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DEPARTMENT OF INFORMATION STUDIES

**INTERNET USAGE AND ITS EFFECT ON SENIOR HIGH SCHOOL
STUDENTS IN BANTAMA SUB-METRO IN KUMASI METROPOLIS**

BY

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DECLARATION

I hereby declare that this thesis is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere. All the sources used have been duly acknowledged.

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DEDICATION

I dedicate this thesis to my parents Mr. S.S. Kwaah and Madam Sophia Appiah of blessed memory and to my children Yaw Ofori Atta Afani, Yaa Braso Afani, Kwadwo Amoah Afani and Nhyiraba Kwasi Afani.

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LIST OF ACRONYMS AND ABBREVIATION

AYA----- Asante Youth Association

DSL----- Digital Subscriber Line

ICTs----- Information Communication Technologies

K. O.----- Krobo Odumasi

PEoU----- Perceived Ease of Use

PU----- Perceived Usefulness

SHS----- Senior High School

SHS “A”----- Asanteman Senior High School

SHS “B”----- Prempeh High School

SHS “C”----- Kumasi Girls Senior High School

SPSS----- Statistical Package for Social Sciences

TAM----- Technological Acceptance Model

TRA----- Theory of Reasoned Action

US ----- United States

WASSCE----- West Africa Senior School Certificate Examination

ABSTRACT

The Internet has become one stop information access points for senior high school students of the second cycle institutions and their communities. In keeping pace with technological trends, the internet is focusing on the larger social and spatial context; through provision of electronic information resources for both local and remote users to enhance access to local and global information. The study sought to research on internet usage and its effect on senior high school students in Prempeh SHS, Asanteman SHS and Kumasi Girls SHS in the Bantama Sub- Metro in the Kumasi Metropolis to investigate whether the Internet use has any effects on students or not. The theoretical framework for the study was Davis's (1989) Technological Acceptance Model (TAM). Some of the objectives of the study were as follows; to determine the accessibility and usage of the Internet by the three selected senior high school students; to determine the importance of the Internet among senior high schools.

The survey approach was used to collect data and 360 copies of a questionnaire were distributed to the students in the three selected senior high schools. For this study, the convenience sampling technique was used. Out of the target sample of 360 respondents, 342 of them completed and returned the questionnaire leading to 95% response rate.

The major findings that emerged from the study were that the public internet café was found to be the student's highest point of internet access followed by home. Students from the sampled schools indicated that their schools had computer laboratories with Internet connectivity however, the students were given limited hours to access information on the internet. The students learnt to use the computer and the Internet through their own initiatives and also acquired the needed skills through informal ways. Majority of the students from the sampled schools rated the internet access in their school computer laboratories as poor. Students accessed information on the internet for

various reasons, but the most prominent was for communication followed by recreation and learning.

Recommendations made include implementing policy on internet use, more access point should be provided to students, there should be a provision of formal training, and school administrators and parents should adopt safety measures to monitor the internet content used by students. The study could be replicated in the Junior High Schools level in Kumasi since they also make use of internet in their various computer laboratories and the libraries.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Information is needed in our everyday activities by all people such as lecturers, doctors, students and farmers. For students, information facilitates intellectual development which leads to academic credibility. In the past, students, researchers and faculty members access the library resources as their key point of access to information. Today, information on any conceivable subject from all over the world is available to all once they can access the Internet. With the introduction of the Internet, information can be accessed from different sources. Also, the Internet is a rich source of information in all the fields of study and students have to utilize it effectively. The senior high school level of education occupies a very important position in the educational system as it is the bridge connecting the primary and the tertiary levels of education. Special attention given to this level will influence the quality of the products from the group that would be either pushed into the labour market or into the higher levels of the national education system (Ikpeba, 2010).

1.1.1 Reasons for Creating the Internet

The history of the Internet is complex and its influence reaches not only to the technical fields of computer communication but throughout society as we move inwards to the information age. The Internet, as an idea, was initiated and applied by the US Department of Defense with the knowledge of specialized scientific bodies in 1969. At first, different computer was linked to each other inside scientific centers within the same surrounding/area, then between cities until the National Science Foundation (NSF) purchased supercomputers and installed them in different places in the USA so that they work together in a national network. In all these stages, the Internet was mainly used for

scientific purposes in scientific centers and universities in order to facilitate scientists' work with respect to sophisticated mathematical processes that cannot be handled or treated by traditional computers (Jayousi, 2016 cited Hijazi, 2002).

In 1971, the Advanced Research Projects Agency Network (ARPANET) was developed and reached 20 locations inside the US including Harvard University and Massachusetts Institute of Technology (MIT). After the end of the cold war between the US and the USSR in 1991, the Internet began to provide academic and educational services. In 1972, for example, 72 universities and scientific centers were connected together by that network which aimed basically to exchange knowledge and information in different fields including research (Jayousi, 2016 cited AlGhamidi, 2009).

Between 1982-1985, the Internet came into existence. The ARPANET was divided into two parts: ARPANET and MILNET (Military Network). The former was used in civil research while the latter served military purposes. Starting with 1980s, other networks emerged to serve some organizations and agencies including one which was dedicated to the civil, academic society and another was restricted to computer research only. These networks linked scientists together so that they can exchange knowledge and data. The Internet was first directed to the public in 1985 and the numbers of people involved started to increase significantly until it became the largest network ever in the history of mankind.

In 1998 the number of Internet users exceeded 8 million users. The rapid growth of computer networking facilities helped reduce the prices of computers and Internet providers also increased to the extent that computer managed to deal with telephone landlines (Internets Connections and their Development, 2008).

1.1.2. The Growth of the Internet

The Defense Advanced Research Projects Agency (DARPA) launched the DARPA Internet Programme. The Internet was designed in part to provide a communications network that would work even if some of the sites were destroyed by nuclear attack. If the most direct route was not available, routers would direct traffic around the network via alternate routes (Strickland 2010).

In December, 1969, DARPA went online connecting four major U.S. universities in the southwestern US. They were University of California, Los Angeles (UCLA), Stanford Research Institute, University of California, Santa Barbara (UCSB), and the University of Utah. It was designed for research, education and government organizations. It also provided a communications network linking the country in the event that a military attack destroyed conventional communications systems (Gromov, 1996). By 1965, many people had invented many aspects of the Internet and had come up with ideas that helped improve upon the facility and by so doing had in diverse ways contributed to the building of the Internet that we have today. They included identifying new ways of doing things and development of theories and trials that showed viability of wide area network. These were J.C.R. Licklider, Leonard Kleinrock and Lawrence Roberts. These visionaries and many more are the real founders of the Internet (Gromov. 1996).

By June 1970, Massachusetts Institute of Technology (MIT), Harvard University, Business Branding Network (BBN) and Systems Development Corp (SDC) in Santa Monica, California, were added. By January 1971, Stanford, MIT's Lincoln Labs and Carnegie-Mellon were added. The Internet matured in the 70's as a result of the TCP/IP architecture first proposed by Bob Kahn at BBN and further developed by Kahn and Vint Cerf at Stanford and others throughout the 70's. It was adopted by the Defense Department in 1980 replacing the earlier Network Control Protocol (NCP) and universally adopted by 1983 (Ryan, 2011).

1.1.3. The Development of the Internet

DARPA Internet, largely the plaything of academic and military researchers, spent more than a decade in relative insignificance. As Vietnam, Watergate, the Oil Crisis, and the Iranian Hostage Crisis rolled over the (American) nation, several Internet research teams preceded through a gradual evolution of protocols. In 1975, DARPA declared the project a success and handed its management over to the Defense Communications Agency. Several of today's key protocols (including IP and TCP) were stable by 1980, and adopted throughout ARPANET by 1983. ARPANET started in 1969 and in 1974 the term INTERNET first came into use (Hauben and Hauben, 1997).

1.1.4. Internet Usage in Ghana

Ghana was the second country in Sub-Saharan Africa to have full Internet connectivity in 1995. However, population penetration did not progress rapidly until 2005. In 2004, the Ghana government ratified and adopted an ICT policy – Information and Communication Technology for Accelerated Development (ICT4AD). The purpose of the ICT4D was to create the critical drive and strategies to harness the full potential of ICT for the socio-economic development of the country. The Internet technologies are important infrastructure for supporting the activities of a number of public and private sector in various countries.

The International Telecommunication Union (ITU) statistics in 2004 revealed very low Internet penetration in Ghana, with 172 Internet users per 10 000 inhabitants in 2004; it, however, was higher than the African average of 123.21. As at 2003, there were more than 750 Internet cafes in Ghana, mostly using dial-up connections.

1.1.5. The Internet and Education

The educational applications of the Internet resulted in vast improvements in e-learning as it added a social flavor to the process of education. It also allowed all parties to get involved in it including the principals, the teachers, the parents and the students. This increased connection both inside and outside the school in addition reduced if not eliminating formalities inside the school. Tarimo and Kavishe (2017) cited Olatokun (2008) and indicated that access and effective use of Internet services in secondary schools gives added reading opportunities for students, which as a result improves understanding as well as reading skills which in turn support students' academic performance. Thus, the Internet is playing a significant role in the field of education. Students are using it to make their learning process more flexible and easier (Singh and Bala 2014). Furthermore, the Internet allowed students to gain skills related to social connections, discussions, expressing attitudes or opinions as these are limited inside the school itself due to crowdedness, multiplicity of subject materials and lack of room for social activities (Al-Saaedi, 2011).

Nobody can deny the positive applications and values of the Internet. It is used for communication, education and social applications (Al-Sabbati, et al., 2010). The Internet also affects school children positively and negatively. As far as social networking sites are concerned, students keep in touch after schools and they become close to each other. It also helps them get closer to their society as they exchange ideas and information, they get introduced to other cultures, it knows no limits for communication between countries, finally it is considered as a means for practicing social and cultural activities that help to bring peoples into each other and facilitates interaction among different societies and states (Salem, 2013). Among the negative applications of the Internet is porn sites, pictures of nudes and the possibility of having indecent relations between

boys and girls. This is really dangerous and may spoil or damage the decent morals of teenagers and young people whether they are boys or girls (Jayousi, 2016).

The renowned attributes of the internet such as its volume, accessibility and functionality have stimulated the general public to access it and has come to be an influential tool in this contemporary world (Ikpeba, 2010). The internet is a huge interconnected computer network system used worldwide to access, deliver and use information. The internet can also be used for many activities such as communication, research, entertainment, education and businesses (Schneider et al., 2006). It is understood that the unique attributes of the Internet like speed, ease of use, power and inspiration of its content, complement to its usage (Schneider et al., 2006). Chou (2001) also stated that the most remarkable attributes of the Internet include interactivity, easiness, accessibility, abundant and current information. The desire of using the Internet has improved as a result of its availability, accessibility, and affordability. Currently, the Internet can link a lot of people to interact nationwide (Schneider et al., 2006).

Since the internet was developed for the good of humanity, there must be some features that distinguish it from any other source of services. First, it does not need much money as the costs are constantly decreasing; a small web site can bring much profit to its owners; and the Internet market has changed the entire globe (Ali, 2010). The internet is considered as a special communication tool for the following considerations. It attracts a lot of people because it is very flexible and any person can visit the web-site he/she likes easily. The internet also expands people's social relationships with each other locally, regionally and globally regardless of their political, economic, social, ethnic and religious backgrounds. It also gives them a chance to freely express and present themselves (Jayousi, 2016).

It is well informed in the literature that Information and Communication Technologies (ICTs) used to acquire knowledge have had a substantial effect on the development of human beings during the second half of the twentieth century. For this reason, the 21st century is often referred to as the “knowledge society” or “knowledge era” (Tutkun, 2011). In recent years, there has been a growing interest to know how computers and the internet can be best utilized to improve effectiveness and efficiency of teaching and learning processes in both formal and non-formal settings. As there is a shift of theories explaining learning processes, ICTs become a hand maiden for learning activities in all levels of education (Almasi, Machumu and Zhu (2017).

The transmission, implementation and the development of ICTs make students, researchers and faculty members have access to the Internet of any institution to boost teaching, learning, research and knowledge dissemination. Its impact has also been evident in railway, air reservations, banking and insurance sectors, postal services, biotechnology, bioinformatics, biomedical sciences, health care sector, telemedicine, media and communications, teaching and learning, library and information services, printing technology, e-resources, digitization of documents, digital library, library networking, e-commerce, trade and entertainment. Actually, it is used to enhance social life, academic work, social skill and group relation (Singh and Bala, 2014). The Internet, with its remarkable features like quick transmission and ease of use, facilitates user satisfaction because users are ensured of relevant information at the appropriate time and this bridges the gap of distance barrier. With this, basic school, second cycle school and tertiary institutions students’ can access the Internet which would be a reliable source of information in all the fields of study.

This study is intended to determine Internet usage and its effect on students in the three selected senior high school in Bantama Sub- Metro in the Kumasi Metropolis of Ghana. In the past decade, the Internet has reached various places, often acting as an agent of change. It is also making major

impacts in primary and senior high schools across the world. The Internet, as a key learning and teaching tool these days, is a new tool which significantly has an unlimited effect on our everyday activities (Ikpeba, 2010).

1.2 Statement of the Problem

In most of the African countries like Ghana, Internet dissemination and use by senior high school students are hindered by several factors comprising poor telecommunication infrastructure, difficulties in accessing relevant information, intermittent power supply, and inadequate computer literacy skills (Sife, 2013, Kira and Mahumbwe, 2015). Internet services in schools, colleges and universities are still encountering challenges like system failure, low Internet bandwidth, insufficient computers and irregular power supply (Sife 2013). The managements of the three selected senior high schools have integrated ICTs and Internet into the school system. This integration enables the students and staff to use the Internet services and also enhance the core function of the school that is teaching, learning and communication.

Oluwafemi's (2010) study on Internet use among public secondary school students in Lagos State of Nigeria indicated that Internet access is quite low among the students. He further opined that 39% of the students cannot manipulate the computer and do not know anything about the Internet. A study conducted by Yebowaah (2018) on effects of Internet use on senior high school students in the Wa Metropolis also stated that access to the Internet for these students was inadequate.

However, no research has been conducted to assess students' usage of the Internet resources delivery by the selected three senior high schools. There is an assumption that once the Internet services are accessible to students, its usage will increase to enrich their information needs. Also,

literature on user studies in Ashanti Region in Ghana is deficient in Internet usage by senior high school students in this region. With this gap in mind, this study aimed at determining the Internet use of SHS students from the three selected schools and also determines the influence on their school performance and the challenges they encounter in accessing the Internet.

1.3 Purpose of the Study

The purpose of the research was to investigate the internet usage and its effects on students of Asanteman SHS, Prempeh SHS and Kumasi Girls SHS in the Bantama Sub-Metro in the Kumasi Metropolis with the view of making recommendations for effective usage of the Internet among this category of students.

1.4 Objective of the Study

The specific objectives of the study were as follows:

1. To determine the accessibility and usage of the internet by students in the three selected senior high schools.
2. To determine the perceived importance of the internet among the students.
3. To identify the effects of the internet use among the senior high schools' students.
4. To identify search engines and skills used by the students to access the internet.
5. To determine the types of devices used to browse the internet by the students.
6. To identify the challenges which the students encounter in using the internet in the three senior high schools.
7. To make appropriate recommendations based on the findings of the study.

1.5 Theoretical Framework

Creswell (2003) describes theoretical framework as a “collection of related ideas which can be a theory or a general basic approach to understand something”. It employs comprehensive theory for behavior and attitudes to compete with variable construct and hypothesis (Creswell, 2003). It provides a standpoint to guide a researcher on what to survey and the group of individuals a researched need to study. The theoretical framework for this study therefore served as a guide to examine and discuss issues that were significant and pertinent to the study.

1.5.1 Technology Acceptance Model (TAM)

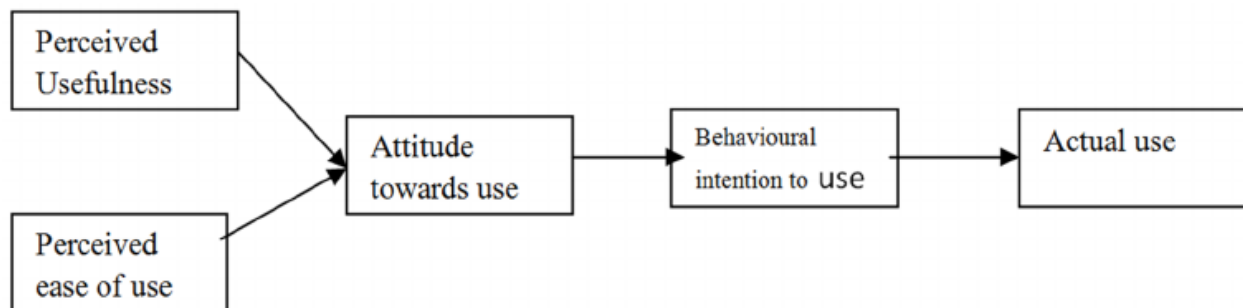
Davis (1989) noted that effective devices that can be used to predict user acceptance of computers are inadequate. The particular ones in use is invalidated and the link between the system use is not known. He develops and endorses new scales for two particular variables. These are ‘Perceived Usefulness (PU) and Perceived Ease of Use’ (PEoU), to be the determining factor of user acceptance. He also defines PU as the extent to which a particular system would improve one’s performance while PEoU is the extent to which a particular system would be easy to use. Many researchers have based their research findings on Technology Acceptance Model (TAM) to explore the relationship between these variables: ‘perceived ease of use’, ‘perceived usefulness’, attitudes and usage of other information systems.

Ajzen and Fishbein (1980) propounded the Theory of Reasoned Action (TRA) which was adapted by TAM. TRA demonstrates ideas, influence and attitudes which influence intentions to create behaviours. Approach to usage and behavioral objective to use are variables in TAM. Attitude towards usage is the end user assessment of the interest of using specific information systems application. Behavioural intention to use is the extent of chances that inspires an individual to use the application.

Davis' (1989) model shows that TAM's belief- attitude- intention behavior correlation envisages the use of IT by users. Davis (1989) continues that perceived usefulness and ease of use depict the views that make users accept the system. TAM has been abridged by researchers by removing the attitude variables in TRA from the modern requirement (Venkatesh et.al, 2003).

TAM has been extended by taking cognizance of the following methods: making known to features from interrelated models, making known to supplementary or different features and investigating antecedents of perceived usefulness and perceived ease of use (Wixom and Todd, 2005). In order to uphold the brevity and allow the study variables of ease of use and usefulness, the research also considered the outcome of ease of use and usefulness on usage. Figure 1 depicts the model for the study.

Figure1.1: Technology Acceptance Model (TAM)



There are two schools of thought which studied TAM by using the Web as an application. One school indicated that usefulness and ease of use brought about usage, however, usefulness had more influence. The other school also indicated that ease of use predicted usage. Both studies supported TAM and emphasize on the importance of usefulness and ease of use.

The implication of the Technology Acceptance Model (TAM) is the model of the study that represents the acceptance and the use of technology. The model intends that end users have different

perceptions with new technology and its usage. TAM variables of “Perceived Usefulness” and “Perceived Ease of Use” have a great effect on user’s approach on technology usage.

TAM implies that a student who perceives that Internet usage imposes many problems for him/her will refuse to use the facility. This is factual because the techniques of using some of these Internet services are sometimes difficult which brings about anxiety in the minds of most of these students with respect to the successful adoption of the resources. However, those who perceive that the use of Internet services/ e-resources has more advantages will have preference in use as it will improve workflow or save time and will consider the ease of use as well as the currency and timeliness of information.

Effectively, the attitude of a student towards the use of Internet services will depend on the student’s own interest and how ready he/she is to learn and how to have access to timely, accurate and complete information. It is appropriate that most of the students will have adequate training on the use of Internet as well as to be encouraged by other colleagues on the field who use the facility.

Perceived Usefulness (PU)

According to Davis (1989, p. 320), “Perceived usefulness (PU) is defined as the degree to which a person believes that using a particular system would enhance his or her job performance.” In relation to the study, if students perceived that using the internet will bring improvement in their studies, then there is a likelihood that students will tend to appreciate and use the Internet more often otherwise.

Perceived Ease of Use (PEOU)

Perceived Ease of Use (PEOU) is the degree to which a person believes that using a particular system would be free from effort” (Davis, 1989, p, 320). According to Davis (as cited in James, 2010, p.83), “Perceived ease of use is the ease with which a new technology can be used.” In the context of this study, this implies that, if the intend respondents see search engines as an easy- to-use, the continue to use it. However, if the respondents find the search engine complex to use, then they will shun away from using it. In view of this, any search engine which is easier to use, will attract more users.

Attitude

Attitude refers to the general feeling of favorableness or favorableness about performing a behavior. Attitude also determines the behavior which in turn influences the actual acceptance Effectively, the attitude of a student towards the use of Internet services will depend on the student’s own interest and how ready he/she is to learn and how to have access to timely, accurate and complete information. It is appropriate that most of the students will have adequate training on the use of Internet as well as to be encouraged by other colleagues on the field who use the facility.

Behavioral Intention (BI)

Behavioral intention is defined as “a person perceived likelihood or subjective probability that he or she will engage in a given behavior (Committee on Communication for Behavior Change in the 21st Century, 2002, p. 31).”

Actual System Use

Actual system use refers to the extent at which users utilise a system. This is influenced by the behavioural intention to use a system.

1.6 Scope and Limitations of the Study

There are six government - owned senior high schools in the Bantama Sub-Metro of the Kumasi Metropolis in the Ashanti Region of Ghana. These are Adventist SHS, Ghana Armed Forces SHS, Asanteman SHS, Kumasi Girls SHS, Prempeh SHS and Islamic SHS. The study was, however limited to only three of them. These three senior high schools covered by the study were Asanteman, Prempeh and Kumasi Girls SHSs. This study focused on the third- year students of the three selected schools in Bantama Sub-Metro considering their experiences with facilities of their various schools (e.g. use of the internet). It excluded the first- and second-year students and other staff members because they were not part of the target population.

1.7 Significance of the Study

The study will be relevant to students, school management, policy makers and researchers. Policy makers and school management will be in a better position, with this knowledge, to formulate suitable policies with respect to the effective use of Internet by students. It will also enable policy makers, stakeholders, learning management, system developers and education practitioners make an informed decision pertaining to the Internet architecture and use.

It will also enable the students to ascertain whether the Internet has any negative/positive impact on their educational performance and how they can use the Internet to enhance their lives/ studies.

Researchers will also benefit from this study by building on it as a foundation for further studies to be carried out to ensure continuous improvement of the Internet for future use.

1.8 Organization of the Study

The study was organized into six chapters as follows:

Chapter One covers the background information of the study, statement of the problem, purpose, objectives, theoretical framework, scope and the limitations, significance, ethical considerations and organization of chapters.

Chapter Two consists of a review of literature that is in line with the study. The review offers a clear picture of development in Internet use among senior high school students. The literature was reviewed under the following headings: level of access and usage of Internet by students, importance of the Internet in education, effects of the Internet on students, search engines and skills used to access the Internet, types of devices used to browse the Internet and challenges students encounter when using the Internet.

Chapter Three focuses on the research methodology; that is research design, selection of cases, selection of subjects, the study population, sampling techniques, data collection instruments, mode of data collection and data analysis.

Chapter Four presents the findings of study.

Chapter five discusses the findings as presented in Chapter four in light of the literature review and the study's objectives.

Chapter Six provides the summary of the findings, conclusion and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

A literature review is a vital component of any study. According to Randolph (2009), it is a way of demonstrating the realities of an author's results on a particular field of study such as words, concepts, variables and phenomenon and their procedures. Conducting a literature review will inform readers the prominent researchers in a particular field of study that have been conducted.

This section presents the relevant knowledge from published papers in journals, reports, theses/dissertations, books, documents and web site material. The literature was reviewed to support the validity of the study, or to detect the gaps that exist in the texts consulted and how to solve them.

The literature was reviewed under the following sub themes:

1. Importance of the Internet in education.
2. Accessibility and usage of internet by students
3. Effects of the Internet use on students
4. Search engines and skills used to access the Internet.
5. Types of devices used to browse the Internet.
6. Challenges students encounter when using the Internet.

2.2. Importance of the Internet in Education

Education is both a basic human right and a core element of sustainable development. It is the theme of the United Nations' fourth Sustainable Development Goal, which seeks to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.” Education enables individuals to build more prosperous and successful lives and societies to achieve economic prosperity and social welfare. Access to the Internet is the fundamental to achieving this vision for the future (Internet Access and education 2017). Education works a lot for grooming up students' personality. Students get high level of confidence and get meaningful job for making their future bright. A student, being a well-educated person, will surely exercise decision making power that improve his/her self-confidence which in turn stands as a motivation towards making progressive strides in his/her chosen field of life (Albashtawi, 2014).

The Internet represents unavoidable source for different knowledge and information, for using in professional and personal learning purposes. Based on this fact, accessibility, richness and diversity of the contents in each domain make the key characteristics of the Internet. By the development of the Internet, a new phenomenon is included in the field of education, phenomenon of learning through Web. Besides different models of learning applied in the process of institutional education, learning through Web offers opportunities for purposeful and systematic enrichment of the process of education, which can significantly enable students to achieve better in any field of teaching and learning (Antonijevic, 2018).

Internet can improve the quality of education in many ways. For educational purposes, it is widely used to gather information and to do research or add to the knowledge of various subjects. It also opens doorways to a wealth of information, knowledge and educational resources, increasing opportunities for learning in and beyond the classroom. Teachers can use the Internet as a modern

tool for education. They can also use online materials to prepare lessons, and students to extend their range of learning. Interactive teaching methods, supported by the Internet, enable teachers to give more attention to individual students' needs and support shared learning. Administrators in various institutions should provide the infrastructure that teachers and students can use to get benefits of technology in education. Students use it according to their needs and interests. The Internet embodies the highest collection of human knowledge and has been extensively used by students and their teachers for teaching and learning (Waithaka, 2013).

The Internet has improved on teachers' methods of teaching and also enhancing students learning techniques. The Internet when used judiciously by students can contribute to their academic work and improve on their academic performance (Almasi, Machumu and Zhu 2017). The Internet has led to important innovations in educational content. Open educational resources (OER) and Massive Online Open Courses (MOOCs) avoid intellectual property limitations by making course materials from one country accessible to students in another country. These can complement local educational resources, extending the range and quality of materials available to students (Internet Society, Internet for Education in Africa, 2017).

Internet Society (2017) report indicated that teachers need to learn new skills to make effective use of Internet resources. The report also stated that global experience has shown the importance of professional development in building teacher's capabilities in using the Internet and introducing new types of learning in the classroom and with individual students. The report further indicated that educational administrators also need to learn how best to use the data which online learning makes available to improve education standards and target resources. Building these capabilities will be crucial to maximizing the value of the Internet for education.

Yadav's (2017) study on the importance of the Internet in the learning and teaching process of education in the rural and urban areas in Telangana, India indicated that 66.9 % of the students are using the Internet in their learning process among them 37.4 % are from urban area and 29.5 % from rural area. He further indicated that 77.6 % of teachers are using the Internet in their teaching process, among them 20.4 % are rural area teachers and 57.1 % are from the urban area.

Kumah (2015) compared Internet use and library use among students and the study revealed that students do not avoid the library in their search for information. The finding of the study also showed that the use of the Internet was more in comparison with library use and that the students preferred the Internet source of information to library.

A study by Khan, Khan and Bhatti (2011) confirmed that the Internet helps students to link with their colleagues to discuss issues and share views. The Internet improves on their competency level and also enhances their academic work. There is also an improvement in teaching, learning and research through the introduction of ICT. A lot of researches have established the positive effect of ICTs in teaching and learning and the Internet cannot be exempted. Orhan and Yilmaz (2010) examine the Internet use by secondary school students of Istanbul, Turkey and the findings showed that the deep learners Internet use is greater than the surface learners. They further reported that students who access the information from the Internet for assignment is higher than those who use the Internet for recreation.

Al-Ansari (2006) stated that surfing the Internet for course material enhances intellectual, personal growth as well as vocational preparation and the Internet is the leading tool of scholarly communication. Badu and Markwei (2005) also indicated that the Internet has many resources which students, lecturers and researchers can harness for scholarly work. Sinha (2004) also stated

that the Internet is a leading device of communication, and is used to disseminate and retrieve information. He further stated that the Internet is used for online tutorial. It is an instructional instrument with indefinite potential. It can either substitute old classroom teachings or to complement the rudimentary way of teaching. Luambano and Nawe (2004) indicated that the Internet plays an essential part in the lives of students and researchers with reference to accessing current information. They further stated that the Internet also assists students and researchers to disseminate information to a large group of people nationwide.

Alkhezzi (2002) stated that online courses have enabled a lot of students to upgrade themselves and it also has positive impacts on students who did not get the chance to enter into the regular stream of education. Al-Motrif (2000) findings also indicated that provision of e-learning is very good for workers who could not attend the normal stream of pursuing education due to time, family obligations and traveling distance. He further added that most academic institutions provide online tutorial to their students through the Internet.

2.3 Access and Usage of Internet by Students

Internet access refers to the means by which users connect to the Internet. Common methods of Internet access include dial-up, land-line (over coaxial cable, fiber optic or copper wires. Places of access to the Internet include libraries, Internet cafes and various places where computer with Internet connections are available Emeka and Nyeche 2016).

Access to the Internet is facilitated by so many factors, which include the presence of the Internet connections in schools and at home, adequate number of computers, the level of information literacy on the part of the students, speed of access, cost, stability of the network, power supply and satisfaction of information accessed. Students in schools are only interested in having access

to the Internet when there is an enabling environment. With these above-mentioned factors, students and teachers are encouraged to make use of the Internet even at their most inconvenient time (Ukpebor and Emwanta 2012).

The Internet is one of the many source's students may use in searching for information. One of the major benefits of the Internet in education is its function in e-learning. Students can obtain information from the Internet through a variety of devices such as computers, laptops, tablets, or smartphones. Internet use in secondary education should focus on enhancing students' academic work and in relation to their curriculum. Provision of Internet access in schools helps the students to access vast information on the Internet to improve on their learning. The Internet can be used in different ways by students but students who are focused access the Internet to search for relevant information. It enables them to get current information on their subject areas of study. The Internet also helps students in meeting their educational information needs (Ukpebor and Emwanta 2012).

A study done by Almasi, Machumu and Zhu (2017) indicated that the Internet is presently being used as a source of teaching and learning materials. They also stated that most private and some public secondary schools in Tanzania have computer laboratories used for teaching and learning. However, very few computer laboratories are connected to the Internet. Alternatively, teachers and students use their mobile phones to access the Internet services for academic work. Aboderin, et al. (2011) indicated that the introduction of the computer into the classrooms will assist in solving educational problems and enhance students' achievement.

Yebowaah's (2018) study found that access to the Internet by SHS students in the Wa Municipality is inadequate. She further stated that those who access the Internet improve on their academic work more than those who do not access the Internet.

A study by Almasi, Machumu and Zhu (2017) on Internet use among secondary school students in Valencia, Spain reported that 54.8% of the students access the Internet through smartphone. They also stated that searching related topics on the Internet improved students school performance but the respondents of this study access the Internet for social reasons. A study conducted by Tarimo and Kavishe (2017) indicated that 48.3% of students from Morogoro, Tanzania rated Internet access in the school as intermediate while 51.7% of the students rated it as high. They also indicated that (87.6%) used the Internet for entertainment. They recommended that students should be educated to search for educational materials rather than using it to entertain themselves.

Singh and Bala's (2014) study showed that students in private secondary schools in Varanasi City, India have more Internet access than the public secondary school students. They further indicated that students from public secondary school rely on Internet café' for only academic information. Ukpebor and Emwanta (2012) also indicated that some private schools in Benin City Nigeria have computer laboratories but lack Internet connectivity. However, they also indicated that few schools with computers connected to the Internet do not allow the students to have access to the system when they are in need. They further stated that cafes are the main source of the Internet access for students. They concluded that school administrators should provide Internet connectivity to the computer laboratories in secondary schools. A study by Vakkari (2012) also indicated that the rate students in Tampere, Finland use the Internet gives the strongest predictors of library use. Quarshie and Ami-Narh (2012) study on the growth and usage of Internet in Ghana indicated that 45.6% of the respondents use the Internet frequently for educational purpose, 33.8% frequently use it for news; and only 6.4% frequently use the internet for commerce.

Brafi and Arthur (2011) in their study in Ghana indicated that about 92.9 % of the students knew how to use the Internet services while about 7.1% stated that they did not know how to use the

Internet. Oluwafemi (2010) study reported that Internet access is quite low among the students in Lagos State of Nigeria. He further opined that 39% of the students cannot manipulate the computer and do not know anything about the Internet. He therefore concluded that there should be more computers with Internet connection for the second cycle students.

A study conducted by Nwagwu, Adekannbi and Bello (2008) indicated that students in Ibadan, Nigeria used the Internet for preparing assignments. They further stated that most of them prefer accessing the Internet more than their school libraries. They also indicated that students see Internet services as the basis of knowledge because it enhances their vocabularies and improve on their performance in school. A study by Olatokun (2008) indicated that in Nigeria the least place for secondary school students to access the Internet is the school. He further stated that majority of the parents want their children to access relevant information from the Internet. He concluded that students and their teachers access the Internet frequently and they use it purposely for academic and not for leisure. He again reported that Internet use among secondary school students is increasing rapidly.

A report by Pew Internet and American Life Project (2005) indicated that 22.2% of the children in America who access the Internet were beyond three (3) years while one fifth (1/5) of them access the Internet using their home computers. The findings also stated that majority of the school children used desktop computers to access Internet at school.

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2.4 Effects of Internet Use on Students

In the twentieth century there was a deliberation on the effects of the Internet use among secondary school students and it is a bone of contention on this day. In some parts of the world, parents, teachers and some groups of people were against the Internet use in schools. The idea against the Internet use in schools was started with the beliefs that the technologies were new to teachers, lack of know-how among teachers increased tension against Internet use, and that parents were against the extra cost in accessing the Internet. However, the Internet use among school students increased rapidly in the homes and in schools.

Students' assessment of their learning was based on their self-expression of what materials they accessed, how they accessed it, and when they accessed it. Researchers determined students' learning using content analysis that is the content of the Internet materials that students accessed frequently. The presence of pornography, issues of cybercrimes and cyber bullying, and chatting so much on the Internet were mentioned as negative effects of the Internet (Almasi, Machumu, Zhu 2017). They indicated that students learned things that were not of beneficial to them and that

they were even exposed to the kind of threat that they had never experienced before. Internet use was also mentioned to be a waste of the studying time as students often spent time on non-educative websites. Despite the negative effects of the Internet access mentioned above, the Internet was positively declared to have helped students to learn and receive learning materials, receive and send information and documents. The Internet has enormously contributed to improving the academic achievement of students by providing them with a lot of information to understand certain topics better, read broadly to broaden their academic horizon, do assignments, and for extensive research (Duker, Bonney and Adibi 2018). They further indicated that the Internet has positive influence on the academic performance of students by greatly contributing to both students' and teachers' motivation for teaching and learning.

A study conducted by Adedokun, Magaji and Makinde (2018) on the Internet use and library patronage among secondary school students in Lagos State revealed that the Internet use saved time, was more informative, and less expensive with more useful resources. Ahmed, Ahmed-Zakariyyah and Ahmed (2018) study on influence of Internet usage on senior school students in Osun State in Nigeria indicated that Internet usage had positive influence on the academic achievement of Biology students but it is not too significant. They further indicated that the students that use the Internet had a relative higher score than students that do not make use of the Internet.

Gorkemli (2017) in his study on Internet and social media usage of secondary school students in rural city of Konya in Turkey indicated that most of the students use the Internet to get information to do their homework others also use the Internet to play games, visiting social networking service (SNS), reading news and for chatting.

Torres-Diaz et al. (2016) indicated that Internet use has improved on students' academic performance and students who often search educational information on the Internet perform well in their examination. They further indicated that students who exchange ideas with colleagues and teachers have remarkable mark in their academic performance. Emeka and Nyeche's (2016) study on the impact of Internet usage on the academic performance of students reveals that most of the students who use the Internet use it to obtain course related information which helps to aid their research, prepare for assignments and get access to current information sources. They further indicated that the Internet has great influence on the academic performance of the students they understudied.

Alio and Aneke's (2015) study confirmed that access to the Internet is a desirable among students. They continued that Internet is a new technology which has some good and bad effect on Nigeria secondary school students because the youth tend to rush into things because of their natural characteristics. They concluded that teachers, parents and counsellors should help students stay less on the Internet and also prevent the Internet to have negative effects on them.

A study by Aitokhuehi et al. (2014) in Nigeria stated that students who have knowledge in computer use do better than those who do not have any computer skills. Chen's et al. (2014) study indicated that not all information on the Internet is good to Internet users. They further stated that pornography and unnecessary conversation on the Internet among secondary school students has adverse impact on their academic performance and life after school. Mami and Hatami-Zad (2014) also indicated that if the Internet is not controlled then students' academic performance will be at risk.

Akin-Adramola's (2014) study reported that most of the students use the Internet for entertainment and for online shopping and that majority of the students expressed concern on

incorrect grammar usage, poor spelling and less time for studies because such students engaged on social networks contrary to their study time. Stanciu and Tinca (2014) in their study reported that browsing, recreation and social media have changed individuals behaviour on the way they relate with other people.

Singh et al. (2013) opined that irrespective of the importance of the Internet to students' school performance, its adverse effects are numerous. Majority of the students access the Internet for entertainment and for chatting at the expense of their educational work. Derbyshire's et al. (2013) study found that lack of time control on the Internet was the problem associated with frequent Internet use by students which can contribute to their poor academic performance.

Young (2011) also indicated that excessive Internet usage among students has negative effects on students' academic success. However, a study conducted by Odaci (2011) indicated that the Internet has no influence on students' school performance. Amenyedzi, Lartey and Dzomeku (2011) in their study in Tema secondary school indicated that less than 25% of the students use the Internet for research work, less than 40% use the Internet for entertainment and less than 40% use the Internet for email and browsing. They further stated that the use of ICT in Ghanaian schools is gradually increasing and dramatically growing. This growth is the result of the efforts of Ghana education Ministry to raise the standard of education in the country.

A study conducted by Bernard and Dulle (2008) indicated that inadequate materials in public secondary schools of Tanzania lead to low performance of students. However, with the development of the Internet, students are no more restricted only to their library resources. Therefore, the Internet broadens the scope of the students to search for current information in their subject areas. Access to Internet facilities in secondary schools offers further reading chances for students, which at the end develop their minds to increase high performance in their academic

work (Olatokun 2008). Jones et al. (2007) conducted a study on the Internet use for students in the United State and reported that the Internet had enhanced 84% of the students' academic performance.

2.5 Search Engines and Skills Used in Accessing the Internet

Search engine is a searchable database which allows the user to locate information on the Internet by submitting the keywords. It is a very useful tool for searching information quickly and easily online. Users can use advanced search techniques such as phrase searching, truncation/wildcard searching, as well as for Boolean operators (AND, OR, NOT combinations) to filter the most relevant information out of search engines huge database more efficiently and effectively. Also, by using different filters in the advanced search tabs directly accessible resources provide more effective query results for specific types of document with pdf format. This makes it possible to access the information required or to extract unwanted resources. It has become an interface of choice for many researchers' lecturers and students to address their information needs far exceeding their use of library catalogs or other online citation databases. The use of search engine has been found to predominate over all other types of electronic information retrieval on the cyberspace. The usefulness of Internet search engine depends on the relevance of the result. While there may be millions of web pages that include a particular word or phrase, some pages may be more relevant, popular, or authoritative than others. Search engine use is an embedded task that is determined by individual specific work content and needs (Ali and Gul 2016).

“Web pages can be explored through search engines. They are sites that help users in finding Web pages that link to selected themes. Examples of search engines are: Google, Yahoo, Base, Eric, AltaVista, HotBot, Dogpile, Ask Jeeves and Infoseek (Hock, 2007). The selection of a particular search engine will be determined by the skills and ability of the user.

Emeka and Nyeche's (2016) study on the impact of Internet usage on the academic performance of students confirmed that the Google search engine remain the most popular search engine which undergraduate students of the University of Abuja use with the response rate of 72%, 14% use Yahoo, 9% use ASK while 5% use other search engines.

Waithaka's, (2013) study on Internet use in the University of Nairobi, Kenya indicated that all the students (264) used search engines in their Web searches. Her results showed that the search engines mostly used by the students were Google with 81.4% followed by Yahoo, with 73. 5% while AltaVista, HotBot and Dogpile were not used by the students. She further stated that majority of the students prefer using Google and Yahoo because they are easier to use.

Khan, Khan and Bhatti (2011) also conducted a study on Internet use by Islamic University students in Pakistan. Their study indicated that search engines mostly used by the students were Google with the response rate of (83%) followed by Yahoo (25%) while 9%, 5%, 4%, 3% and 1% of the students used MSN, AltaVista, HotBot, Netscape and Infoseek respectively.

Leibenluft (2007) indicated that Yahoo is one of the prominent Websites that has been utilized by many Internet users. He stated that Yahoo has over million users globally with 400 million responses in its records. He further indicated that Yahoo has been the most visited Internet Website after Wikipedia. Hocks (2007) also indicated that Google has a remarkable reputation and surpassed other search engines.

Becker (2003) study indicated that all the respondents (100%) used search engines to conduct a Web search. She further stated that most of the students preferred using Google or Yahoo to any other search engine.

Internet skills have been marked as an important factor in explaining differences in individuals' Internet use. These skills are relatively novel with regard to the digital divide debate and there has been little work on the online abilities of the average Internet user. Van Deursen and Van Dijk (2010), study proposed a range of Internet skills that would combine several digital skill conceptualizations. Their definition accounts for technical or media aspects (medium-related skills) and substantial or content aspects (content-related skills). Medium-related Internet skills consist of operational skills, which include a basic command of an Internet browser, and formal skills, which include the ability to navigate and orient oneself within the Internet's hypermedia structure. The first type of content-related Internet skills consists of information skills, which include the ability to find, select and evaluate sources of information on the Internet. Secondly, strategic skills refer to one's capacity to use the Internet as a means to reach particular personal and professional goals. This and other conceptualizations of Internet skills have thus far mainly focused on the information function of the Internet.

Skills are needed in performing any activity including accessing Internet resources. The acquisition of high level of Internet/computer literacy is necessary especially for students, lecturers, researchers and those working in the libraries and other information centers in a knowledge economy. Eziani (2011) described network literacy as the "ability to participate in the evolving knowledge networks on the Internet and to have understanding of the logic of these networks". He also indicated that students with Internet skills are network literate. Okello-Obura and Magara (2008) also opined that to acquire network literacy skills, the user must be able to locate and use the information efficiently to satisfy his needs.

Tarimo and Kavishe (2017) in their study indicated that students in Morogoro, Tanzania. lack Internet skills to search information. Emeka and Nyeche's (2016) study on the impact of Internet

usage on the academic performance of students indicated that 13.5% lack computer skills and they further indicated that lack of searching skills is still hindering good use of the Internet.

A study by Muniandy (2010) on the Internet usage among Malaysian students indicated that seventy percent (70%) of the students rated their Internet skill level as fair, 2% of the respondents rated it as very good whilst 28% of the respondents rating theirs as good. Oluwafemi's (2010) in his study indicated that 39% of the students in Lagos public senior high schools cannot manipulate the computer and have no knowledge about the Internet. Also, Ngulube et al. (2009) in their study posited that the Internet use of the respondents in South Africa was not adequate because the students lacked network literacy skills.

A study conducted by Tella, Tella and Ayeni (2007) revealed that to become a lifelong learner, one needs to know how to teach ourselves. We must acquire the skills to be independent and self-directed learners. They further stated that students from basic schools, secondary schools and tertiary institutions in this digital era, who want to perform well, must acquire the skills to explore the digital environment.

A study done by Shuling (2006) which indicated that most of the students do not have the requisite skills in accessing e-resources. He reported that about half (55%) of the students know the basic search method whilst 16% can perform the advanced search methods. He further admonished students to improve on their information searching skills.

Hinson and Amidu's (2005) study on literacy skills in Ghana indicated that 48% of the respondent lack Internet literacy skills to access Internet resources. They further indicated that final year students' low levels of Internet skills are alarming because information literacy is crucial for success at every stage of a person's academic and professional life.

2.6 Types of Devices Used to Browse the Internet.

As time changes and the Internet knowledge of man becomes more advanced, digital and mobile technologies are “changing job profiles and skills, while offering possibilities for accelerated learning” (The World Bank Group, 2011, p.7). Devices like smartphones, tablets or e-readers provide users with access to a broader and more flexible source of information and learning resources around the-clock from any location. There are various types of devices a user can use to access the Internet. The choice of using the gadgets and means of getting online resources vary from one user to another. These may include the user’s lifestyle, how often he/she needs to access the Internet and the kind of activities he/she wants to perform on the Internet. A device in this context is an object designed or manufactured that can be used to connect to the Internet to perform one or more functions. Knowing how to use a device properly will actually increase the speed of the tasks at hand. The least devices users use nowadays include tablets, smart phones, laptops and desktop computers.

A study by Yebowaah (2018) which revealed that 49.7% of Wa Secondary School students accessed the Internet with mobile phones while 55.4% used desktop computers to access the Internet.

Gorkemli (2017) who revealed that rural secondary school’s students access the Internet with smart phones with 67.3% response rate followed by personal computers with 56.1% and tablets with 39%. Tarimo and Kavishe (2017) which focus on students in Tanzania secondary schools showed that majority of the students, 97.8% used smart phone, 62.9% used computers while 49.4% used iPad to access the Internet. Their study further indicated that majority 97.8% of the respondents used smart phones because they are economical, portable and accessible to most people in Tanzania. According to Ananya (2017), in his study that focused on India, 79% of the people

accessed the Internet through mobile phones, 20% used desktops computers and only 1% of the respondents used tablets. He affirmed that Indians adore their mobile phones for surfing the Internet.

Stanciu and Tinca's (2014) in their study showed that 82% of the students accessed the Internet by using mobile phone, 16% of them used desktop computers whilst 4% of the respondents used iPad. Mtega et al. (2013) study established that the use of mobile phone can improve teaching and learning as this device is affordable and majority of the students have more mobile phones than other ICTs facilities. A study done by Waithaka (2013) in Kenya established that 106 (40. 2%) of the students used the Internet through desktop computers, 83 (30. 1%) of the respondents used laptops while 65 (24.6%) used mobile phones and 10 (3. 8%) used iPads. Her results thus indicated that a significant proportion of the students used desktop computers because most of the Internet café only had desktop computers.

2.7 Challenges Students Encounter When Using the Internet

Internet use in secondary schools is mainly determined by access, available ICT facilities, power supply and Internet bandwidth. Despite the overwhelming advantages of Internet services, users still face some challenges with the use of these services. A number of studies have investigated students' challenges with the use of the Internet (Emeka and Nyeche, 2016, Agber and Agwu 2013 and Sife 2013). Access to the Internet in Ghana and Africa in general is inadequate. Not that the Internet is not available in Ghana but there is a limited access because of costs and unavailability in remote areas making it non-existent for most of the institutions in Ghana.

A major factor that facilitates Internet access in schools, is the need to ensure that the Internet support the educational goals for students. In other words, the learning goals should drive the

technology use. Access to the Internet is facilitated by so many factors, which include the presence of Internet connections in schools and at home, adequate number of computers, the level of information literacy on the part of the students, speed of access, cost, and stability of the network and power supply and satisfaction of information accessed. Students in schools are only interested in having access to the Internet when there is an enabling environment (Kamara, 2010).

Despite the rapid increase and implementation of Internet services in basic, secondary and tertiary institutions, there are still some challenges in its usage. A study conducted by Ugwu and Orsu (2017) indicated that the greatest of the direct factors underlying students' challenges with the use of the Internet include lack of browsing skills, low Internet bandwidth and insufficient ICT infrastructure. Uloaku, (2017), conducted a study on utilization of Internet resources/services by academic staff of National Water Resources Institute and Federal College of Forestry Mechanization, Kaduna, Kaduna State indicated that slow Internet service, Internet connection failure, inadequate number of connected system as their main challenge. Emeka and Nyeche (2016), in their research, stated that, 56% of the respondents indicated slow Internet speed, 16% indicated power failure, 14% indicated poor computer skills and 23% indicated paying for online service as their major challenges. Agber and Agwu (2013) in their study outlined the following as the challenges that affect Internet access and use in most of the Africa countries: lack of technical support, lack of Internet connectivity, inadequate bandwidth, poor quality hardware, lack of ICT facilities and irregular electricity supply.

Sedoyeka and Gafufen (2013) also stated that most of the rural secondary schools in developing countries have irregular power supply. They further stated that such a situation will have a negative impact on computer operations which will have effects on accessibility and usage of the Internet services. They recommended that since Internet services rely on power supply to operate, it is

important that good infrastructure such as Internet connectivity should be available to increase Internet services in the rural secondary schools. A study conducted by Sife (2013) indicated the following challenges: lack of support from government side, inadequate ICTs infrastructure, inadequate power supply, low Internet bandwidth, lack of awareness on the part of the students and inadequate budget.

According to Asongwa and Ezema (2012), irregular power supply is the main challenge affecting Internet usage in most African countries especially those in East African including Tanzania. They also stated that most of the secondary schools in remote areas do have irregular power supply which prevents the students in those areas not to have a reliable Internet service. Khan and Bhatt (2011), conducted a study and explored the attitudes of students of the Islamic University of Bahawalpur, Pakistan towards learning through the Internet. Their results showed that the respondents were not satisfied with the Internet service provided by the university, slow connectivity of the Internet and inadequate number of computers in computer laboratory were their major challenge.

Zano's et al. (2008) study revealed shortage of funds as the main challenge affecting Internet use in Africa countries. They also indicated that unreasonable prices of ICTs facilities also impede the access and utilization of Internet services. They further stated that poverty is a contributing factor delaying the growth of Internet services to the rural areas in Africa.

A study conducted by Manda (2005) also confirmed that for the past twenty years, researchers and faculty members in Tanzania academic institutions were unable to access information online as a result of shortage of funds confronting the institutions. He also stated that most of the students are

ignorant that the Internet is a device used to access online information and those who are aware of this also lack the requisite skills to use it.

In Ghana, most of the SHSs in the remote areas lack computer laboratories as a result of shortage of space, competent staff and lack of funds to purchase ICT facilities. All public schools in Ghana rely greatly on government subvention for their activities. The government needs adequate funds to incorporate computer and Internet services in second cycle schools. The Ghana Education Service should set up a strategy to provide Internet services in all senior high schools in the country irrespective of the location of the schools.

2.8 Summary of Chapter

The researcher revisited literature similar to the study and the reviewed documents provided the researcher with an insight on Internet usage by secondary school students. The analysis and presentation were structured under the following themes: level of access and use of Internet by students, importance of the Internet in education, effects of Internet on students, search engines and skills used in accessing the Internet, types of devices used to browse the Internet and challenges students encounter in using the Internet. Even though Internet resources used by SHS students have enhanced their performance in school most of them access the Internet for entertainment at the expense of their academic work.

In a nutshell, the Internet is used in daily life in educational settings. However, its usage among senior high school students should be used appropriately so as to yield academic success.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Methodology in research is a key facet of any study and it gives the outline on which the research process is conducted. The selection of the methodology is controlled by the theoretical bases of the research scope, its aim and objectives, research problems and analysis, interpretation and presentation (Yin, 1993). Apusigah (2008) indicated that detailed explanation of the research method and process, population, mode of data collection, sample size and sampling technique and analysis of data should be outlined in the methodology section. This has been the adopted guide in this thesis.

3.2 Research Design

A research design is a framework that is used to respond to the purpose of the study. It is the outline used to answer a particular issue. It provides a way and organizes the study. A research design “guides the researcher in data collection and analysis” (Nuhu, 2010). A good research design enables a researcher to generate valid results.

The research design adopted for the study was a survey methodology. A survey was used to explore the usage of Internet by form three students in Asanteman SHS, Prempeh SHS and Kumasi Girls SHS. Choosing this research approach for the study meant that the researcher surveyed the selected schools as a group.

According to Lancaster (2005) a questionnaire can be used as a data collection instrument to elicit information from individuals or target population through a survey research design. Other units of analysis like groups or interactions can be done through survey approach; however, individuals

must serve as informants or respondents. Survey research approach analyses data from respondents in order to answer a hypothesis or describe a set of characteristics.

A questionnaire survey methodology is cheap, easy to distribute and duplicated. Also, through this method more data can be distributed to more people at a glance. According to Keegan (2006) a survey research design can also be used to elicit information from people through oral or written questions based on their opinions, conduct, trust and beliefs on the matters being investigated. The information collected covers issues ranging from attitudes, values, opinions and description of past and present situations and incidents (Babbie 2005).

Lancaster (2005) and Babbie (2005) agree on some strengths of questionnaire survey research design approach as follows:

- They are relatively self- administered and inexpensive
- They are useful for small and large population description
- They are usually highly reliable and easy to obtain
- They can be done through telephone, emails and smart phones.
- They are flexible and can be produced in a short time.

Based on the above stated advantages and good attributes, this approach suited the research objective as it sought to understand comprehensively the Internet use by students. The study significantly sought to determine the reason behind their Internet use thereby determining whether the purpose reflects on their learning needs.

3.3 Selection of Cases

There are six municipal SHSs in the Bantama Sub-Metro of Kumasi Metropolis, the capital of Ashanti Region, Ghana. These consist of one boys' SHS, one girls' SHS and four mixed SHSs. The researcher, however, chose one boys' SHS, one girls' SHS and one mixed SHS as the cases for this study. The three selected SHSs were Asanteman SHS, Prempeh SHS and Kumasi Girls SHS.

The reason for selecting these three SHSs was that, Prempeh SHS and Kumasi Girls SHS are the only boys' and girls' SHSs respectively in Bantama Sub-Metro of Kumasi Metropolis while Asanteman SHS was the oldest SHS among the four mixed SHSs in the Bantama Sub-Metro of Kumasi Metropolis. Also, the selected SHSs have Internet facilities.

3.4 Research Environment

The researcher conducted this study in three SHSs in Bantama Sub - Metro in the Kumasi Metropolis namely: Asanteman SHS, Prempeh SHS and Kumasi Girls SHS. Kumasi is the regional capital of the Ashanti Region. The study focused on three public senior high schools in the Bantama Sub - Metro in the Kumasi Metropolis which is one out nine Sub-Metros in the Metropolis.

3.4.1 Asanteman Senior High School (SHS)

In the year 1950 there were few secondary schools in the Ashanti Region and the youth who wanted to pursue secondary education travelled outside Kumasi to enroll in schools like Achimota SHS, in Accra Mfantsipim SHS and Wesley Girls SHS in Cape Coast.

In 1952, the Asante Youth Association (AYA) had their maiden meeting at Krobo Odumasi (K.O.) Methodist School and planned to establish a secondary school within their locality to cut down the

cost incurred in seeking secondary education elsewhere (www.revovvy.com/pageAsanteman-Senior-High-School). AYA members were made up of young, energetic, bold and visionary men who at that time recognized the importance of secondary education. They therefore responded positively to the establishment of Asante Youth Association Day Secondary School in 1954. The School was under the auspices of AYA and in 1962, it became government owned institution.

The School has been ranked as a category B school by the Ghana Education Service for the last seventeen years. The School offers the following programmes to students: Business, Home Economics, Visual Arts, Science and Arts. With reference to the 2014 WASSCE results, the School was graded as the 4th Best School among a total of eighty (80) secondary schools in the Ashanti Region.

3.4.2 Prempeh Senior High School (SHS)

Prempeh SHS formerly known as Prempeh College is one of the government - owned boys secondary schools located in Kumasi, the capital town of the Ashanti Region. In collaboration with the Asanteman Traditional Authority, the British Colonial Government, the Methodist and Presbyterian Churches of Ghana, the School was established in 1949 and was named after Otumfour Sir Agyeman Prempeh¹¹, the King of Ashanti. The School was constructed in resemblance of Eton College in England. In the 2004 and 2012 academic years, 441 and 296 students gained admission to Kwame Nkrumah University of Science and Technology respectively (Prempeh SHS Website). The School which is one of the grade A schools in Ghana won the National Science and Maths Quiz competition in 1994, 1996 and 2015 thereby making it one of the most prestigious senior high schools in the country. The School has also emerged first in the National robotics championships in 2013 and 2016. In 2016, Prempeh SHS won Toyota Innovation Award held in Michigan, USA (www.prempeh.org).

Currently (2019), Prempeh SHS is the academic home of young adolescent boys numbering two thousand five hundred and twenty (2,520) students.

3.4.3 Kumasi Girls Senior High School (SHS)

Kumasi Girls SHS is located within the vicinity of Abrepo-Junction along the Barekese road. In 1953, a proprietor by name Caxton Williams from Sierra Leone started the School as a private secondary school for girls at Susanso, near Bomso a suburb of Kumasi.

In the 1960s, Caxton Williams relocated the School to Old Tafo in a rented house till 1992 when the School moved to its new site at Abrepo- Junction. In 1963, the School became one of the public secondary schools under the auspices of the Ghana Education Services.

The School has achieved academic laurels in the West African Senior School Certificate Examination (WASSCE) and various school competitions in the Ashanti Region and the country as a whole. The School has two thousand five hundred and fifty-six (2556) students all in the boarding house.

3.5 Selection of Subjects

This research covered only form three students in the Asanteman SHS, Prempeh SHS and Kumasi Girls SHS. These students were selected because they were seniors and more likely to have expertise in using the Internet. This is because they were preparing to write their final examination in April/May, 2019 they may search the Internet for more information to augment their lecture notes.

3.6 Population

A research population can be termed **as** the set of persons or entities that have similar characteristics. The research is done to benefit the population. Fraenkel and Wallen (2000) define a population “as a large collection of individuals or objects that is the main focus of a researcher from which a statistical sample is drawn.”

A population is the key component that is of importance to the researcher, the set in which the researcher will likely simplify the results of the study. The research population is considered as an essential part of any survey. This study target population was form three students from the three selected senior high school students within Bantama Sub-Metro of Kumasi Metropolis, Ghana.

The entire population for the study was three thousand six hundred and two (3,602) form three students from Asanteman SHS, Prempeh SHS and Kumasi Girls SHS which are hereby randomly designated as SHS “A”, SHS “B” and SHS “C”. The form three students were chosen as a target population because they were the focus of the study and would therefore give vivid information needed for the study. Table 3.1 gives a breakdown of the population under study.

Table 3.1 Population of Students by Schools

NAME OF SENIOR HIGH SCHOOL	POPULATION OF FORM THREE STUDENTS
SHS ‘A’	979
SHS ‘B’	1317
SHS ‘C’	1306
Total	3602

Source: Field data, 2019

3.6.1 Selection of Sample Size

A sample is a selection of subjects chosen to represent the total population for the study. Determining the sample size to be selected is essential in any empirical study. The sample size of a survey is determined by the number of subjects that were chosen from which data were collected. Millar (1991) indicated that a study based on a sample size is more preferable than the entire population. This is in line with Karma's (1990) recommendations that, the use of a sample should not be extremely big or small, it should be the best and be at the choice of the researcher.

The sample size selected for this study was based on the students' population in the three selected SHSs within the Bantama Sub-Metro of Kumasi Metropolis, Ghana namely: Asanteman SHS, Prempeh SHS and Kumasi Girls SHS.

The sample size determination was done using Yamane (1970) formula as stated below:

$$n = \frac{N}{1 + N(e)^2}$$

Where n is the sample size, N is the population and e is the sampling error. The confidence level or significance level considered was 95%. According to Ahuja (2001), an acceptable error level traditionally is up to ± 0.05 or ± 0.10 (i.e., 5 or 10 percentage point). In this study, N= 3602 students, and e = 5%, considering the confidence level of 95%; n was equal 360 students. Therefore:

$$\frac{N= 3602}{1 + 3602 (0.05)^2} = 360$$

The required sample size of the students included in the study was 360.

The following statistics show the population and proportionate sample size for each level.

$$\begin{array}{lcl} \text{SHS "A"} & \text{P.S} = & \frac{979}{3602} \times 360 \\ & & = 97 \end{array}$$

$$\begin{array}{lcl} \text{SHS "B"} & \text{P.S} = & \frac{1317}{3602} \times 360 \\ & & = 132 \end{array}$$

$$\begin{array}{lcl} \text{SHS "C"} & \text{P.S} = & \frac{1306}{3602} \times 360 \\ & & = 130 \end{array}$$

Table 3.2 gives information on the population and proportionate sample size for the study.

Table 3.2 Sample Size Determination for Students by Schools

NAME OF SENIOR HIGH SCHOOL	POPULATION OF FORM THREE STUDENTS	SAMPLE SIZE
SHS 'A'	979	98
SHS 'B'	1317	132
SHS 'C'	1306	130
Total	3602	360

Source: Field data, 2019

3.6.2 Sampling Techniques

The concept of sampling is fundamental in conducting and interpreting research results in quantitative research and surveys. Sampling refers to the process of selecting members from a population which will be used to represent the entire population (Millar, 1991). Sampling techniques are of two kinds; these are probability sampling and non-probability sampling. Probability sampling makes room for every individual to have a chance to be part in the sample. The objective of probability sampling is to achieve equal representativeness. Simple random, stratified random, multistage, systematic and cluster sampling are examples of probability sampling techniques.

Non- probability sampling is a sampling technique used to get a sample that has not been selected using random selection method. This indicates that not all will be selected. Some examples of non-

probability techniques are convenient or accidental, quota, purposive or judgmental sampling, and snowballing.

Under the probability sampling approach, the study used the stratified sampling technique to select the respondents. The stratified sampling is the probability sampling technique whereby individuals in the population have an equal chance to be selected. The stratified sampling can take place in a number of strata/subgroups. It helps to get a sample population that best represents the whole population being studied.

The convenience sampling technique was used for this study. It is a non- probability sample technique where subjects are selected because of their convenient accessibility (Acheampong, 2016). The main reason for using convenience sampling was the fact that, the subjects were Form Three (3) students of the three selected schools, who ideally were preparing for their final exams and so their instructional hours were limited for a researcher to administer questionnaire for the study.

3.7 Data Collection Instrument

According to Kumekpor (2002), social investigation demands that information should be gathered from human beings and institutions on specifically defined topics. There are various instruments that can be employed to collect primary data. Information can be gathered through the use of observation, questionnaire and interview. The selection of an instrument is influenced by the purpose, the resources available, the skills of the researcher and the characteristics of the population.

In choosing an instrument for data collection, the researcher used the questionnaire as the research instrument in this study to elicit responses from respondents. The background information of the study population shows an essential role. Some populations, for one way or the other, may not feel comfortable for a specific technique of data collection or feel easy to express their ideas in a questionnaire form. Therefore, in making a choice on the type of data collection method, the researcher must decide on the kind of people he/she will choose, their job description, and the mood of the social environment and the mind-set of the people (Walliman, 2008).

This study used a questionnaire as its collection instrument to gather primary data.

3.7.1 Questionnaire

According to Kumar (2005), “a questionnaire is a written list of questions, the answers to which are provided by the respondents”. The respondents usually read through the questions, analyze them and then put down the answers. Walliman (2008) indicated that in using a questionnaire more information can be obtained from a lot of people in a short period and the result can be easily calculated. He also presented the weaknesses of questionnaire as follows: low response rate and inability to explain questions and responses. Furthermore, he indicated that questions that are asked of respondents are the ultimate core of a research. Walliman (2008) further indicated that focus, brevity and clarity are the three most important attributes of a questionnaire. Focus means every question should be directly on a single specific issue or topic. Brevity implies that questions should be as short as possible in order not to create difficulties for the respondents. Lastly, clarity indicates that the import of the question must be clear to all respondents.

3.7.2 Questionnaire Development

The questionnaire for the study contained questions meant to establish the Internet usage among SHS students and the effects the internet has on their academic performance. The questions were structured into five main sections by taking into consideration the study objectives.

Section one dealt with the respondents' demographic and background information such as gender, age, programme of study and residence of the students.

Section two dealt specifically with the access and use of the internet. This section asked questions on frequency and the effect of the Internet usage on students' academic life.

Section three dealt with the search engines and the skills students use to access information from the internet.

Section four dealt with devices used by the students to access the Internet and various issues that inspire them in using the Internet.

Section five dealt with the challenges the students faced in using the Internet and also solicited respondents' suggestions on improvements of the Internet services and general comments on Internet usage among students.

3.8 Pre-Test

Pretesting is a method of checking that questions work as intended and are understood by those individuals who are likely to respond to them (Hilton, 2015). Bentil (2011) has stated that pretesting helps to identify and take off ambiguous questions and duplications. This is important in research as it helps the researcher to predict ahead whether questions pose problems for respondent. Pretesting questionnaires is done to out unforeseen errors before data collection and this further strength the reliability of the research findings. For the purpose of this study, the

instrument was pretested in Prempeh Senior High School. Again, the researcher sought permission from the Academic Head of Prempeh Senior High School before undertaking the study. The questionnaire was distributed to the form three students in the school personally by the researcher on January, 2019. The answered questionnaire was retrieved from the respondents by the researcher on the first week in March, 2019. All these were done within a period of six weeks, using 15 students from the General Arts department. This was done as they had similar characters as both in Asanteman Senior School and Kumasi Girls Senior High School.

3.9 Mode of Data Collection

The collection of data was possible because the researcher sent an official letter from the Department of Information Studies, University of Ghana. Legon introducing the researcher as an MPhil student from the department. The researcher sought permission from the Academic Head of Asanteman Senior High School before undertaking the study. The questionnaire was distributed to the form three students in the school personally by the researcher in January, 2019. The answered questionnaires were retrieved from the respondents by the researcher in the first week of March, 2019. All these were done within a period of six weeks

Again, the researcher sought permission from the Academic Head of Prempeh Senior High School before undertaking the study. The questionnaires were distributed to the form three students in the school personally by the researcher in January, 2019.

The researcher sought permission from the Academic Head of Kumasi Girls Senior High School before undertaking the study. The questionnaire was distributed to the form three students in the school personally by the researcher in January, 2019. The answered questionnaires were retrieved from the respondents by the researcher on the second week in March, 2019. All these were done within a period of six weeks

3.10 Data Analysis

Data is a raw fact obtained in the course of an investigation. Analysis means a critical investigation of materials in order to recognize its portions and its connections to ascertain its trends. The procedure of data analysis is a constant one which involves various steps, coding, entry, editing, tabulation and computer processing (Twumasi, 2001). Alhassan, (2015) also indicated that data analysis involves careful matching of the study objectives and the results. Data gathered should be analyzed using the most standard systems and the information generated should be packaged in a user- friendly manner.

Data was edited by the researcher and subsequently coded. The data was then entered and analyzed using the Statistical Package for Social Sciences (SPSS, version 20). This software was used to analysis the data obtained from the questionnaire of the survey. Data analysis was done with the close reference to the objectives of the study using quantitative analysis for presentation with basic statistical tools like figures, frequencies, percentages and tables.

3.11 Ethical Consideration

Babbie (2005) indicated that “anyone involved in social science research needs to be aware of the general agreements shared by researchers about what is proper and improper in the conduct of scientific enquiry”. This is what is referred to in social science research as ethical issues. Fraenkel and Wallen (2000) have indicated that respondents should be aware that any information they have provided will be held in confidence. They went further to explain that whenever possible, the identity of respondents in the study should not be disclosed. This according to them can be done by allocating a number or letter to each questionnaire such that the researcher cannot associate the data to a particular respondent. Prior permission was officially sought from the Headmaster/ Mistress of these schools before the study was conducted.

As indicated earlier, the selected senior high schools did not have their names identified but were denoted by letters of the alphabets. All respondents were assured of their safety and confidentiality. Apart from that, the respondents were allowed to participate or answer questions out of their own free will. The researcher also conducted the research in line with the University of Ghana Codes of Conduct for Research. To avoid plagiarism, the researcher acknowledged all sources that were used in the study by providing complete references of such sources. Lastly, data was not manipulated to fit the research objectives

CHAPTER FOUR

ANALYSIS AND PRESENTATION OF THE DATA

4.1 Introduction

This chapter presents and discusses the analysis of data gathered from the field. The presentation is a reflection of data gathered with questionnaire and observation and is prepared with the study objectives. A response rate is also known as completion rate or return rate, in survey research refers to the number of people who answered the survey divided by the number of people in the sample (Ankrah, 2014, p.142). According to Babbie (as cited in Anaman, 2017), the researcher distributed a total number of three hundred and sixty (360) copies of the questionnaire to the sampled respondents in the Asanteman SHS, Prempeh SHS and Kumasi Girls SHS which are hereby designated as SHS A, SHS B and SHS C. Out of the targeted sample of 360 respondents, 342 copies of the questionnaires were completed and returned leading to a 95% rate of response. Therefore, it can be said that, the response rate for this study was very high. The chapter has been organized under the following major sub-headings:

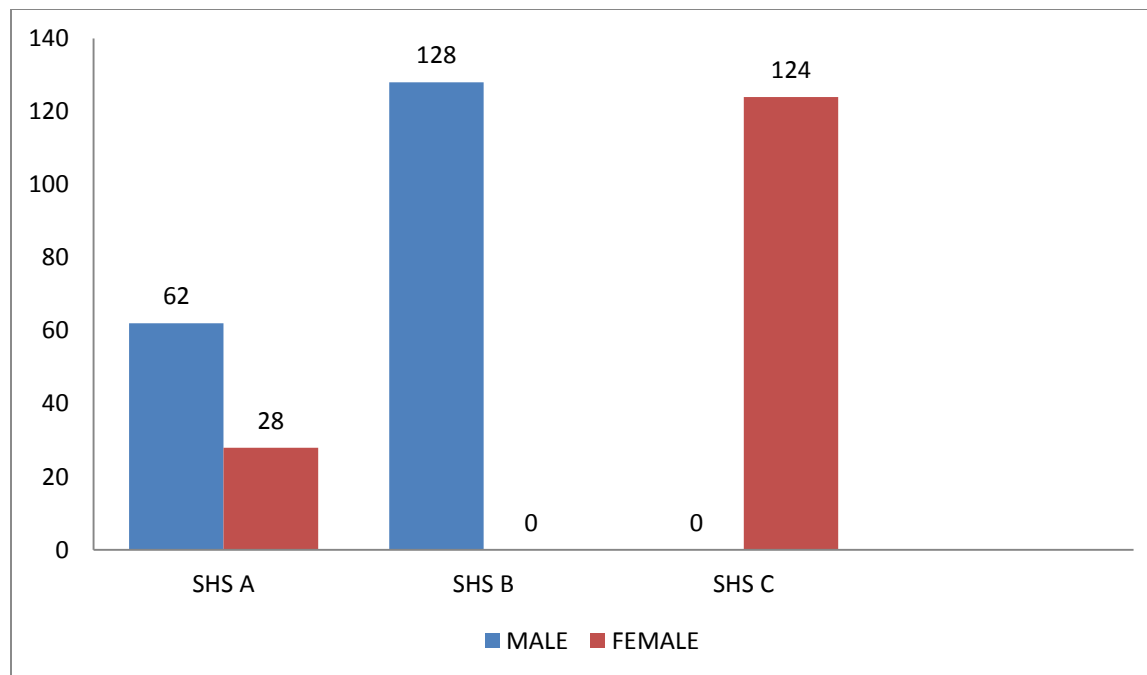
- Demographic characteristics of respondents.
- The level of access and usage of the Internet by students.
- Importance of using the internet by students.
- Effects of the internet use on students.
- Search engines and skills use to access the internet.
- Types of devices used to browse the internet.
- Challenges students face in accessing the internet.

4.2 Demographic Characteristics

Demographic data refers to the characteristics of a population which include; gender, age race, ethnicity, education profession, income level marital status to mention but a few (DeFranzo 2012). Knowledge of the profile of the respondents who used the internet was important because they helped the researcher to understand the characteristics of students use of the internet. Data was gathered on the respondents' profile with the idea to define how it influenced their internet use. The general information on the respondents of the study include: gender, age, programme of study and boarding/ day facility.

4.2.1 Gender

According to the Encarta Dictionary (2018), “gender is the sex of a person or organism, or of a whole category of people or organism”. As earlier research has proven, gender has a significant influence on the use of new technology (Davis, 2000). Based on that, respondents were asked to indicate their gender. The figure below depicts the responses.

Figure 4.1: Gender

Source: Field data, 2019.

With respect to the gender of the respondents, in the case of SHS “A” 62 (69%) of the respondents were male and 28 (31%) were female. It can be observed that more males were covered than females in SHS A. In SHS B, all the respondents were males and constituted 128 (100%) likewise SHS C; all the respondents were also females and represented 124 (100%).

4.2.2 Age

“Age is defined as the description of an individual based on biomarkers” (Kowalczyk, 2018). Age is one of the critical demographic characteristics in research that needs to be considered (Aramide, Ladipo & Adebayo 2015). In view of this, respondents were asked to indicate their age ranges. Table 4.1 depicts the age distribution of the respondents.

Table 4.1: Age

Age (Years)	(SHS) 'A'	(SHS)'B'	(SHS) 'C'
13-15	3 (3.3%)	1 (1%)	3 (2%)
16-18	85(94%)	121(95%)	103 (83%)
19-21	2(2.2%)	6 (4%)	18 (15%)
Total	90 (100%)	128 (100%)	124 (100%)

Source: *Field data, 2019*

With regard to the age of the respondents, they were asked to indicate their age group. This was to help the researcher to determine whether age was a contributing factor of internet use by senior high students. From the findings, SHS “A” had 3 (3.3%) respondents within the age range of 13-15 years, 85(94%) respondents were within the age categories of 16 – 18 years while 2 (2.2%) respondents were within the age categories of 19-21. None of the respondents fell within the age group of 22-24 and 25-27. In the case of SHS’B” 1 (0.8%) of the respondent was within the age bracket of 13-15, 121 (95%) were in the age group of 16- 18 years and 6 (15.2%) were in the age bracket of 19-21. None of the respondents were in the age group of 22-24 and 25- 27. Within SHS”C” 3 (2.4%) of the respondents were in the age bracket of 13-15, 103 (83.0%) of the respondents were within the age group of 16-18 years and 18 (14.5%) of the respondents were in the age group of 19-21 years. None of the respondents fell within the age group of 22-24 and 25-27. The minimum age of the students were 14 years, the maximum were 21 years and 17 was their mean age. The result of the findings indicated that majority of the respondents was within 16-18 years. Evidence in Table 4.1 revealed that, the highest age for the three selected schools was from the ages of 16-18.

4.2.3 Programme Offered by Schools

There are different academic programmes/courses offered by the respondents. These are Agricultural Science (AS), General Arts (GA), General Science (GS), Home Economics (HE), Pure Science (PS), and Business (BU). The result is depicted in Table 4. 2 below.

Table 4.2: Programmes Offered by Schools

SCHOOLS	PROGRAMMS						
	PS	GA	GS	AS	HE	BU	Total
SHS “A”	10 (11.1%)	22 (24.4%)	15 (17%)	13 (14.4%)	18 (20%)	12 (13.3%)	90
SHS “B”	33 (25.7%)	27 (21.1%)	25 (20.0%)	23 (17.9%)	-	20 (15.6%)	128
SHS “C”	32 (25.8%)	23 (19.0%)	29 (23.3%)	19 (15.3%)	21 (16.9%)	-	124
Total	75	72	69	55	39	32	342

PS= Pure Science, GA= General Art, GS= General Science, AS= Agricultural Science, HE= Home Economics, BU= Business. (Source: Field data, 2019.)

The result collated from SHS “A” stated that 22 (25%) of the respondents offered General Arts, followed by Home Economics 18(20%), General Science 15 (17%), Agricultural Science 13(14%), Business 12 (13%) and the least was Pure Science with 10 (11%) response rate. Within SHS” B”, 33 (26%) respondents studied Pure Science followed by General Arts 27 (21%), General Science 25 (20%), Agricultural Science 23 (17%) while 20 (16%) of the respondents offered Business. In the case of SHS “C”, 32 (26%) of the respondents offered Pure Science, followed by General Science 29 (23%), General Arts 23 (19%), Home Economics 21 (17%) and the least was

Agricultural Science 19 (15%). The results collated from the three selected schools confirmed that majority 75 (21.9%) of the respondents offered Pure Science, General Arts 72 (21.0%), General Science 69 (20.1%), Agricultural Science 55 (16.0 %), Home Economics 39 (11.4%) while 32 (9.3%) offered Business.

4.2.4 Residential Status

Residential is a term coined under income tax Act and has nothing to do with nationality or domicile of a person...Resident status of a person depends upon the territorial connections of the person with this country. Respondent were asked to indicate their residential status.

Table 4.3: Student Residential Status

SCHOOLS	RESIDENTIAL STATUS			
	BOARDING		DAY	
	Freq	%	Freq	%
SHS A	75	83.3	15	16.7
SHS B	102	79.7	26	20.2
SHS C	98	79.0	26	20.9

Source: Field data, 2019

The study used the residential status of the respondents to ascertain geographically, how far the students cover to reach school for learning. The study revealed that within SHS “A”, 75 (83.3%) of the respondents resided in the boarding house and only 15 (16.7%) were day students. In the cKase of SHS “B” 102 (79.7%) respondents were boarders and 26 (20.3%) were day students. Unlike SHS “C”, 98 (79.0%) respondents resided in the boarding house while 26 (20.9%) stayed outside the school premises. The results collated from the three selected schools indicated that

majority 275 (80.6%) of the respondents reside in the boarding house while 19.4% of them were day students.

4.3 Accessibility and Usage of the Internet

The Oxford Dictionary (2019), defines access as “The means or opportunity to approach or enter a place; the right or opportunity to use or benefit from something.

In this study, the internet access was measured based on the availability of different sources of Internet to them, where students learnt Internet browsing, the ability to operate the computer, whether they have computer laboratory with internet connectivity in their schools, homes and mobile phones and whether they paid for the internet services rendered to them at the Computer Laboratory.

4.3.1 Point of Internet Access

There are a number of venues that respondents can access information on the internet. These venues are designed to facilitate quick access to information by respondents. Respondents were asked where they had access to the internet. The responses are depicted in Table 4. 3 below.

Table 4.4: Point of Internet Access

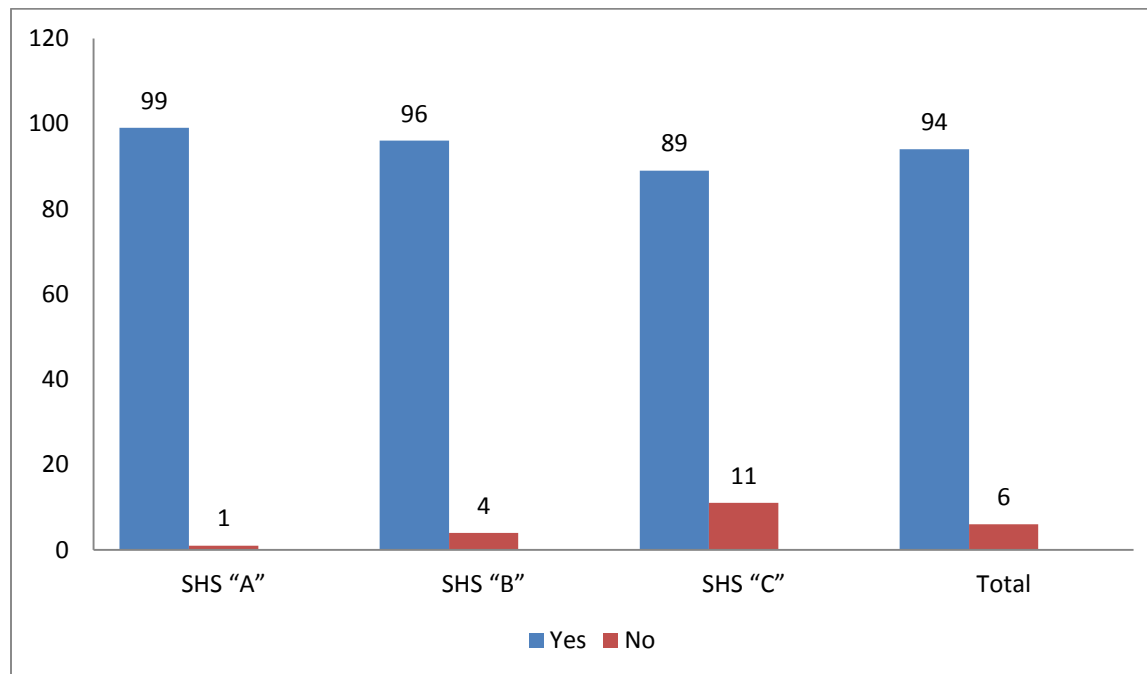
Sources	SHS “A”		SHS “B”		SHS “C”	
	Freq	%	Freq	%	Freq	%
Cybercafé	61	68	91	71	86	69
Home	20	22	29	23	31	25
Computer Laboratory	9	10	8	6	7	6
Total	90	100	128	100	124	100

Source: *Field data, 2019*

From the sample studied, within SHS “A”, 61 (68%) respondents accessed the internet from cybercafé, 20 (22%) of the respondents access it in their homes while 9 (10%) accessed the Internet from computer laboratory. With regard to SHS “B”, those who accessed the Internet from the cybercafé constituted 91 (71%), 29 (23%) respondents access the Internet in their homes and 8 (6%) respondents accessed it in the school computer laboratory. In SHS “C”, 86 (69%) respondents access the Internet from cybercafé, 31 (25%) respondents access it in their homes while 7 (6%) accessed the Internet using the school computer laboratory. The findings show that majority of the respondents from the three selected schools accessed the internet using public cybercafé.

4.3.2 Frequency of use of the Internet by Students

The mandate of any school computer laboratory is to produce students with computer and information literate person to find their way out in this modern society whereby information is in different formats. The respondents were asked whether they have used the internet before. Their responses are presented in Figure 4.2.

Figure 4.2: Frequency of use of the Internet by Students

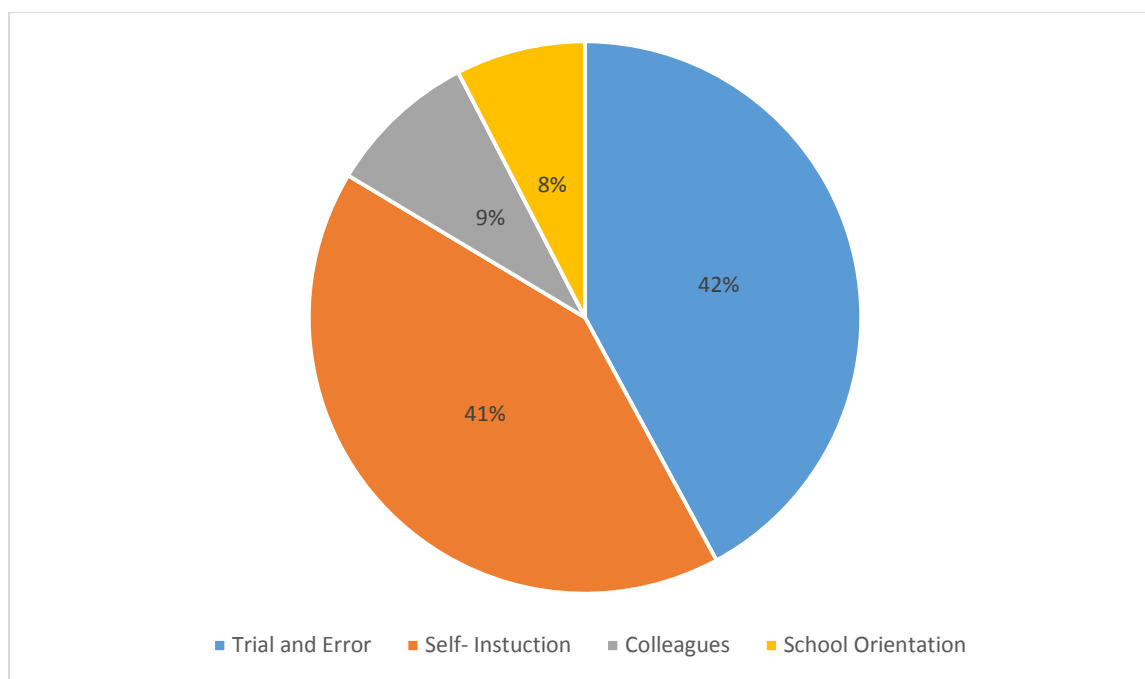
Source: *Field data, 2019*

With respect to the question concerning internet use by students for their academic needs, within SHS "A" 89 (99%) of the respondents indicated that they had used the Internet for their academic needs before while only 1 (1%) respondent maintain that he/she had not used the Internet before. In SHS "B" 123 (96%) of the respondents maintained that they had used the Internet for academic needs before and 5 (4%) maintained that they had not used it before. In the case of SHS "C", 322 (94%) of the respondents indicated that they have used the Internet before and 20 (6%) of them stated that they did not use it before. The results show that majority 322 (94%) of the respondents from the three selected schools have used the Internet before. In a probing question it was revealed that respondents whose mobile phones had internet facilities represented 120 (97%) and besides their mobile phones most of them had access to public internet Cafés.

4.3.3 Methods of Learning Computer and Internet Skills

Skills are needed to perform well in accessing the internet and therefore respondents were required to state how they acquired their computer and Internet skills. There are various ways respondents can learn how to use the computer and the internet. This section had multiple or varied responses. Figure 4.3 depicts the results.

Figure 4.3: Methods of Learning Computer and Internet Skills.



Source: Field data, 2019

The respondents' opinion was sought and the results are as follows: 144 (42.1%) acquired it through trial and error method, 142(41.5%) acquired the skills by self-instruction, 30 (8.8%) had learned them from colleagues and 26 (7.6%) learned them from orientation done by the school computer laboratory.

4.3.4 Ability to Operate Computer

A study by Almasi, Machumu and Zhu (2017) on Internet use among secondary school students in Valencia, Spain reported that 54.8% of the students accessed the Internet through smartphones. They also stated that searching related topics on the Internet improved students school performance.

Concerning whether they had computer laboratory in their schools, all the 342 (100%) the respondents from the three selected senior high schools answered in the affirmative. Regarding whether the students could operate the computer on their own, within SHS “A” 83 (92%) of the respondents indicated that they could operate the computer without any support and 7 (8%) also indicated that they could use the computer with little support. In SHS “B” 126 (98%) of the respondents affirmed that they could operate computer without any support while 2 (2%) indicated that they needed little guidance to use computer. In the case of SHS “C” 105 (85%) stated in the affirmative and 19 (15%) of the respondents indicated that they needed little support. The findings show that majority 314 (92%) of the respondents from the sampled schools could operate computer without any support. This is obvious because students of this era are computer literate and most of them are curious to learn new technologies.

4.3.5 Computer Laboratory with Internet Connectivity

Ukpebor and Emwanta (2012) indicated that some public schools in Benin City in Nigeria had computer laboratories but lacked the internet connectivity. They further stated that cafes are the main sources of the internet access for students.

Table 4.5 Computer Laboratory with Internet Connectivity

Computer Laboratory with Internet Connectivity	Schools					
	SHS “A”		SHS “B”		SHS “C”	
	Freq	%	Freq	%	Freq	%
Yes	84	93.3	115	89.8	81	65.3
No	6	6.7	13	10.2	43	34.7
Total	90	100	128	100	124	100

Source: *Field data, 2019*

Concerning whether their school computer laboratory had Internet connectivity or not, within SHS “A” 84 (93%) of the respondents answered in affirmative and 6 (7%) of the respondents responded in a negative way. Responses from SHS “B” showed that 115 (90%) of the respondents affirmed that they had Internet in their school computer laboratory while 13 (10%) stated the contrary. In the case of SHS “C” 81 (65%) of the respondents reported that the computer laboratory were connected to the Internet whilst 43 (35%) also stated that the laboratory were not connected to the Internet.

4.3.6 Payment of the Internet Used by students

A study conducted by Yebowaa (2018) stated that, students paid for the Internet use in their various schools. With respect to the payment of the Internet services offered by the school computer laboratory, the responses were as follows: within SHS “A” 79 (88%) of the respondents answered in affirmative while 11 (12%) of the respondents indicated that they do not paid for the services rendered by the computer laboratory. In SHS “B” 102 (80%) indicated that they paid for the

services rendered to them by their school computer laboratory and 13 (10%) also stated that they did not pay for the services. Unlike SHS “C” 72 (58%) of the respondents stated that they paid for the services and 52 (35%) reported that they do not paid for the services. The results show that majority 253(74%) of the respondents from the three selected schools indicated that they paid for the services rendered to them at the computer laboratory because they paid for computer laboratory dues as they paid for Library dues so indirectly, they paid for all the services rendered to them at the school computer laboratory.

4.3.7 Internet Access in the School Computer Laboratory

The Internet can be used in different ways by students but students who are focused access the Internet to search for relevant information. It enables them to get current information on their subject areas of study. The respondents were asked to indicate whether they had access to the Internet in their school computer laboratories, half of the respondents 165 (48%) answered in the affirmative but they further indicated that the time used to access the Internet in the computer laboratory was very limited and one could not do any serious searches on the Internet and 177 (52%) opposed that submission.

4.3.8 Level of the Internet Accessibility in School Computer Laboratory

A study conducted by Tarimo and Kavishe (2017) indicated that 48.3% of students from Morogoro, Tanzania rated Internet access in the school as intermediate while 51.7% of the students rated it as high. They also indicated that (87.6%) used the Internet for entertainment. They recommended that students should be educated to search for educational materials rather than using it to entertain themselves. Respondent were asked the level of internet accessibility in their various school’s computer laboratory. The results are presented in Table 4.5 below.

Table 4.6: Rating the Level of the Internet Accessibility in the Computer Laboratory

Rating	SHS'A'	SHS'B'	SHS'C'	Total
High	2 (2.2%)	6 j(5%)	15 (12%)	23 (7%)
Intermediate	4 (4.4%)	26 (20%)	30 (24%)	60(17%)
Poor	56 (62.2%)	53 (42%)	31 (25%)	140 (41%)
Not at all	4 (4.4%)	40 (31%)	23 (19%)	67 (20%)
No Response	24 (27%)	3 (2%)	25 (20%)	52 (15%)
Total	90 (100.2%)	128 (100%)	120 100%)	336 (100%)

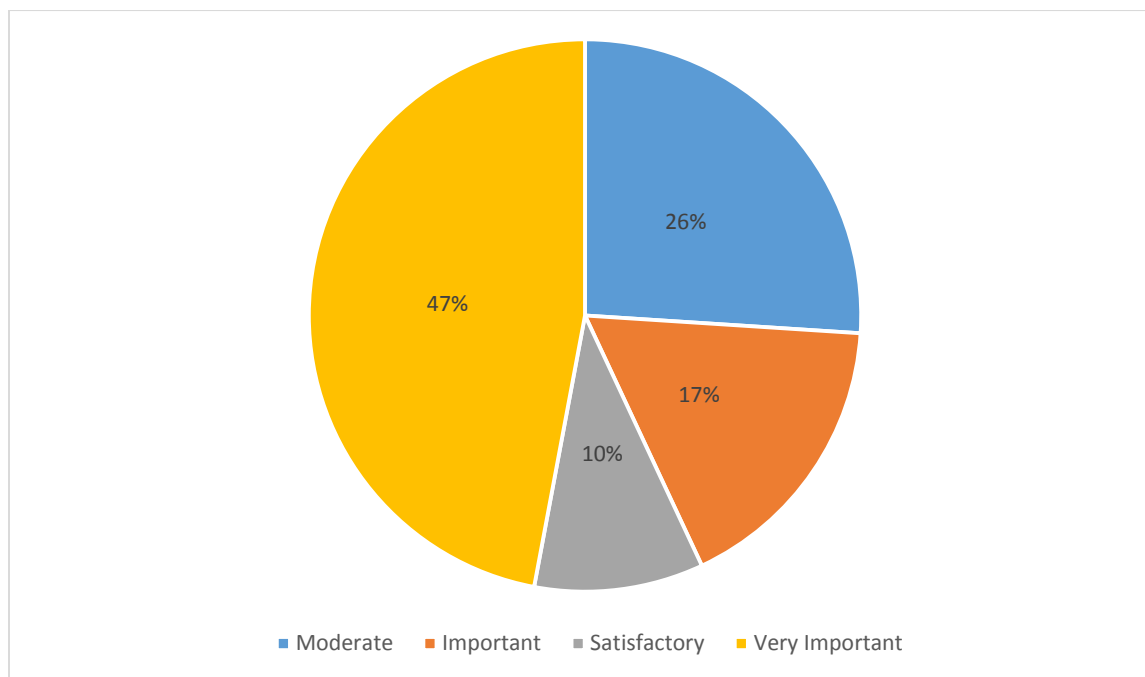
Source: Field data, 2019

With respect to the level of the Internet accessibility in their school computer laboratories, within SHS' A' 2 (2%) of the respondents indicated that the level of Internet access was high, 4 (4%) rated it as intermediate, 56 (62%) also indicated it as poor, 24(27%) of the respondents did not answer the question and 4 (4%) indicated it as not at all. In the case of SHS "B" 6 (5%) of the respondents rated their internet access as high, 26 (20%) rated it as intermediate, 53 (42%) rated it as poor, 40 (31%) rated it as not at all and 3 (2%) of the respondents did not respond to that question. In SHS "C" 15 (12%) rated it as high, 30 (24%) rated it as intermediate, 23 (19%) rated it as not at all, 31 (25%) of the respondents rated it as poor while 25 (20%) of the respondents were silent to that question. The results show that only SHS "C" rated the internet access in their computer laboratory as high but majority 140 (41%) of the respondents from the three selected schools rated the internet access in their school computer laboratories as poor.

4.4 Importance of the Internet

The internet can be described as 'a network of networks linked by several layers of protocols. It is understood that the unique attributes of the internet like speed, ease of use power and inspiration of its content, complement its usage. Four options were given: very important, important, moderate and satisfactory. Responses are captured by Figure 4.6 below.

Figure 4.4: Importance of the Internet.



Source: Field data, 2019.

Students who responded Very important were 161 (47.1%), followed by moderate with 89 respondents with the response rate of 26.0%, important emerged third with 58 respondents representing 17.0% and satisfactory came last with 34 respondents representing 9.9%. Their responses are captured in figure 4.6.

4.4.1 Reason for Using the Internet

The Internet has improved on teachers' methods of teaching and also enhancing students learning techniques.

This section was to find out the reason why the respondents used the internet. The respondents were given some reasons as a guide to choose from in responding to the query on this section. These are communication, recreation, learning and reading. The respondents were then asked to select one or combination of the reasons of using Internet as identified below. Their responses are illustrated in Table 4.6 below.

Table 4.6: Reason for Using the Internet

Reason	Frequency	Percentage
Communication	180	53
Recreation	94	27
Learning	73	21
Browsing sites	21	6

Source: Field data, 2019

It is evident from Table 4.6 that, 180 (53%) used the Internet for communication, 94 (27%) from the three selected schools accessed the Internet for recreation, 73 (21%) used the Internet for learning while 21 (6%) respondents used the Internet for browsing web sites. The results indicated that the main reason why the three selected schools' students used the internet was for communication 180 (53%) followed by recreation with a response rate of 94 (27%).

4.5 Effects of Internet on Students

The respondents were asked to indicate the effects of internet on students by stating the positive and negative effects of the internet on students.

4.5.1 Positive Effects of the Internet on Student

The development of ICTs especially internet connectivity in second cycle schools can have a great impact on students' performance when the internet is used as a tool in educational method. It mostly offers user with various latest information and gives solutions to user's queries. In order for the researcher to ascertain whether the internet has any positive influence on respondents' academic life, they were asked to express their views.

Table 4.7: Positive Effect of Internet on student.

Positive Effect	Frequency	Percentage (%)
Access to current information	126	37
Seeking information from the Internet to improve my studies	80	24
It helps us to look for information in our subject areas	76	22
I use the Internet to get information to augment my notes	49	14
No response	11	3
Total	342	100

Source: *Field data, 2019*

Out of the 342 respondents, 334 (98%) reported that the internet has desirable influence on their academic life. In a probing question, they were also asked to show the areas of academic improvement. The results were as follows: 126 (37%) respondents indicated access to current information, followed by seeking information from the Internet to improve their studies, which attracted only 80 (24%) respondents; it helps us to look for information in our subject area came third, with only 76 (22%); I use the Internet to get information to augment my notes; with only 49 (14%) respondents, and with 11(3%) not responding to the question. It is evident that most of the students used the Internet to access current general information, but not information related to their various subjects of study.

4.5.2 Negative Effects of Internet

A research by Alio and Aneke's (2015) also revealed that the Internet has some good and bad effect on Nigeria secondary school students because the youth tend to rush into things because of their natural characteristics. The study sought to identify if there is any negative effect of internet use among senior high school students, the findings are presented in table 4.8.

Table 4.8 Negative Effects of Internet on Students.

Negative Effects	Frequency	Percentage (%)
Internet addiction	236	69
Moral corruption	31	6
Cyber bullying	29	8.4
Much of my time is spent in visiting irrelevant sites	20	5.8
It can distract you	15	4.3
No response	11	3.2

Source: Field data, 2019

In respect to the negative effects on the Internet on the respondents the following responses were stated: Internet addiction appeared lead in a distant (69%) with 236 respondents followed by moral corruption with 31 (9%), cyber bullying 29 (8.4%), much of my time is spent in visiting irrelevant sites 20 (5.8%), it can distract you 15 (4.3%), and no response rated 11 (3.2%).

4.6. Search Engines and Skills Used to Access the Internet

According Macmillan School Dictionary (2018), search engines is defined as a computer program that is used for searching for information on the internet. Example of the search engines are, Google, Bing, Alltheweb, etc.

This section allows the respondents to indicate the search engines they used to get information on the internet. In order for the researcher to determine the proficiency level of the respondents, they were asked to rate their proficiency level from poor to excellent.

4.6.1 Search Engines Used to Access the Internet

Search engines is one of the search tools Senior High School students used to search information for their academic work. The findings are summarized in Table 4.9. below.

Table 4.9: Search Engines used to Access the Internet

Search Engines	Frequency	Percentage (%)
Google	328	96
Yahoo	7	2
No response	6	2
Alta Vista	1	0.2
Total	342	100.2

Source: Field data, 2019

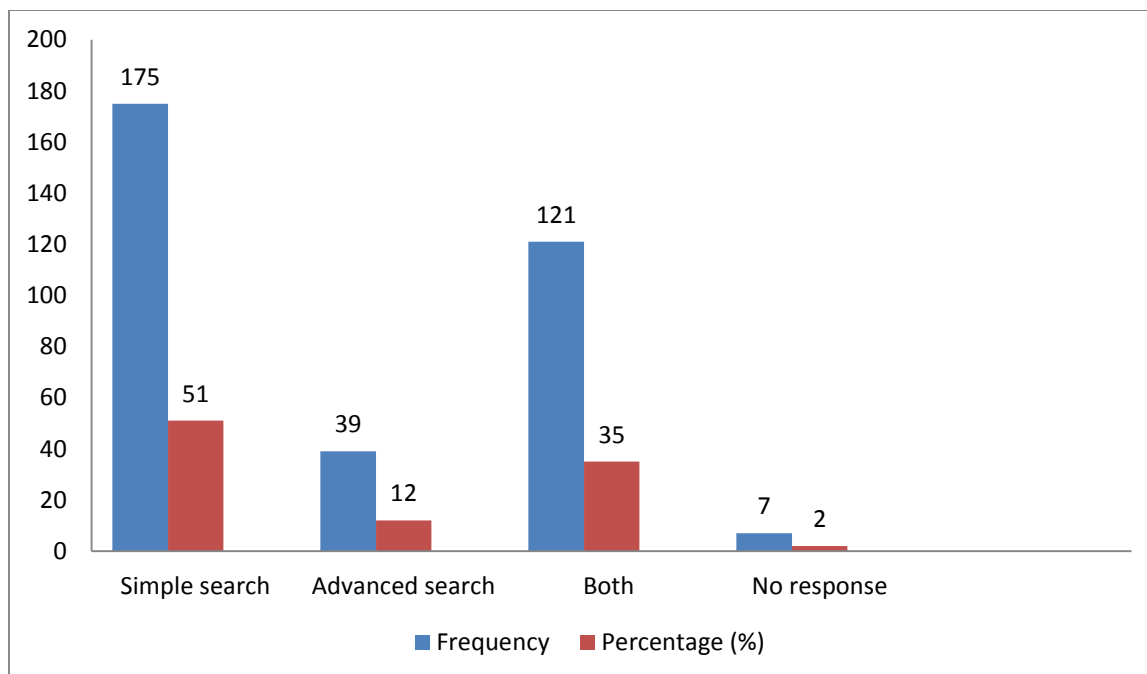
Concerning the search engines used by the respondents to access information on the internet, three hundred and thirty - six (336) of the respondents representing 98% answered in the affirmative and 6 (2) did not answered to the question. They also had to indicate their preferred search engines.

Google with 328 (96%) respondents. This was followed by Yahoo, with 7 (2%), Alta Visita with 1 (0.2%) while 6 (2%) respondents were silent to the question.

4.6.2 Search Options used by students

There are two search options on the internet. The simple search and advanced search. The simple search shows that the user is not more conversant with the searches, while the advanced search option shows that the user is more conversant with the searches. In order for the researcher to determine the type of search option used by the respondents, they were asked to indicate their search options. The results are shown in Figure 4.5.

Figure 4.5: Respondents' Internet Search Options (N=342)



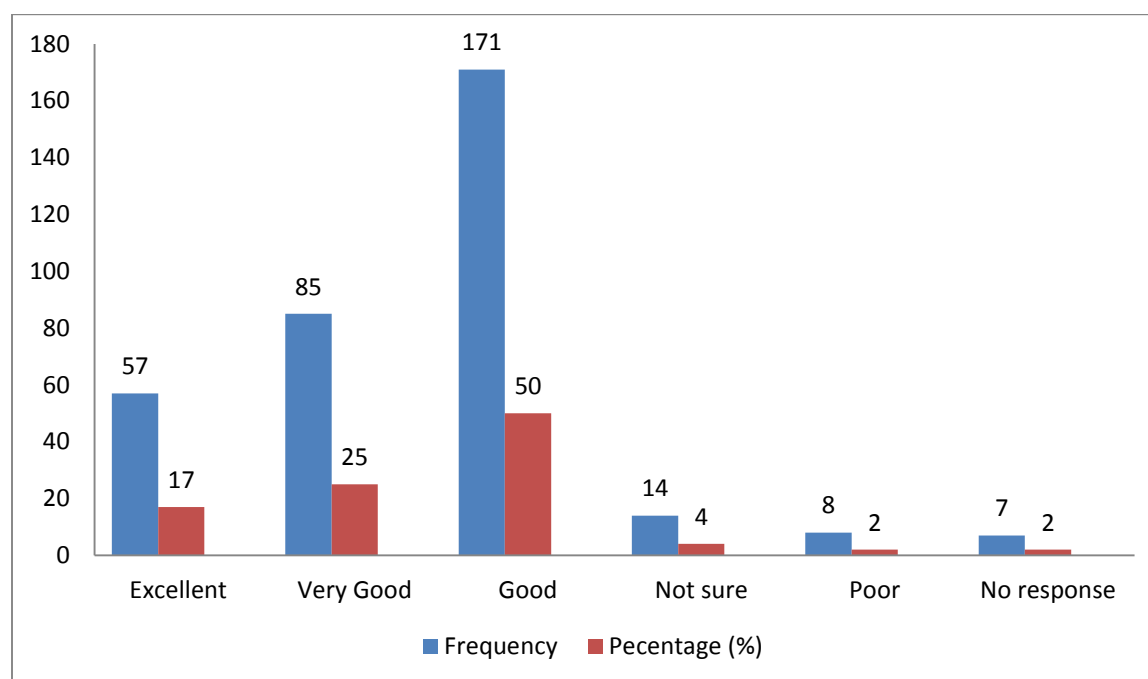
Source: Field data, 2019

The findings collated for the three selected schools were as follows: 175 (51%) indicated simple search option, 39 (12%) of the respondents used the advanced search option, 121 (35%) used the two options above and 7 (2%) were silent to the question.

4.6.3 Competency in Using the Computer

The Cambridge Advanced Learners Dictionary (2018-3rd ed) define competency as an important skill that is needed to do a job or the ability to do something well. Students were asked how they rate their computer and internet skills. Figure 4.6 below depicts responses by the respondents from the three selected schools.

Figure 4.6: Competence/Skill in Using the Computer



Source: Field data, 2019

From the responses in Figure 4.6, 57 (17%) of the respondents maintained their skills as excellent, 85 (25%) of the respondents rated their skills as very good, 171(50%) indicated it as good, 14(4%) did not know their competency level, 8 (2%) rated their skills as poor and 7 (2%) of the respondents were silent to it. Figure 4.4 depicts responses by the respondents from the three selected schools.

4.6.4 Skills in Using the Internet

The Cambridge Advance Learners Dictionary (3rd ed), defines skills as the ability to do an activity or job well especially because you have practiced it. Regarding the respondents' level of skills, they were asked to rate their skills from Excellent to Very poor. The aim was to measure respondents' level of Internet competency. The findings are summarized in Table 4.10.

Table 4.10: Competence/Skills in Using the Internet

Competence Level	Frequency	Percentage (%)
Excellent	126	37
Very good	99	29
Good	87	25
Not sure	12	4
No response	7	2
Poor	6	2
Very poor	5	1
Total	342	100

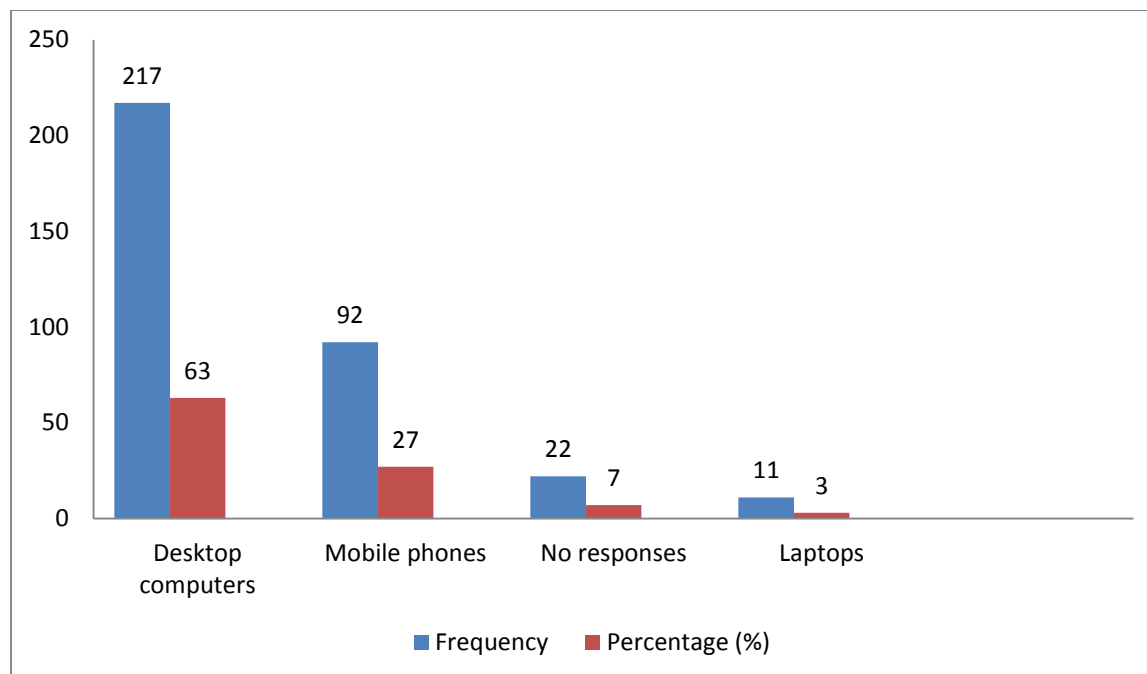
Source: Field data, 2019

From the responses in Table 4.8, it can be deduced that 126 (37%) of the respondents indicated their skills were excellent, 99 (29%) indicated it was very good, 87 (25%) indicated their skills as good, 12 (4%) were not sure, 6 (2%) indicated it as poor, 5 (1%) indicated it was very poor and 7 (2%) respondents were silent to it.

4.7. Devices Used to Access the Internet

This section of the research was to determine the devices students used to access information on the internet. Respondents' opinions were sought and the findings are presented in Figure 4.7 below.

Figure 4.7: Devices Used to Access the Internet (N=342)



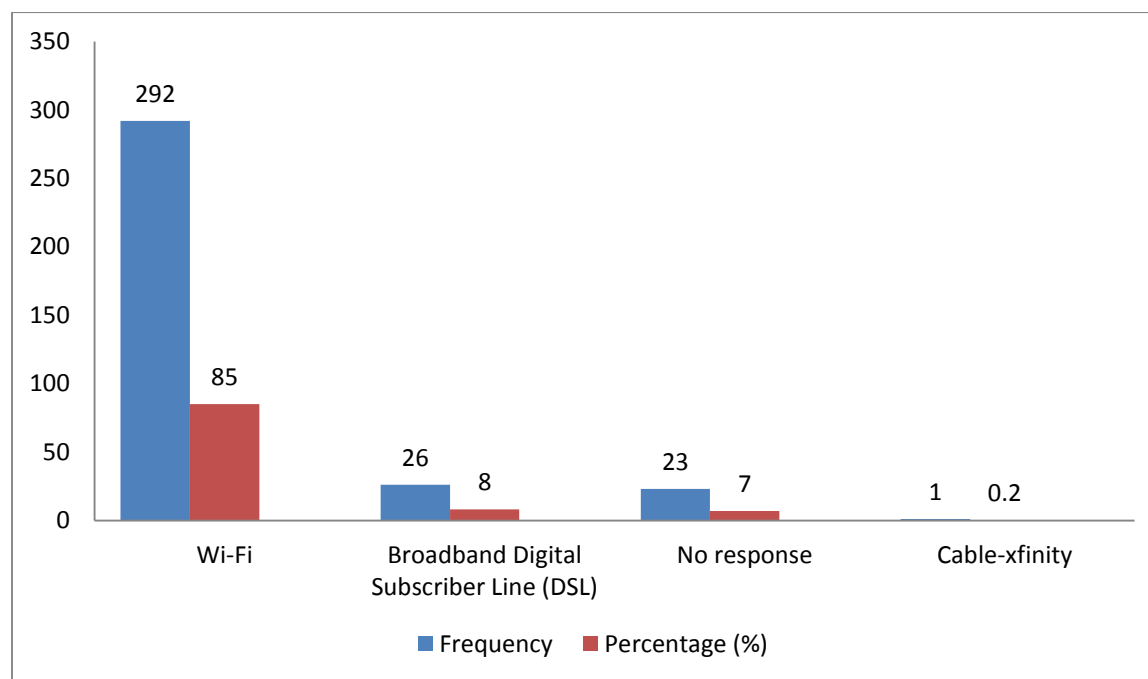
Source: Field data, 2019.

From the responses in Figure 4.7, it can be deduced that 217 (63%) of the respondents used desktop computers to access information on the Internet, followed by mobile phones with 92 respondents representing 27%, laptops were the least with 11 respondents with the result rate of 3% and 22 of the respondents did not answer that question representing 7%. From the study, the results indicated that a significant number of the respondents 217 (63%) from the three selected schools used desktop computers to access information on the internet.

4.7.1 Sources of Internet Connectivity

The source of internet connectivity are the key areas of access to information on the internet. These are cable-xfinity, broadband digital subscriber line (DSL), Wi-Fi etc. The students were asked to indicate the sources they connect their devices to the internet to access information. The various sources of internet connection for the students to access information are listed in Figure 4.8.

Figure 4.8: Sources of Internet Connectivity



Source: Field data, 2019.

From the sample studied, 286(85%) of the respondents relied on Wi-Fi for Internet, 26 (8%) relied on broadband digital subscriber line (DSL) as their source of Internet connection, 23 (7%) of the respondents did not responded to that question while 1 (0.2%) of the respondent relied on cable to connect to the Internet for information. The results indicated that, the main source of Internet connection for the three selected school students was Wi-Fi.

4.8 Challenges Students Encountered When Accessing the Internet

Agber and Agwu (2013) in their study outlined the following as the challenges that affect Internet access and use in most of the Africa countries: lack of technical support, lack of Internet connectivity, inadequate bandwidth, poor quality hardware, lack of ICT facilities and irregular electricity supply.

The researcher sought to find out the challenges that were faced by respondents in accessing the internet. Table 4.11 below depicts their responses.

Table 4.11: Challenges Encountered Accessing the Internet

Challenges	SHS “A”		SHS “B”		SHS “C”	
	Freq	%	Freq	%	Freq	%
Inability to access the Internet at the Computer Laboratory	60	67	90	70	85	69
Temptation of addiction	50	56	63	49	56	45
Slow connection	26	29	40	31	39	31
Difficulties in finding relevant information	20	22	38	30	36	29
Information overload	18	20	27	21	30	24
Inadequate points of access	16	18	25	20	28	23

Lack of adequate skills	10	11	17	13	20	16
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Source: Field data, 2019.

The findings collated from the three selected schools revealed that 235(69%) respondents considered inability to access the Internet at the computer laboratory to be one of their major challenges they faced when in school premises, 169 (49%) respondents rated temptation of addiction to be one of the challenges in access information, 105 (31%) respondents indicated slow internet connectivity was one of the challenges that disrupts their information search on the Internet, 94 (27%) respondents considered difficulties in finding relevant information to be a challenge they encounter in accessing the Internet, 75 (22%) respondents rated information over load to be one of challenges in access information on the Internet, 69 (20%) respondents indicated inadequate point of access was one of their challenges while 47(14%) indicated lack of skills to be one of the challenges that impede their information search on the Internet. From the overall results it can be concluded that identified limitations were quite common to the three selected schools. This is obvious in the results demonstrated in Table 4. 9 which indicated that 60 (67%), 90 (70%) and 85 (69%) from SHS “A”, SHS “B” and SHS “C” respectively see inability to access the internet at the computer laboratory to be their major hindrance in accessing internet while in school premises.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.1 Introduction

This section presents the research findings in relation to the study objectives. The discussion is based on the objectives of the study and which informed the collection and analysis of data. The results of the findings are discussed according to the research objectives based on the profile of the respondents and how this influenced the performance of TAM. The chapter then highlights on how the study addressed the research objectives and draws the study to conclusion.

- Demographic characteristics of respondents.
- The level of access and usage of the Internet by students.
- Importance of using the internet by students.
- Effects of the internet use on students.
- Search engines and skills use to access the internet.
- Types of devices used to browse the internet.
- Challenges students face in accessing the internet.

5.1.1 Profile of Respondents

Generally, admission in institutions in Ghana is skewed in favour of males to females the results indicated that within SHS “A” there were more male respondents than female students. It is possible to conclude that the general trend for Ghana is captured by gender composition of respondents from SHS “A”, which is unlike for SHS “B” and SHS “C” wherefrom the respondents comprised both equal proportion of males and females.

Recchiutti (2003), opines that age is one of the essential demographic variables in conducting research on Internet use. The age distributions of all the students indicated that within SHS “A” respondents were within the 16 – 18 years and in their teen age. Findings from SHS “B” were within the 16- 18 years while majority of the students in SHS”C” were also within 16-18 years. This finding shows that in the three selected schools, the third-year students were within the age range of 16-18. Generally, there were more students within the ages of 19-21 among SHS “C” than SHS ‘A” and SHS “B”. This indicates that SHS “C” admitted students who were a bit older than the other two schools.

With regard to the programme of study, most of the respondents offered General Arts followed by Science. These are Agricultural Science (AS), General Arts (GA), General Science (GS), Home Economics HE), Core Science (CS), and Business (BU). The findings collated from SHS “A” stated that respondents offered General Arts, followed by Home Economics, General Science, Agricultural Science, and the least was Visual Art. Within SHS” B”, respondents studied Core Science followed by General Arts, General Science, Agricultural Science some respondents offered Business. In the case of SHS “C”, respondents offered Core Science, followed by General Science, General Arts, Home Economics and the least was Agricultural Science. The findings collated from the three selected schools confirmed that majority of the respondents offered Core Science, General Arts, General Science, Agricultural Science, Home Economics and Business.

On whether they stayed on campus or not, majority of the students from the three selected schools confirmed that they were resident in their schools and only few were non - resident but they stayed with their parents and guardians.

5.2: Accessibility and Usage of the Internet

The extent of access and used are the key areas of Internet services and this segment of the research was essential in the sense that Internet utilization is controlled by its accessibility. People are generally motivated by different circumstances to access information on the Internet. However, in all these instances, the overriding motivation was to satisfy one's need. This confirms Davis (1989) observation that there must be Perceived Usefulness (PU) and Perceived Ease of Use' (PEoU), to be the controlling factor of user acceptance to improve one's performance.

5.2.1 Point of Internet Access

The study established that the third-year senior high school students like any other students' access and use information on the Internet. They had several different venues that respondents can access information on the Internet. The students from SHS "A", SHS "B" and SHS "C" have shown that they had different venues to access information on the Internet but public cafés were found to be their highest point of access followed by their homes and the least was their school computer laboratories. According to the findings of this study students from the three selected schools affirmed that they had computer laboratory with Internet connectivity. However, the fact that students access the Internet from the public Internet café suggests that the students were denied access of Internet from the school computer laboratories. This can be contributed to the number of hours they spend in the computer laboratory which was less than two hours per session. Also, most of the students were unable to access the Internet from the School Computer Laboratory and they will not solely depend on the Internet for their academic purposes.

The point that few students gain access to the Internet at their various home speaks about the financial standing. This finding collaborates Yebowaa (2018) study which also found that SHS students in Upper West Region access the Internet for information through Internet Café. Also,

Olatokun (2008) conducted a study on Internet use by students in Nigeria. He found that school is the least place for students to access the Internet.

5.2.2: Frequency of use of the Internet

The findings in Figure 4.2 of Chapter 4 indicate that most of the students from the three selected schools have used the Internet before. In a probing question it was indicated that most of the students from the sampled schools can operate computer without any support. This is obvious because students of this era are computer literate and most of them are curious to learn new technology. This finding is in line with Oluwafemi (2010) study which reported that 69% of public secondary school students in Lagos State can operate computer and 31% of them cannot operate computer on their own.

5.2.3: Methods of Learning Computer and the Internet

There are various ways respondents can learn how to use the Internet. According to the findings of this study, majority of the student had taught themselves, some had learned from colleagues and others to had learned it from orientation done in the School Computer Laboratory. This finding also support the findings of Ngulube et al (2009) who also reported that most of the students were self – tuition. From the study it emerged that the students acquired the needed skills through informal training. It can be assumed that formal training programmes were inefficiently promoted or the time allotted for the training was not suitable for the students. Self- tuition approaches had its own short comings since the students did not go through the rudiment of information literacy and studied only basic skills to enable them access the Internet.

5.2.4: Payment of the Internet Use by Students

Since Internet use goes with payment, the researcher sought to examine whether the students pay for the Internet services rendered to them at the school computer laboratory or not. The findings show that majority of the respondents from the three selected schools indicated that they paid for the services rendered to them at the computer laboratory because they paid for Computer Laboratory dues as they paid for Library dues so indirectly, they paid for all the services rendered to them at the school computer laboratory. This study is in line with Yebowaa (2018) which stated that students paid for the Internet use in their various schools’.

5.2.5: Level of the Internet Accessibility in School Computer Laboratory

Concerning the level of the Internet access by students, the results show that only SHS “C” rated the Internet access in their Computer Laboratory as high but majority of the students from the three selected schools rated the Internet access in their school Computer Laboratory as poor. This finding is contrary to the study of Tarimo and Kavishe (2017) that on the issues of access and use, majority of the students stated Internet accessibility in their schools as intermediate and few stated it as high.

5.3 Importance of the Internet to the Students

Searching for information can be done in different sources and the Internet cannot be exempted. Access to the latest information in subject areas are some of the attributes of the Internet. E-learning is also one of the attributes of the Internet in education. The development of Internet in senior high schools should focus on enhancing students’ academic performance. With regard to the importance of the Internet to the students, the finding shows that very important took the majority of the respondent, followed by moderate, important emerged third and satisfactory came last.

5.3.1: Reason for Accessing Information on the Internet

Information has a significant role in assisting, supporting and improving people's life. It came out of the study that, students' access information on the Internet for various reasons, but the most prominent is for communication. Some also access information on the Internet for recreation and for learning. The reason why students indicated learning may be that the Internet gives latest information than print. Singh et al. (2013) and Al-Ansari (2006) affirm this reason when they opined that most of the respondents' access Internet for entertainment and for chatting at the expense of their educational work.

5.4 Positive Effects of the Internet

It is obvious and cannot be over emphasized that Internet has tremendous effects in all facets in education such as basic education, second cycle and tertiary institutions. The development of ICTs with Internet connectivity into second cycle schools can have a great impact on students' performance when Internet is proposed as a tool in educational method. It mostly offers user with various latest information and gives solutions to user's queries (Olatokun, 2008).

From the study respondents reported that, the Internet has more positive influence on their academic life. In a probing question, they were also asked to show the areas of academic improvement. The findings reviewed that, students indicated access to current information, followed by seeking information from the Internet to improve my studies, it helps us to look for information in our subject area. This study confirmed the findings of Torres-Diaz et al. (2016) that Internet use has improved on students' performance and those who often search educational information on the Internet perform well in their examination.

5.4.1 Negative Effects of Internet

In spite of the importance of the Internet to students', its adverse effects are numerous. In respect to the negative effects on the Internet, Internet addiction had a greater percentage, followed by moral corruption, cyber bullying, much of my time is spent in visiting irrelevant sites and it can distract you. A research by Alio and Aneke's (2015) also revealed that the Internet has some good and bad effect on Nigeria secondary school students because the youth tend to rush into things because of their natural characteristics. They concluded that the stakeholders should help students stay less on the Internet and also prevent the Internet to have negative effects on them. Also, Chen's et al. (2014) in their study stated that pornography and unnecessary conversation on the Internet among secondary school students has adverse impact on their academic performance and life after school.

5.5 Search Engines and Skills Used to Access the Internet

One needs to use search engines to effectively search information on the Internet. The search engines allow users to enter any keywords related to his/her query. Search engines users mostly used were Google and Yahoo. Hock (2007) remarks numerous reasons for Google's remarkable reputation and attainment. The accessibility, organized ease of use of Google's interface also complements to its recognition.

Concerning whether students used search engines to access information on the Internet or not, students answered in the affirmative. In respect to their preferred search engines, Google and Yahoo were the most used search engines by the student. The findings in Table 4.9 of Chapter 4 indicate the most used search engines. In contrast, only one of the student' preferred Alta Vista. This finding also confirms earlier studies conducted by Waithaka's, (2013) and Khan, Khan and Bhatti (2011) who respectively reported that the search engines mostly used by the students were

Google and Yahoo because they are easier to use. The Technological Acceptance Model (TAM) by Davis' (1989) in Section 1.5.1 has been used as a framework which assists in accepting the search engines the students exhibited. Davis (1989) model indicates that perceived usefulness and ease of use depict the views that make users accept the system. The students, in this regard followed Davis' (1989) model.

5.5.1 Search Options of Respondents

The choice of students search options are greatly influenced by their skills in searching. With regard to their search options, students from SHS "A", SHS "B" and SHS "C" had a high preference for simple search option. This is because majority of the students from the three selected senior high schools preferred to use simple search option, followed by simple and advanced search option and lastly advanced search option. The reason why majority of the students used simple search option shows that the students were self- trained and they did not learn the rudiment of network literacy. This finding collaborates with Waithaka's (2013) study which stated that 67% of the students used simple search option, followed by simple and the advanced search options with 17% and advanced search option had 16%.

5.5.2 Computer and Internet Skills

Skills are needed in performing any activity including accessing Internet resources. The acquisition of high level of Internet/computer literacy is necessary especially for students, lecturers, researchers and those working in the libraries and other information centers in a knowledge economy. Okello-Obura and Magara (2008) in their studies indicated that knowledge in network literacy is essential and ideally for Internet users. In order to scale the computer and Internet skills of the students, the researcher queried the students to show their competency level. The findings depict that, most of the students indicated their computer skills as good followed by very good,

excellent. The study indicates that the students with good computer skills also had good Internet skills.

This is in accordance with a study shown by Tarimo and Kavishe (2017) which indicated that most of the respondent's lack Internet skills to search information. Furthermore, a study conducted by Ngulube et al. (2009) indicated that the Internet use of the respondents was not adequate because the students lacked network literacy skills. The findings, however, contradict with that of Muniandy (2010) who revealed that 70% of the students indicated their Internet skill level as fair, 2% of the students indicated their skills as very good whilst 28% of them indicated their level of Internet skills as good.

5.6. Devices Used to Access the Internet

Everyone has different tools used to access information on the Internet for whatever circumstances they find themselves in. The different devices employed in accessing information also apply to the senior high students. Circumstances such as being a boarder or a day student influenced the devices in which the students sought and access information on the Internet.

From the study, the findings indicated that a significant number of the respondents from the three selected schools used desktop computers to access information on the Internet followed by mobile phones. This is true indication that the Internet café and Computer Laboratory are furnished with desktop computers. The percentage of the mobile phone users could be attributed to financial challenges since they have to buy data for their mobile phones to access the Internet. Also, school's management and Ghana Education Service do not allow students to use mobile phones.

This is in accordance with a study conducted by Yebowaah's (2018) which indicated that 55.4% of the students used desktop computers to access the Internet while 49.7% access the Internet with

mobile phones. Also, a study conducted by Waithaka (2013) established that 106 (40. 2%) of the students used the Internet through desktop computers, 83 (30. 1%) of the students used laptops while 65 (24.6%) used mobile phones. Her results indicated that 106 (40. 2%) a significant proportion of the students used desktop computers because most of the Internet laboratories only had desktop computers. The findings, however, contradict with that of Gorkemli (2017) who revealed that rural secondary schools' students access the Internet with smart phones with a 67.3% response rate followed by personal computers with 56.1% and tablets with 39%.

A study by Tarimo and Kavishe's (2017) also indicated that students in Tanzania Secondary Schools showed that majority of the respondents, 87(97.8%) used smart phone, 56 (62.9%) used computers while 44 (49.4%) used iPad to access the Internet. Their study further indicated that majority of the respondents used mobile phones because they are economical, portable and accessible to most people in Tanzania. Furthermore, a study by Ananya (2017) indicated that in India, 79% of the people accessed the Internet through mobile phones, 20% used desktops computers and only 1% of the respondents used tablets. He affirmed that Indians adore their mobile phones for surfing the Internet.

5.6.1 Sources of Internet Connectivity

The extent of use of source of Internet connectivity and devices used are the key areas of access to information on the Internet. Thus, after identifying the students' academic information needs, the next step was to decide on which source of Internet connectivity were consulted and the devices preferred by the students. In order to indicate the source of Internet connectivity of the students, the researcher asked the students to indicate the sources they connect their devices to the Internet to access information.

From the sample studied, the respondents relied on Wi-Fi for Internet broadband digital subscriber line (DSL) as their source of Internet connection, only few of the respondents responded on cable to connect to the Internet for information. The results indicated that, the main source of Internet connection for the three selected school students was Wi-Fi. The various sources of Internet connectivity for the students to access information are listed in Figure 4.9 in Chapter four.

5.7 Challenges Students Encountered When Accessing the Internet

In spite of the rapid development of ICT with Internet services, there are difficulties hindering the efficient and effective access and use of Internet services in second cycle institutions. These challenges can be contributed to the stakeholders. Nothing comes without drawbacks, and in the same way accessing information on the Internet by senior high school students like any other human endeavor were not without challenges. As applied to this study, students from the three selected second cycle institutions brought to fore, some of the challenges they encounter when accessing information on the Internet. The findings collated from the three selected schools revealed that inability to access the Internet at the Computer Laboratory was one of their major challenges, followed by temptation of addiction, slow internet connectivity, difficulties in finding relevant information, information over load, inadequate point of access and lack of skills. This is obvious in the findings, inability to access the Internet at the Computer Laboratory to be their major hindrance in accessing Internet while in school premises. The most pertinent of challenges are inability to access the Internet at the Computer Laboratory, temptation of addiction, slow internet connectivity, difficulties in finding relevant information.

5.7.1 Inability to Access the Internet at the Computer Laboratory

Students from SHS “A”, SHS “B” and SHS “C” found the issue of inability to access the Internet at their schools Computer Laboratory as a hindrance in accessing information on the Internet. This

was a big challenge for the students in the three selected senior high schools. Since majority of the third-year students were in the boarding house, they were restricted to move outside their school premises and the Computer Laboratory was their only access point to the Internet. The students had inadequate use to the Computer Laboratory because they spend few hours in the Laboratory. This also hampered the efficient and effective use of Internet services and majority of the students indicate this as their major challenge. A study conducted by Yebowaa (2018) indicated that 84% of the students stated that they have ICT laboratories and 58% indicated Internet facilities but students have limited access to the Laboratory.

5.7.2 Temptation of Addiction

Surfing Internet for information entails a lot, it is cumbersome and frustration due to slow connectivity and information overload. The amount of time users spent on the internet is one of the attributes of Internet addictive behaviours. Although, the internet has become a part and parcel of human life, however, it's addictive-like make people who extremely use it become a prospective victim of its negative influences. Yebowaa (2018) cited Ngoumandjoka (2012) indicated some negative effects of the Internet as sleeplessness, isolation from friends, loss of job and poor results on the part of students. Although, students mention temptation of addiction, however, this was obvious if students spend more time on social media such as Facebook and others. A study conducted by Singh et.al (2013) came out with some effects of using the Internet for social networking as mental issues extending to mood swings to changed behavior, withdrawn attitude and isolation. Temptation of addiction as stated by the students can also be due to lack of skills and slow Internet speed. A study conducted by Olatokun (2008) indicated that 43% of secondary school students in Nigeria spent an average of 1-2 hours every day on the Internet. This study

corroborates with Pew Internet & American Life Project (2005) which indicated that 62% of American teenagers also use the Internet every day.

5.7.3 Slow Internet Connectivity

Students under studied found intermittent break in Internet connectivity as a major challenge in accessing information on the Internet. A slow Internet speed made it difficult for users to enjoy smooth interaction on the Internet site as posited by Arthur and Brafi (2013). Also, the slow Internet connectivity compels students to turn to other sources for Internet services such as cyber cafés. The effect of this is that, because it is a commercial service, students have to pay for the service. As such, they are not able to browse the Internet as much as they would want and in the manner in which they would find appropriate. This negatively affects their studies as they mostly browse for academic purposes. Appiah (2017) cited Gerber (2003) stated that having access to the Internet is vital because it influences positively on human life. Furthermore, this confirmed a study conducted by Agber and Agwu, (2013) which stated that institutions in developing countries are affected by low Internet connectivity or low Internet bandwidth. They further stated that users have limited Internet access and use in developing countries due to lack of technical support, lack of ICT facilities, inferior hardware and intermittent power supply.

5.7.4 Difficulties in Finding Relevant Information

Students made mention of difficulties in finding relevant information as one of the difficulties they encounter in accessing information on the Internet. In fact, relevant information has a major influence on academic activities of students and irrelevant information lead to poor performance. The responses from the students was a clear indication to lack of skills in relation to the method

they use in searching information. Manda (2005) study indicated that most of the students for the past twenty years in Tanzania are ignorant that the Internet is a device used to access online information and those who are aware of this also lack the requisite skills to use it.

5.8 Conclusion

The findings of the students were deliberated based on their responses. The students background information showed that the three selected senior high schools third year students took part of the study. Their gender, age, programme offered and boarding status were discussed.

Majority of the students had good Internet and computer skills but they acquired through informal training. The finding indicated that majority of the students used the Internet from different places such as home, Computer Laboratory with a lot resorting to cyber cafés due to inadequate Internet access in their School Computer Laboratories. It appears from the finding that majority of the students access the Internet for communication, recreation and learning.

This section concluded with the challenges the students faced in using the Internet. The last section presents the summary of findings, conclusion and recommendations of the students.

CHAPTER SIX

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter presents a summary of the major findings of the study. It starts with the background of the students and how this influenced the performance of the TAM model. The chapter then highlights on how the study addressed the research problem and objectives. A conclusion was drawn on Internet use by senior high students of the selected schools. Since this chapter is a presentation of the researcher's personal judgement of the results already discussed in the previous chapter, secondary data has been avoided. Additionally, recommendations have also been made with regard to the results as well as proposals for areas for additional study. The objectives of the study were to find out:

- Demographic characteristics of respondents.
- The level of access and usage of the Internet by students.
- Importance of using the internet by students.
- Effect of the internet use on students.
- Search engines and skills use to access the internet.
- Types of devices used to browse the internet.
- Challenges students face in accessing the internet.

6.2 Summary of Findings

The purpose of this study was to examine the effects of Internet use among senior high school students in Ghana, with reference to the third-year students in Asanteman SHS, Prempeh SHS and Kumasi Girls SHS all in Bantama Metropolis, Kumasi. Identifying whether the school computer laboratories had internet connectivity helped to determine whether the services that were provided by the Asanteman SHS, Prempeh SHS and Kumasi Girls SHS met their academic information needs or not. The purpose behind the research objectives was to facilitate recommendations that would improve services that are rendered for the students at the selected schools respectively.

The following are the major findings that emerged from the study:

6.2.1 Profile of Respondents

The findings indicated that within SHS “A” there were more male students than female students. Comparatively, the number of students (all male) in SHS “B” was higher than their female counterparts in SHS “C” (all female). Generally, admission in institutions in Ghana is skewed in favour of males to females.

Recchiutti (2003), opines that age is one of the essential demographic variables in conducting research on the Internet use. The age distributions of all the students indicated that within SHS “A” respondents were within the 16 – 18 years and are in their teen age. Findings from SHS “B” were within the 16- 18 years while majority of the students in SHS”C” were also within 16-18 years. This finding shows that in the three selected schools, the third-year students were within the age range of 16-18. Generally, there were more students within the ages of 19-21 among SHS “C” than SHS ‘A” and SHS “B”.

With regard to the programme of study, the highest programme offered by the students in the three selected schools are General Arts followed by Science. These are Agricultural Science (AS), General Arts (GA), General Science (GS), Home Economics (HE), Core Science (CS), and Business (BU). The findings collated from SHS “A” stated that respondents offered General Arts, followed by Home Economics, General Science, Agricultural Science, and the least was Visual Art. Within SHS” B”, respondents studied Core Science followed by General Arts, General Science, Agricultural Science some respondents offered Business. In the case of SHS “C”, respondents offered Core Science, followed by General Science, General Arts, Home Economics and the least was Agricultural Science. The findings collated from the three selected schools confirmed that majority of the respondents offered Core Science, General Arts, General Science, Agricultural Science, Home Economics and Business.

On whether they stayed on campus or not, majority of the students from the three selected schools confirmed that they were resident in the school, however, a few are non - residents but they stay with their parents and guardians.

6.2.2 Accessibility and Usage of the Internet

According to the findings of this study students from the three selected schools affirmed that they had computer laboratory with Internet connectivity. However, the fact that students accessed the Internet from public Internet cafés suggests that the students were denied access to the internet in the school computer laboratory. This can be attributed to the number of hours they spent in the computer laboratory which was less than two hours per session. Also, most of the students were unable to access the Internet from the school computer laboratory and they did not solely depend on the internet for their academic purposes. The point that few students gained access to the Internet in their various homes speaks about their financial standing. This finding corroborates

Yebowaa's (2018) study which also found that SHS students in the Upper West Region accessed the Internet for information through Internet Cafés. Also, Olatokun (2008) conducted a study on Internet use by students in Nigeria and found that the school was the last place for students to access the Internet.

6. 2.3 Importance of the Internet to the Students

Searching for information can be done in different sources and the Internet cannot be an exception. Access to the latest information in subject areas are some of the attributes of the Internet. E-learning is also one of the attributes of the Internet in education. The development of the internet in senior high schools should focus on enhancing students' academic performance. With regard to the importance of the internet to the students, the finding shows that responses to very important had the majority of the respondents, followed by moderate, important emerged next and satisfactory came last.

6.2.4 Effects of the Internet use on students

From the study respondents reported that, the Internet has more positive influence on their academic life. In a probing question, they were also asked to show the areas of academic improvement. The findings revealed that, students indicated access to current information, followed by seeking information from the Internet to improve their studies and it helps us to look for information in our subject area. This study confirmed the findings of Torres-Diaz et al. (2016) that internet use had improved on students' performance and those who often searched for educational information on the Internet perform well in their examination. In spite of the importance of the Internet to students', its adverse effects are numerous. with respect to the negative effects of the Internet, Internet addiction had a greater percentage, followed by moral

corruption, cyber bullying, much of my time is spent in visiting irrelevant sites and it can distract you. A research by Alio and Aneke (2015) also revealed that the Internet has some good and bad effects on Nigeria's secondary school students because the youth tended to rush into things because of their natural characteristics. They concluded that the stakeholders should help students stay less on the Internet and also prevent the Internet to have negative effects on them. Also, Chen et al. (2014) in their study stated that pornography and unnecessary conversation on the Internet among secondary school students has adverse impact on their academic performance and life after school.

6.2.5 Search Engines and Skills Used to Access the Internet

Concerning whether students used search engines to access information on the Internet or not, students answered in the affirmative. With respect to their preferred search engines, Google and Yahoo were the most used search engines by the students. The findings in Table 4.9 of Chapter 4 indicates the most used search engines. In contrast, only one of the students' preferred Alta Vista. This finding also confirms earlier studies conducted by Waithaka's, (2013) and Khan, Khan and Bhatti (2011) who respectively reported that the search engines mostly used by the students were Google and Yahoo because they are easier to use. The Technological Acceptance Model (TAM) by Davis' (1989) in Section 1.5.1 has been used as a framework which assists in accepting the search engines the students exhibited. Davis' (1989) model indicates that perceived usefulness and ease of use depict the views that make users accept the system. The students, in this regard followed Davis' (1989) model.

6.2.6. Devices Used to Access the Internet

From the study, the findings indicated that a significant number of the respondents from the three selected schools used desktop computers to access information on the Internet followed by mobile phones. This is a true indication that the Internet café and school computer laboratory were

furnished with desktop computers. The percentage of the mobile phone users could be attributed to financial challenges since they had to buy data for their mobile phones to access the Internet. Also, school managements and the Ghana Education Service do not allow students to use mobile phones.

This is in accordance with a study conducted by Yebowaah (2018) which indicated that 55.4% of the students used desktop computers to access the Internet while 49.7% accessed the Internet with mobile phones. Also, a study conducted by Waithaka (2013) established that 106 (40. 2%) of the students used the Internet through desktop computers, 83 (30. 1%) of the students used laptops while 65 (24.6%) used mobile phones. Her results indicated that 106 (40. 2%) a significant proportion of the students used desktop computers because most of the computer laboratories only had desktop computers. The findings, however, contradict that of Gorkemli (2017) whose study revealed that rural secondary schools' students accessed the Internet with smart phones with 67.3% response rate followed by personal computers with 56.1% and tablets with 39%.

A study by Tarimo and Kavishe's (2017) also indicated that students in Tanzania is Secondary Schools showed that majority of the respondents, 87(97.8%) used smart phones, 56 (62.9%) used computers while 44 (49.4%) used iPad to access the Internet. Their study further indicated that majority of the respondents used mobile phones because they were economical, portable and accessible to most people in Tanzania.

Furthermore, a study by Ananya (2017) indicated that in India, 79% of the students accessed the Internet through mobile phones, 20% used desktop computers and only 1% of the respondents used tablets. He affirmed that Indians adore their mobile phones for surfing the Internet.

6.2.7 Challenges Students Encountered When Accessing the Internet

In spite of the rapid development of ICT with Internet services, there are difficulties hindering the efficient and effective access and use of Internet services in second cycle institutions. These challenges can be attributed to the stakeholders. Nothing comes without drawbacks, and in the same way accessing information on the Internet by senior high school students like any other human endeavor was not without challenges. As applied to this study, students from the three selected second cycle institutions brought to fore, some of the challenges they encountered when accessing information on the Internet. It is obvious from the findings that, inability to access the internet at the school's computer laboratories was their major hindrance in accessing the Internet while on school premises. The most pertinent of challenges were as follows: Inability to access the Internet at the Computer Laboratory Temptation of addiction, Slow internet connectivity, difficulties in finding relevant information.

6.4 Recommendations

The study identified various issues pertaining to the level of access and Internet use by students from Asanteman SHS, Prempeh SHS and Kumasi Girls SHS in Bantama Metropolis, Kumasi. The recommendations focused more on their school computer laboratories because the computer laboratories have been given the primary responsibility by the schools to ensure access and use of information on the Internet in the schools. From the results of the study, the researcher wishes to make the following recommendations:

6.4.1 Providing More Access Points

Based on the results of the study, public Internet cafés were the main access points to the students. Access to the Internet is said to be one of the ways for SHS students to obtain up to date information in their subject areas and it should be the main concern to the school's computer laboratories. The

Ministry of Education in Ghana and the Ghana Education Service should therefore partner with network service providers and telecommunication network agents to get services for free or at a reduced rate. Also, the available bandwidth should be streamlined to avoid unnecessary wastage by senior high school students especially on social media for entertainment purposes. This could be realized by providing enough computers with Internet connectivity. Apart from this, the school library should be furnished with computers with Internet connectivity to increase the point of access for the students.

6.4.2 Searching for Academic Purpose

Searching for information on the internet can be an exciting experience if one knows how and which tools to use. There are various resources which can be used to search or retrieve information for academic or research purposes. The most widely used search tools are the search engines, metasearch engines, subject gateways and databases.

The findings revealed that, SHS students mostly use the Internet for communication and recreation. The study suggests that teachers in their respective SHS schools should teach the students how to use the internet search tools for their academic work. Also, teachers should encourage students to access educational websites to get more academic update.

6.4.3 Provision of More Computers with Internet Connectivity

The Ghana Education Service in collaboration with the Heads of Senior High Schools should provide internet facilities and connectivity in public SHSs computer laboratories and libraries to enhance effective teaching and learning. With this facility, teachers can give assignment to students which will force them to access the Internet for solutions instead of depending on books.

6.4.4 Policy on Internet Use at the Computer Laboratory

There should be a policy in place in all senior high schools having computer laboratories with Internet connectivity. This will serve as a guideline to direct and coordinate all services for the students. Such a policy should address issues regarding access to the Internet, allocation of time and other privileges for the students. Without it there might be a haphazard and uncoordinated system of providing Internet services to the students.

6.4.5 Monitoring Internet Contents by Teachers

There should be a monitoring team made up of teachers to monitor internet products being consumed by students at the school computer laboratory. Content selection devices and filters should be put in place to regulate the contents seen by students at the Laboratory. Also, there should be a provision of a unique password for each student to access the Internet to check those who use the internet for communication and recreation.

6.4.6 Monitoring Internet Contents by Parents

Having Internet connectivity at home is a good direction to enhance students/ children learning. However, parents must be cautioned to monitor what their children view on the Internet. As stated in Chapter two, it is obvious that there are bad and also good materials on the Internet therefore, parents should filter the content of the Internet that will be healthy for adolescent usage.

6.4.7 Self-Monitoring of Internet by Students

Students should discipline themselves to access the Internet when the need arises. This will help avoid visiting sites that are not helpful to them. SHS students should do their best to discourage themselves from Internet addiction to get more time for their studies.

6.4.8 Formal Training

There is the need for teachers and students to undergo in- service training by the Information and Communication Technology directorate under the Ghana Education Service to improve their internet skills and this should cut across from first year to third year students. Skills training should be done at workshops, seminars and during orientation for the first- year students.

6.4.9 Assessment and Evaluation

From time to time, there should be an assessment of students to determine their skills level with respect to computer and Internet usage and also the strength and weaknesses of the school.

6.5 Suggestions for Further Study

This study sought to find out internet usage and its effect on senior high school students in Bantama Sub-metro in Kumasi Metropolis and make recommendations based on the findings. The study could be replicated at the Junior High Schools level in Kumasi since they also make use of the internet in their various computer laboratories and the libraries. The study focused on using quantitative approaches in data collection, future researchers should consider using both quantitative and qualitative approaches. Future researchers can also undertake this research in the universities since they also use the internet in their computer laboratories and the libraries

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APENDIX A
QUESTIONNAIRE

QUESTIONNAIRE ON
INTERNET USAGE AND ITS EFFECTS ON SENIOR HIGH SCHOOL STUDENTS IN
BATAMA SUB-METRO IN KUMASI.

I am seeking your assistance in the filling of the attached questionnaire. I am a student of the University of Ghana, Legon and conducting a research on **Internet usage and its effect on senior high school students in Bantama Sub- Metro in Kumasi Metropolis.**

I will be very grateful if you could spare a few moments to complete the questionnaire below to the best of your ability. Any information that you provide will be used purely for academic purpose and will be treated with the utmost confidentiality.

Please tick the appropriate box or fill in the blank spaces of the questionnaire with the appropriate information.

Thank you.

Christiana Oduraa Kwaah.

SECTION A: BIO-DATA

1. Gender; a. Male ☐ B. Female ☐
2. Age: a. 10-14 ☐ b. 15- 19 ☐ c. 24 and above ☐
3. Programme of Study.....
4. Residential Status: a. Boarder ☐ b. Day ☐
5. To which SHS do you belong? A. Prempeh SHS ☐ b. Asanteman SHS ☐ c. Kumasi Girls SHS ☐

SECTION B: ACCESS AND USAGE OF THE INTERNET

6. Do you have Computer Lab in your school? a. Yes ☐ b. No ☐
7. Can you operate a computer? a. Yes ☐ b. No ☐
8. Is your Computer Lab connected to the internet? a. Yes ☐ b.No ☐
9. Do you pay for the internet services offered by the Computer Lab? a. Yes ☐ No ☐
10. Do you have access to the internet? A. Yes ☐ b. No ☐
- 11.. What is the level of internet accessibility in your School Computer Lab?

12.. Have you used the internet before? a. Yes ☐ b. No ☐

13.. If Yes, where do you have access to the internet? a. Library ☐ b. Computer Lab ☐ c. Home ☐ d. Café ☐ e. Other, please specify.....

14. Do you have internet on your phone? A. Yes ☐ b. No ☐ b

SECTION C: IMPORTANCE OF THE INTERNET.

15. Does the internet have any impact on your learning a. yes ☐ b. No ☐

16. If yes, what impact does it have on your learning?

- a. It enables me retrieve currents information ☐
- b. I can retrieve several information ☐
- c. Can access several information simultaneously ☐
- d. Can download several information ☐

17. Do you think the use of internet in your school has improved ICT literacy level? A. Yes ☐ b. Not completely ☐ c. Maybe ☐ d. No ☐

18. How important is the use of internet to your learning?

- a. Important ☐
- b. Very Important ☐
- c. Moderate ☐
- d. Extreme Important ☐

19. Does the internet provided by your school meet your learning requirement? Yes ☐ No ☐

SECTION D: EFFECTS OF INTERNET USE.

20. Has access to the internet improved your academic work? A. Yes ☐ B. No ☐

21. If yes, please indicates some of the changes you have noticed in your academic life since you have started using the internet?

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.....
.....

22. What are some of the positive effects of Using the internet by students? Please List them.

.....
.....
.....
.....
.....

23. What are some of the negative effects on students I using the internet? Please List them.

.....
.....
.....
.....
.....

24. Which of the negative effects appear to you?

- a. Internet Addiction []
- b. Cyber Bullying []
- c. Cheating []
- d. Moral Corruption []
- e. Lack of creativity []

SECTION E: SEARCH ENGINES AND SKILLS USE TO ACCESS THE INTERNET.

25. Do you use search engines to find information from the internet? A. Yes [] B. No []

26. Which search engines do you prefer?

- A. Google []
- B. Yahoo []
- C. Excite []
- D. Alta vista []

27. When using search engines which option do you use?

- A. Simple search []
- B. Advanced search []
- C. Both []

28. How do you rate your computer skills?

- A. Excellent ☐
- B. Very Good ☐
- C. Good ☐
- D. Not sure ☐
- E. Poor ☐
- F. Very Poor ☐

29. How do you rate your internet skills?

- A. Excellent ☐
- B. Very Good ☐
- C. Good ☐
- D. Not sure ☐
- E. Poor ☐
- F. Very Poor ☐

30. Which educational websites did you visit to get more information on your study area? Please List them.

.....

.....

.....

.....

SECTION F: TYPES OF DEVICES USED TO BROWSE THE INTERNET

31. Do you own any electronic devices? A. Yes ☐ b. No ☐.

32. Which devices help you to connect to the internet at home, school or elsewhere?

1. Desktop Computers
2. Mobile Phones
3. Tablets Computers
4. Smart TV
5. Video Game Consoles
6. Wrist watches
7. eBooks readers

33. List three of the devices which are used most often

33. List three of the devices which are used most often

I.

II.

III.

34. What influenced your choice of your device? (Tick as many options that represents your choice).

Cost ☐ b. Portability ☐ c. Brand ☐ d. Storage Capacity ☐ e. Others (Please specify)

.....

35. How do you connect to the internet? (Sources of internet connection)

I. Wi-fi ☐

II. Broadband Digital Subscriber line (DSL) ☐

III. Cable – xfinity ☐

SECTION G: CHALLENGES STUDENTS ENCOUNTER WHEN USING THE INTERNET.

36. Do you encounter any challenges with the use of the internet?

a. Yes ☐ No ☐

37. If yes, indicate the challenges.

a. Lack of skills browsing the internet ☐

b. Internet Is not accessible ☐

c. Discouragement form parents ☐

d. Slow internet speed ☐

e. Others, Please specific

38. What suggestions would you need to offer to make students use the internet effectively?

.....

39. In what way would you want or can you suggest ways to make internet more?

a. Available.....

b. Accessible.....

c. Affordable.....

40. Which of the following Challenges do you encounter when using the internet?

- a. Slow speed of server []
- b. Distance to the library []
- c. Power Failure []
- d. System Breakdown []
- e. Time Constraint. []

THANK YOU, I APPRECIATE YOUR VIEWS.

APPENDIX B



UNIVERSITY OF GHANA
DEPARTMENT OF INFORMATION STUDIES
SCHOOL OF INFORMATION AND COMMUNICATION STUDIES

Ref. No.:

November 15, 2018

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

INTRODUCTORY LETTER

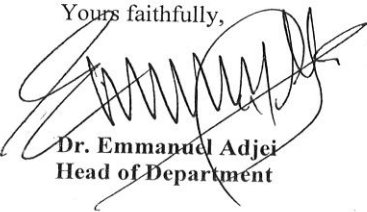
I write to introduce to you Mrs. Christiana Oduraa Kwaah, an M. Phil student of the Department of Information Studies, University of Ghana, Legon.

She is researching on the topic “Internet Usage and its effect on Senior High School Students in Bantama Sub-metro in Kumasi Metropolis”.

Please assist her with the necessary information that will be needed to undertake the research.

Thank you.

Yours faithfully,


Dr. Emmanuel Adjei
Head of Department