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Effect of Information and Communications Technology (ICT) on the Academic Achievement and Moral Behaviour of Students at Oti Boateng Senior High School, Ghana.

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ABSTRACT

To many, the emergence of Information and Communication Technology (ICT) has done more than harm than good to the youth particularly adolescent students. Hence, this study sought to investigate the effect of Information and Communication Technology (ICT) on the academic achievement of students at Oti Boateng Senior High School, Ghana. It specifically examined how ICT improves academic achievement of students, its effects on their moral behavior, and how it can be regulated among students. It also tested relationship between the students' use of computer and their academic performance at 5% significance level.

The study adopted the Mixed Method Research type with a population consisting of 70 teachers, 1010 students, their parents and internet café operators in the Metropolis. A sample size of 300 was determined for the study comprising 200 students, 50 teachers and 45 parents randomly selected, while 5 internet café operators in the Metropolis were purposively chosen. The study recorded a 91.3% retrieval rate. Questionnaires and interview schedules were designed to solicit information from the respondents. The SPSS was used for the analysis of the data gathered.

The research indicated that although the students often abuse ICT / internet by spending excessive hours on social media (i.e. Facebook, Twitter and Skype), downloading music, watching movies (pornographic materials), and playing games, they disagreed with the assertion that ICT/ internet has destroyed their moral fiber. The study confirms that ICT / internet has a positive influence on the academic performance of students. It is recommended that students should be allowed and encouraged to use ICT / internet strictly for only academic purpose.

Keywords*: Information and Communication Technology, Information and Communication Technology for Accelerated Development (ICT4AD), World Wide Web (WWW), Senior Secondary School Certificate Examination (SSSCE).*

Introduction

The emergence of the information age has brought to light the significance role that information, knowledge and technology can play in expediting socio – economic development. The effective use of information and communication technology and knowledge is becoming the most critical factor for rapid economic growth and wealth creation, and for improving socio–economic well–being of societies. There is no doubt that information; knowledge and technology are increasingly becoming the key drivers for socio – economic development world – wide. A nation's capability to accelerate its socio – economic development process and gain global competitiveness and improve the wellbeing of its people depend very much on the extent to which it can develop, use, exploit and sell information, knowledge and technology in one form or another (Tetty,2006).

Information and Communications Technology (ICTs), the Internet and the World Wide Web have resulted in a community of people generating, disseminating and sharing information. Improvements in computer's communication abilities and the Internet are changing the course of national strategic planning for development, delivering education, conducting global trade and business, creating and disseminating information. National strategic planners are focusing on ICT's advancement as a cornerstone of rapid economic development.

The World Bank (1998) acknowledges that ICT's greatly facilitate the acquisition and absorption of knowledge and offering countries unprecedented opportunities to enhance educational systems, improve

policy formulation and execution and widen the range of opportunities for business and the poor. It further points out that one of the greatest hardships endured by the poor and by many others who live in the poorest countries is their sense of isolation. These new communities' technologies promise to reduce the sense of isolation of poor countries and to open access to knowledge in ways unimaginable not long ago.

In Ghana today, technology is increasing exponentially in business, industry, homes and schools. These changes are transforming the Ghanaian society into a technology bases and information – rich economy in which new skills are required to be productive participants in the current technology and knowledge-based economy. In response to this new economic trend, the government of Ghana has formulated an Information and Communication Technology for Accelerated Development (ICT4AD) policy. The policy acknowledges the following:

1. Recognition that the country is experiencing problems and challenges in its socio – economic development.
2. Recognition that the impact of globalization and an emerging information age has given rise to a new global economic order, dominated by knowledge – based and information – rich economy facilitated by ICT.
3. That the economy's challenges in the present socio – economic development (agriculture, industry and private sector) are likely to be compounded by the demands of the new global economic order.
4. That knowledge, information and the new economic order provide the fundamental bases for poverty reduction, wealth acquisition and national prosperity.
5. That the nation's capability and ability to accelerate its socio – economic development, gain competitive advantage and improve the welfare of its people depends very much on the extent to which it can develop, use and sell information, knowledge and technology.
6. That ICT can be a key factor for achieving progress in economic and social development – and can be a new source for the creation of quality jobs, rapid economic development as well as a source for facilitating global competitive.

The plan maintains a mission to transform Ghana into information – rich, knowledge – based and technology – driven economy by transforming the educational system to provide the requisite training and an environment capable of producing the right type of skills and human resource. Expectations of the plan, among others, include the development of national human resource capacity to meet the changing demands of the economy. The human resource capacity building needed for a global economy dominated by an information industry computer literacy, visual literacy and information literacy skills.

The ICT4AD Policy is a representation of the Vision for Ghana in the information age. It is based on the Policy Framework Document: "An Integrated ICT led Socio – economic Development Policy and Plan Development Framework for Ghana" released in March 2003. The development of this policy framework document was based on a nation – wide consultative process involving all key stakeholders in the public sector, private sector and civil society.

The following are the specific objectives for ICT in education:

1. To ensure that students have ICT literacy skills before coming out of each level of education.
2. To provide guidelines for integration ICT tools in all levels of education.
3. To provide means of standardizing ICT resources for all schools.
4. To facilitate training of teachers and students in ICT.
5. To determine the type and level of ICT needed by schools for teaching and administration purposes.

6. To promote ICT as a learning tool in the school curriculum at all levels – through the help of various agencies including Global e – school and Communities Initiatives (GESCI), a final ICT in education policy document which was finalized and released in 2007 (Republic of Ghana, 2003).

Consequently, the 2007 Education Reform places greater emphasis on science and Technology, and Information Technology (ICT). The primary philosophy behind this emphasis is that ICT should be given prominence in education. In the past twenty years, the use of ICT has fundamentally changed the practices and procedures of nearly all forms of endeavours including education. Quality is education is crucial in the development of every country. Nketsia (2005) asserts that every society, be it simple or complex is changed with the responsibility of educating its people, young and old to acquire skills, knowledge and aspects of its culture which will enable them to participate and contribute meaningfully to the socio – political and moral development of the society in which they live. Education is a socially oriented activity and quality education has traditionally been associated with strong having high degrees of personal contact with learners. With the world moving rapidly into digital media and information, the role of ICT in education is becoming more and more important and this importance will continue to grow and develop in the 21st century.

In one of the concrete steps to have this vision realized, Ghana introduced ICT in her educational institutions, from Basic Level through Tertiary as a compulsory subject for all students.

Furthermore, to ensure that the younger generation acquired adequate skill in ICT, the then government introduced the "Computer per Child", championed by then minister of finance, Kwadwo Baah – Wiredu.

With the emergence of ICT and the Internet, there has been a new development and approach to learning by bringing information close to students even beyond their doorstep, and has also brought distant friends closer and pulled the world closer. There is no doubt that Information Technology (IT) is almost everywhere and has dramatically altered the way we live. As a result, the role of IT in our daily living is growing rapidly to the degree that many of us, especially youngsters, have become dependent on, if not addicted to, our mobile phones and personal computers (PCs), which now constitute the principal tools for our interaction, research, and learning.

The tools of communication technology have transformed socialization and education of adolescents. They are said to be the first generation to be growing up with the Internet, cell phones, iPods, computers, electronic hand held and satellite television. Building friendships and social networks are common experiences online. Most teenagers prefer the Internet as the main source of learning. Because students as a result know things that are unknown to teachers and their traditional relationship can shift to provide greater benefit for both parties if they pursue reciprocal learning.

Many studies have shown that among adolescents, the Internet has become indispensable tool for instrumental purpose such as school work and information gathering, as well as for communication purposes. The communication application of the Internet, such as e – mail, instant messaging, blogs, and chat rooms have entrenched themselves in the lives of adolescents (Boneva, Quinn, Kraut, Kiesler, & Shklovski, 2006; Craig, 2003; Gross, 2004; Schiano, Chen, Ginsberg, Gretarsdottir; Huddleston, & Isaacs, 2002) and the Internet has become an important asocial context in the lives of adolescents today.

In fact, a national survey of adolescents (10 – 17 of age) revealed that in the year before they were surveyed, 25% of Internet users had formed casual online friendships and 14% had formed close friendships or even romantic relationships (Wolak, Mitchell, & Finkelhor, 2002).

In her article, Wireko (2007) writes that the magic of technology is exhilarating. One wonders how some years back people were able to manage without the use of Internet. Now assignments are completed in no

time. School home works are made easy. Minutes by minutes' news updates and events unfold and wherever they happen, they are just a matter of button click away. The invincible genius has obviously become students' companion. However, the Internet can be described as a good yet a bad servant because of negative and indecent information and pictures one can gather from the many sites so created. Questions abound as to impact of online socio – communicative activities on adolescents well – being, particularly on their academic and moral behavior.

Basic Concepts of ICT

Information and communication technology (ICT) is a force that has changed many aspects of our living conditions. A thorough comparison in fields such as medicine, tourism, travel, business, law, banking, engineering and architecture indicates that the impact of ICT over the past two or three decades has been enormous. The way these fields operate today is vastly different from the ways they operated in the past. But when one looks at education, there seems to have been an uncanny lack of influence and far less change than other fields have experienced. A number of people have attempted to explore this lack of activity and influence (Soloway and Prior; 1996; Collis, 2002; Oliver, 2010).

In recent years there has been an upsurge of interest in how computers and the Internet can best be harnessed to improve the efficiency and effectiveness of education at all levels and in formal and non – formal settings. But ICTs are more than just these technologies; older technologies such as the telephone, radio and television, although now given less attention, have a longer and richer history as instructional tools. For instance, radio and television have for over forty years been used for open and distance learning, although print remains the cheapest, most accessible and therefore most dominant delivery mechanism in both developed and developing countries, if these are used at all, due to limited infrastructure and the attended high costs of access (Oliver, 2010). There have been a number of factors impeding the wholesales uptake of ICT in education across all sectors. These included such factors as a lack of funding to support the purchase of the technology, a lack of training among established teaching practitioners, a lack of motivation and need among teachers adopt ICT as teaching tools (Star, 2001).

The importance of ICT is quite evidence from the educational perspective. Though the chalkboard textbooks, radio / television and film have been used for educational purpose over the years, none has quite impacted on the educational process like computer. While television and film impact only on the audio-visual facilities of users, the computer is capable of activating the senses of sight, hearing and touch of the users. ICT has the capacity to provide higher interactive potential for users to develop their individual, intellectual and creative ability. As we move into the 21st century, these factors and many others are bringing strong forces to bear on the adoption of ICT's in education. Contemporary trends suggest we will soon see large scale changes in the way education is planned and delivered as a consequence of the opportunities and affordances of ICT. This research seeks to explore the likely changes we will see in education as ICT acts as a powerful agent in changing many of the educational practices for which we have become accustomed.

According to Reeves & Jonassen (1996), the use of ICT in educational settings, by itself acts as a catalyst for change in this domain. ICTs by their very nature are tools that encourage and support independent learning. Students using ICTs for learning purposes become immersed in the process of learning and as more and more students use computers as information sources and cognitive tools the influence of the technology on supporting how students learn will continue to increase.

Consequently, the emergence of ICT as learning technologies has coincided with a growing awareness and recognition of alternative theories for learning. The theories of learning that hold the greatest sway today are those based on constructivist principles (Duffy & Cunningham, 1996). These principles posit that learning is achieved by the active construction of knowledge supported by various perspectives within meaningful contexts. In constructivist theories, social interactions are seen to play a critical role in the processes of learning and cognition (Vygotsky, 1996).

The Impact of ICT on Learning

Conventional teaching has emphasized content. For many years, courses have been written around textbooks. Teachers have taught through lectures and presentations interspersed with tutorial and learning activities designed to consolidate and rehearse the content. Contemporary settings are now favoring curricular that promote competency and performance. Curricular are starting to emphasize capabilities and to be concerned more with how the information will be used than with what information is.

Another way in which emerging ICTs are influencing the content of education curricular stems from the ways in which ICTs are dominating so much of contemporary life and work. Already there has emerged a need for education institutions to ensure that students are able to display appropriate levels of information literacy, "the capacity to identify an issue and then locate and evaluate relevant information in order to engage with it or solve problem arising from it" (McCausland, Wache & Berk, 1999, p. 2). The drive to promote such development stems from general moves among institutions to ensure students demonstrate not only skills and knowledge in their subject domains but also general attributes and generic skills.

Traditionally, generic skills have involved such capabilities as ability to reason formally, to solve problems to communicate and collaboration and teamwork. The growing use of ICTs as tools of everyday life have seen the pool of generic skills expanded in recent years to include information and it is highly probable that future developments and technology application will see this set of growing even more. On the other spectrum, there are many theories and studies describing the profound implications of ICT for education: education can be transformed using ICT which brings new capabilities and capacities to learning. For example, ICT has the potential enabling teachers and students to construct rich multi – sensory, interactive environments with almost unlimited teaching and learning potential.

In addition, in a report UNESCO (2005) study '*Information and Communication Technologies in schools: a handbook for teachers or how ICT Can Create New, Open Learning Environments*; is one of a number of publications describing how ICT potentially offers numerous advantages and provides opportunities for:

- Facilitating learning for children who have different learning styles and abilities, including slow learners, the socially disadvantaged, the mentally and physically handicapped, the talented, and those living in remote rural areas;

- Making learning more effective involving more senses in a multimedia context and more connections in a hypermedia context; and

- Providing a broader international context for approaching problems as well as being more sensitive response to local needs.

- At the same time, ICT is said to enable teachers to save time and to increase productivity in such activities as:

- Preparing and updating daily lessons;
- Plans, making hard copy visualizations and handouts for classes, as well as individualized educational plans for slower students and students with disabilities or with special problems;
- Presenting visual / oral content materials, tasks, and questions to the audience;
- Maintaining grade books
- Compiling a data bank of exam questions;
- Outline inspection and correction of students' work on their computers; and
- Keeping records, chronicles, and archives of all the above – mentioned events and proceedings with fast retrieved and easy access to any entry.

In addition, as ICT becomes more pervasive, computer – based equipment is integrated into every aspect of a school's operation, having thus an impact on the whole school operation and development. Newhouse (2002) affirms the above statement and adds that the use of ICT alone cannot have an influence on students' academic achievement; the learning environment, teachers' experience and the schools' ICT capacity play a major role in students' learning and academic achievement. This is summarized in the table below:

Table 4.0: Dimensions that influence students' learning and academic achievements

Students	Through the use of ICT students develop an appropriate level of capability, become more engaged with their own learning, and achieve learning outcomes across the curriculum at a higher level.
Learning Environment Attributes	ICT is used to support pedagogical practices that provide learning environments that are more Learner – centered, Knowledge – centered, Assessment – centered, and Community – centered.
Teacher Professional ICT Attributes	The teacher exploits the characteristics of ICT to support the learning of students by, effectively integrating their use wherever appropriate, into constructivist learning environments, and contributing to relevant learning communities.
School ICT Capacity	The school provides ICT capacity to ensure that all teachers and students have immediate access to all software that is required to support the curriculum and adequate support to implement its use.

School Environment	The school environment is supportive of teachers and students to learn, built on a shared, community – based vision that prepares students to learn, work and live successfully in knowledge – based, global society.

Newhouse (2002)

Empirical Review

The direct link between ICT use and students' performance was in the heart of an extensive literature during the last two decades. Several studies have tried to explain the role and the added value of those technologies on classrooms and on student's performances. The first body of the literature explored the impact of computers uses. Since the Internet revolution, there's a shift in the literature that focuses more on the impact of online activities: use of Internet, use of educative online platforms, digital devices, use of blogs and wikis.

The literature shows mixed results. On one hand, several researchers demonstrate that there's no evidence of a key role for ICT in High Education (Angrist and Lavy (2002); Banjee et al. (2004); Goolsbee and Guryan (2002); Kirkpatrick and Cuban (1998). On the other hand, some studies show a real impact of ICT on students' achievement (Kulik, 1999; Sosin et al. 2004; Fushs and Wossman, 2004; Talley, 2005; Coates et al. 2004).

Does Computer / Internet Use Affect Academic Achievement?

Currently, there is much debate in the literature as to the positive or negative effects internet use has on adolescents' academic performance (Jackson et al. 2008). To date, very few studies have looked at the effect internet use has on achievement specifically for children with behavior problems. Therefore, my review of the literature is somewhat limited to research that focuses on all adolescent computer users, and not those who necessarily have behavior problems.

In general, researchers argue that depending on how computers and the internet are utilized by adolescents, academic performance may be enhanced or threatened (Niemiec and Walberg 1992; Calvert et al. 2002; Wegerif 2004; Jackson et al. 2008).

Jackson et al. (2008) contend that, the internet provides children with opportunities for self – expression and interpersonal communication that might not be accessible in their face – to – face interactions. The internet also helps develop technological skills necessary for success in the 21st – century workplace.

Numerous studies have shown that owing a home computer and the use of information technology is positively related to academic achievement (Rocheleus B. 1995; Blanton et al. 1997; Subrahmanyam et al. 2001; Bussiere and Gluszynski 2004; Jackson 2007).

In fact, research shows that having a home computer is associated with higher test scores in reading, even after controlling for family income and other factors related to reading test scores (see e.g., Jackson et al. 2007). Jackson et al.'s (2008) study on race, gender, and information technology use found that "for both white and black twelve – year – old boys and girls,' frequency of computer use was positively associated with grades received and overall GPA. Conversely, these findings also suggested that frequency of playing video games was negatively related to overall achievement" (Jackson et al. 2008:441).

ICT Plays a Role in Students' Achievement

The importance of ICT is quite evidence from the educational perspective. Though the chalkboard textbooks, radio / television and film have been used for educational purpose over the years, none has quite impacted on the educational process like computer. While television and film impact only on the audio-visual facilities of users, the computer is capable of activating the senses of sight, hearing and touch of the users.
ICT has the capacity to provide higher interactive potential for users to develop their individual, intellectual and creative ability. Various researchers have carried out research work to show the impact of ICT in learning.

Kulik (1994) meta – analysis revealed that on average, students who used ICT – based instruction scored higher than students without computers. The students also learn more in less time and they like their classes more when ICT – based instruction was included. Sosin et al. (2004) construct a database of 67 sections of introductory economics, enrolling 3,986 students, taught by 30 instructors across 15 institutions in the United States of America during the spring and fall semesters of 2002. They found significant but small positive impact on students' performance due to ICT use. But they show that some ICT seem to be positively correlated to the performance while the others are not.

Fuchs and Woessman (2004) used international data from the Programme for International Student Assessment (PISA). They show that while the bivariate correlation between the availability of ICTs and students' performance is strongly and significantly positive, the correlation becomes small and insignificant when other student environment characteristics are taken into consideration. The analysis of the effects methodological and technological innovations on students' attitude towards the learning process and on students' performance seems to be evolving in higher education have significant positive effects both on students' attitude and achievement. Attwel and Battle (1999) examined the relationship between having a home computer and school performance, for a sample of approximately 64,300 students in the United States. Their findings suggest that students, who have access to a computer at home, for educational purposes, demonstrate improved scores in reading and math. Coates et al. (2004), show that students in on – campus courses used to score better than their online counterparts, but this difference is not significant here.
Li et al. (2003) pointed out:

"*First, web – based instruction presents information in a non – linear style,*
Allowing students to explore new information via browsing and cross – referencing activities. Second, web – based teaching supports active learning processes emphasized by constructivist theory. Third, web – based educative is enhanced understanding through improved visualization and
Finally, the convenience, it could be used any time, at any place".

The researches however found out that ICT offers particular opportunities to enhance learning by making more time available for predicting and searching for explanations. Also, ICT allows pupils to work at their own speed. The results suggested that ICT can enhance the quality of learning where its use is tailored to lesson objectives and the needs of pupils.

Internet experience and internet knowledge
Internet knowledge consists of two aspects that are essential to the most common uses of the internet: What people know about the internet and what people can do using the internet (Page & Uncles, 2004). These two dimensions of knowledge are declarative and procedural knowledge (Best 1989):

Page and Uncles (2004). While declarative knowledge refers to people's familiarity with specific internet terms such as e – mail and browser, procedural knowledge is people's understanding of how to perform relevant internet tasks. Although internet knowledge is a conceptually unique construct, the boundaries between this concept and internet experience are fairly blurred in past research. Experience has been widely demonstrated in many technology acceptance model – related studies to be a moderating variable (Venkatesh 2000; Venkatesh and Davis 2000; Venkatesh et al. 2003). The concept of experience often refers to the same implied meaning as knowledge; more familiar with and more knowledgeable about the technology of interest (Sun and Zhang, 2006). Measurement of experience also overlaps with those of knowledge in previous studies (Bozionelos 2004; Bradlow et al. 2002).

Nevertheless, internet knowledge is different from internet experience. The former is what one knows, whereas the latter is what one has done. People who have the same amount such as demographics and personalities may influence people's internet knowledge too. The link between the two is straight forward: the more internet experience one has, the more internet knowledge one will generally acquire. But internet experience is just one of the factors knowledge one will generally acquire. But internet knowledge, in contrast, is what people know about how specific technology as well as the various kinds of things people can do using that technology. Internet knowledge is the state of knowing about internet (Ackerman 1987; Anderson 1982).

Internet knowledge and internet experience are found to be constructs within the scope of social learning theory. Social learning theory suggest that learning occurs when individuals integrate their existing knowledge of behavioral consequences acquired through modeling and apply this knowledge to future unknown scenarios (Bandura, 1977). Knowledge is developed as individuals observe others and experience their behavior. Such knowledge will affect their beliefs in their capabilities to organize and execute the courses of action required to produce given attainments (Bandura, 1977:3).

In the case of internet acceptance, individuals are found to acquire internet knowledge from their internet experience and then form their usage beliefs which influence their future internet behavior. Therefore, internet knowledge and internet experience are closely related constructs. Their relationships demonstrate the very process of social learning.

Studies conducted in the US, mostly unpublished doctoral dissertations that focus on measuring internet use and perceptions of the internet among faculties shows a positive relationship between internet experience and internet use (Fusayil, 2000); Husain, 2001; Jones and Johnson – Yale, 2005); adoption of internet in teaching, research and communication (Alzamil, 2002) and the impact of the internet on scholarly activities (Chu, 2002) all point to a high level relationship between internet experience and internet knowledge for use in academic work.

Computer use and internet experience

In the field study of computer efficacy, Protosky (2002) found that self – rated knowledge of computers has a positive effect on post – training programming efficacy. This in effect means that a person with in – depth knowledge of computer will easily find programs on internet experience quite easy. This could lead to the acquisition of internet knowledge. A research by Husain (2006) of Kuwait University revealed that a larger majority of his respondents have been using the computer and internet for more than five years. They used the internet mostly for and give information to e – mail, search engine, and WWW resources mainly for communication, research and publication. It helped them to same time and find up – to – date information. Most of the students expressed interest in improving their skills in the use of computer and internet through

formal training. Hence it was evident in the research that computer has a positive bearing on internet experience.

Adolescents' Use of the World Wide Web

In another development, Large (2004) assembled a comprehensive literature review focuses on the use of the Web by children and teenagers. Of relevance to the current project is the research concerned with Web applications, i.e., two teenagers use the Web. Large – scale national surveys (Enviromics Research Group, 2001; Infoplease.com;2000; Lenhart, Raine, & Lewis, 2001), as well as small – scale studies (Miller, Schweingruber, & Brandenburg, 2001; Vansickle, 2002) done in the United States and Canada reveal that teenagers use the Web for school – related projects and assignments, recreation or leisure, and to communicate with family and friends. The most popular leisure activities among teenagers are playing and downloading music, surfing for fun, playing and downloading games, visiting sites on apparel and fashion, accessing information on sports, movies, concerts, television programs, and so on. Communication technologies used by teens include e – mail and chat, or instant messaging. Only a few studies focus specifically on how urban youth use the Internet.

In analysis of the Web sites visited by inner – city children and young adolescents in a San Francisco public library, Sandvig (2001) found that the most popular sites provided games, or chat and e – mail services. In interviews, the youth reported that one of the main attractions of Internet access at the public library was that they could choose to visit "fun" sites, rather than being restricted to educational sites.

Benefits of Teen Internet Use

Research on American youth shows that the Internet serves as a powerful resource for information about socially sensitive topics such as sex and interpersonal relations (Suzuki & Calzo, 2004); it also serves as community building tool providing information on civic engagement and political participation (Rainie & Horrigan, 2005). Studies have shown that through Internet communication, youth are given the opportunity to exercise leadership skills and become stakeholders in communities that they themselves have created. This encourages autonomy and identifies construction free of norms and expectations. Despite fears of stalkers and inappropriate sites, parents are beginning to recognize the Internet as a powerful tool for both networking, and academic enhancement for their children. A recent study found that low – income youth who consistently used the Internet exhibited higher grade point averages over the course of time (Jackson et al., 2006) than less frequent users.

For example, teens in Accra, Ghana use the Internet as a source of health information in order to gain the necessary information on both sexual and general health issues that they would probably not have access to in their own local environment (Cassel et al, 2006).

Risk Factors of Teens Internet Use

Although the Internet has consistent positive impacts on modern society, it has also caused various societal concerns about privacy, security, pornography, Internet crime, and virtual community (Greenfield & Yan, 2006). Its easy accessibility poses greater risks and dangers for youth as compared to other forms of media. According to the National Altitudinal Poll, the number one media concerns for parents have shifted from television to the Internet: 85% of parents reported that among all forms of media, the internet posed the greatest risk to their children (Common Sense Media, 2006). Parental concerns are valid, especially considering that teens are essentially free to view and post whatever they choose and communicate with whomever they want. Hand in hand with this, the Internet has become a highly effective and profitable means

of distributing sexually explicit material, as well as a sophisticated channel for compulsive sexual behaviour, sex trafficking, and sex crimes (Galbreath & Berlin, 2002).

According to a survey performed by the London School of Economics (2002), 90% of children between ages 8 and 16 have viewed pornography on the Internet. In most cases, the sex sites were accessed unintentionally when a child, often in the process of doing homework, used an innocuous word to search for information or pictures. Such free access and exposure to this information by adolescents who have not yet developed a full maturity could pose negative impacts on adolescent's development and could potentially manifest in their social interactions with peers, their sexual activity, and their emotional development (Subrahmanyam et al., 2006).

Sexuality in the media

Although sexual content in the media can affect any age group, adolescents may be particularly vulnerable. Adolescents may be exposed to sexual content in the media during a developmental period when gender roles, sexual attitudes, and sexual behaviors are being shaped. This group may be particularly at risk because the cognitive skills that allow them to critically analyze messages from the media and to make decisions based on possible future outcomes are not fully developed. Analyses of broadcast media content indicate that, on average, teenaged viewers see 143 incidents of sexual behavior on network television at prime time each week, with portrayals of three to four times as many sexual activities occurring between unmarried partners as between spouses. As much as 80% of all movies shown on network or cable television stations have sexual content.

An analysis of music videos indicates that 60% portray sexual feelings and impulses, and substantial minority display provocative clothing and sexually suggestive body movements. Analyses of media content also show that sexual messages on television are almost university presented in a positive light, with little discussion of the potential risks of unprotected sexual intercourse and few portrayals of adverse consequences. Survey data show that adolescents' access to and use to media as sources of information are substantial. In a national study, high school students reported an average of 2.9 television sets, and 1.3 of 10 (13%) of American children reported living in homes with two or more televisions, 97% had videocassette recorders in their homes, 75% had access to cable television, and more than half had a television set in their own rooms. Further, more than 80% of adolescent's report that their peers find out some or a lot about sex, drugs, and violence from television shows, movies, and other entertainment media. About 10% of teens acknowledge that they have learned more about the acquired immunodeficiency syndrome (AIDS) from these media sources than from parents, school personnel, clergy, or friends.

ICT and Education in Ghana

It is an undeniable fact that ICTs play a very important role in the development of every nation these days. This is because growth is induced by the flow of information and this realization has led most economies into knowledge – based ones. Developing countries have realized this and are rigorously pursuing these of ICTs as a platform for socioeconomic development. But are these countries getting it right? It is also true that the critical workforce of these developing countries are not the youth graduating from the polytechnic and the universities and the professional training institutions but are these graduates trained adequately to handle critical information in a knowledge – based world?

Ghana has since independent made significant strides in its educational system. The education landscape in Ghana today is the result of major policy initiatives adopted by successive governments. Some of the laws, policies, documents and reports which have helped in meeting the educational needs and aspirations of the people are:

- The Education Act of 1961
- The Dzobo report of 1973 (recommended the JSS concept)
- The New structure and content of education 1974
- The Education commission report on basic and secondary report 1987 / 88
- The Education reform programme 1987 / 88
- The University re – nationalization committee report 1988
- The Free Compulsory Universal Basic Education Programme (FCUBE) 1996
- The FCUBE policy, document and programme of operations
- The Ghana Education Trust Fund – Getfund 2000 (Act 581)
- The New Educational Reform which took off September, 2007

Indeed, these initiatives have not only helped in structurally transformed the educational system but also improved considerably quality teaching and learning, infrastructure delivery as well as management efficiency. Despite the successes these reforms have had on the educational landscape of Ghana, it has not done much to address the need of the nation in terms of producing a human capacity with all the requisite training in ICTs. Releasing this, governments started introducing computers into senior secondary schools in the late 1990s. This necessitated a statement from the website of the Government of Ghana which said,

The ICT revolution is having tremendous impact on the rapid development of world economies and making national economies more interdependent than they were some years ago. The Ministry is therefore committed to making Ghana a key player in today's digital age. To this end, the Ministry has embarked upon a programme to streamline computer studies in secondary schools. Already a draft ICT policy has been preparing and submitted to Cabinet for approval. A curriculum has also been developed for ICT training and examination at the Senior Secondary School Certificate Examination (SSSCE) level. In addition, every effort is being made to provide telephone facilities to all senior secondary schools and training colleges to enable them have access to the Internet (p.6).

Countries all over the world have undertaken education reforms one time or the other to improve upon the content and delivery of quality education. Ghana has had her share of educational reforms spanning across five decades. President John Kufour recently launched yet another educational reform based on recommendation of Anuamuah – Mensah's Committee. Key among the reforms is 11 years of Basic Education comprising of Junior High School education. The Senior Secondary duration has also been increased to four years against the recommendation of Anamuah – Mensah's Committee. The reforms prescribe a four – year program for students and mandate them to study.

Problems Associated with ICT in Ghana

Many scholars have highlighted the need to address the numerous problems that the introduction of ICT will bring. These concerns include a lack of adequate planning for implementation of ICT (Mooij and Smeets, 2001); inadequate teacher training (Webb, 2002); inequalities in ICT distribution (Nachmias, Mioduser, & Shemla, 2001; Sutherland – Smith, Snyder & Angus, 2003); lack of information regarding the distribution of ICT; low levels of literacy in general, and lack of relevant content and technology applications to meet the needs of diverse societies (ETS, 2001; Hakkarainen et al, 2000). The literature identifies the tendency for ICT to lead to a divide between urban and rural schools (Hartviksen & Akselsen, 2002). A review of the available literature reveals significant inequity in the implementation of ICT in Ghanaian secondary schools. The literature (Dankwa, 1997; Parthemore, 2003) reveals that ICT provision to secondary schools is skewed in favor of schools categorized as premier schools and schools in urban areas. Unfortunately, this is not a new trend. Since the introduction of formal schooling in Ghana, educational resources have been unequally distributed in the school system (Folson, 1995; Foster, 1965; Graham, 1971; and McWilliam and Kwamena - Poh). At this juncture, it is critical that policy makers ensure that ICT does not become another tool for perpetuating educational inequalities in Ghana's school system (Mfum – Mensah, 2003).

A research was conducted to evaluate the computer and Internet usage as supplementary educational material to enhance quality education; help improve educational management and planning; how students use the computers and internet to facilitate their learning and how teachers in the Tema Senior High Schools use the computers and Internet to teach and guide students. Stratified sampling method was used to select students and teachers. The results showed that a significantly high percentage of respondent teachers (92%) were computer literate and 78% of respondent students also had basic knowledge in computer. However, less than 15% of these teachers used the internet as an innovative way of improving teaching and learning. Over 30% of the teachers used the computer and the Internet facility for entertainment, whereas less than 25% used it for research and learning. Less than 40% of respondent students used the Internet for e – mail and browsing. It was revealed that Internet and computers have helped students to achieve new things such as finishing assignments, solving problems, learning history of other countries, improving typing skills, and chatting with friends. There is no clear interaction between teachers and students through the use of Internet facilities. The Internet was not used for guidance. Despite the limited use of computers by teachers in their teaching, many agree that the computer has changed the way students learn. One fourth of teachers have received some form of training in the use of computers, with quite minimal training in the pedagogical integration of ICT. It appears that integration of ICT in Ghanaian school systems is a major step in promoting innovation (Amenyedzi, W. K., Lartey, M. N. Dzomeku, B. M, 2011).

Methodology

The study solicited the views of students, teachers and their parents. The study adopted the Mixed Method Research type with a population consisting of 70 teachers, 1010 students, their parents and internet café operators in the Metropolis. A sample size of 300 was determined for the study comprising 200 students, 50 teachers and 45 parents randomly selected, while 5 internet café operators in the Metropolis were purposively chosen. The study recorded a 91.3% retrieval rate. Questionnaires and interview schedules were designed to solicit information from the respondents. The SPSS was used to analysis the data gathered, using means and standard deviations.

The design of the study was a descriptive research design of the survey type. A survey approach was employed to enable the researcher to collect data for the purpose of describing and interpreting existing practices and attitudes among others of the population (Creswell, 2009).

This study used the means and standard deviations to answer the four research questions stated below:

1. In what ways have ICTs helped to improve the academic achievement of students at Oti Boateng Senior High School in Ghana?
2. What other activities aside academic work do students of Oti Boateng Senior High School use the internet facility for?
3. In what ways have the use of ICTs affected the moral behavior of students at Oti Boateng Senior High School in Ghana?
4. In what ways can the use of the Internet be regulated as a tool for academic work and moral development in Oti Boateng Senior High School in Ghana?

Again, three hypotheses were tested at 5% significance level.

Hypothesis 1

H_0: The ability to operate computer has no association with student's age.

H_1: The ability to operate computer has an association with student's age.

Hypothesis 2

H_0: ICT has no significant influence on the academic performance of students in the various programs of study.

H_1: ICT has a significant influence on the academic performance of students in the various programs of study.

Hypothesis 3

H_0: There is no significant relationship between the student's use of computer and their performance.

H1: There is a significant relationship between the student's use of computer and their performance.

Results and Discussions

What ways have ICTs helped to improve the academic achievements of students at Oti Boateng Senior High School Ghana?

The study revealed that 183 (95.3%) of the 192 claimed to be able to use the computer, while 3.1% somewhat agreed. Three representing 1.6% were uncertain about their abilities to use the computer. This revelation is consistent with Leuven et al. (2004) that there is an increased educational use of ICTs by students.

Again, Berge (1998) and Barron (1998) mentioned that any use of ICT in learning settings can act to support various aspects of knowledge construction and as more and more students employ ICTs in their learning processes, the more pronounced the impact of this will become. Similarly, Amenyedzi, Lartye and Dzomeku (2011) in a study found that 78% of student respondents also had basic knowledge in computer. The study used means and standard deviations to answer the first research question. From Table 4.2, the lowest and the highest mean values were 3.37 and 4.14 respectively, while the least and the largest standard deviations were 0.451 and 0.997 respectively.

Table 4.2: Students' Views on the effect of ICTs on Academic Achievement of Students

Influence of ICT on Academic Performance	Mean	S. D
The computer gives me lots of information to uderstand certain topics better	4.14	0.566
ICT enables me to read broadly	4.09	0.913
I often access the internet when I am at home for educational purposes.	3.83	0.787
I am able to access the internet at school to do my class assignments	3.61	0.451
The usage of ICT motivates me to learn independently	3.60	0.997
I have positive attitude towards ICT.	3.59	0.788
I explore the internet a lot to do my school work	3.37	0.612

Mean = SA – Strongly agree (5); A – Agree (4); U – Uncertain, (3), D – Disagree (2); and SD – Strongly disagree (1).

With the highest men value of 4.14 and a standard deviation of 0.566, the students agreed that the computer gave them lots of information to understand certain topics better. The students also claimed that ICT enabled them to read broadly. On whether they often access the internet at home for educational purposes, they rated it with an average value of 3.83. Most students also claimed that they used the computer / internet to learn independently. This was also confirmed during an interview with a student when she stated

"I feel with the computer, particularly, the internet I can do some studies independent of my teachers. In a way it makes me independent. With that also I'm ahead of most of my mates in class. I also tend to get more than just what the teacher gives in class."

Despite the general appreciation of the influence of ICT on the academic achievement of students, some students however, still held the views that the internet was not useful in their academics as during the interviews, a student said "I must say I depend mostly on textbooks and notes of teachers. Using ICT for learning is rare. Exams are based on textbook and syllabus and not what you will find on the net. About 90% of textbooks give come in examinations." Another student posited "ICT per se doesn't motivate me to learn. But anyway, reading the news and about people keep me informed but academically, I'm not sure it contributes to my academic performance." Similarly, majority of the students reported that they had positive attitude towards ICT (M = 3.59; S. D = 0.788) with a mean value of 3.37 and a standard deviation of 0.612, they were "uncertain" on the exploration of the internet to do school work. The grand mean for

the seven items on the influence of ICT on academic achievement was 3.75 indicating that the students generally agreed that indeed ICT had positive effects on their academic performance. This revelation is consistent with Jackson et al (2008) study that the frequency of computer use was positively associated with grades received and overall grade point average (GPA).

The study showed that overwhelming majority (97.3%) of the 37 teachers were in agreement that Senior High School students should have access to the ICT. However, one teacher disagreed. This supports the position of Amenyedzi, Lartey and Dzomeku (2011) that despite the limited use of computers by teachers in their teaching, many agree that the computer has changed the way students learn. The mean values of 4.00 and 4.59 are the lowest and highest respectively from Table 4.3

Tabel 4.3: Teachers' Views on the Effect of ICTs on Academic Achievement of Students

Influence of ICT on Academic Performance	Mean	S. D
I encourage students to use the internet for class assignments or supplementary learning	4.59	0.711
Students' use of ICT causes them to have more fun than to learn	4.22	0.452
A student who uses ICT often is a better student	4.16	0.933
SHS students spend lots of time on Facebook, twitter.	4.05	0.421
I feel students' usage of the ICT enhance their academic work	4.03	0.700
The use of ICT makes students independent learners	4.00	0.559

Mean = SA – Strongly agree (5); A – Agree (4); U – Uncertain, (3), D – Disagree (2); and SD – Strongly disagree (1).

With a mean value of 4.59 and standard deviation of 0.711, the teachers strongly agreed that they encouraged students to use the internet for class assignments or supplementary learning. Similarly, the teachers somewhat agreed that students who used ICT often were better students. With an average value of 4.03, the teachers agreed that they felt that students' usage of the ICT enhanced their academic work. Again, they reported that ICT use made students independent learners (M = 4.00; S. D = 0.559). However, majority of the teachers accepted the fact that the use of ICT by their students caused them to have more fun than to learn, and also spent lots of time on Face book and Twitter. Supporting the above claim, a Chemistry teacher reported "they socialize more than doing serious learning."

The study also sought the views of the parents about the impacts of ICT on the academic achievement of their wards, and their responses are summarized in Table 4.4. The study initially wanted to know if the parents themselves use the internet very often. Thirty – four representing 72.5% responded positively, whilst 22.0% did not use the internet very often. Only one person was uncertain. On whether the parents encourage their wards to use the internet, the results are presented in Figure from Figure 4.1, is the point that as many as 94.5% of the parent respondents claimed to have encouraged their wards to surf the internet, while 5.0% of them responded negatively.

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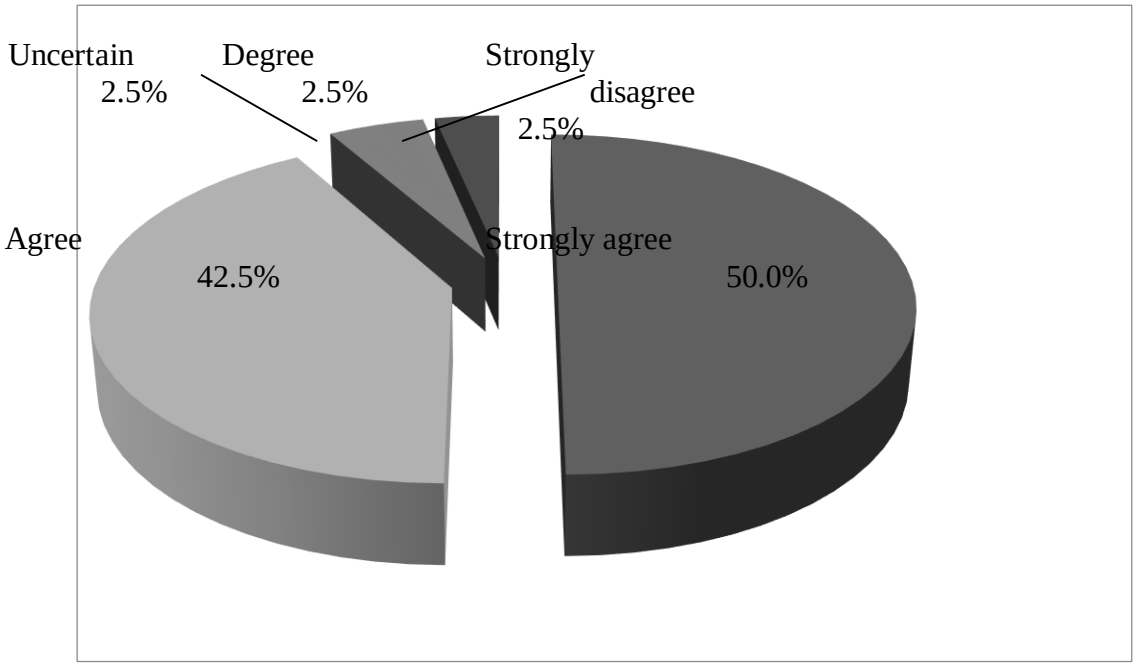

Figure 4.1: Parents Encouraging Students to use computer for studies

Table 4.4: Parents' View on the Effect of ICTs on Academic Achievement of Students

Influence of ICT on Academic Performance	Mean	S. D
Internet exposes SHS students to too much information	4.51	0.452
The use of internet broadens SHS students' academic horizon.	4.30	0.871
SHS students are able to do extensive research with the internet.	4.27	0.698
The internet enables SHS students to learn independently.	4.15	0.377
The internet improves students; academics.	4.15	0.980
In my opinion SHS students should be allowed motivates students with the internet	4.10	0.562
I believe that the use of computer / internet motivates students to study.	4.00	0.500
SHS students often use the computer / internet for academic purposes	3.64	0.679

Mean = SA – Strongly agree (5); A – Agree (4); U – Uncertain, (3), D – Disagree (2); and SD – Strongly disagree (1).

According to majority of the parents, the internet exposes SHS students to so much information (M = 4.51; SD = 0.452) indication additionally that further broadens their academic horizon. With an average value of 4.27, the parents agreed that SHS students were able to do extensive research with the internet. Again, they indicated that the internet enabled SHS students to learn independently (M = 4.15; S.D = 0.377).

On whether the internet could improve students' academics, the parents highly agreed with a mean value of 4.15 and a standard deviation of 0.980. They also, to a large extent, believed that the use of the computer / internet motivated students to study. The grand mean for the seven items is 4.21; implying that the parents somewhat agreed that the use of the internet positively influence the academic achievements of their wards. On whether the students often use the computer / internet for academic purposes, the parents rated it with a mean value of 3.64; indicating that were uncertain.

In addressing the Research Question 1, it can be concluded that ICT helped the students in improving their academic fortunes including the providing them with lots of information to understand certain topics, reading broadly to broaden their academic horizon, doing assignments, and for extensive research.

These revelations are in agreement with UNESCO's (2005) publications which describe how ICT potentially offers numerous advantages and provides opportunities for such as facilitating learning for children who have different learning styles and abilities, including slow learners, the socially

disadvantaged, the mentally and physically handicapped, the talented, and those living in remote rural areas. However, teachers, parents and they (students) agree that students do not always use the computer / internet for academic purposes.

What other activities apart from academic work do students at Oti Boateng Senior High School in Ghana use the internet facility for?

The object of this research question was to identify other uses of the computer / internet by the students at Oti Boateng High School in Ghana. Responses were solicited from students and parents through both questionnaire and interviews, while the café attendants were only interviewed. The views of the students and their parents are summarized in Table 4.5 and 4.6 respectively.

Table 4.5: Other Uses of Computer / Internet by students

Others uses of Computer / Internet	Mean	S. D
I watch movies on computer	4.36	0.799
I use the internet to send and receive e – mail messgages.	4.17	0.520
I use ICT in downloading and uploading music and movies	3.96	0.766
I prefer using computer / internet to play games	3.49	0.358
I go to chat rooms when I am on the internet	3.46	0.680
I spend more time on the internet for fun things than for academic purposes.	3.18	0.911

Mean = SA – Strongly agree (5); A – Agree (4); U – Uncertain (3), D – Disagree (2); and SD – Strongly disagree (1).

Table 4.5 indicates that the students frequently used the computer to watch movies. This was reported by majority of them. Again, with an average value of 4.17 and standard deviation of 0.520, the students agreed that their used the internet to send and receive e – mail messages. On the use of ICT in downloading and uploading music and movies, the students indicated their agreement. The same view cropped up during an interview with the students when majority of them reported, "I use it to play games and watch movies," and "I also download music a lot."

They also reported of using the computer / internet to play games, and chat. This was only confirmed when during the interviews, a student responded, "I'm not sure that ICT is helping most of my peers academically because I often see them engaging in entertainment stuff and not really learning." "Other students said "I don't think the internet is helping us because everybody is 'Facebooking'- student – spending so much time on Facebook instead of learning." In a similar fashion, another student indicated "I'm often online – Facebook and seeking information." To many of the students, their generation was not using the internet to benefit their academic work but rather used it for entertainment purposes. These

findings support that of Jackson et al. (2008:441) that the frequency of playing video games was negatively related to overall achievement."

Table 4.6: Parents' Opinion on Other Uses of Internet by Students

Other uses of internet	Mean	S. D
Students spend a great deal of time on Facebook, Twitter, Skype.	4.53	0.450
SHS students spend too much time on the internet having fun when they should be studying.	4.41	0.772
SHS students are often seen browsing for entertainment purposes.	4.23	0.344
SHS students are often seen playing computer games.	4.08	0.566

Mean = SA – Strongly agree (5); A – Agree (4); U – Uncertain, (3), D – Disagree (2); and SD – Strongly disagree (1).

From Table 4.6, parents strongly agreed that their wards spent a great deal of time on Facebook, Twitter, and Skype among others. The above finding emerged from the interviews as an HOD and Business Management teacher stated "students are often seen on Facebook, downloading music and movies.

Few times I've seen some of them trying to learn typing. But serious academic work, no. Similarly, a Chemistry teacher observed "on Facebook for instance, they publish sentiments, insults, and ridicule people."

One whether SHS students are often seen browsing for entertainment purposes, the teachers largely agreed (Mean = 4.23; S.D = 0.344). The same response cropped up in an interview as a teacher was quoted as "they uploaded their pictures and download pictures of stars and some of them can be very suggestive. Watching porno is another practice which can affect their moral behavior.

According to all five café attendants interviewed, students mostly use the internet for Facebook, downloading music, and watching movies. Quoting one of them as "they are mainly here to browse, particularly, Facebook, twitter, download music, watch movies, play games and sometimes do some school assignments. Other times you will see some drawing but mostly they are on social network."

In conclusion with regards to the second research question *that "What* ***other activities aside academic work do students of Oti Boateng Senior High School use the internet facility for****?"* It emerged that the students used the internet for several other activities such as Face booking, twittering, downloading music, watching movies, and playing games often than for academic purposes. This was said by the students themselves, and confirmed by the teachers, their parents as well as the café attendants.

4.3.3 Research Question 3:

In what ways have the use of ICTs affected the moral behavior of students at Oti Boateng Senior High School?

The study also investigated how the use of ICT facilities affected the moral fiber of Oti Boateng Senior High School students. The views of the students, the teachers, the parents, and the café attendants were solicited. This will help authorities of the school and other stakeholders to put in appropriate measures to curb the abuse of ICTs. Table 4.7, 4.8 and 4.9 presented the response of students, teachers, and parents

4.7: Students' View on the Effect of ICTs on their Moral Behavior

Effects	Mean	S. D
Internet exposure encourages the practice of gayism / lesbianism among SHS students.	2.86	0.987
Through the use of ICT, I have developed interest in love and sexual activities.	1.57	0.329
Technological advancement has influenced me to expose vital parts of the body without taking cognizant of my cultural values.	1.35	0.642
I have developed passion for pornographic pictures through the internet.	1.31	0.732
Frequent access to the internet has made me develop keen interest in backing (i.e. cyber fraud / Sakawa / 419).	1.10	0.563
The emergence of ICT has introduced me to hard drugs.	1.07	0.800

Mean = SA – Strongly agree (5); A – Agree (4); U – Uncertain, (3), D – Disagree (2); and SD – Strongly disagree (1).

From Table 4.7, it is clear that the students were uncertain about the preposition that ICT / internet exposure encouraged the practice of gayism and lesbianism among SHS students since they rated 2.86 and a standard deviation of 0.987.

On whether through the use of ICT, they (students) have developed interest in love and sexual activities, they virtually disagreed. In addition, with a low mean value of 1.35, the students were not in agreement that technological advancement had influenced them to expose their vital parts of the body without taking cognizant of cultural values.

Majority of the students claimed that internet had not caused them to developed passion for pornographic pictures. It appeared that the exposure of many students to pornographic materials could not be entirely blamed on the internet alone. The students disagreed with the assertion that the frequent access

to the internet had made them developed keen interest in hacking (i.e. cyber fraud / Sakawa / 419). Arguably, the criminal acts of hacking (i.e. cyber fraud / Sakawa / 419) will be more dominate among the males than females since overwhelming majority of hacking culprits have been boys. On the issues of the use of hard drugs as a result of the emergence of ICT / internet, the student scored it very low with a man value of 1.07. Again, the issue of gender could be a determinant here.

Quoting a student, she said "occultism (i.e. Freemason), pornography are learned through the internet. Girls are affected most; wearing short skirt, exposing breast, boyfriend / girlfriend stuff happens through Facebook." The above findings are in agreement with the literature that although the internet has consistent positive impacts on modern society, it has also caused various societal concerns about privacy, security, pornography, internet crime, and virtual community (Greenfield & Yan, 2006).

Table 4.8: Teachers' Opinion on the Effect of ICTs on Students' Moral Behavior

Effects	Mean	S.D
Technological advancement leads students to develop passion for pornographic pictures.	3.76	0.673
ICT has contributed to students developing interest in love and sexual activities.	3.65	0.922
I feel that the internet contributes negatively to the moral character of adolescent.	3.62	0.717
Internet exposure encourages gayism / lesbianism among SHS students	3.54	0.820
Technological advancement influences students to careless about exposing vital parts of their body.	3.49	0.832
Students' access to the internet leads to encourage in hacking (cyber fraud / Sakawa / 419).	3.43	0.503
The emergence of computer has introduced students to the use of hard drugs.	2.58	0.342

Mean = SA – Strongly agree (5); A – Agree (4); U – Uncertain, (3), D – Disagree (2); and SD – Stronly disagree (1).

In the opinion of the teachers, technological advancement had led students to develop passion for pornographic pictures. This statement was scored highly with an average value of 3.76 and a standard deviation of 0.673. Similarly, teachers somewhat agreed that ICT had contributed to students developing interest in love and sexual activities.

With a mean value of 3.54, the teachers felt that the interest had negatively contributed to the moral decay among adolescents. To a large extent, they also agreed that the internet exposure encouraged gayism and / or lesbianism among SHS students, and also had introduced students to the use of hard drugs.

The above views of the teachers on the negative and harmful impacts of the emergence of ICTs / internet facilities on their wards is an indicative of the fact that appropriate steps must be taken to regulate it because to a teacher vividly puts it, "the internet gives you any information you ask for. Sometimes it gives you even what you don't ask for. And teenagers are very curious about certain things. One of them is sex. Unfortunately, the internet is there to satisfy that curiosity. Pornographic videos are there to do that and then they practice it after that and students watch it. Another area which is a concern is their way of dressing. They get a lot of that from the internet. It's not all negative; they can also be influenced positively. I know some girls who go to some spiritual sites."

Table 4.9: Parents' Views on the Effect of ICTs on Students' Moral Behavior

Effects	**Mean**	**S. D**
The use of the internet negatively affects moral behavior of SHS students.	4.15	0.428
ICT introduces SHS students to pornography.	4.03	0.620
Access to the internet has led adolescent to develop interest in hacking (cyber fraud / Sakawa / 419)	4.03	0.700
The media have negatively influenced the mode of dressing of adolescents in Ghana.	4.00	0.772
ICT encourages adolescents to expose vital parts of their body without taking cognizant of their cultural values	3.95	0.432
Internet exposure encourages gayism / lesbianism among SHS students.	3.68	0.444
The emergence of ICT has exposed adolescents to the use of hard drugs.	3.33	0.521

Mean = SA – Strongly agree (5); A – Agree (4); U – Uncertain, (3), D – Disagreee (2); and SD – Strongly disagree (1).

To a large majority of parents, the use of the internet had negatively affected the moral behavior of SHS students. Again, with a mean value of 4.03, the parents claimed that ICT had introduced SHS students to pornography. Similarly, to the preceding point, parents again reported that access to the internet had led adolescents to develop interest in hacking including cyber frauds, Sakawa and 419, which a criminal act.
To many of the parents, the dressing codes of many students have been bad due to the negative influence of the ICT / internet, and also encouraged them to expose their vital parts of the body without taking cognizant of cultural values.
In conclusions, in the views of parents and teachers, ICT / internet has serious negative repercussions on the moral development of adolescents (students). In fact, they believed that moral uprightness is compromised through pornographic, indecent dressing, nudity, internet fraud among others.
However, to the students of Oti Boateng Senior High School, gayism / lesbianism is the main harm caused to them by ICT / internet. Other social ills cannot be entirely blamed on the emergence of ICT / internet.

4.3.4. Research Question 4: What ways can the use of internet be regulated as a tool for academic work and moral development at Oti Boateng Senior High School?

This research question sought to find out how the use of the internet could be regulated to benefit only the academic work and the oral development of the students. This is to reduce if not eliminate the abuse and misuse of ICTs / internet facilities by students. The views of the students, teachers and parents are summarized in Tables 4.10, 4.11 and 4.12 respectively.

Table 4.10: Students' Views on How to Regulate the Use of ICT / Internet

Regulations	Mean	S. D
The guidance and counselling coordinators should organize talks on the benefits and risks of the use of computer / internet	4.56	0.740
Detective software should be installed on PCs to identify illicit activities of teenagers.	4.31	0.531
Parents should monitor the websites their wards visit.	4.27	0.390
Internet providers should monitor flow of information of teenagers.	4.15	0.566

Mean – SA – Strongly agree (5); A – Agree (4); U – Uncertain, (3), D – Disagree (2); and SD – Strongly disagree (1).

With a very high mean value of 4.56, the students strongly agreed that their guidance and Counselling coordinators should organize talks on the benefits and risk of the use of computer internet. As in 18 – years old Business student puts it "I think students need proper education on how to use their time and the internet profitably. "The implication is that at such gatherings, talks or discussions will give them better insights into the pros and cons of ICTs / internet usage. Another suggestion was that PCs must have detective software that can easily identify illicit activities of teenagers, tracking what sites they visit.

The students also agreed to a large extent that their parents should monitor the website they visit, whilst the various internet providers monitor the flow of information among teenagers. Obviously disagreeing with the suggestion that detective software installed and certain sites blocked, a student said that this action will infringed on their right. She however, recommended a rigorous sensitization on the dangers of certain sites like pornographic sites.

Table 4.11: Teachers' Suggestions on Regulation of the Use of ICT / Internet

Regulations	Mean	S. D
Teachers should monitor the websites that students visit.	4.68	0.566
Café operators should monitor the websites that teenagers visit.	4.58	0.339
There should be a detective software should be installed on PCs to identify illicit activities of teenagers.	4.58	0.67
Parents should monitor the websites their wards' use of the computer / internet.	4.57	0.805
I feel there should be a law governing adolescents' usage of the ICT.	4.08	0.651

Mean = SA – Strongly agree (5); A – Agree (4); U – Uncertain, (3); D – Disagree (2); and SD – Strongly disagree (1).

On the part of the teachers, they (teachers) overwhelmingly suggested that websites students should be monitored (Mean = 4.68; S. D = 0.566). During the interviews, and HOD said "I would recommend that but there has to be some monitoring to be sure that they are not only using it for Facebook and others." With mean value 4.58, the parents were of the view that the café operators must monitor the website teenagers' visit. They also suggested that there should be detective software should be installed on PCs to identify illicit activities of teenagers, and also parents should monitor the websites their wards' use of the computer / internet.

Table 4.12: Parents' Opinions on How to Regulate the Use of ICT / Internet

Regulations	Mean	S.D
Café operators should monitor websites that teenagers visit.	4.66	0.721
There should be detective software on PCs to identify illicit activities of adolescents.	4.59	0.340
There should be a law regulating adolescent's usage of the internet.	4.54	0.883

Mean = SA – Strongly agree (5); A – Agree (4); U – Uncertain, (3), D – Disagree (2); and SD – Strongly disagree (1).

In the opinion of the parents, the café operators should monitor websites that teenagers visit. This was highly recommended as they scored it with an average value of 4.66 and standard deviation of 0.721. They also suggested the installation of detective software on PC to identify illicit activities of adolescents. Another key control mechanism alluded to by the parents was a law to regulate adolescent's usage of the internet.

In conclusion, the students, teachers and parents held the belief that there should be mechanisms to reduce the abuse of ICT / internet among the students (adolescents). Their views suggested that efforts to control these abuses multifaceted dimensions; with the responsibility beholding on all stakeholders (students, teachers, parents and café operators). Among the main suggestions were as follows: teachers should monitor the websites that students visit, café operators should monitor websites that teenagers visit, sensitization by guidance and counseling coordinators, and the installation of detective software for monitoring of students' websites.

4.3.5. Hypothesis 1: The ability to operate the computer has no association with student's age.

Age (in years)	SA	A	U	D	SD	Total
12 – 14	1	0	0	0	0	1
15 – 17	53	14	1	0	2	70
18 and above	77	36	3	2	3	121
Total	131	50	4	2	5	192

$\times^2(df = 8, N = 192) = 4.458, p > 0.05$.

The figures above indicated that the Null Hypothesis should not be rejected since the P – value was greater than the significance level of 5%. The implication is that a student age has no association with her ability to use the computer. This means that any student at any age could know how to operate the computer.

Hypothesis 2: ICT has no significant influence on the academic performance of students in the various programs of study.

Again, the study sought to determine if there is any association between students' programs of study and the influence of ICTs on their academic achievements.

H_o: There is no association between programs of study and ICTs influence on academic performance.

H_1: There is an association between programs of study and ICTs influence on academic performance.

This was done using the Chi – square test, and the results are displayed in Table 4.14

Table 4.14: Programs of study and ICTs influence on Academic Achievement

Programs offered	SA	A	U	D	SD	Total
General Science	5	5	4	1	4	19
General Arts	18	19	23	12	6	78
Business	18	20	7	9	2	56
Visual Arts	12	1	0	0	0	13
Home Economics	4	11	3	5	3	26
Total	**57**	**56**	**37**	**27**	**15**	**192**

X^2 (df = 16, N = 192) = 44.944, $p < 0.05$.

From Table 4.14, the Null Hypothesis of no significant association between programs of study and the contribution of ICT to their academic performance was rejected since the p – value is less than 5% significance level. This means that students realize the contributions of ICT to their academic performance depending on the programs that they study.

Hypothesis 3: There is no significant relationship between the students' use of computer and their performance.

H_o: There is no significant relationship between the students' use of computer and their performance.

H_1: There is a significant relationship between the students' use of computer and their performance. The Chi – square test was performed, and the results are displayed in Table

Table 4.15: Use of Computer and Academic Performance.

Computer use	SA	A	U	D	SD	Total
Strongly Agree (SA)	50	42	26	13	2	133
Agree (A)	7	13	9	14	7	50
Uncertain	0	1	0	0	2	56
Disagree (D)	0	0	1	0	0	1
Strongly disagree (SD)	0	0	1	0	4	5
Total	**57**	**56**	**37**	**27**	**15**	**192**

X^2 (df = 16, N = 192) = 81.698, p = 0.000.

From Table 4.15, the Chi – square value of 81.698 was obtained at significant level of 0.05 with a degree of freedom of 16. Also, a p – value of 0.000 was realized. Since the p – value is less than a = 5%, the Null Hypothesis (H_o) was rejected. The interpretation is there is a significant relationship between Information and Communication Technology (ICT) usage and academic performance of students. This finding disagrees with the findings of Terry, Lewer and Macy (2003) that the predicted examination scores for students in the on – line courses were significantly less than those of students in the on – campus and hybrid format.

The study's results also contradict the findings of Kulik (1994), Coates et al. (2004), and Leuven et al. (2004) who all found that there was no significant relationship between Information and Communication Technology usage and academic performance of students.

Findings

The study revealed the following findings based on the research questions investigated:

1. With regards to the ways in which ICTs has helped to improve the academic achievement of students of Oti Boateng Senior High School, the study found out that indeed, ICT had helped the students in improving their academic achievement through providing them with lots of information to understand certain topics better, read broadly to broaden their academic horizon, do assignments, and for extensive research.
2. On the other activities aside, academic work does students of Oti Boateng Senior High School use the internet facility for, the study revealed that the students used the internet for several other activities including as Face booking, twittering, downloading music, watching movies, and playing games often than for academic purposes. These, according to the students, mostly dominated their surfing activities than academic activities.
3. The study revealed that while the parents and teachers overwhelmingly acknowledged the negative effects on the students (adolescents), the students themselves disagreed. Specifically, in the views of parents and teachers, ICT / internet has serious negative repercussions on the moral developments of compromised through pornographic, indecent dressing, nudity, internet fraud among others. However, to the students of Oti Boateng Senior High School, gayism / lesbianism is the main harm caused to them by ICT / internet. Other social ills cannot be entirely blamed on the emergence of ICT / internet.
4. On the ways of regulating the use of internet for academic purposes alone, they suggested among others the following:

- Teachers should monitor the websites that students visit,
- Café operators should monitor websites that teenagers visit,
- Rigorous sensitization by guidance and counseling coordinators, and
- The installation of detective software for monitoring of students' websites.

5. The study confirmed that there was no significant association between the age of a student and her ability to use the computer. This means that the ability to operate the computer is regardless of age.
6. There is a significant relationship between programs of study and ICTs influence on academic performance. This implies that the contribution of ICT to a students' academic achievement depends on her program of study.
7. There is a significant relationship between Information and Communication Technology (ICT) usage and academic performance of students.

Conclusions

Evidently from the study, the students, teachers and parents believed that ICT has enormously contributed to improving the academic achievement of students by providing them with lots of information to understand certain topics better, read broadly to broaden their academic horizon, do assignments, and for extensive research.

It can be concluded that despite some negativities about ICT, it has positive influence on the academic performance of students by greatly contributing to both students' and teachers' motivation for teaching and learning.

The abuse of ICT / internet by students has been a source of worry to especially teachers and parents, as majority of students use it for several other purposes other than for academic purposes which regrettably consume their time. Among such activities are as Facebooking, twittering, downloading music, watching movies, and playing games. By this, students' excessive love for pornographic materials, gayism / lesbianism, indecent dressings, nudity, internet fraud among others have been blamed on the emergence of ICT / internet although students, to a large extent differed.

The excessive abuse of ICT / internet has called for its regulation. This should however, must be done not to infringe the rights of students (adolescents). Among the measures are that teachers, parents and café operators should monitor the websites that students visit, school authorities should embark on rigorous education of students on the positives and negatives of ICT / internet. Again, the blocking of illicit websites for students can also be given considerations.

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