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THE USE OF THE INTERNET AMONG AGRICULTURAL STUDENTS AT UNIVERSITY OF CAPE COAST IN GHANA

¹ Annor-Frempong, F. and ² Edumadze, J.K.E.

¹ Dept. of Agricultural Economics & Extension, University of Cape Coast, Cape Coast, Ghana; Email: papaannor@yahoo.com

² Computer Centre, University of Cape Coast, Cape Coast, Ghana; Email: jedumadze@ucc.edu.gh

Abstract

We are living in the age where the Internet is one of the most important tools for accessing information and knowledge to improve the welfare of humankind. All graduates from universities are expected to become internet proficient in order to participate in the Information and Knowledge Age. Therefore, Internet literacy is important to agricultural education because almost all facets of agriculture use computers. This study analyzed the use of the Internet among Agricultural Students at University of Cape Coast in Ghana in 2008/2009 academic year. A total of 200 students were randomly selected and surveyed using a content-validated questionnaire and group discussion. Descriptive statistics were used to analyse the data. The major finding was that the level of knowledge of students on the Internet was low. However, most students have the e-mail addresses and have received training on Internet from private firms outside the University. Occasionally, students used the private cafes in the University to access the Internet. The study recommends among others that hands-on practical approach should be adopted to enhance teaching and learning of ICTs. Moreover, students should be linked to the main University-wide wireless network to enhance access.

Key words: *Internet, education, search engines, e-mail.*

Introduction

In the era of application of Information and Communication Technologies (ICTs) in all facets of life, the Internet, one of the ICT facilities stands tall. The internet is basically a communication system for distributing and exchanging information through

computers scattered across the world. It can be described as a huge information-rich global system of networks that allow different computers located in any part of the globe to communicate directly with others.

The Internet is changing the face of education in the World. Indeed, it is a gateway to the world of learning and strongly linked to education. The very existence of the Internet evolved from the sharing of research findings among scientists and scholars and to providing access to libraries, schools, and universities worldwide. The Internet is the source of interesting reference material and valuable resources such as books and journals. Through the use of the Internet, students can have access to large volumes of information irrespective of their geographical location. Furthermore, the Internet allows more people to receive alternate education and teaching methods through virtual classrooms and long-distance education (Uimonen, 2005).

The real challenge of the Information Age isn't producing information or storing information, but rather getting people to use the information (Patton, 1985). Educational systems, therefore, have a great deal to offer in pointing the way to increasing the use of knowledge and information in the future through the Internet. The University of Cape Coast has been linked to the Internet and continued to improve its ICT infrastructure. The study of ICT is a prerequisite for all agricultural students in the University. With these new developments, it is assumed that students should be able to access current information on agriculture through the Internet. Agricultural students will need the Internet in future to support the development of agricultural producers; community development; research and education; small and medium enterprises development; and media networks (Richardson, 1996).

To determine what kinds of Internet education were appropriate and necessary for agricultural students, it is useful to first understand how students use the Internet. The data collected were to provide insights into revising and improving teaching for this population. The extent to which students in agriculture use the Internet in Ghana was not known prior to this study. Analysing the use of Internet by agricultural students can improve the teaching and learning, policy formulation and human resource development for the benefit of agriculture in Ghana.

Purpose of the Study

The University of Cape Coast in Ghana expects all its graduates to be ICT literate to be effective in their future chosen careers. This study was conducted to analyse the use of the Internet by agricultural students. The specific objectives were to:

1. examine sources of Internet training among agricultural students
2. determine the Level of knowledge of agricultural students of Internet
3. assess the major reasons of Internet use by agricultural students and
4. discuss students perceived problems associated with the use of Internet.

Literature Review

Organizations and individuals store information on the Internet for use by people. The Internet provides world-wide connectivity, tools and services to acquire information. The basic services on the Internet include e-mail, WWW, Telnet, and News (USENET). According to Laudon, Trauer & Laudon (1996), the WWW resources provide access to multimedia data, search engines, meta-search engines, information gateways, and Resource Discovery Network (RDN) which is a free service for resources used in

learning, teaching and the research community. The e-mail is the electronic equivalent of postal mail which allows people to type a letter on computer keyboard and send it along over the Internet. Arguably, the e-mail is the most widely used Internet tool that supports networking among professionals in different geographical locations.

A list server/mail server is a discussion group created on the Internet to share ideas and knowledge on a subject. A message sent to a list is copied and then forwarded by e-mail to every person who subscribes to the list, thereby providing an excellent resource for distributing information to a group with a shared interest. The discussion group on the Internet allows users to follow issues of interest while the File Transfer Protocol (FTP) and the Telnet facilities allow users to access information at remote locations. The Newsgroups servers (for example USENET) provide access to thousands of participants to discuss research, business, and news, science and technology topics. It provides users the opportunity to obtain useful and free advice from experts.

Using information in decision-making is the key issue of the information age. The academics have made significant breakthrough in their activities with the opportunity provided by the Internet which has made it possible for them to obtain current information as well as communicate with others at an affordable price. According to Spiess (2000) the major uses of the Internet by agricultural teachers in California were for agricultural research, referencing, increasing awareness on current and global events, and downloading educational programs. Agricultural teacher educators have found the Internet useful in sending or receiving e-mail. Approximately 80% of the group logged on to the Internet five times per week, and almost 70% log on for at least one hour per

day (Workman, 1996). Peckham and Iverson (2000) have concluded that agricultural educators in Georgia are positive toward Internet and are interested in using the Internet in their classroom. However, they differed significantly only in perceived knowledge level, school policy, equipment availability, training and computer literacy.

In spite of the benefits of the Internet, its use among even the Faculty is still very low in Ghanaian universities due to lack of access to the Internet, low literacy rate hence the need for training, the frequent power outages and slowness of the system (Adika, 2003). Challenges to the use ICT for agricultural development in Ghana includes the need for ICT training opportunities, provision of adequate infrastructure, financial resources and technical backstopping (Annor-Frempong, Kwarteng, Agunga, and Zinnah, 2006). The personal concerns of teachers, if not addressed, would cause them not to learn new technology until their concerns are addressed (Thompson and Connors, 1998).

Methods and Data Sources

The research employed both quantitative and qualitative research techniques to collect data. A structured content-validated survey questionnaire was used to collect quantitative data from 200 student respondents made up of 84.5% males and 15.5% females. The respondents were level 200 students randomly selected out of the four levels in the School of Agriculture at University of Cape Coast. A panel of ICT experts at University of Cape Coast, who were familiar with the Internet use ensured the content validity of the questionnaire.

The qualitative research technique adopted involved the use of group discussion with the class to identify the problems associated with Internet usage by students. Firstly,

volunteers in class were asked to mention the problems. A consensus was reached with the class as to the prevalence of the problem. The nature of the problem was then discussed. The researchers facilitated the discussion and recorded the major ideas expressed by students. Additional information was sought from a secondary data sources such as annual reports, journals, books, conference proceedings, theses and dissertations related to agricultural training needs.

Findings and Discussion

Sources of Internet Training and Rate of Usage among Agricultural Students

Students were asked to indicate from where they received training on Internet. The findings shown in Table 1 indicate that 36.5% had received Internet education prior to their education in University either at the High School, Polytechnic or Teacher Training College. This low access to Internet education at the pre-university education level is not surprising as many computers in pre-university schools are not connected to the Internet. A national survey in Ghana in 2000 confirmed that although a number of Ghanaian schools especially the secondary schools have computers with about 79% of the schools having computers, only 16% of the schools use their computers to access the Internet (Dzidonu, 2000).

Table 1: Source of Internet Training

Source	*Frequency	Valid Percent
Pre-university studies (High Schools, Polytechnic and Training College)	73	36.5
Self taught	68	34.0
Private Centre outside the University	27	13.5

Official Course at University	12	6
Private Course at University	4	2

Source: Field data, 2008.

*Multiple responses

About 34% of the respondents claimed to have studied Internet on their own. Few had studied Internet at the University either by taking part in the official proficiency course (6%), and privately at training schools within (2%) or close (13.5%) to the University.

Table 2 presents the results on rate of the Internet use among respondents. With the exception of few (9.3%) respondents who indicated they have never used the Internet, most of them (58.8%) occasionally used it. They normally visit the Internet cafe occasionally and are assisted by attendants to search for information. More respondents used the Internet weekly (17.5%) than monthly (7.7%) and daily (6.7%). The low use of the Internet daily could be attributed to inadequate access and non-availability at times where students have free periods to use the Internet. As discussed under problems, the few places on campus where students could have access do not operate 24 hours a day.

Table 2: Rate of use Internet

Rate of use	*Frequency	Valid Percent
Occasionally	114	58.8
Weekly	34	17.5
Monthly	15	7.7
Never	18	9.3
Daily	13	6.7
Total	194	100

Source: Field data, 2008.

*Multiple responses

The Level of knowledge of agricultural students on Internet

Effective search for information on the Internet starts with good knowledge on aspects of the Internet. Students were asked questions to identify their level of knowledge on aspects of the Internet. Majority of the respondents (87.5%) knew the homepage and were able to describe it correctly (Table 3). Every website on the internet has a homepage. This is generally the first page you see when you visit a Website. Knowledge of the homepage will assist students to obtain information about the organisation and links to other web pages in that website and in other websites. The respondents were able to indicate that homepage one can find audio and video files, links to other web pages, text and graphics.

Table 3: Level of Respondents' Knowledge on Internet

Knowledge Area	Frequency	Valid Percent
Homepage	175	87.5
Web address structure	143	71.5
Search Engines/browsers	59	29.5
E-mail Address	55	27.5
Use of Uniform Resource Locator	32	16.0

Source: Field data, 2008.

The level of knowledge of respondents on web address structure was quite high. Majority of the respondents (71.5%) could describe correctly the structure of the web address and naming the three parts which are made up the protocol indicator, the domain name, and the file name. Less than a third of the respondents had knowledge on search engines (29.5%), e-mail (27.5%), and Uniform Resource Locator (URL) (16.0%). A search engine provides a user interface that helps browsers to explore web pages on the Internet easily. The URL is a unique address of the webpage.

The main use of Internet among the respondents was to interact with friends (Table 4). More than half (55%) of the respondents indicated so. Other uses include

sending and receiving files (35%). Less than a third indicated they used the Internet to subscribe to academic materials. Few respondents specified that had used the Internet to subscribe non academic materials (4.5%), participated in discussions (7.0%) and chatting (12.5%).

Table 4: Reasons for Use of Internet

Use of Internet	*Frequency	Valid Percent
Interact with friends	110	55.0
Send and receive files	70	35.0
Subscribe academic materials	56	28.0
Chatting	25	12.5
Participate in discussions	14	7.0
Subscribe to non-academic materials	9	4.5

Source: Field data, 2008.

*Multiple responses

Problems associated with Use of Internet

Inadequate Internet Infrastructure and Access

Inadequate access was mentioned as a major problem to the use of the Internet. The inadequate infrastructure on-campus posed challenges to many students who wanted to use the Internet. Students were of the view that many computers available were not connected to the Internet. Moreover, the few computers with internet connectivity were available in the Computer Laboratory which was opened to students only when they have lectures. The ICT Centre was closed after normal working hours and the number of computers was enough for many students, who wanted to browse at a time. The Internet innovation requires a cluster of related technologies and means of connection such as the

existing network of telephone cables, fibre-optic cable or wireless in the telephone network or modem density. These were unfortunately, not adequate to cater for all students.

Cost of Internet

According to the students the issue of cost restricts their use of the Internet. Individuals were unable to cover cost of Internet services especially at the private Internet cafes in view of their low income. Eikhamenor (2002) has iterated that financial commitment to regular surfing is a problem in countries where the wage level is low in comparison to the telecommunications costs and connection charges of the Internet services providers. The cost becomes a problem when some scientific and technical journals demand charge for access and downloading. Most students do not have credit cards to pay for such charges.

Slowness in accessing data on the Internet

The students identified and emphasised the slowness of the Internet as a major problem associated with the non-use of the Internet. The slowness did not only waste the time of students, but also added to the cost of accessing information from the Internet. Some of the students even perceived the slowness as deliberate since the longer the time spent in accessing information meant they are charged more by the Internet Service Providers. They also complained the periods they are willing to use the Internet coincides with the peak periods where accessing information took a lot of time. This calls for an increase in bandwidth of ISPs on campus to improve on the speed of Internet access.

Inadequate local content on the Internet

Inadequate local content on information on agriculture was mentioned as a constraint to the use of the Internet. The agricultural students felt most of the information on the Internet were foreign-based and not relevant when they require information on Ghana for assignments. They preferred more local content in agriculture and related subjects. Nag (2002) concluded that if the contents of Internet are useful and appropriate people would acquire the basic skills to make use of them.

Lack of Internet-based assignments

Some students were of the view that they will use the Internet if they were provided with assignments that would require them to use the Net. This provides a challenge to university Teachers to encourage students to use the Internet as a learning tool to provide alternate technique for teaching. Uimonen (2005) highlighted the use of the Internet as alternate education and teaching method to improve teaching and learning.

Low knowledge on tools to enhance information search

Respondents indicated that they had basic computer competence, but they will prefer to know more about the Internet than they did. Students said that they will need more training on effective use of the Internet tools to search for information.

Conclusions/Implications/Recommendations

This study was conducted to identify the uses of the Internet, constraints and challenges faced by agricultural students in that regard. It was aimed at addressing the teaching and learning, policy formulation and human resource development in Ghana.

First, it was concluded that agricultural students learn how to use the Internet prior to admission into the University, and this they did on their own although on the low scale. This implies that Internet education and training need to be strengthened at the pre-university education level to ensure that students become abreast with the Internet before they are admitted into the tertiary system. The Ministry of Education needs to draw programmes and monitor its delivery at non-academic IT Education institutions. Again, the Government should consider offering tax incentives for ISPs who provide discount packages to enhance connectivity to Senior High Schools.

The second conclusion was that the rate of usage of Internet is low as few agricultural students use the Internet once daily, weekly, or monthly. The use of the Internet is dependent on availability of infrastructure and access. The inadequate access to the Internet on Campus seems to have resulted in low usage. According to Thompson and Connors (1998), the personal concerns of users if not addressed, would ignore learning new technology until they are addressed. Therefore there is the need for UCC to revamp its Internet infrastructure to enhance access.

The third conclusion of the study was that students' knowledge on the Internet is not complete. Students had fairly adequate knowledge on homepage and web address. However, they recorded low knowledge on Search Engines and Uniform Resource Locator (URL). It is therefore recommended that the ICT literacy course for first year students should adopt hands-on practical training approach to enhance teaching and learning of Internet.

Furthermore, the study concludes that the main use of Internet among the respondents was to interact with friends. Students did not subscribe to academic

materials, participate in discussions or chat on the Internet. To enhance high academic achievement, students will need to use the internet to subscribe academic materials. For example, the Resource Discovery Network (RDN) provides a free service for resources for learning, teaching and the research community (Laudon, Trauer,& Laudon, 1996).

Since the study observed that most students do not have internet. The current policy of giving internet access to only academic staff and senior administrator should be expanded to include students. When this is done students would be given login accounts to access the Campus-wide WiFi.

The Government should establish an initiative that will subsidizes internet connectivity for Education institutions in Ghana since it is very expensive. As at 2009, UCC pays \$ 12,000.00 per month for 4 mbps duplex internet connectivity. This initiative should be similar in nature as the National Grid for Learning (NGfL), a UK government initiative aimed at connecting all schools to the Internet by 2002. NGfL had increased computing technology and Internet availability astronomically since the mid-1980s.(Hennessy & Dunham, 2001)

Furthermore, the University will need to develop regulation and guidelines with the private firms that have established Internet café in the halls of residence and others facilities close to the university. The guidelines could address the problem of cost and slowness of Internet services.

The study recommends capacity building for the Faculty on Internet use. Adika (2003) had earlier reported the low Internet usage among the Faculty in Ghanaian Universities. The capacity building can address the problem of inadequate local content on the internet since the faculty could develop and put more local information in their

respective areas of specialization on the Internet. There should be the creation of databases and establishment of websites by Lecturers and online services to make the latest information available to students and obtaining their feedback.

The online services will facilitate the interaction between Lecturers and Students on the Internet where students will respond to lecturers on queries and specialised subjects ICT services. This will also provide up-to-date information, supplied to students as early as possible, about subjects such as course outlines, questions and answers.

Finally, the curriculum for ICT should include effective searching of information on the Internet.

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