ghana through practical and technology-driven teaching and learning. Thus, with the use of computers, projectors, smart boards, digital tablets, the quality of teaching and learning is expected to considerably increase as learners take control of their own learning. Technology allows learners to discover learning by themselves, explore the world beyond the four walls of the classroom and the physical boundaries of their schools, cities, and country and discover new things. Students' knowledge and understanding of learning concepts are broadened resulting in lifelong learning. In support of this argument, Huang, Spector, & Yang (2019) assert that the quality of modern education is made possible by technology-aided instruction which provides a wide variety of learning opportunities and capabilities that make students' learning experience more stimulating, engaging, efficient, and effective as compared to the traditional classroom-based instruction.

3.1.4. Making Teaching and Learning Easier

The use of computers in education has influenced the curriculum and changed the way teaching and learning take place today. It makes it easy for teachers to plan their learning activities, organise relevant resources, make learning concepts practical and easy-to-remember for students, help students to experience meaningful learning and create knowledge by themselves (Means, 2010). Today's students use computer ready-made software to get a lot of work done with incredible ease starting with the simplest of activities to the most complex ones. When classrooms are equipped with

computers and projectors, it allows teachers and students to experience teaching and learning in a better fashion and this broadens their knowledge and horizons and improves the quality of knowledge (Iskrenovic-Momcilovic, 2018). That is, computers in education enable the teacher gets to deliver his lesson more easily, comfortably, and timely and in return, students get a better learning experience, and get more accurate and updated information. They also have the opportunity to find out more online, verify the information received, discover more, and can share with others anywhere anytime. Again, they have the opportunity to practice at home, complete assignments, and submit them online or get them printed instead of handwriting. In the same vein, Gorder (2008) argues that the introduction of computers in classroom instruction through the use of computer-based learning applications and the Internet has brought about collaboration, participatory and meaningful learning and makes it easy for students to get needed information to produce all kinds of reports and class assignments.

3.1.5. Improved Quality of Education

The effective use of ICT in education can deepen learning and contribute to the acquisition of higher cognitive skills which can lead to lifelong learning (Tchombe et al., 2008 cited in Amenyedzi, Lartey, & Dzomeku, 2011). The introduction of computers in education has changed considerably the way teachers and students interact in today's classroom. It has shifted the focus of teaching and learning from the teacher to the learner which is a positive change and resulted in better academic achievement than the traditional approach (Gorder, 2008).

This means that the use of computers and other digital technologies in schools has given both teachers and students an added advantage over their counterparts in schools deprived of these facilities. That is because, learning becomes captivating, motivating, interesting, participatory, and knowledge-driven when it is aided by the use of the internet and other technologies such as computers, digital tablets, smart boards, and projectors. This is also confirmed by Huang, Spector, & Yang (2019) who postulated that the quality of modern education is made possible by technology-aided instruction which provides a wide variety of learning opportunities and capabilities that make students' learning experience more stimulating, engaging, efficient, and effective as compared to the traditional classroom-based instruction.

3.3. Challenges Associated with the Integration of ICT into Education in Ghana

3.3.1. Unavailability of Computer and its Related Technologies

Bransford, Brown & Cocking (2000) cited in Gilakjani (2014) postulate that one may never appreciate the positive impact of computer technology in education unless the technology is put into good use by skillful and knowledgeable teachers in the classroom. For teaching and learning to be effective, the use of computers in education must be associated with the availability and use of computers and other related technologies such as Open Educational Resources (OER), reliable internet access shared through a local area network or campus-based network, computer-assisted and television-assisted instructional programmes, and constant power supply (Natia & Al-hassan, 2015). The authors in this study explain that the integration of computers in education can only be achieved if computers with internet access (wireless or cable connection) are made available in schools for both teachers and learners' use. Also, other digital devices such as projectors, small boards, printers, and photocopiers should be available to produce open-educational-resources such as digital text, multimedia, textbooks, workbooks, and tutorials which are designed to be free of charge or have minimal barriers to access, and licensed to be readily reused and remixed by teachers and students. In other words, without this equipment, computer-aided instruction will never be possible. This confirms the findings of Aikins & Arthur-Nyarko (2019) who report that Ghana and many other African countries are lagging in terms of the use of ICT in education with a ratio of one computer to 150 pupils against a ratio of 1:15 pupils in the developed countries. This is mainly due to the lack of access to ICT facilities, and a gap in digital knowledge. This implies that the successful integration of ICT in education depends largely on the availability of ICT tools.

Again, the implementation of Ghana's ICT policy in teaching and learning has so far enjoyed some sort of popularity, especially in the big cities. However, we have issues of logistics and infrastructural deficit, improving accessibility, and bridging the gap between theory and practice that need to be

addressed (Peprah, 2016). In addition to the gap in knowledge and skills in ICT, there is the unavailability of computers and other modern technologies especially in rural schools accompanied by poor internet connectivity, and unreliable power supply (Amenyedzi, Lartey, & Dzomeku, 2011). These challenges are negatively affecting the use of ICT in teaching and learning in Ghanaian schools (Danso & Kesseh, 2016). It appears that many schools in Ghana especially in the rural areas have a serious deficit in the supply of ICT equipment. Without this equipment, however, they cannot be part of the government's ICT-assisted instruction initiative. Moreover, some schools do not have electricity and for that matter, even acquiring computers is meaningless. . Other schools have computers but due to the constant power cuts, they frequently break down. The few schools that are lucky to have computer laboratories either lack Internet access or are bedeviled with erratic power supply. Even though the government of Ghana is making efforts to fully integrate ICT into teaching and learning at all levels of education, more needs to be done. BECTA (2004) cited in Aikins & Arthur-Nyarko (2019) explains that the lack or inadequate access to ICT resources by both teachers and students are among the numerous issues challenging the schools in ensuring effective implementation of government' policy of ICT use in education in Ghana

3.3.2. Inadequate Technical Know-how on the Part of Teachers

In addition to the inadequate computers and ICT infrastructure in most schools in Ghana is teachers' lack of knowledge and skills in ICT which is a serious challenge in integrating ICT in the classroom (Amenyedzi, Lartey, & Dzomeku, 2011). Despite having access to ICT tools such as computers, most teachers do not have the technical know-how to use them to effectively deliver a lesson in class due to the lack of training in computing skills (Natia & Al-hassan, 2015). Thus, a high percentage of teachers in Ghana are not computer literate; meaning that, they do not have the skills and knowledge in the use of ICT. It is therefore not surprising that many of them have never used a computer or projector for instructional purposes (Amenyedzi, Lartey, & Dzomeku, 2011). This implies that some schools may have computers alright but lack teachers with the requisite knowledge and skills in ICT to put those computers into use. Some teachers just know how to type on the computer and may not be able to use that knowledge to enhance teaching and learning in their classrooms. It is also surprising to note that some teachers are "computer phobia"; that is, they are afraid to use computers. They think it is too complex for them to use it to accomplish any meaningful task. Therefore, they are reluctant to learn how to use it.

Furthermore, Peprah (2016) indicates that teachers are central to the integration of ICT in education and for which reason, they must be properly trained to acquire the technical know-how in ICT. This can be achieved through periodic workshops, seminars, and in-service training to update teachers' knowledge and skills in ICT to make them more conversant with the technology.

Integrating computers in teaching and learning largely depends on the availability of the computers in the school, and teachers' ability to effectively use the technology to make a difference in classroom instruction. This implies that teachers possess the technological know-how to use ICT in a classroom (Tchombe et al., 2008 cited Amenyedzi, Lartey, & Dzomeku, 2011). However, despite having access to ICT tools such as computers, teachers do not have the technical know-how to use them to effectively deliver a lesson in class due to the lack of training in computing skills (Natia & Al-hassan, 2015). Ghanaian teachers' lack of competency in ICT can be blamed on the lack of pedagogical and ICTs focus training at colleges and lack of time for skills training after college (BECTA, 2004; Yusuf, 2005 cited in Aikins & Arthur-Nyarko, 2019). Meanwhile, teachers are central in the integration of ICT in education. Therefore, they must be properly trained to acquire the needed technical know-how in ICT. This can be achieved through periodic workshops, seminars, and in-service training to update teachers' knowledge and skills in ICT (Peprah, 2016). This suggests that the integration of ICT in education in Ghana can only be possible if teachers who are the lead actors in this integration are given the right training to equip them with the updated knowledge and skills in the use of ICT so that they can facilitate teaching and learning in their various classrooms. Teachers are expected to be conversant with the use of computers to be able to do a lot of research online or offline, update their knowledge, acquire new and more content knowledge in their subject areas, and in return give students accurate, reliable, and updated information and help them to improve upon their weaknesses and gaps in knowledge and skills in the various subject areas. This falls in line with Ferguson (1997)

cited in Gilakjani (2014) who posits that the quality of education depends on the quality of teachers who must possess the knowledge and skills to use computer technology to enhance teaching and learning in the classroom. Teachers are therefore very important in achieving computer integration in education and without skillful teachers, computer technology is meaningless in education.

3.3.3. Intellectual Laziness and Plagiarism

Dawson, Cavanaugh, & Ritzhaupt (2008) assert that more and more researchers today are interested in finding out the influences of computer technology on education by trying to look beyond its perceived worth to ascertain the real nature of the change that it has occasion in education which may not always be pleasant. Contrary to many who laud the great opportunities that come with the introduction of computers in education, some scholars deplore the harm that the introduction of computers has done to education today pointing to the fact that, because of the availability of technology, students have lost their thinking routine and problem-solving skills as they rely heavily on already done work available on computers and online sources that they copy blindly instead of thinking to create something original (Iskrenovic-Momcilovic, 2018). Technology, as we know, has not only brought comfort to our lives, it has also come with its own challenges; whether we realise the good or bad that it does to us remains another question. Indeed, as Iskrenovic-Momcilovic (2018) observed, students and teachers today are becoming lazy in thinking and gradually losing their memories and thinking abilities to technology. This is because, technology has made things easily such that with technology such as computers, smartphones, and calculators, we can get answers to the most complex mathematical problem or calculation within some seconds and so, we do not worry our brains again to think, even to solve the simplest and commonest calculation or problem. We underutilise our brains and memories because technology offers us a larger storage capacity of a huge amount of information for free and we can easily carry it around in our palm or pocket. Today, most students and even teachers cannot produce an original piece of document which is the fruit of their thought instead; they misappropriate other people's work; that is copy it and make it seem like they produce it. This is academic stealing (plagiarism) and it is the order of the day in our basic, secondary, and tertiary institutions. In this technological era, it is with deep regret that most teachers copy information online without analysing it to verify its authenticity. They end up passing the information to students to mislead them.

3.3.4. High Cost of ICTs/Computers

Aside from the educational issues regarding the use of computers in education, the administrative cost is also a matter of concern due to the rise in the cost of computers over the years. This constitutes a major challenge to most schools adopting computer-aided instruction today (Tayo, Ajibade, & Ojedokun, 2009). Analytically, the lack of technical know-how in using computers mainly on the part of teachers can be partly blamed on the high cost of internet access and computers and also accounts for ICT infrastructural deficit and the inadequate or lack of learning and teaching materials in the schools (Danso & Kesseh, 2016). It is costly to effectively integrate computers into learning and learning today because of the high cost of personal computers, internet connections, projectors, digital tablets, and smart boards. Especially with the onset of Covid-19, the prices of personal computers and other devices such as projectors in Ghana have almost doubled. Given the current economic conditions of the citizenry coupled with the Covid-19 pandemic, many schools and individuals cannot afford these technologies. These technologies are a necessity in this information era but due to financial constraints, they have become a luxury and many schools cannot afford them.

4. CONCLUSION

In recent times, the world has witnessed a rapid increase in technological innovations with the proliferation of computers, smart technologies, and internet access in homes and schools. Today, all kinds of educational institutions including schools, universities, research institutes, polytechnics, are investing huge sums of money in procuring computers and smart technologies for their daily running and instructional purposes.

Published research findings indicate that the introduction of computers in education in Ghana through the government ICT policy has brought a lot of improvement in the Ghanaian educational system. Since its adoption, the policy has made some headway. However, there are a lot of setbacks in terms

of the gap in knowledge and skills in ICT, inadequate infrastructure, unavailability of computers, projectors, and other digital technologies due to high cost, poor internet connection, and unreliable power supply.

5. RECOMMENDATION

Ministry of Education through the National Teaching Council must introduce ICT education into the teaching education curriculum in order to equip all newly trained teachers in Ghana with the technological know-how to make computer-aided instruction a reality in all Ghanaian schools.

Also, the Ministry of Education through the Ghana Education Service should organise ICT training or workshops for teachers who are already in the field. This will go a long way to address the knowledge gap in ICT and equip those teachers with the skills and knowledge to effectively use ICT in school.

Again, the government of Ghana should equip all public schools with the needed ICT infrastructure. The government may consider policies like “one school, one computer laboratory” “one teacher one laptop” and must commit to its full implementation nationwide.

Moreover, the government of Ghana through the Ministry of Education should employ well-trained ICT/computer instructors to be posted in various schools. This will help to promote effective ICT/computer education for pupils and students in Ghanaian schools.

Furthermore, the government of Ghana needs to pay particular attention to deprived schools in poor urban areas or slums and schools in rural areas. Some interventional policies should be put in place to address the infrastructural deficit in those schools in order to create equal opportunities for all Ghanaian children nationwide.

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