INTERNET USE IN SECOND CYCLE INSTITUTIONS IN GHANA: A STUDY OF ACHIMOTA SCHOOL

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DECLARATION

I hereby declare that this work is the result of my own study, except for other people's work which have been duly acknowledged and that it has neither in part nor wholly been presented elsewhere for another degree.

I take absolute responsibility for any shortcomings that may be detected.

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DEDICATION

This work is dedicated to my parents, brothers, sister and my good friends Eric Apaw (USA), Nat Aryee (UK), Peter Crabbe (UK), Paullina Jalola (Sweden) and Isaac Antwi of Mobil Ghana Limited with love and gratitude.

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ABSTRACT

Internet use in educational institutes has benefits for both professional development of teachers and the educational work of students. In Ghana, there have been several initiatives such as World of Learning Project (WorLD Links), a World Bank sponsored programme, coupled with assistance from corporate bodies like Ghana Telecom, Network Computer Systems (NCS), Africa Online and Standard Chartered Bank Limited, for promoting the use of the Internet for educational purposes. The work studied the use of the Internet in educational institutions focusing on second cycle institutions in general. Achimota School was use as a case study. The school was selected because it was one of the first second cycle institutions to have started teaching computer skills and Internet use in the country.

The study involved interviewing the headmistress, the computer laboratory master and forms 2 and 3 students using structured interviews in 2001. The study showed, among other things, that many of the teachers and students learnt about the Internet in 1997 and 1999 respectively. In the case of the teachers, the major means through which this was done was through their colleagues but amongst the students, television was the leading medium through which they learnt about the Internet. The use of posters was the least of the means through which both teachers and students have learnt about the Internet. The study also showed that many of the teachers and students were taught the use of the facility in the school even though the number of personal computers is inadequate.

There is restriction on teachers and students in terms of access to the Internet. Both teachers and students expressed the desire for more time with the facility for independent use.

The study showed that there was the likelihood of a minor problem with a machine which are normally fixed by the computer laboratory master. There is however no specific agency to handle major problems as and when they come up. It is suggested that employing the services of a specific company might help reduce the spate of breakdown of the machines since the company might become familiar with their computers and get to know how to fix these problems on a more permanent basis.

Some of the recommendations put forward are that the school should consider connecting other centres of learning in the school such as the library to the Internet. In so doing, the computer laboratory could be used purposely for training cyber cafes should also be allowed to operate on pilot basis on the campus. The idea of a feedback mechanism could assist the school to know the kind of emphasis that would be necessary in teaching of skills acquisition in computer and Internet use.

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LIST OF ABBREVIATIONS

ARPA	-	Advance Research Project Agency.
ARPANET	-	Advance Research Project Agency Network
CUSO	-	Canadian Universities Services Overseas
E-KIOSK	-	Electronic Kiosk
E-MAIL	-	Electronic Mail
FTP	-	File Transfer Protocol
GHASTINET		Ghana Scientific and Technological Information Network
GNCIC	-	Ghana National Committee on Internet Connectivity
IAB		Internet Architectural Board
ICT		Information Communication Technology
IETF		Internet Engineering Task Force
IP	-	Internet Protocol
ISOC	-	Internet Society
ISP	-	Internet Service Providers
ITU		International Telecommunications Union
MTTG	-	Mobile Telecentre To-Go
NCS	-	Network Computer systems
NII		National Information Infrastructure
PIE		Partners in Internet Education
SCAULWA		Standing Conference of African University Libraries- West Africa
SPG	-	Society for the Propagation of the Gospel
UNDP		United Nations Development Programme
UNESCO	-	United Nations Educational Scientific and Cultural Organization
USA		United States of America
WAEC	-	West Africa Examinations Council

CHAPTER ONE

1.0 BACKGROUND TO THE STUDY

The road to the present century has seen many technological innovations that have brought some remarkable changes in so many areas of our lives. These include how we work, communicate, live and even how we educate ourselves in schools.

The Internet features prominently among the technologies that have made this possible. In fact, the Internet could be said to be the fastest of the emerging technologies that are affecting our lives today.

The Internet is a collection of more than ten thousand (10,000.00) interconnected computer networks around the world that make it possible to share information almost instantly (Sellers, 1994). It grew out of the Advance Research Project Agency Network (ARPANET), an experimental four computer network established by Advance Research Project Agency (ARPA) in U. S. A. (The World Almanac, 2001).

According to O'Leary and O' Leary (1996) the most common uses of the Internet are sending and receiving electronic mail (Email), participating in public discussions, running programmes on remote computers and

transferring files. Its utilities are many, but the most widely used are gophers and the World Wide Web.

The Internet can provide one with more information than one could possibly need or imagine. It has made new forms of communication and information dissemination possible. People can now communicate, send or access various forms of information on databases and websites because the Internet has become a treasure house of information. In fact, Moore (1996) says that information is now becoming embedded in our culture.

The Internet has become a major global infrastructure for education, research, professional learning, public services and business (Sellers, 1994). It also has the ability to increase the classroom resources by making many resources from all over the world available to students and teachers in a given locality that has the necessary infrastructure. These resources include information, data, images and even computer software from places otherwise inaccessible to the classroom. The access to these resources can yield individual and group projects, collaboration, curriculum materials and idea sharing not found in schools without Internet access (Sellers, 1994).

In situations where the teacher has access to the Internet, he is able to bring experts in subject areas into the classroom through this electronic medium. The use of networks, according to Sellers (1994), as a hands-on classroom tool, can be a motivator for students in and of itself. This is because its use encourages the kind of independence and autonomy that many educators agree is important for students to achieve their learning process. Class, race, ability and disability are removed as factors in communication while using the Internet. It therefore becomes a natural tool for addressing the needs of students.

Many features of the Internet such as the availability of online library catalogues and information articles save time once the instructor learns to use them (Sellers, 1994).

Egnatofff (1996) is also of the view that Internet use in schools is a modern extension of past and current educational use of communication media. And schools have used the Internet and other telecommunication media for numerous activities such as:

- informal dialogue;
- cross cultural studies;
- discussions and debates on social issues;
- consulting with professional scientists and authors;
- collaborating on research;
- creative writing and so on.

In countries around the world, the Internet is therefore making its way into the schools and research centres. Egnatoff (1996), reported that in March 1996, Industry Canada and Stentor, a Canadian alliance of telecommunication companies announced plans to connect all schools in the country to the Internet by the end of 1996 – 1997 school year.

In the United States, Parker (1994) also reported that the school community, commonly referred to as k-12, was starting to focus its attention on the Internet. The National Information Infrastructure (N.I.I) Initiative, she affirmed, was intended to benefit the k-12 education in terms of ubiquitous connectivity to all schools.

Selwyn (1998) spoke of the desire to integrate the Internet into compulsory education in the United Kingdom. He cited the "super highways for education" as an example. It saw the government in 1998 committing an initial amount of ten million pounds into the establishment of pilot schemes exploring the role of the Internet in education.

In year 2001's World Telecommunications Day, under the theme "The Internet: challenges, opportunities and prospects" the International Telecommunications Union (ITU) said that there were projects in India and Morocco for learning centres which will make use of the Internet to re-train teachers to help arrest the rot in education. The ITU has committed an

amount of US$ 250,000.00 to help get the programmes of each pilot project off the ground.

In Ghana, the use of the Internet for educational purposes has seen several initiatives. According to Dankwa (1998), the first was the idea of SchoolNet which was introduced into the country by a company called GhanaNet. It unfortunately collapsed because of misunderstanding with the Ministry of Education. He noted that since then there have been several others. These include:

i. Partners in Internet Education (PIE) which comprises professionals who have come together to use their expertise to assist secondary school children.

ii. The world of learning project (WorLD-Links) a World Bank sponsored programme coupled with assistance from corporate bodies such as Ghana Telecom, Network Computer Systems (NCS), Africa Online and Standard Chartered Bank.

iii. The Ghana InfoDev Project which was initiated in February 1996 by the Ghana National Committee on Internet Connectivity (GNCIC), with initial support and sponsorship from UNESCO and ITU. The purpose of the project is to promote the application of telematics for national development. It has among its beneficiaries some selected secondary

schools in five regions of Ghana including Greater Accra, Central, Ashanti, Brong Ahafo and Upper Regions.

Some of the schools already connected to the Internet are St Thomas Aquinas Secondary School, Achimota School, Accra Academy, Yaa Asantewaa Girl's Secondary School, Aburi Girls, Holy Child School and Ghana National College.

The Ghanaian Times (June 13, 2001) also reported that Mfantsiman Girls was joining 11 other schools under Infotech solutions' e-schools project in the country as beneficiaries from using computers to learn at tender ages.

1.1 STATEMENT OF THE PROBLEM

In this information age, a good number of research and educational institutions are making use of the Internet. Kisiedu (1999) has stated that due to inadequate funding and the resultant drastic drop in the level of journal subscription, there is the need for research institutions to access the Internet and tap the rich journal and other resources. The same admonition holds good for all kinds of educational institutions including secondary schools.

The benefits of Internet use in education as stated by Parker (1994) include professional development of teachers and benefits for the students in their academic work. However, Wagner (1995) in discussing the

problems of Internet use, quoted from Maddux (1994) who has pointed out that a number of problems such as the use of antiquated hardware and software and the need to train teachers could impede Internet use in teaching and learning.

As stated earlier, some secondary schools are getting connected to the Internet in Ghana; there are also others with computer laboratories which are not connected to the Internet. Most schools however have not got in place the infrastructure required for connectivity to be made possible. The need, therefore, to conduct investigation into Internet use at Achimota School where the service has been in use since 1997 as a guide to schools that are thinking about getting connected to the Internet becomes imperative.

1.2 OBJECTIVE OF THE STUDY

The objective of the study are:

i. To investigate the background from which the students and teachers came to know of the Internet and the school came to have the facility;

ii. To find out where the students and teachers first received training in the use of the Internet;

iii. To find out the frequency of Internet use and how often they get access to the Internet;

iv. To find out what their views are on the location of the Internet facility;

v. To find out what their views are the constraints to the use of the Internet facility in the school;

vi. To find out whether Internet use has benefited them and whether it could benefit other schools.

1.3 SIGNIFICANCE OF THE STUDY

A study of this nature will be of benefit to policy makers, the general public and the second cycle institutions in particular. The study will bring to light the use to which the Internet is being put and the problems associated with its use for the needed attention of all stakeholders. This is because more and more schools in the country are beginning to have computer laboratories and the idea of e-schools is gradually and steadily spreading across the country.

1.4 METHODOLOGY

Data was collected through the use of structured interviews involving the use of both opened - ended questions as well as closed ended questions. Some teacher and students were interviewed. The interviews were used to find out how they got to know of the Internet, where they first received training in its use, what they use the Internet for, how often they use it, whether the use of the Internet has benefited them and whether it could benefit other schools as well among others.

The population was the entire teaching staff (80) and the students (1,500) of Achimota School. Random sampling technique was used to select (16) 20% of the teachers and (200) 13.3% of the student population. This sampling technique was used to ensure that every member of the population had an equal chance of been picked. The headmistress and the computer laboratory master were also interviewed. The researcher wanted to know from the headmistress the motive for the introduction of the Internet into the school and its impact on the school's image and where they had the equipment from among others.

In the case of the computer laboratory master, the researcher wanted to know the number of personal computers that are available for use by the school, the age of the computers, the kind of training he offers to the students and the teachers, and the rate at which the computers break down among others.

1.5 DATA ANALYSIS

In other to make data collected on the various aspects of Internet use in Achimota School meaningful, statistical techniques such as percentages were used. Tables were drawn in some cases to represent the results. Conclusions were also made from the results.

1.6 SCOPE AND LIMITATIONS

As stated above, the study covers Internet use in second cycle institutions but with a focus on Achimota School. Achimota School was selected because the facility has been in use in the school since 1997. It is also one of the first public schools to have access to the Internet. The school is also in Accra where there are a number of schools with computer laboratories but which are not connected to the Internet. The results will therefore be of interest to these schools.

The limitations of this study include lack of adequate funds, which hindered the extension of the study to other schools. Time is also another limiting factor as there was a specified period within which the study will have to be completed.

1.7 ORGANIZATION OF THE WORK

The work is divided into four chapters:

Chapter one deals with introduction to the study, it covers the background to the study and includes the statement of the problems significance of the study, methodology, data analysis, scope and limitations of the study and a review of some literature.

Chapter two deals with a history of education in Ghana before the establishment of Achimota School, and history of Achimota School among others.

Chapter three also deals with data analysis and the chapter four gives an overview of the work, conclusions and recommendations.

1.8 LITERATURE REVIEW

The information age is with us, and as we move towards the third millennium, it is of utmost importance to understand and influence the fundamental changes brought about by the communication and information revolution (Alemna, 2000). The Internet could be said to be a major part of this revolution. The Internet could be described as a vast computer-based network of networks that includes listservs and newsgroups as well as email and electronic journals (Wagner, 1995).

Kuang (1999), writing on Internet use in China, made the following observation: the Internet has managed the seemingly impossible task of breaking down the barriers between countries and people. In the earlier days of Internet use, Harassim (1993) realized that the Internet has caught the public with its expanding web and has begun to alter some people's sense of community, way of live and even how they deal with government.

Jensen (2000) has observed that the Internet has grown rapidly on the African continent over the last few years. He pointed out that at the end of 1996 only 11 Africa countries had Internet access but by 2000, 51 Africa countries had achieved permanent connectivity with only Liberia and Somalia remaining without local Internet services. According to the African Telecommunication Union (ATU)'s website, current Internet growth of the continent is an average of one user for every 750 people to that of the world of one user for every 30 people (Computer & Technology News, July 2001).

In a research carried out by Metro Comia International, a website company based in Uganda, it was found out that the number of consistent daily users in Kampala is 0.5 million. This is 84% of the users in the country. The research also indicated that 7% of the users visit the Internet weekly, 2% monthly, 1% quarterly and 6% do not have access or know about it at all. (Computer & Technology News, August 2001).

Jensen (2000) has also pointed out that a large number of African e-mail users make use of free web-based services such as Hotmail, Yahoo or Excite. He further stated there is also a rapidly growing interest in e-kiosks, cyber cafes and other forms of public Internet access such as adding personal computers to phone-shops, schools, police stations clinics, hotels and business centres.

According to Sellers (1994), the Internet has become a global infrastructure for education research, professional learning, public service and business. This statement is corroborated by Selwyn (1998) who asserted that the Internet is quickly becoming integrated into the areas of society such as the home, business markets and in compulsory schooling. It could be said that all over the world, frantic efforts are being made by some countries to tap the educational values of the Internet by giving connectivity to its educational institutions; and in a developing country like Ghana the use of the Internet is being encouraged through a number of projects. One such project is the United Nations Internet Initiative for Africa. The project dubbed "Mobile Telecentre To Go" (MTTG) is a ten-nation project including Ghana (Computer and Technology News, April, 2001) reported that under the project, buses are to be equipped with Internet ready computers. Through such technologies as wireless and radio satellites networks, the computers will be linked unto the Internet ending up in schools and institutions around the country. The UNDP hopes that, by this initiative, the Internet will be able to reach a large number of people previously sidelined in the digital race.

Another project is the WorLD-Links programme in Ghana, which was started in May 1997 with 10 schools in Greater Accra, Ashanti and Central regions. Over time, WorLD-Links has expanded to 31 schools in five (5) of the 10 regions of the country with over 300 teachers and 900 students,

according to the Country Director Samuel Eshun, actively involved in the programme.

In the earlier days of Internet connectivity to Ghanaian schools, Evans (1997) writing under the title "hooking schools onto the Internet" reported that WorLD-Links for development programme has been launched to enable senior secondary schools in the country to speak to their peers around the world. It was hoped that by 2000 the programme would give at least 1200 high schools in 40 developing countries online access to enable them exchange information on science projects, writing exercises, historical perspectives and art works.

Alliance for Global Learning (AGL) which was started in 1997 to address inequities in access to technology and the Internet and to provide educational opportunities for more students world wide planed to link 17 schools in Ghana to the Internet in 2001. The schools were to be responsible for financing their own computer laboratories, recurrent cost for maintaining and sustaining the programme.

The use of Internet for educational purposes requires the acquisition of some skills in the use of computers. The need for training therefore becomes imperative. Since 1997 when Ghana WorLD-Links for development programme (WorLD Ghana) started linking Ghanaian

secondary schools to the Internet, three (3) major training sessions according to AGL have been organized as of April 2001. This has benefited 6,600 students and over 140 teachers and school administrators. The teachers AGL pointed out have in turn trained hundreds of their colleagues and several students in their respective schools.

Egnatoff (1996) has also observed that in this age the public expects students to be proficient with computers and the Internet which they see as the "way of the future". However he pointed out that teachers who have to guide their students in the use of the Internet need training and support to undertake this task. They therefore have to learn how to use e-mail, gopher servers, the file transfer protocol (FTP), the World Wide Web and what constitute an acceptable use of the Internet. Often the most effective training and support, he noted had come from teachers themselves. He cited a survey conducted in Canada by McLeod in 1995 which showed that some teachers were teaching their colleagues to acquire the skills in computer use.

Parker (1994) has also pointed out that the Internet has the ability to present life data from distant lands to the classroom. This is possible because, according to Standing Conference of Africa University Libraries-West Africa (SCUALWA) (July-December, 2000) Internet, video, and e-

mail protocols can be used to beam lectures in real time to classrooms. Selwyn (1998) is also of the view that the Internet as "largely uncontested feature of educational technology" is undoubtedly a powerful and flexible educational tool for providing a range of facilities useful to schools. Sellers (1998) has cited some of these as information, data, images and computer software from places otherwise inaccessible to classrooms that have the facilities to tap them.

Internet use also has the ability to encourage independence and autonomy of studies which is teacher-dependent. It gives students opportunity to search for and get access to databases which could provide information on their syllabuses and also offer the students opportunity to share ideas with their colleagues in other parts of the world (Dankwa, 1998). Using e-mail and teleconferencing systems, teachers can request for information and guidance from distant and often unknown colleagues and also publish resources and notes of their experiences. In this way they take initiative and responsibility for their professional development (Egnatoff, 1996). Furthermore, Internet use helps in the development of distance education. Its use could therefore positively affect the number of skilled and qualified personnel in the profession.

In "INTERNET AND EDUCATION: A virtual classroom for everyone?" subtitle of the message to mark the year 2001 World Telecommunications

Day the ITU pointed out that the Internet has transformed the face of distance learning, a largely lonely experience, into a virtual classroom in which intense interactivity and sharing of resources and information is its essence. It cited statistics from Education Foundation Trust, a non-profit trust based in South Africa which showed that in 1991, 40% of African teachers in South Africa were under-qualified. However, through a number of energetic measures adopted by the government, including the implementation of long distance learning projects in partnership with private organizations, the situation has improved. The number of under-qualified teachers dropped to 25% in1999, despite an over all increase of 7% since 1991.

Selwyn (1998) however pointed out that Internet use is yet to make a lasting impact on compulsory school setting in United Kingdom. He noted that since 1995 when the Government committed funds to the establishment of initial pilot schemes to explore the role of the Internet in education, not much has been achieved. Current levels of Information and Communication Technology (ICT) use shows that the previous 20 years of policy making designed to integrate computers into the school system have had only a limited effectiveness. This according to him has resulted in a little more than "dumping of computers" on the schools. The schools have had no real idea of how they were to use the ICT; neither did they have or the time and the resources needed to prepare teachers to

implement the technology. He could not see how the introduction of the Internet into schools and colleges would be any different. He buttressed this assertion with the following observations:

i. The quality of information could be questioned;

ii. The unstructured nature of Internet means that both teachers and students can easily fall into the trap of forgetting its intended purpose. For many therefore it becomes a tool which quickly turns into a toy the user fast finding themselves wasting hours aimlessly perusing the plethora of information on offer;

iii. The availability of pornographic material on the Internet which poses a moral dilemma for its use in schools.

He went on to further say that some teachers favoured a displaced role for the Internet as a learning tool, using it solely for staff use and then disseminating the retrieved information back to class. He supported this by citing a research carried out by Selwyn in 1998 which showed that there was confusion among teachers regarding the role that the Internet should play in schools, while some favoured a displaced role others did not.

Writing from a United States perspective, Parker (1994) also observed that there were a number of barriers to Internet use among which are mentioned:-

i. Lack of Internet working expertise and vision;

ii. Inadequate number of schools with local area networks in their computer laboratories;

iii. The problem of funding for Internet use;

iv. User application - the notion that the Internet is user hostile;

v. The issue of motivating teachers to throw away out-dated and incorrect textbooks.

Wagner (1995) also discussed some of the problems involved in using he Internet in teaching. He quoted from a study conducted by Maddux (1994) which talked about the use of antiquated hardware and software, charges for Internet access and the need to train and support teachers for effective use of the Internet and censored materials available on the Internet as some of the problems hindering the wise and effective use of the Internet.

The ITU has also pointed out that most of the materials available online were designed in Europe or in North America and therefore not appropriate or suitable for students elsewhere. In the Statesman (August 26, 2001) a Ghanaian news paper, it was also pointed out that the troubling aspects of Internet use were the proliferation of pornographic websites and the inability of cyber cafe operators to limit their access to children and teenagers often in school uniforms who go to the cyber cafes to use the Internet.

The review has shown that even though the Internet is making its way into our educational institutions the expected benefits from its use are being hindered by such problems as availability of pornographic materials on the Internet, the need to train and support teachers to adopt the new medium of education and lack of Internet working expertise and vision.

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CHAPTER TWO

2.0 A HISTORY OF THE DEVELOPMENT OF EDUCATION IN GHANA BEFORE THE ESTABLISHMENT OF ACHIMOTA SCHOOL

The history of development of second cycle institutions in Ghana before the establishment of Achimota School is quite an interesting one. Today, the people of Ghana, as nearly in every other country, believe that one of the most important duties of the state is to ensure the supply and maintenance of adequate system of education for children living in it.

The earliest contact that this country had with modern educational practices that eventually led to the establishment of a number of second cycle institutions, and Achimota School in 1927 came from the forts which were built by Europeans along the coast. The schools in these forts were to provide education to the sons of the European traders by their African wives (McWilliam, 1959). The children of rich African traders also had access to some of these schools. But it was on the offspring of mixed marriages called "mulattoes" that the early educationists turned their prime attention. Cape Coast for instance, had a fund known as "mulatto fund" which was set up to finance the education of the mulatto children (Graham 1971).

Formal education as we know it today, according to Graham (1971) begun in 1952 when a missionary of the Society for the Propagation of the Gospel (SPG), which had been founded in England earlier in the century arrived in the country at Cape Coast. The Reverend Thomas Thompson saw that religious teaching had been confined within the castle. He therefore, made many changes in life and activities at the castle by traveling extensively amongst the people of the coast. He studied their language (Fante) and even made attempts to understand and appreciate the meaning and significance of some local customs (Graham 1971).

He started a school at Cape Coast, which was intended for the mulattoes but children of some wealthy merchants, and important chiefs were also admitted to the school. The school was financed partly from fines, which were imposed on officers and servants of the Merchant Government in Cape Coast who failed without justification to attend divine service on Sundays (Graham, 1971). It was on Reverend Thomas Thompson's recommendation that the committee of the SPG agreed that three (3) Africans at Cape Coast should be sent to London to be educated at the expense of the society. Philip Quarco, Thomas Caboro and Williams Cudjoe were therefore sent to London to be educated at a school in Islington. Philip Quarco was the only one who returned because the other two had died there. By the time of his return to the Gold Coast, Reverend Thomas Thompson, had gone back to England because of ill health.

Philip Quarco, took over from where Reverend Thomas Thompson had left off at the castle school. According to Graham (1971), enrolment remained small throughout the eighteenth century and between 1766 and 1789 the figure varied from 0 to 16.

Educational expansion which later on led to the establishment of second cycle institutions begun in the nineteenth century with co-operation between the Government and the Missions. By 1850, a governor was appointed for the Gold Coast forts alone by the British. They had previously been under the Governor of Sierra Leone (McWilliam, 1959).

The period of government activity in education came with an ordinance "to provide for better education of the inhabitants of the forts and settlements of the Gold Coast" in 1852. The missionaries, on the other hand, believed that unless they could by education lay a good foundation for a better social and new spiritual life, missionary work would continue as far as the masses of the people were concerned a surface work only. The Government itself established and maintained a few schools and rather allowed the missionary bodies and individuals to open schools freely wherever they wished.

By the 1880s', there were 139 "government" and "government-assisted" schools, all at the primary level, and in the hands of the missions except three (3), which were government owned. The Wesleyans had 84 schools followed by the Basel mission with 47 schools. The Breman Mission followed next with four (4) schools and the Catholics came last with a single school (Graham, 1971).

The establishment of second cycle institutions did not occur until 1876 when the Wesleyans established the first second cycle school - the Wesleyan secondary school (now known as Mfantsipim School). According to Graham (1971), the Basel Missionary Conference of 1905 also considered opening a secondary school, but it was felt that secondary education should be the responsibility of the government. In 1923 however, the special education conference of the Mission discussed plans for an enlarged seminary at Akropong to provide academic courses to the pre-university level.

The Church of England re-entered the field of education in 1906 and in 1910 they opened at Cape Coast a grammar school, now Adisadel College. A year after its establishment, it started receiving government grants (Graham, 1971). Graham has also pointed out that, between 1900 and 1925, private individuals also made attempts to establish secondary schools in the country. And two of such institutions were the Accra

Collegiate and the Accra Grammar School. They were also given government grants, but it was withdrawn when according to Graham (1971), they failed to improve on teaching standards. By 1925 there were two established girls' schools – Wesley Girls High School and the English Church Mission Girls School both at Cape Coast.

In a nutshell, there were a few secondary schools in the country before the establishment of Achimota School. According to Agbodeka (1977) the vast majority of the inhabitants of the Gold Coast (before Achimota School) were still under the spell of traditional education which trained them in arts of traditional farming and craftsmanship. Post elementary education was also essentially in the hands of the Missions.

2.1 A HISTORY OF ACHIMOTA SCHOOL

Achimota, a Ga world meaning, "speak no name" is the name of a village nine (9) kilometers east of Accra. One and half kilometers further stands Achimota School, formally Prince of Wales College and School (Agbodeka, 1977). Achimota School covers a land area about 950 acres traversed by some seven kilometers of roads.

The school was founded in 1927 as the first government co-educational boarding institution in the country. Its founding fathers were Governor Guggisberg, a colonial administrator of this country, Reverend A. G.

Frazer, the first principal of the school, and Dr. Emman James Kwegyir Aggrey a Gold Coaster.

In 1919 when Gordon Guggisberg became the Governor of the Gold Coast, he was not pleased with the existing educational system so he decided to improve it. As a first step, in 1920 a year after his assumption of office, an educationists committee was appointed under the chairmanship of D. J. Oman, the then director of education to "investigate educational efforts in the Gold Coast, their success and failure with reasons thereof and to make recommendations for educational policy" (Agbodeka, 1977). Among the committee's recommendations was the building of a secondary boarding school for boys near Achimota village.

However, two major events happened which also influenced the course of education in Ghana, and perhaps, establishment of Achimota School in particular. The first of these was the visit of Phelps-Stokes Commission in 1920, and the second was that of Secretary of State Advisory Committee on Education in the colonies. The commission criticized schools as follows:

i. That they were out of touch with life of the community.

ii. That the curriculum was too bookish (McWilliam, 1959).

The Secretary of State Advisory Committee supported the stance of Phelps-Stokes Commission and asked the colonial office in 1923 to set up a permanent committee to advice on education. This was done in 1925 when an advisory committee on education was set up for that purpose.

In the same year (1925), Guggisberg came out with his sixteen principles of education for the future guidance of the Gold Coast. According to Agbodeka (1977), an interesting feature of these principles was that the implementation of nearly all of them was tied up with the building of Achimota School which was then in progress. Achimota School, an "educational research laboratory" was his remedy for the country's educational ills and cornerstone of his reforms.

Reverend A. G. Frazer, the college's first principal made two modifications to the scheme:

i. Instead of a boys' secondary boarding school, the college was to become a co-educational institute;

ii. Its work was not to begin with secondary pupils but infants (Achimota School Report, 1952).

Aggrey divided his time between teaching and visiting different parts of the country to explain about Achimota School. This is because, according to Ward (1965), among the Africans (Ghanaians) there was criticism of

Achimota because Guggisberg had raised their hopes high and they were therefore looking for something spectacular. Aggrey served as diplomatist and interpreter between the African people and Achimota staff.

According to Agbodeka (1977) first formal classes started in early 1927 with 60 six-year olds and by 1930 the total number of pupils had reached four hundred and 458 with the following distribution:

Kindergarten		52
Lower primary	-	92
Upper primary	-	87
Secondary		66
Teacher training	-	156
University	-	4

These formative years saw the college taking shape and in the same year (1930) control of the college was transferred from the government to a council. Between 1932 and 1938, many new buildings were added. Achimota School during this period continued to discharge its varied functions as kindergarten, primary, secondary, teacher training and University College in miniature, preparing students for external intermediate examination of the University of London. (Achimota School Report, 1952).

In 1944, the college decided to close down the lower school, and in 1945 the college council again decided to separate all post secondary students from the school under a warden, (Mensah, 1990). According to Agbodeka, (1977) Guggisberg meant Achimota to expand into a university in accordance with the wishes of the Gold Coast nationalists. In January 1947, a delegation of the newly formed Inters University Council for Higher Education in the colonies visited West Africa in March and the Secretary of State agreed in principle to the establishment of a university college in Gold Coast. Legislation was passed in 1948 in the shape of three ordinances:

i. The University College of Gold Coast was to occupy the western compound of Achimota School until such a time that its own new buildings were completed on Legon Hill.

ii. The Achimota Teacher Training College shared the Western compound with the University College until September 1951 when the former was moved to Kumasi.

iii. The secondary department of the Prince of Wales College by ordinance became independent and autonomous institution to be known as Achimota School.

Achimota School is a non-denominational Christian institution, although pupils of other religious backgrounds are admitted. Some of the facilities of the school include swimming pool, a post office, a police station and a

hospital which caters for both students and staff as well as residents in the neighbourhood (Achimota School, 1997).

2.1.1 IDEALS ON WHICH ACHIMOTA SCHOOL IS BASED

According to the Achimota School Brochure (1997) the school is founded on the following ideals:

i. The best use of the minds and bodies, which God has given us;

ii. An equal opportunity for girls with boys in education;

iii. Respect for all that is true and lasting value in old African culture, beliefs and ways of life;

iv. Willing, humble service of the educated for the uneducated;

v. Mutual understanding and co-operation between Christians of all denominations and the growth of the spirit in which the churches shall one day be united;

vi. Friendship, respect and cooperation between all races on equal terms;

vi. The belief on which all else rest, in Jesus Christ as the revelation for all time and all peoples of the love of God and as the guide and pattern of our lives.

2.1.2 THE COMPOUND OF ACHIMOTA SCHOOL

The school is located in two areas, the East and West compounds. The east compound houses the administration and teaching blocks. The West

compound apart from accommodating about a quarter of the secondary school students, also houses the children center, the primary school and the junior secondary schools.

2.1.3 ADMINISTRATION OF THE SCHOOL

The day-to-day administration of the school is in the hands of the Headmistress and her three assistants, the Senior Housemaster and the Senior Housemistress who together constitute the school's administration.

There is also the Board of Governors who acts in an advisory capacity to the school's administration.

2.1.4 SCHOOL POPULATION

The school is one of the largest second cycle institutions in the country. It has a total student population of 1500. Fifty-two percent (52%) of them are girls and the remaining 48% are boys. There are also 80 teachers who form the teaching staff.

2.1.5 FUNDING

Like ail state own academic institutions, the Achimota School receives grants from the central government. The Old Achimota Association (OAA) and the Parent Teacher Association (PTA) also provide funds from time to time to support specific projects in the school.

2.1.6 THE CURRICULUM

Students are admitted to one of the following programmes: General Science, Agricultural Science, General Arts, Vocational (Home Economics or Visual) Arts. Each of these programmes is of three (3) year duration and leads to the Senior Secondary School Certificate Examinations of West African Examination Council.

2.1.7 DEPARMENTS OF THE SCHOOL

There are two major departments and two schools that cater for the subjects offered. These are:

i. Science and Mathematics Department

ii. The Art Department.

There are also Music school, the Art school and the Home Science Unit.

2.1.8 BOARDING LIFE

The school has 14 boarding houses – eight (8) for boys and six (6) for girls. Each house has an average population of 120 students who are supervised by two house staff.

2.1.9 THE PREFECTORIAL SYSTEM

Each year, a body of prefects is elected to help with the running of the school. Each prefect is assigned a specific responsibility which he or she

is expected to discharge to the best of his or her ability. The prefects are also assisted by a number of monitors.

2.1.10 EXTRA CURRICULAR ACTIVITIES

a) GAMES AND SPORTS

Various forms of sports are actively encouraged. These include football, athletics, tennis, hockey, cricket, volleyball and basketball. There are also two gymnasiums and a swimming pool all providing a variety of sporting activities.

b) ENTERTAINMENT

Entertainment includes plays acted by students, film shows and debates. Various clubs and societies are organized in the school and students are encouraged to take keen interest in these clubs and societies.

In conclusion it could be said that Achimota School, right from its very beginnings was well positioned to take advantage of developments around the world such as the Internet.

2.2 ORIGINS OF THE INTERNET

The World Almanac (2001) says that the Internet grew out of a series of developments in academic, governmental and Information Technology communities. It was started in 1969 under the name Advance Research

Project Agency Network (ARPANET). An experimental four-computer network, established by Advance Research Project Agency (ARPA) of United States Defense Department. This was to aid researchers in sharing of information and resources.

In 1971, ARPANET, linked about two dozen computers at fifteen (15) sites but this number increased to over two hundred (200) by 1981. During the 1980s more and more computers using different operating systems were connected (The World Almanac, 2001).

The year 1991 saw the release of the browser or software for accessing what became know as the World Wide Web. In 1993, the National Center for Super Computing Application in U. S. A. released versions of mosaic for Microsoft Windows, Unix systems running the X windows system and Apple Macintosh. In 1994 Netscape Communications also released the Netscape Navigator Browser and in 1995 Microsoft release Internet Explorer (The World Almanac, 2001).

The Internet is not owned by any one institution, organization or government. It has no chief executive officer and it is not a commercial service. Its development is guided by the Internet Society (ISOC), which according to Parker (1994) is a professional organization that is chartered to facilitate and support the technical evolution of the Internet as a

research and educational infrastructure. Its membership are companies and users concerned with its development. Every year they elect a board of trustees, which serves as the government of the society.

The society appoints the Internet Architectural Board (IAB) which works out issues of standards and network resources among others. The Internet Engineering Task Force (IETF) handles the day to day issues (The World Almanac, 2001). Users can connect to the Internet via direct connections, Online Information Services and Internet Service Providers (ISPs). According to Williams *et al* (1995) Internet Service Providers are local or national companies that provide public access to the Internet for a fee. Some of the well-known companies are AmericaOnline, CompuServe, Prodigy Microsoft Network and AfricaOnline.

Williams *et al* (1995) have also pointed out that there are many tools available to navigate the Internet and these include E-mail, File Transfer Protocol, (FTP), Telnet, Gophers, WAIS and web browsers. The World Almanac (2001) has pointed out that there are three (3) basic elements in the Internet.

i. A server – a computer programme which makes data available to other programmes on the same or other computers;

ii. A client – a computer that request data from a server;

iii. A network – an interconnected system in which multiple computers can communicate.

With the help of a browser one can visit a site on the web and access its files and to locate a site, one can use a search engine or a directory.

2.3 A BRIEF HISTORY OF INTERNET ACCESS IN GHANA

The use of computer mediated communication started in Ghana around 1989/90 as a pilot project with the assistance of Pan African Development Information System and the International Development Center (Dankwa 1998). This was a network using the fidonet connecting the Ghana Scientific and Technological Information Network (GHASTINET), the Association of African Universities and the Technology Transfer Center to GreenNet in London by dial–up. This network of universities and research institutions faced serious challenges:

i. Computers were expensive;

ii. There were high duties on them because they were considered as luxury items;

iii. Phone lines were difficult to come by;

vi. The technology was new and marketing it was like "pouring water on a duck" (Dankwa 1998).

The service provided was only electronic mail and according to Dankwa (1998) it was sent three (3) times a week with the excuse that it was expensive to run. The Association of African Universities later broke away to use Unix Copy Protocol whilst those in the health sector went on the HealthNet.

According to Dankwa (1998) the 1993-1994 period was a watershed for Ghana as far as the development of the Internet is concerned. This period saw the introduction of full Internet Protocol (IP) and its commercialization in January 1995.

The expansion of telecommunications sector since 1994, according to Dankwa (1998) has come with it, an increase of up to 15000 lines to the Accra exchange, which has made it possible for prospective subscribers to acquire phone lines. Apart from the increase in the quality of lines there has been a corresponding increase in the number of operators so that apart from Ghana Telecom and Ghana National Petroleum Corporation, there are AT & T and cell phone operators like Mobitel and Spacefon. Some Internet Service Providers (ISPs) in the country are Network Computer System (NCS) Ltd, AfricaOnline and Internet Ghana who are also providing full Internet service; E-mail, File Transfer Protocol, World Wide Web, WAIS and full multimedia services.

2.4 ACHIMOTA SCHOOL INTERNET SERVICE

According to the Headmistress of the school, in 1995, Mr. R.M. Asiedu, the then Headmaster of the school, decided to introduce computers into the school and eight (8) computers were therefore acquired. These computers were kept in the preparation room of the science laboratory. A physics master with a computer background was asked to teach

computers skills to those students who were interested in computers. They were made to pay for it.

When the present Headmistress Mrs. Charlotte Brew-Graves took over, she decided to build on this innovation. It was therefore decided that computer education should be an integral part of the academic curriculum for all students. An appeal was made to the old students association – Old Achimota Association (OAA) which decided to renovate an old staff common room for a computer laboratory to be set up there.

In May 1997, when the Ghana WorLD-Links for Development programme (WorLD-Ghana) decided to link Ghanaian senior secondary school students and teachers with their counterparts in both developing and industrialized countries via the Internet for collaborative distance learning, the school was selected as one of the beneficiaries.

The WorLD-Ghana programme therefore gave 11 computers to the school. All the computers were networked and connected to the Internet by a telephone dial–up system. When the school had Internet access, the need according to the Headmistress was felt for more teachers to teach computer skills. An appeal was made to the Peace Corps and Canadian Universities Services Overseas (CUSO) for teachers. Each agreed to send a volunteer teacher for computer education in 1998. National Service

men and women as well as a science master who have been adequately trained to be in charge of the computer laboratory also teach user skills in computers and Internet use.

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CHAPTER THREE

DATA ANALYSIS

3.0 INTRODUCTION

This chapter deals with data collected from the field. The data was collected through the use of interviews. The following people were interviewed: the headmistress, the computer laboratory master and some teachers and students. In all 16 teachers constituting 20% of the total number of 80 teachers were interviewed and 200 students, that is, 13.3% of the 1500 students' population were also interviewed. The students were selected from the Form Two and Form Three classes for the purpose of this work because the Form One students had just been admitted to the school when the work begun.

3.1 INTERVIEW WITH THE HEADMISTRESS OF THE SCHOOL

Internet access in the School

On the question of when the school had access to the Internet, she pointed out that the facility became available in the school in 1997 after a few years of teaching students only basic skills in the use of computers. This shows that the facility has been in use for the last five years.

Motive for setting up the facility

She pointed out that the motive for setting up the facility was to teach students skills in the use of computers and to prepare them for the age in which we find ourselves – the computer and information age. This could be said to be good since it is becoming increasingly necessary for graduates of the educational institutions to acquire computer skills after school at extra cost when looking for jobs.

Source of Equipment

The headmistress was also asked how or from where the school obtained its equipment. In answer to this question, she said that the equipment for the setting up of the facility came from three (3) sources. The first was the OAA, which in addition to donation of computers to the school from time to time renovated an old staff common room for the setting up of the computer laboratory, which was eventually connected to the Internet.

The second source of equipment came in the form of computers from WorLD-Links project of the World Bank, which aims at connecting second cycle schools around the World to the Internet. Eleven (11) computers were given to the school when it became a beneficiary to the project.

The third source of equipment, according to her, comes from fees that are paid by parents towards the education of their children in the school. This shows that the government itself has not played any major role in getting the school access to the Internet.

The role of the Parent Teacher Association

The Headmistress pointed out that the Parent-Teacher Association of the school does not play any direct or active role either, apart from parents paying fees that are levied on students.

Impressions

On the question of her impressions so far since the facility became available in the school, she said that it has served a good purpose. Since apart from teaching skills in the use of computers, it has exposed students and teachers to another medium through which they could get information for teaching and studying. It could be said here that the potential of the Internet as an educational tool is therefore very much recognized and appreciated.

Impact on the School

In answer to this question the respondent said that the use of the Internet has impacted positively on the school's already good standing in the eyes of the Ghanaian public as one of the few schools in the country where computer and Internet skills are taught.

The school has however lost some teachers to other jobs who have acquired skills in the use of the facility. She also pointed out that when the teaching of computer skills became a problem in the school, an appeal was made to the Canadian Universities Service Overseas (CUSO) and the Peace Corps who sent down a volunteer teacher each to the school. The coming years will tell the impact that it will have on academic work in the school.

Feedback

On the question of whether she has received any feedback from those who had used the facility, the respondent said that there has not been any organized medium of assessing the impact that the use of the facility has had on its products.

It would therefore be a good idea if such a medium is put in place, since it could assist the school to know the kind of emphasis that would be necessary in the teaching of skills acquisition in computer and Internet use.

Problems of Internet use

Finally on whether any problem has come to her notice, especially, on misconduct on the part of students, the respondent pointed our that, the

use of the facility is structured and a student does not get access to the facility in the absence of the computer laboratory master. She however said in the future when its use is made flexible perhaps there might be problems with students' use of the facility.

She also pointed out that government could play more active role in the use of ICT in schools across the country since exposure of students and teacher to the facility has become necessary for meaningful national development.

3.2 INTERVIEW WITH THE COMPUTER LABORATORY MASTER

Number of personal computers

The teacher in charge of the computer laboratory – the "Lab master" as he is officially called pointed out that there are 21 computers for use in the computer laboratory. This could be said to be inadequate looking at the student (1500) and teacher (80) population in the school.

The need to acquire more computers for practical work cannot therefore be ruled out.

Age of machines

On the question of age of the machines in use at the computer laboratory, the respondent said none of the present computers in use is more than six

(6) years old. The machines presently in use were acquired when computer and Internet use became compulsory in the school.

Rate of breakdown of the computer systems

When asked how often the computer systems breakdown, the respondent pointed out that in every month there is a likelihood of a minor problem with a machine. He is able to fix all minor problems with the machines since he has been adequately prepared to deal with many kinds of such problems in the use of computers.

In the case of a major problem, they seek help from outside the school. According to the respondent, they do not have any specific company on which they call to fix problems with their computer systems. Employing the service of a specific company might help reduce this trend since the company might become familiar with their computers and get to know how to fix its problems in a more permanent way.

Type of Internet Connectivity

The respondent said in an answer to the question on the type of connectivity the school has that the school is connected to the Internet through dial-up system.

Internet Service Provider

The respondent said that the Internet Service Provider of the school is the Network Computer Systems (NCS) Ltd.

Training

On the question of training in the use of the facility, the respondent pointed out that separate training sessions are held for students and teachers. The teachers he said are given training on Wednesday mornings. In the case of students, the training starts in Form One in both theoretical and practical training in the use of computers.

The respondent when asked whether he is the only one who teaches both teachers and students in the use of computers and Internet said he is assisted by three (3) other teachers.

Students are given twelve hours a week to basically practice what they are being taught after classes, and teachers also get two hours a week to do same. This is in the right direction that teachers who are expected to teach students skills in the use of computers and Internet be supported themselves with training in the use of the facility.

Use of the facility

The respondent corroborated the point made by the headmistress when he said that students are not allowed to use the facility in the absence of the computer laboratory master. This, it could be said, would go a long way to check access to pornographic and other unsavory materials available through the Internet.

He also pointed out that he sometimes assists some teachers to look for information on a particular topic. This shows that not all teachers have adequate skills in the use of the facility. This same assistance is also made available to students when the need arises.

Power Supply

The respondent was also asked whether power supply for the use of the facility presents a problem. His response was that on the whole, it has generally been good, as they do not experience much power outage in the use of the facility. There is however a standby generator in case of power outage.

3.3 DATA ANALYSIS FOR STUDENTS

Questions 1, 2 and 3 were on the background of the students. The questions sought to find out the forms of the students, when they got to know of the Internet and how they got to know of the Internet.

Out of 200 respondents 46% (n=92) were from Form Two and 54% (n=108) were from the Form Three class. Question 2 was on when they got to know of the Internet.

Table I: When did you get to know of the Internet

FORM	TOTAL NO. OF STUDENTS	1997		1998		1999		2000		2001	
		F	%	F	%	F	%	F	%	F	%
2	92			3	3.3	32	34.8	48	52.1	9	9.8
3	108	5	4.6	19	17.6	51	47.2	33	30.6		
Total	**200**	**5**	**2.5**	**24**	**12**	**83**	**41.5**	**81**	**40.5**	**9**	**4.5**

Note: F = Frequency

The study showed that many of the students got to know of the Internet in 1999, 41.5% (n=83) followed closely by 2000 with 40.5% (n=81). A few of the respondents knew of the Internet in 1997. The respondents Form Three who selected 2000 30.6% (n=33) and those in Form Two who also selected 2001, 9.8% (n=9) said got to know of the Internet when they were admitted to the school.

Question 3 sought to find out how they got to know of the Internet. Respondents could select as many as applicable of the methods through which they got to know about the Internet.

Table II: How did you get to know of the Internet?

FORM	TOTAL NO. OF RESPONSES	POSTERS		RADIO		T V		NEWS PAPERS		TEACHERS		FRIENDS	
		F	%	F	%	F	%	F	%	F	%	F	%
2	346	30	8.7	58	16.8	78	22.5	44	12.7	65	18.8	71	20.5
3	310	19	6.1	71	22.9	57	18.4	42	13.5	61	19.7	60	19.4
TOTAL	**656**	**49**	**7.5**	**129**	**19.7**	**135**	**20.6**	**86**	**13.1**	**126**	**19.2**	**131**	**20**

Note: F = Frequency

From Table II, it can be said the least means through which the Form Two students learnt about the Internet was Poster 8.7% (n=30). The highest means through which they learnt about it was the TV 22.5% (n=78) followed by teachers with 20.5% (n=71). In the case of the Form Three students, the least was still through Poster 6.1% (n=19), the highest being Radio with 22.9% (n=71), followed by Friends 19.7% (n=61). On the whole, the major means through which they learnt about the Internet was TV 30.6% (n=135), followed by the Teachers with 20% (n=131), Radio 19.7% (n=129), Friends 14.2% (n=126), and Newspapers 13.1% (n=86). Posters came last with 7.9% (n=49).

On the question of whether they have been taught the use of the Internet and where they first received training since every student in the school is taken through computers and Internet use, in the case of the Form Two students with the exception of 12% (n=11) who said they first learnt the use of the Internet through private computer classes and 3.3% (n=3) from friends and a student through a brother 1.1%. The majority of them were first exposed to computer and Internet use at the school, 88% (n=77). Among the Form Three students, a respondent said he learnt the use first from a book "on the net" written by Fredrick Casper and another said he received training through his father. Five (5), accounting for 4.6% of the respondents from the class said they first learnt the use from private computer classes. Another 1.9% (n=2) from friends, and 3.7% (n=4) from the use of cyber cafes. The majority of them, i.e. 88% (n=95) were first introduced to computers and Internet use in the school.

On the question of the use of the facility in the school, it was realized that apart from training sessions that are organized for students, independent use of the facility does not follow regular patterns. During snack break periods, and sometimes after classes, some of the students are able to make independent use of the computer laboratory.

On such occasions 32.5% (n=65) of the respondents said they used it for e-mails, 11.5% (n=23) for news, 10.5% (n=21) for leisure reading/browsing and a few also mentioned use of it for looking for information for assignments.

On the question of access to the facility apart from training sessions and time allocated for practice after classes, respondents affirmed that they do not always get access to the facility but make irregular independent use of the computer laboratory. Some of them, however said they do get access to the Internet through cyber cafes mostly on vacations.

On what they would suggest should be done, it was suggested amongst others that:

i. A separate time should be set aside for students to make use of the facility in the school;

ii. The computer laboratory should be opened for use all day on Saturdays and Sunday after church service;

iii. It should be opened during prep time for students to use it.

When asked where they would prefer to have the facility, given the choice 29.5% (n=59) of the respondents opted for the computer laboratory. Out of this number, 28.3% (n=26) were respondents in Form Two while the remaining 30.5% (n=33) were in Form Three but the majority of them 70.5% (n=141) opted for the other centers of learning in the school.

Table III: Where would you prefer to have the Facility?

FORM	TOTAL NO. OF STUDENTS	CLASSROOM		SCHOOL LIBRARY		SCIENCE RESOURCE CENTRE	
		F	%	F	%	F	%
2	66	35	53.0	17	25.8	14	21.2
3	75	47	62.7	12	16	16	21.3
TOTAL	**141**	**82**	**58.2**	**29**	**20.6**	**30**	**21.3**

Note: F = Frequency

The majority of those who would like the facility elsewhere 58.2% (n=82) said they would prefer to have the facility in the classroom. The place with the least number was the school library with 20.6% (n=29). Some reasons put forward for the choice of the computer laboratory include:

i. The computer laboratory is purposely prepared to store the facility;

ii. Its use in the other centers of learning could distract attention of those who may not need it at the time;

iii. It could be abused in the absence of a teacher;

iv. The computers could easily be damaged because not all of them have enough skills to handle it if left alone.

Some of the reasons also put forward for the choice of the other places include:

i. "If the information you need cannot be found quickly from various books the Internet might be useful as far as urgency is concerned";

ii. Easy access to the facility;

iii. Use at ones convenience;

iv. Spacious accommodation for the facility.

On the question of whether students should be allowed access to pornographic material on the Internet, there was rejection of the possibility in the school because among others:

i. It will be abuse of the facility;

ii. It is not a private property and not everybody would want that;

iii. It is morally bad;

iv. It is against school rules.

A question also sought to find the constraints to the use of the facility in the school. There were general complaints on:

i. Restriction to access;

ii. The limited number of personal computers;

iii. Lack of time for independent use of the facility;

iv. Twenty-seven (27), i.e. 29.3% of Form Two students also complained of inadequate skills while 13.9% (n=15) of the Form Three students also complained of inadequate skills as a constraint to the use of the facility.

On the question of how Internet access has benefited each one of them, some of the benefits put forward were:

i. Acquisition of computer skills;

ii. Exposure to a source of information and knowledge;

iii. A medium of sending mails;

iv. A means of making friends around the world;

v. Assistance in participating in WorLD-Links;

vi. Exposure to another means of having fun through playing electronic game on the computer.

A question sought to find out whether in their opinion it could benefit other schools. Respondents supported this by mainly pointing to the question posed above and the fact that a school through the use of the Internet, could have a presence on the web through the creation of its own website.

When asked whether government should make it a policy to give Internet connectivity to all schools, respondents supported it but a few also pointed out the need for private participation.

Some other comments that came up were:

i. The need for WAEC to make computer and Internet use an examinable subject;

ii. The need to make it possible for students to make use of the facility in the school at all times;

iii. Possibility of connecting the other centres of learning to the Internet

iv. Operation of private cyber cafes on the campus where students could go, pay, and search for information.

3.4 DATA ANALYSIS FOR TEACHERS

Questions I and 2 were on the background of the respondents. The questions sought to find out when they got to know of the Internet and the medium through which they have learnt of the Internet.

Out of the 16 respondents 6.3% learnt of the Internet in 1995, 37.5% (n=6) in 1996, 43.8% (n=7) in 1997 and 12.5% (n=2) in 1998. In the case of how they learnt about the Internet, the respondents could select as many as applicable of the mediums that were provided. There were 58 responses. Posters had 12.1% (n=7), Radio 21% (n=12), TV 17.2% (n=10), Newspapers 24.1% (n=14) and Colleagues 26% (n=15).

On the whole, it could be said that majority of the respondents, 43.8% (n=7) learnt of the Internet in 1997, and the major means through which they have learnt about the Internet was through Colleagues with 26%

(n=15) followed by Newspapers with 24.1% (n=14) the least was Posters with 12.1% (n=7) of the responses.

Questions 3 through 6 also sought to find out whether the respondents use the Internet, the purpose for which they use it, and how often they use it. Asked whether they are allowed the use of the facility in the school apart from the students, the respondents answered in the affirmative. On the purpose for which they have used it, the respondents could select as many as applicable to each one of them. There were 29 responses, 38% (n=11) said they use it to look for information to prepare notes, 34.5% (n=10) for e-mails, 17.2% (n=5) for News and 10.3% (n=3) for browsing/leisure reading.

In the case of the frequency of use, it came out that teachers are allowed the use of the facility on Wednesdays, in the evenings from 6pm – 8pm. What one could do apart from this, it was noted, was to give a topic to the laboratory master to conduct the search from which the person could at the appropriate time select.

A question was on where they first did receive training in the use of the facility. Out of the respondents, 56.3% (n=9) were first given training in the use of the facility in the school, 18.8% (n=3) from private classes, 12.5% (n=2) from the use of cyber cafés and 12.5% (n=2) from friends.

On access to the facility in the school, asked whether the time allocated for use is adequate and if not, what they would suggest. It was noted that they do not get access to the facility whenever they want largely because of classes that take place in the computer laboratory for students. Ten (i.e. 62.5%) of the respondents said they make use of cyber cafes as well.

In the case of what they would suggest on Internet use in the school, the suggestions included:

i. Provision of staff common room with computer connected to the Internet for teachers' exclusive use;
ii. Additional time for use during the day since not all the teachers are staying on the school campus;
iii. Opening of the computer laboratory for independent use on weekends.

On the question of regulations in the use of the facility in the school, it was noted that the use of the facility is governed by rules which include:

i. Who could handle a damaged machine when it is being used;
ii. Specific periods during which one could use it, as interruptions when classes are going on in computer laboratory would not be entertained;
iii. The presence of computer laboratory master or an assistant when it is being used.

In the case of the question on pornographic materials on the Internet and what should be done to a student who is found accessing pornographic materials, respondents pointed out that access to such materials is not a problem in the school. Should a student be found in that act, 18.8% (n=3) said they would support dismissal of the students, 56.3% (n=9) that is the majority said they would support suspension of the student and 25% (n=4) also said they would support the student being talked to and punished.

A question was also on constraints to the use of the facility in the school. Respondents pointed out that:

i. There were few personal computers;

ii. There were restrictions to access;

iii. There were inadequate time for independent use;

iv. Three (3) i.e. 18.8% of the respondents also pointed out that they do not have adequate skills in the use of the facility.

On the question of given the choice between the computer laboratory and other centers of learning where they would prefer to have the facility 31.3% (n=5) opted for the other centers of learning. Two (2) i.e. 12.5% of them, they would like to have it in the school library, 6.3% (n=1) in the classroom and another 12.5% (n=2) in the science resource center.

Some of the reasons put forward for the choice of the computer laboratory included:

i. Its use there would make for easy supervision of students use of the facility;

ii. The places takes offers some amount of privacy in the use of the facility;

iii. Like the other centers of learning which store different equipment, the computer laboratory is prepared for the storage of the facility.

The reasons for the choice of the other places also included:

i. Possibility of use in conjunction with other resources;

ii. Easy access to the facility;

iii. Possibility of use at ones convenience.

A question sought to find out whether Internet use could benefit other schools and ways in which it could benefit them. Respondents generally agreed that its use could benefit other schools in terms of:

i. Currency of information;

ii. Range of resources that its use could provide to users;

iii. Acquisition of computer skills;

iv. Undertaking of correspondence;

v. Assistance in personal studies among others.

In the case of whether government should make it a policy to give Internet connectivity to all schools, respondents were mainly of the view that it would be a laudable idea because of the age in which we are. Some of the other comments put forward were:

i. The need for the government to play a more active role in the use of computer and Internet use in schools;

ii. The need to introduce ICT at the basic level of education to assist in the delivery of quality education;

iii. The need for Local Area Networks and Wide Area Networks to ensure easy access to information;

iv. "Teachers should be adequately trained and should also be given unlimited access to the facility to ensure it success in schools".

CHAPTER FOUR

OVERVIEW, CONCLUSIONS AND RECOMMENDATIONS

4.0 OVERVIEW

In chapter one, background to the study was given, as well as problem of the study, objectives, methodology employed among others. Review of some related literature was also done. Chapter Two dealt with a history of second cycle education in Ghana before the establishment of Achimota School, a history of the Achimota School, origins of the Internet, brief history of internet access in Ghana and Achimota School Internet service. Analyses of the data collected from the field were dealt with in chapter three; and chapter four, overview of the study, conclusions and recommendations.

Number of personal computers

The study showed that there was inadequate number of personal computers for training and use. The need for the acquisition of more personal computers to enhance the school's capacity in the teaching of skills in computers and Internet use would require some attention.

Training

The study also revealed that the school was largely responsible for training of students and teachers in the use of computers and Internet use as classes were constantly organized for them in the computer laboratory.

Use and access to the facility

Apart from training sessions that were organized for students and teachers, access the facility for independent use was very limited. There was the desire for extended period of time to take care of independent use of the facility.

Location of the facility

There was also preference for the facility in the centres of learning in the school as well. This was especially so among the students, some of whom would like it in the classroom, where they believed they could have easy access to make use of the facility.

Constraints to the use of the facility

The study also revealed that there was general belief at the school that:

i. There was restriction to use of the facility;

ii. Time allocated for use is too short;

iii. The number of personal computers was inadequate.

4.1 CONCLUSION

This age is rightly called the "Information Age." This is because with the use of computers, which are connected to the Internet, vast libraries of information could be made available to users. The Internet had educational values that could be used at all levels of education.

The Achimota School took the right step in deciding to teach computer and Internet use. It can however be concluded that the Internet is not being fully utilized by both students and teachers due to a number of problems. It is therefore not playing a major role in helping the students achieve their learning process. If Internet use is to assist students to achieve academic laurels, a number of changes have to be made.

4.2 RECOMMENDATIONS

i. In the first place, a specific time for independent use of the facility should not only be set aside for practice in what is being taught but for exploitation of the benefits of the Internet according to individual academic needs and possibility of the extension of the time that teachers could use the facility apart from the training that they are given.

ii. The other centres of learning in the school such as the School Library and the science resource centre could be considered for connectivity to the Internet. This would release the computer

laboratory to be purposely use for training while those who want to use it apart from receiving training to go to the other centres to do so.

iii. An appeal could be made to non-governmental organizations and other public-spirited individuals to come to the aid of the school either with personal computers or cash for the purchase of computers and its accessories to assist in the teaching of computer skills and Internet use.

iv. The Internet Service Providers in the country could consider drastically reducing the charges that educational institutions pay. This would enable the school to save some money from whatever amount is paid for Internet connectivity for acquisition of computers and other accessories for computer and Internet use in the school.

v. The operation of cyber cafes on the campus where those interested in the exploitation of the Internet could go should be encouraged on pilot basis.

vi. The government should play a more active role in the teaching of ICT in the basic schools if the country is to make an impact in this age of information explosion.

APPENDIX A

ACHIMOTA SCHOOL

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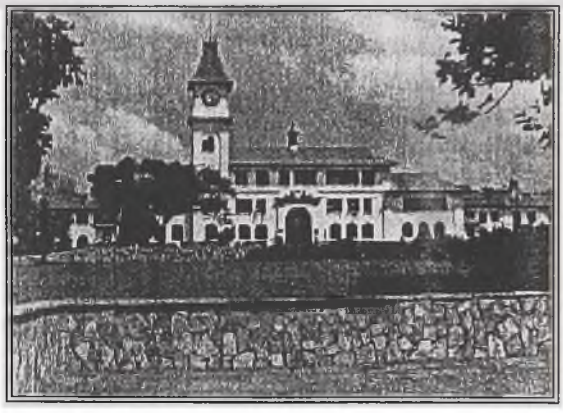
About us
- Administration
- Facilities
- Admissions
- Departments
- Staff
- Student life
- The O.A.A.
- Projects
- Partners



Charity begins at home but success begins

atACHIMOTA.ONE OF THE NATION'S FINEST ALL ROUND SECONDARY SCHOOLS, RECOGNIZED WORLDWIDE FOR PRODUCING OUTSTANDING SCHOLARS AND INTELLECTUALS WHO ARE MAKING A GREAT DIFFERENCE IN THE WORLD. A BRILLIANT FACULTY, AN EXQUISITE CAMPUS, VAST RESOURCES AND AN UNUSUALLY DIVERSE AND TALENTED STUDENT BODY - ALL WORK TOGETHER TO CREATE AN ENVIRONMENT THAT CHALLENGES AND INSPIRES PEOPLE TO GROW IN KNOWLEDGE AND CARVE OUT THEIR IDENTITY, AND FULFILL THEIR POTENTIAL.

If you have any questions or comments about our school contact us at achimota@ghana.com

APPENDIX B

INTERVIEW SCHEDULE WITH THE HEADMISTRESS OF ACHIMOTA SCHOOL

1. When did the School get access to the Internet?
2. What was the motive for setting up the facility in the School?
3. How or from where did the School obtain its equipment?
4. What role does the Parent Teacher Association play in the use of the facility in the School?
5. What are your impressions so far since the facility become available in the School?
6. Has the use of the facility had any impact on your School?
7. Do you receive any feedback from students who had access to the facility after they have completed their studies here?
8. What problems have come to your office especially about misconduct of students since the School started using the facility?
9. Do you please have any other comment?

APPENDIX C

INTERVIEW SCHUDULE WITH THE COMPUTER LABORATORY MASTER

1. How many computers do have in the computer laboratory for use?
2. How old are the computers?
3. How often do they break down?
4. What Internet connectivity do you have?
5. Which company is the Internet Service Provider (ISP) of the school?
6. How do you organize training in the use of the facility in the school and are you the only one responsible for the training?
7. What are your comments on the use of the facility in the School?
8. Is power supply for the use of facility a problem in your School?
9. Do you have any other comment?

APPENDIX D

INTERVIEW SCHEDULE FOR THE TEACHERS OF ACHIMOTA SCHOOL?

1. When did you get to know of the Internet?.....

2. How did you get to know of the Internet? Through (Tick as many as applicable) (A) Posters [ ] (B) The Radio [ ] (C) The Television [ ] (D) Newspapers [ ] (E) Professional Colleagues [ ]

3. Are you allowed to use the Internet services in your School?

4. If No why?.....

5. If yes, for what purpose do use it? (Tick as many as applicable)
(A) To prepare notes [ ] (B) E-mail [ ] (C) News
(D) Leisure reading /browsing [ ]

6. How frequently are you allowed to use the Internet?
(A) More than once in a week [ ] (B) Weekly [ ]
(C) Fortnightly [ ] (D) Once in a while

7. Where did you first receive training in Internet use?
(A) The school [ ] (B) Internet café [ ]
(C) Private computer class [ ] (D) Others, please state .....

8. Do you have access to the Internet in your school whenever you want to use it? (A) Yes [ ] (B) No [ ]

9. If No, do you have access to it elsewhere?
(A) At home [ ] (B) In a cyber café [ ]

10. Would you say that the time allocated for Internet use in your school is adequate? (A) Yes [ ] (B) No [ ]

11. If No, what would you suggest? .....

12. Are there any regulations for the use of the Internet facility in the school?
(A) Yes [ ] (B) No [ ]

13. If yes, list them .....

14. Is access to pornography a problem in your school?
(A) Yes [ ] (B) No [ ]

15. If a student is found accessing pornographic material on the Internet, would say that the student should be:
(A) Dismissed [ ] (B) Suspended [ ] (C) Talked to and punished [ ]
(D) Allowed to go free [ ]

16. Which of these are constraints to Internet use in your school?
(Tick as many as applicable)
(A) There is inadequate of personal computers [ ]
(B) Inadequate skills due insufficient training [ ]
(C) Time allocated for Internet use is too short [ ]
(D) There are restrictions to access [ ]

17. Do you like the location of the Internet facility in the computer laboratory?
(A) Yes [ ] (B) No [ ]

18. If no, where would you like to have the Internet facility?
(A) Classroom [ ] (B) School library [ ]
(C) Science Resource Centre [ ]

19. What reason would you give for your answer?.....

20. In what way(s) do you think Internet use can benefit other schools?.....

21. Should the government make it a policy to give Internet connectivity to all schools? (A) Yes [ ] (B) No [ ]

22. Please do you have any other comment? .....

APPENDIX E

INTERVIEW SCHUDULE FOR STUDENTS OF ACHIMOTA SCHOOL

1. In what form are you?

2. When did you get to know of the Internet? .....

3. How did you get to know of the Internet? Through ...
(Tick as many as applicable) (A) Posters [ ] (B) The Radio [ ]
(C) The Television [ ] (D) Newspapers [ ] (E) Friends [ ]
(F) Teachers [ ]

4. Do you use the Internet in your school? (A) Yes [ ] (B) No [ ]

5. If No, why .....

6. If Yes, for what purpose do you use it?
(A) To find information for assignments [ ]
(B) E-mail [ ]
(C) News [ ]
(D) Leisure reading/browsing [ ]

7. How often do you use it?
(A) More than once in a week [ ] (B) Weekly [ ] (C) Fortnightly [ ]
(D) Once in a while [ ]

8. Have you been taught how to use the Internet? (A) Yes [ ] (B) No [ ]

9. If Yes, where did you first receive training?
(A) At school [ ] (B) From a private computer class [ ]
(C) Internet café [ ] (D) Others, please state .....

10. Do you have access to the Internet in your whenever you want to use the Internet? (A) Yes [ ] (B) No [ ]

11. If No, do you have access to it elsewhere?
(A) At home [ ] (B) In a cyber café [ ]

12. Would you say the time allocated for Internet use in your school is adequate? (A) Yes [ ] (B) No [ ]

13. If No, what would suggest? .....

14. Do you think students should be allowed access to pornographic materials on the Internet? (A) Yes [ ] (B) No [ ]

15. What reason would give for your answer .....

16. Which of these are constraints to Internet use in your school?
(Tick as many as applicable)
(A) There is inadequate number of personal computers [ ]
(B) Inadequate skills due to insufficient training [ ]
(C) The time allocated for Internet use is too short [ ]
(D) There are restrictions to access [ ]

17. Do you like the location Internet facility in the computer laboratory?
(A) Yes [ ] (B) No [ ]

18. If No, where would you like to have it?
(A) Classroom [ ] (B) School Library [ ]
(C) Science Resource Centre [ ]

19. What reason would you give for your answer? .....

20. How has Internet access benefited you? .....

21. Do you think Internet use can benefit other schools?
(A) Yes [ ] (B) No [ ]

22. What reason(s) would you give for your answer? .....

23. Should the government make it a policy to give Internet connectivity to all schools? (A) Yes [ ] (B) No [ ]

24. Do you have any other comment? .....

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