

**Uses and Gratifications of the
World Wide Web (WWW)
Among Secondary
School Students in Kenya**

By

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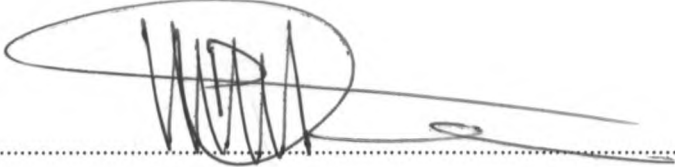
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DECLARATION

This research project report is my original work and has not been published or presented elsewhere for any examination for an award of any degree in any institution.

DEDICATION

To my daughter Tanya Aduda

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ABSTRACT

This research was designed to establish how secondary school students in Kenya view WWW and how their attitudes and opinions affect their use of this new medium in an educational context.

155 students from five secondary schools in Nairobi were interviewed to establish what sites they visit and what motivates the visits. Their attitudes about the WWW as well as their computer literacy skills were also probed. The researcher also took time to collect and analyse the web sites that the students actually visit. The findings strongly point out that the students do not visit web sites for academic education. Content analysis of the web sites visited revealed that majority of them were either unsuitable for education or had questionable content.

If the students are not motivated to visit the web sites for purposes of education, then does the introduction of the WWW in schools have any potential in facilitating education? Yes, there is potential. However, the stakeholders must work out and implement strategies to prevent distractive use of WWW while promoting beneficial use. This is where the challenge lies. The stakeholders must walk this tight rope if any meaningful fruits are to be borne from adopting the WWW in the schools.

CHAPTER ONE - INTRODUCTION

1.1 Introduction

The emergence of a new medium into society has frequently been a flash-point for media effects research that commonly focuses on children and adolescents (Wartella & Reeves, 1985). In each of these cases, children have been considered as a special audience that deserves special consideration.

The impact of the emerging media on children's mental development is a common theme in these researches. Unfortunately, most researchers over the years only focus on the dysfunctional effects. From the Payne Fund studies on the effects of motion pictures to Dr Derrick Wertham's (1954) expose on comic books to the Surgeon General's (1972) report on television and violence, social science researchers have frequently examined how the media have undermined the positive influences of family and social institutions (McLeod & Reeves, 1980; Wartella & Reeves, 1985). Television, for instance, has been disdained by many since its inception for its perceived adverse effects on children's cognitive and social development (Morgan, 1980).

Conversely, researchers exploring the effects of educational media, however, have argued from a similar set of assumptions to reach dramatically different conclusions. Instead of exploring possible negative effects, these researchers have focused on the positive effects of media in education. Their reports have lauded mass media's role in promoting education especially among the disadvantaged persons.

The history of educational technology, particularly the use of mass media in an educational context, is infused with promises of revolutionary proportions (Cuban, 1986). Access to books, instructional motion pictures, radio and more recently the World Wide Web (WWW) has been envisioned as the panacea for all that ails educational systems the world over.

Though a relatively recent technology, the WWW has gained prominence as the premier mass medium in so far as modern education is concerned. It came to Kenya in 1995 and started finding its way into the classrooms around 1997. Since then it has become one of the most accessible tools around. It has emerged that technology enhanced instruction can provide students with information and learning opportunities that are not possible with textbooks and teachers alone. Access to technology can help narrow the gap between students who are the “achievers” and those who are not. Lack of access, however, can make the gap even broader and further stratify students and teachers.

The following features make the WWW more suitable for education than the other mass media:

- It overcomes the physical and time boundaries enabling today’s teachers and students to work at their convenience and pace;
- It is available 24 hours a day, 7 days a week and 365 days a year and has a wide variety of information in all possible formats;
- The WWW leaves the choice of the educational resources to the teachers and students and does not necessarily force them to follow a particular order;
- It facilitates collaboration between the learners and teachers through email, usenets, intranets, etc; and
- It is dynamic and avails huge amounts of current information.

The web can be used for communication and research. Further, the WWW in itself can be a great motivator to get students to learn and explore. It encourages independence and autonomy that is important for students to achieve in their learning process. Class, race, ability and disability hindrances are removed when a student is online and therefore it becomes a natural tool to help meet all students’ needs.

1.2 Statement of the Problem

The Internet and more specifically the WWW is being eagerly adopted by schools in Kenya at all levels. However, the introduction of the web into the classroom has the dangers of exposing the children to a wide variety of content options some of which may be harmful.

Hecht (1997) argued that "having the Internet in the classroom is like equipping each classroom with a television that can be turned on at any time and tuned to any of 100,000 unrestricted channels, only a tiny fraction of which are dedicated to educational programming and even those have commercials". McNealy (1999) voiced the same concern and said "Right now, putting students in front of the Internet terminals is no better than putting them in front of TV sets. It may even be worse". Though the WWW is a huge reservoir of information, only a small fraction of it holds any educational value for students.

Besides, the web places control over the content accessed and used in the hands of the users. Research in the developed world has shown that most students visit web sites that are least educational. In fact, most of the web sites are harmful to the moral and mental development of the children. This calls for caution and utilization of a strategy that will ensure that the students maximise the educational benefits of the web and are shielded against harmful uses.

This study sought to address the following critical issues:

- Do students perceive the WWW to be primarily a source of information or entertainment? How does this perception affect its usage?
- How do students describe their own use of the WWW at school and how does this compare with the actual sites visited?
- Is affinity for the WWW and skill level at using it correlated with specific uses?

There is also need to ascertain whether there is a relationship between WWW use and performance of the students. If there is, is it negative or positive? However, due to constraints, this research project did not investigate this.

1.3 Objectives

The general objective of this study was to assess the educational value of the WWW in secondary education in Kenya. The specific objectives were:

1. To investigate the attitudes of the students towards the WWW as an educational medium;
2. To establish the purposes/uses for which the students visit WWW;
3. To establish the student gratifications met by WWW;
4. To establish the students' WWW browsing habits; and
5. To ascertain the factors that influence the use of WWW as an educational medium and how these factors can be managed to ensure that the students reap maximum benefits from the technology.

1.4 Theoretical Framework: Uses and Gratifications

History

Uses and Gratifications (U & G) theory arose originally in the 1940s and underwent a revival in the 1970s and 1980s. The approach springs from a functionalist paradigm in the social sciences. It presents the use of media in terms of the gratification of social or psychological needs of the individual. The mass media compete with other sources of gratification. Gratifications can be obtained from a medium's content, familiarity with a genre within the medium, general exposure to the medium and from the social context in which it is used. U & G theorists argue that people's needs influence how they use and respond to a medium.

Core Assumptions and Statements

Uses and gratifications theory attempts to explain the uses and functions of the media for individuals, groups, and society in general. There were three objectives in developing the theory:

- To explain how individuals use mass communication to gratify their needs.
"What do people do with the media?"
- To discover underlying motives for individuals' media use; and
- To identify the positive and the negative consequences of individual media use.

The assumption that audience members actively seek out the mass media to satisfy individual needs lies at the core of uses and gratifications theory. Consequently a medium will be used more when the existing motives to use it leads to more satisfaction.

Uses and Gratifications theory and WWW

As an "active audience" theory, uses and gratifications provides a vantage point from which to look at the ways that audiences respond to the breadth and depth of information that is made available by the WWW and other new media. Newhagen and Rafaeli (1996) have suggested that uses and gratifications theory may be especially useful because of the "mutability" of the Web, or what Newhagen calls its "chameleon-like character". The diversity of content is much greater in WWW than for traditional electronic media. While television, radio, and to a lesser degree print media are subject to regulatory and societal scrutiny, the WWW is virtually unregulated. Because of this, the WWW literally has something for everybody. The fact that this range of material is available at school, library, workplace, and home would suggest that potential uses for the Internet may far exceed those provided by other media. In essence, anyone can use the WWW for anything anytime. Potential uses are as many and diverse as the imaginations of the users.

Uses and gratifications of the WWW

An excellent way to understand the uses and gratifications of the WWW is to follow the Katz, Blumler, and Gurevitch Process Model (Edelstein, 1989). This model says that social and psychological origins of needs lead to motivations which lead to the expectation of rewards which causes the individual to select sources which will give satisfaction.

Following this model, one must first identify the social and psychological needs of the Web user, and whether or not the Web has content that can satisfy those needs. According to Katz, Gurevitch and Haas, all media users have essentially the same five categories of needs:

1. **Cognitive Needs** - Needs related to strengthening of information, knowledge and understanding of our environment;
2. **Affective Needs** - Needs related to strengthening aesthetic, pleasurable, and emotional experiences;
3. **Personal Integrative Needs** - Needs related to strengthening credibility, confidence, stability, and status of the individual;
4. **Social Integrative Needs** - Needs related to strengthening contact with family, friends, and the world; and
5. **Escapist Needs** - Needs related to escape, tension release, and desire for diversion.

Web users are likely to share these same needs that have been found for other media sources. Yet, the real benefit of the Web as a new medium is its ability to satisfy all these five needs in a revolutionary way.

Cognitive Needs

These are needs that are probably best served by the Web. The Web was originally created by particle physicists at the European Organization for Nuclear Research (CERN),

who wanted to make their information available to the entire academic community. This spirit of sharing data has come to be one of the most cherished facets of the Web. Several research laboratories and universities make all of their information available via the Web. This ability of the Web to facilitate information sharing is now being exploited by almost every industry in modern society. Today, the WWW has been expanded to cover business, industrial, educational, health, research, sports as well as political disciplines circulating all manner of current and historical information. Millions of web sites exist to provide both general and specific information on topics/subjects as diverse as humanity itself to satisfy cognitive needs of modern society. An excellent example of how the Web is used in industry is in the motor vehicle sales. If anyone wants to get information on any brand of motor vehicle, all he/she needs to do is log onto the web site of the manufacturer or re-sellers and there find pictures, technical specifications, special features, costs and maintenance support. Many similar web sites exist for all services, products and subjects. Thus, the Web is in many ways a giant reference book that can satisfy cognitive needs related to nearly any topic.

Affective Needs

Affective needs are also well represented on the Web. Hundreds of sites are devoted to art, music, theatre, and other entertainment resources. The Web user who is just looking for a good time can surf through these pages and find whatever type of entertainment s/he needs. For example, the user who desires to take a stroll through an art museum without leaving the comfort of his home can visit the Louvre's site (<http://mistral.culture.fr/louvre/>). There s/he will find all of the Louvre's artwork along with in-depth descriptions of the artists and the time period. Similarly, there are hundreds of thousands of web sites devoted to music, both sacred and secular. Several of these are downloadable as sheet music, lyrics, sound tracks, MIDI or MP3. It is also possible to download and watch entire movies or reduced clips over an ordinary internet connection.

Personal Integrative Needs

Although not as well represented as cognitive and affective needs, personal integrative needs can be found on the Web as well. One of the best examples of a site in Kenya that can satisfy the need to improve one's status is the www.myjobseye.com. At this site an individual can compose and submit his/her resume to hundreds of companies who have job openings. There are also many sites related to increasing people's self confidence. Many of these are self help related, and put forth information on a wide range of issues, from how to write a better resume, to how to lead a healthy life. They definitely have the potential to satisfy the personal integrative need to improve self-esteem.

Social Integrative Needs

One of the most exciting aspects of the Web is its ability to satisfy the social integrative needs of the individual. Through its international nature, the Web can easily fulfil the need to associate with the larger world. When you follow a link, it can take you nearly anywhere in the world. Simply by clicking a mouse you get transported to another country and in many cases an entirely different culture in seconds.

Another amazing aspect of this connectivity is the ability of the Web user to actively communicate with people from around the world. Once again a simple click can send out an e-mail message to someone in China thus effortlessly starting a communication process that might not have otherwise been possible.

Several new technologies that are already being integrated into the Web also allow users to receive instantaneous feedback from whomever they are contacting. Instant messaging, chat rooms, bulletin boards, discussion threads and usenets are some of the interactive features of the web that modern people cannot do without. Also emerging in Kenya is the Voice Over IP (VoIP) telephone systems which enable people to make and receive telephone calls using the Internet. It is cheap, reliable and convenient. Due to these new technologies, our world has become a smaller place, a global village in fact,

and the individual's need to communicate and affiliate with his new global neighbours is ably fulfilled by the Web.

Escapist Needs

Finally, the Web also has ample resources to satisfy escapist needs. Once again there are thousands of pages on the Web that would appeal to this particular need. There are many pages that are devoted to fantasy type games and worlds that invite the Web user to become a part of the fantasy through surfing their pages. On the more risqué side of things, there are also a great number of pages devoted to sexual fantasies. Other sites like the Playboy and Penthouse provide ample diversion for the Web user. Another way that a great many Web users are able to release tension is by surfing. In other words, just finding out what new and interesting sites there are on the Web.

1.5 Hypothesis

Education is not the sole motivation for WWW use amongst secondary school students in Kenyan secondary schools.

1.6 Anticipated Results

1. Data on how students actually use WWW in school and the motivations for the uses.
2. Evaluation of the WWW as an educational medium in Kenyan secondary schools.
3. Recommendations on policy and other issues that need to be addressed if the WWW is to become a supportive medium for secondary school education.

These results can be used to guide policy makers and project officers on the best strategies to apply in effectively introducing and sustaining the WWW in secondary schools in Kenya. They can also be used as a basis for further research in this area especially in assessing the impact of WWW usage on the performance of the students.

1.7 Justification of the study

The WWW has been touted as the panacea to most of the problems bedevilling the education sector in Kenya today. Several projects have already been initiated and many more are in the pipeline. However, little research, if any, has been done to establish why and how the students are likely to use the WWW in an educational context. Unless this is done, the projects will certainly yield little or no fruits at all in helping advance education in secondary schools.

This study assessed the value of the WWW in an educational context and identified the motivations for its use for secondary education in Kenya. The study also identified crucial points where intervention may be necessary to enable the students to realise the full potential of WWW as an educational resource. These findings can now make it possible to better design incentives that encourage educational use and discourage what distracts students from that goal.

1.8 Limitations

Though the NEPAD e-School Initiative as well as other school computerisation projects in Kenya hopes to connect all schools to the Internet in 10 years, the current school connectivity ratios in Kenya are quite low. Thus, the major limitation is the lack of Internet access in most secondary schools. This means that the research focussed only on a fewer number of schools than desired, thus leaving out a huge chunk of subjects that could have given more insight into the problem under study.

Other anticipated constraints include time, dispersion of the schools and inadequate funds.

However, the methodologies being applied are so designed to ensure that the research yields the best results possible with these constraints.

1.9 Dissemination

This research results and report will be disseminated in the academic circles through library placements, seminar and workshop presentations, public debates and stakeholder meetings.

Similarly, the report will be availed to education stakeholders and policy makers e.g. the ministry of education (the Director of Secondary Education), Kenya Institute of Education (KIE), ICT Trust Fund and all institutions currently undertaking projects in this area.

CHAPTER TWO - LITERATURE REVIEW

2.1 Introduction

Long before there was ever a notion of a World Wide Web (WWW), computer users began to navigate cyberspace on the world's largest computer network, the Internet, which is the global lattice of national, regional and local computer networks rapidly gaining popularity outside the scientific community (largely due to a preponderance of college students wanting access to electronic mail). But beyond the basic capability of e-mail and several other network services, the Internet was incomprehensible to the vast majority of users. Based on a series of complex protocols, the Internet required an intimate knowledge of computers and network operating systems, a knowledge which most users neither had the time or the interest to gather.

Clearly, the Internet had the technical capacity to handle a variety of complex applications (downloading files from distant computers, transferring digitized photos and sounds, etc.), but because it was by no means a user-friendly network, its uses were limited. Then, researchers at the University of Minnesota came up with gopher, a network standard which would, with the appropriate software, guide the user from one file to another, as well as from one computer to another. Gopher was a fairly simple idea: a person could point with a mouse to a piece of information (such as a title of an article in an on-line table of contents) and actually download that file merely by clicking it, and without having to know any complex codes. Moreover, if one of those clickable titles actually allowed the user to connect to computers around the world and download their files, any user could navigate from site to site, scanning for and copying information in a comprehensive environment that only an international network could provide.

Gopher became one of the most popular ways of storing and presenting information over the Internet. But gopher had some serious limitations. First, it is limited to presenting

text files only. Because the gopher structure is based on a menu of textual items which contain even more text, the layout structure does not lend itself to the display of graphics. Second, all menus look pretty much the same, so it's not unusual to get lost. Finally, gopher links to menus and documents must be summarized in a few words - you can't fit an entire paragraph, let alone an image, into a gopher menu. Simply put, gopher does not lend itself to creativity very well. While it is certainly an excellent method of cataloguing large amounts of textual data, its flexibility and aesthetics leave much to be desired for those who wish to craft their information more stylistically.

The World Wide Web (WWW) was developed in 1989 by English computer scientist Timothy Berners-Lee to facilitate information sharing among internationally dispersed teams of researchers at the European Laboratory for Particle Physics (formerly known by the acronym CERN) near Geneva, Switzerland. It subsequently became a platform for related software development, and the numbers of linked computers and users grew rapidly to support a variety of endeavours, including a large business marketplace. Its further development is guided by the WWW Consortium based at the Massachusetts Institute of Technology in Cambridge, Massachusetts.

The WWW is a system of resources that enable computer users to view and interact with a variety of information, including magazine archives, public and university library resources, current world and business news, and software programs. The WWW can be accessed by a computer connected to an internet, an interconnection of computer networks or through the public Internet, the global consortium of interconnected computer networks.

WWW resources are organized to allow users to move easily from one resource to another. Users generally navigate through the WWW using an application known as a WWW browser client. The browser presents formatted text, images, sound, or other objects, such as hyperlinks, in the form of a WWW page on a computer screen. The user

can click on a hyperlink with the cursor to navigate to other WWW pages on the same source computer, or server, or on any other WWW server on the network. The WWW links exist across the global Internet to form a large-scale, distributed, multimedia knowledge base that relates words, phrases, images, or other information. Smaller-scale implementations may occur on enterprise internets known as Intranets.

WWW pages are formatted using Hypertext Markup Language (HTML), and information is transferred among computers on the WWW using a set of rules known as Hypertext Transfer Protocol (HTTP). Other features may be added to web pages with special programs, such as Java, a programming language that is independent of a computer's operating system, developed by Sun Microsystems. Java-enabled web browsers use applets that run within the context of HTML-formatted documents. With applets it is possible to add animation and greater interactivity to web pages.

At first, the Web remained an experimental method of organizing Internet information, and only a handful of research sites around the world were capable of presenting it. In 1993, though, programmers at the University of Illinois at Urbana/Champaign released Mosaic, an easy-to-use web browser which was freely distributed over the Internet. Eventually, other browsers such as Netscape began to proliferate, making the Web more accessible to casual users than ever. Traffic was equivalent to shipping the entire collected works of Shakespeare every second. The technology was continually extended to cater for new needs. Security and tools for e-commerce were the most important features soon to be added. By the fall of 1994, it was estimated that there were between 7,000 and 10,000 Web sites around the world; by 1998 there were over 10 million. The World Wide Web which was originally envisioned to allow researchers and computer enthusiasts better access to each other's information, has now turned into a powerful force on the Information Highway. The first web page in cyberspace was <http://nxoc01.cern.ch/hypertext/WWW/TheProject.html>.

The dream behind the Web is of a common information space in which we communicate by sharing information. Its universality is essential: the fact that a hypertext link can point to anything, be it personal, local or global, be it draft or highly polished. There was a second part of the dream, too, dependent on the Web being so generally used that it became a realistic mirror (or in fact the primary embodiment) of the ways in which we work and play and socialize. That was that once the state of our interactions was on line, we could then use computers to help us analyse it, make sense of what we are doing, where we individually fit in, and how we can better work together.

With the dramatic flood of rich material of all kinds onto the Web in the 1990s, the first part of the dream is largely realized, although still very few people in practice have access to intuitive hypertext creation tools. The second part has yet to happen, but there are signs and plans which make us confident. The great need for information about information, to help us categorize, sort, pay for, own information is driving the design of languages for the web designed for processing by machines, rather than people. The web of human-readable document is being merged with a web of machine-understandable data. The potential of the mixture of humans and machines working together and communicating through the web could be immense.

2.2 WWW in education

The explosion of computing power and the proliferation of electronic technology has brought the World Wide Web into the classrooms of colleges, universities, and schools. The Harvard Business School, for example, has invested \$11 million to organize and deliver information to its students through a Web-based curriculum. Using the School's Research and Technology Lab, students work from the web sites that have been created for all of the School's more than 70 classes and organize their assignments, notes from professors, and links to other Web sites on their personalized home pages. Other

business schools, such as Duke and the University of Michigan are offering M.B.A. courses on the WWW.

The commitment of the Harvard Business School and other educational institutions, to the development and maintenance of electronic course syllabi for the Web has brought a debate about the efficacy of information technology like the WWW for promoting learning to center stage. Educators, faced with tight budgets and multiple demands for resources, are beginning to ask hard questions about applications of the new computer technology: Is there a role for the Web in the classroom? If so, what is the most effective way to take advantage of the unique properties of the World Wide Web?

The WWW is capable of supporting digitized hypertext, including visual images, sounds, animations, and video (hypermedia). These unique properties have huge implications for learning. Because of the connectivity of hypertext, words (or blocks of words) and images can be inter-linked, creating multiple paths that encourage the integration of information. Connectivity also enables information to be retrieved through the association of words and images (ideas), a process that is essential to critical thinking which relies upon relating many things to one another. Since the essence of hypertext lies in its making connections, it provides an efficient means of accustoming students to making connections among materials they encounter.

Unlike conventional narrative, hypertext, through its network of nodes and links, is characterized by non-linearity. Because of its multiple links, readers can actively choose paths that reflect the interests of their own investigation, rather than the interests of the author. After mastering the habit of non-sequential reading, they become active, constructivist learners who are better able to contextualize and integrate information.

Hypertext is also de-centering. As readers move through a web or network or text, they continually shift the center and hence the focus or organizing principle of their

investigation and experience. Hypertext, in other words, provides an infinitely re-centerable system whose provisional point of focus depends upon the reader. Furthermore, as the reader's search continues the distinction between the author and the reader begins to disappear, or, at least, their roles become more deeply intertwined with each other more than ever before.

Finally, the World Wide Web creates a virtual presence of authors and readers where geography and time become unimportant. Utilizing asynchronous communication, people in distant geographical sites can exchange messages without regard to the limitations of time and time zones. "The very qualities that make hypertext an efficient means of supporting interdisciplinary learning also permit students to work without having to be in residence at a geographical or spatial site" (Landow 1992). As a consequence, learning at a distance becomes both feasible and efficient.

While the unique properties of the World Wide Web offer a range of opportunities that a standard chalk and talk class could never match, questions about the educational value of this burgeoning medium loom large. Do the visual images, sounds, animations, and videos really add to the learning experience or does hypermedia merely provide an entertaining on-line distraction? This debate rages on with both sides being equally passionate and convinced of their positions. The enthusiasts believe it preposterous that such an exceptional and exciting technology could not provide educational benefits. On the other hand, the critics argue that the WWW is just another gimmick being touted as the next revolutionary technology to transform teaching. "Do you remember film strips? Do you remember educational television? Did any of us really take good notes and pay as close attention to these instructional aids as compared to when the teacher was lecturing or leading a discussion?", they ask.

The World Wide Web, however, is quite different from a filmstrip. It offers a host of interactive possibilities that can be customized for the particular needs of nearly any

course. It also carries with it some very different problems and obstacles. The debate over the value of computer technology in general, and of the World Wide Web more specifically, has changed relatively little over the past decade. Both sides have been making familiar claims and counterclaims while trying to amass definitive empirical data. So far neither side can claim victory, but a review of the major issues of this debate is instructive for evaluating the merits of using the World Wide Web in teaching now and in the future.

Pro-WWW Claims

The claims in support of WWW in the classroom are bold (Hentrel and Harper 1985). Perhaps one of the most commonly heard refrains is that the Web increases student motivation and makes learning fun (Bolton 1997, Shechter, 1991, Slonaker and Schmitt, 1996). By using graphical representations to teach concepts, it also helps retain students and those with learning disabilities (Hentrel and Harper 1985, Taylor and Cunniff 1988).

Another claim is that by having students use computers in their everyday school work, they will learn important skills for the job market (Hentrel and Harper 1985, Noble 1985, Oppenheimer, 1997). While estimates vary, many cite studies that the number of jobs requiring computer skills, or "knowledge workers" (Drucker 1990), will continue to increase as a result of globalization and the development of the information economy.

Computers and the Web are also praised for promoting group work and cooperative learning in ways that would not occur in a standard lecture course (Kaye 1989). This allows the students to contribute more directly to the learning process, making the instructor a facilitator of knowledge rather than the sole repository of it. Similarly, interactivity is often promoted as a major benefit in maintaining student interest and as a catalyst for creative thinking and improved problem solving. By connecting students to other students, professors, and professionals around the globe, the Internet expands

their horizons and brings a sense of real-world relevance to classroom (Oppenheimer, 1997).

A recent study, considered to be the first to examine the effect of online work on learning, showed that students who used online materials did better work than those who did not. This research looked at fourth and sixth graders from seven cities in the United States (Mendels, 1996).

WWW in education critics' claims

One of the biggest lightning rods for criticism of efforts to use the World Wide Web in teaching is the issue of implementation. As more colleges and universities try to jump on the Internet bandwagon, the charge of inadequate prior planning and unclear, unfocused goals has been made by many critics. Lack of training or poor training are often cited as reasons for failure of technology integration projects as well (Mendels, 1997). How can one reasonably expect an instructor to utilize the benefits of the WWW if he/she has never been taught how to write HTML code, let alone the basic computer skills beyond wordprocessing necessary to navigate the Web?

Opponents of this technology claim that the relative dearth of good software and reliable information on the Internet detract students from the learning process. In some cases lead to student papers that emphasize flashy presentation over content substance (Bolton, 1997). Indeed some claim that much of the material on the Web is out-of-date summaries of summaries, leading to a decline of student papers that rely heavily on virtual cites (Rothenberg, 1997).

The strain put on school budgets by computer and software purchases and their subsequent upgrades is also a major concern. Critics feel that these purchases mean that less money is spent on the basics of teaching, such as books, teachers' salaries, and even basic building maintenance. Moreover, many fear that the offers of free or reduced-

price computers and software are a Trojan horse. Critics say that after this support disappears, the budget-devouring needs of upgrades and maintenance will create a crisis for administrators faced with the prospect of either funnelling further resources into the black hole of technology, or losing on the investment entirely (Bolton 1997).

The most damaging evidence against use of the Web is a spate of studies that show little or no positive effect in the classroom (Mendels, 1997; Oppenheimer 1997; Slonaker and Schmitt, 1996). These studies point to unimproved test scores and assignments, as well as teacher and student surveys that suggest the supposed benefits of this new technology are not being realized. In addition, some of the critics claim that the skills students do learn will be of no advantage to them in the future (Rothstein, 1997). This is a direct contradiction of other studies which have shown there are benefits derived from using the Web (Boykin, et al. 1996; Ward, et al. 1996).

What conclusions can be drawn from this debate? Both sides can produce studies and evidence to support their research expectations. How can such radically different conclusions be drawn from studies that try to measure the same thing: does the WWW have a measurable impact on the educational experience?

One possibility is that not everyone is measuring the same thing. Experiences differ greatly from class to class and from discipline to discipline. Some attempts, such as on-line simulations, are very elaborate, while others, such as on-line readings, are less ambitious. Because of the great range of applications of the World Wide Web in the classroom, no two studies are identical. Moreover, attempts to assess the impact of the Web are undermined by technical difficulties, changes in software, or the rotation of faculty members from the project. Perhaps the wrong types of instruments are being used to evaluate a relatively new technology. While the use of standardized tests continues, mostly out of a lack of a better option, they are still a relatively crude measure of performance and benefits (Oppenheimer, 1997).

Another possibility is that most uses of the Web are not taking advantage of its capabilities. As was mentioned above, a hypermedia environment is much different from a book or hand-outs used in courses. It could be that in many cases the benefits of the Web are not being achieved, because people are still thinking in terms of traditional media. As Mason and Kaye point out, "information should be designed for a particular medium to best exploit its unique advantage (1990). So, to assess more accurately the value of the World Wide Web then, one should step back from specialized projects and try to identify the most common characteristics of a representative example of Web usage in teaching. This calls for an examination of the mode of the various applications of the World Wide Web in the classroom to date.

WWW applications in education

Klass (1996) analyzed 41 Political Science "cyber-classes" or courses with their own Web pages on the Internet. He found that the typical course site was a "digital resting place for a variety of course materials that could just as easily - sometimes more easily - be distributed to students in printed format". Klass coded 53.7% of the sites as "first stage" cyber-classes, that is, they consisted of only a syllabus and hyperlinks to other web sites; 39.0% as "second stage" cyber-classes that included activities that were Internet dependent, such as interactive e-mail, computer assisted simulation, or role-playing exercises involving use of the Internet; and 7.3% as "third stage" offerings or virtual courses "without physical (or sometimes temporal) boundaries." Evidently, most of the web sites currently touted as educational do not maximize the benefits of the WWW in their endeavour.

From this review, it appears that the majority of the applications of the World Wide Web in Political Science, and by extension education, are modest endeavours that merely "Webify" printed materials. To "Webify," here means the conversion of printed materials, such as syllabi, hand-outs, and readings, into basic HTML documents with little

interactivity or other features, which the World Wide Web is capable of supporting. Critics believe that students do not view these "Webified" efforts as effective improvements to the learning experience.

This has been tested and verified by researchers in the United States. Of the students who responded to the survey, most did not visit the course site even once a week during the semester. Only eleven out of 103 students visited the course site more than ten times. The other 92 students visited the course site 0-10 times, with the majority of the total student sample (66%) visiting 1-5 times during the semester.

To achieve a better understanding of what motivated the students to access the course site, the students were asked if they used the site to explore course-related issues. Of the 98 out of 112 students who responded to the question, 49% said they used the course site to explore course related materials while 51% said they did not.

Perhaps even more revealing of what students think of the standard course site were the responses of the students who said they did use the Web site to explore course related ideas. Of the 46 students who answered both questions, only 17.4% of them visited the website more than 10 times during the semester, while the other 82.6% visited the site 1-10 times. None of those students claimed to have never visited the course site.

In light of the low number of reported course site visits, it is not surprising then that only three of the students cited materials related to the WWW, or the course site specifically, as something that could have made the learning experience of the course more valuable. Why is it that despite the efforts of the educationists to develop a useful course site, students do not appear interested in taking advantage of it? One reason is that most, but not all, of the materials on the site were also made available as hand-outs. Another explanation could be that nearly all the information on the Web site was prepared in advance and made available at the beginning of the semester, instead of having regular

updates requiring the students to check the course site more often. A third possibility is that the course site, while the product of hard work and dedication, was not innovative enough to attract the students' attention. It was the product of a typical "Webification" of standard course materials, rather than an interactive "cyber-experience." In this case, the course site did not expand the classroom significantly.

Gizzi (1997) suggests many ways by which WWW can be used innovatively in education. One is that instructors can videotape classroom simulations and make video clips for students to access from the Web for further analysis and critique. Courses web sites can also link to other dynamic web sites and research locations on the web which may have new and archived information or documents. He provides the example of The John F. Kennedy School of Government in the United States which carries talks by high level policy officials live over the Web and maintains an audio archive of previous talks making available transcripts in a series called, "Live from the Forum".

In addition to these opportunities, advances in video-conferencing technology have made it possible to conduct point to point or multi-point video-conferencing for learning over relatively inexpensive Internet lines to enrich the classroom. It is feasible for an academic specialist or policy official in one physical location to have a fully interactive video-conference with a classroom of students in another place. The conference can be archived, providing a resource for other students to access on the WWW. Desktop video-conferencing over the Internet, which can be done using inexpensive cameras and software, provides the opportunity for students who are in remote locations to stay in contact with their colleges and universities. For example, a student doing an internship or research project far off could use a desk top video-conferencing system to consult with a supervisor or advisor and exchange computer files.

In the long run other potential uses of the World Wide Web, beyond the second generation of course sites may have a significant impact on both instructors and

students. To realize the full benefits of this new computer technology, education will have to be reconfigured for the 21st century. Instructors will have to help students to think in hypertext by encouraging them to do non-sequential reading and begin to make the connections among diverse kinds of materials, from the abstract academic to the everyday world of practical activity. Instructors will encourage their students to write in hypertext and create their own documents in hypermedia that integrate the subject matter of the course. To take full advantage of the Web, instructors will promote collaboration; not only within their classes, but also with others outside of their classroom who have similar interests. The result will be the beginning of a global collaboration for learning.

Other basic applications of the WWW in education include:

- to make available course outlines;
- to provide copies of course materials;
- to provide research links to further readings;
- to post frequently asked questions (FAQs) somewhere so they don't have to be asked again;
- to develop a presentation of the knowledge learned;
- to provide interactive instructional materials;
- to provide on-line evaluation instruments;
- to advertise the institution and availability of courses; and
- to share information about research interests.

2.3 WWW and education in Africa

The World Bank accepts that without rapid and substantial improvements in education access and quality, broader poverty reduction efforts Africa will be thwarted. The Bank also observes that many governments in Africa are already offering some degree of free primary education leading to higher number of graduates than before. Unfortunately, most of these miss opportunity to proceed to secondary school. This is often attributed

to the fact that most countries have much fewer secondary schools than primary schools. Other factors leading to this include; lack of trained teachers, lack of adequate equipment and books, lack of school fees, effects of HIV/AIDS and early marriages especially amongst girls. So many remedies have been suggested and top among them is the introduction of ICTs and by extension WWW in the classrooms.

There are many projects currently being undertaken by various governments and donors to computerise schools in Africa. However, the one worth mentioning is the e-School initiative by the New Partnership for Africa's Development (NEPAD). NEPAD is an economic development program of the African Union adopted at the 37th session of the Assembly of Heads of State and Government in July 2001 in Lusaka, Zambia to develop values and monitor their implementation within the framework of the African Union.

The e-School Initiative aimed at equipping and connecting schools with ICT networks and a minimum set of ICT tools (radio, computers, TV, internet, telephone, etc) to improve the provision of education in Africa. Addressing an e-School Initiative workshop in January 2005 in Pretoria South Africa, where Kenya was represented by the Vice President Hon. Moody Awori, South Africa's minister of Communications, Dr Ivy Matsepe-Casaburri hailed the project as the largest ICT project attempted anywhere in the world in terms of scope, extent, variety and government participation in partnership with the corporate sector and civil society.

2.4 The WWW and education in Kenya

The WWW came to Kenya in 1995 and started finding its way into the classrooms around 1997. Since then it has become one of the most fascinating tools around. It has emerged that technology enhanced instruction can provide students with information and learning opportunities that are not possible with textbooks alone. Access to technology can help narrow the gap between students who are the "achievers" and those who are not. Lack

of access, however, can make the gap even broader and further stratify students and teachers.

According to the International Telecommunications Union (ITU), about 400,000 Kenyans had Internet access in December 2002. Going by the growth estimate of 198.3% for 2000-2005, the current usage statistics of Internet in Kenya should be above 1million. Most of these users are youths and young adults hence the great potential for education.

In a 2004 sessional paper entitled "A Policy Framework for Education, Training and Research", Kenya's Ministry of Education, Science and Technology (MEST) accepts that the Internet together with the other Information and Communication Technologies (ICTs) has a direct role to play in education and if appropriately used can bring many benefits to the classroom as well as education and training processes in general. "Its use will provide new opportunities for teaching and learning, including offering opportunity for more student-centred teaching, opportunity to reach more learners, greater opportunity for teacher-teacher and student-student communication and collaboration...and offering access to a wider range of courses", it adds.

There have been many computerization projects in the education sector in Kenya sponsored by individuals, institutions and the government all with varying results. Some of these include SchoolNET, African Virtual University (AVU), EduVision, Global Education Partnership (GEP) IEARN Kenya and Kenya Education Network (KENET).

The ministry of education and the private sector formed ICT Trust Fund in February 2004 with the aim of spearheading the ICT Initiatives in the education sector and to provide coordination and leadership. The Trust is currently co-chaired by the Permanent Secretary in the Ministry of Education, Science and Technology, Prof. Karega Mutahi and Mr. George Muhoho, Managing Director of Kenya Airports Authority.

The potential of the ICTs and more so the WWW in improving education in Kenya, has been identified and currently being pursued. Whether these pursuits will bear any meaningful fruits will depend, to a large extent, on the uses the target (students and teachers) make of the technology and the gratifications obtained.

2.5 Future of WWW in education

With the wiring of the schools, a large virtual community will be built around the schools and the students. The classroom will be filled with thousands, if not millions, of people – writers, publishers, artists, photographers, actors and educators, to mention but a few, who will all be using the technology to help the classroom teacher in day-to-day teaching activities. Thus, the schools will be nurturing a new generation of “infotectives” using communication, research and collaboration to acquire information and get things done.

“There is no absolute electronic cure-all for any education’s new challenges. Technology is simply a tool used by people to accomplish human task and education is the ultimate human task. Perhaps a managed WWW is one way educators can use to achieve this goal” (Lynch P. J., 2000).

The future of the web in the classroom is bright and will last a long time. But because the Web provides just information, not instruction or any other support for learning, it is completely incapable on its own of supporting knowledge construction, of providing a context for learning, and of providing the kind of learning community that teachers have always nurtured. This means that whenever the Web is used in today’s schools, for whatever reason, students must deliberately add to the learning experience these three kinds of support that have traditionally been provided as a matter of course. Without this, use of the Web is bound to fail (Winn, W.D., 1996).

CHAPTER THREE - METHODOLOGY

3.1 Introduction

Combining qualitative and quantitative approaches, this study employed survey research methodology, and content analysis of WWW sites visited by students. Some of the data was collected with the active participation of the subjects while some was collected using passive data collection techniques. Using multiple methodologies facilitated increased richness of data and a clearer picture of the phenomena under investigation.

3.2 The Population

All the estimated 862,907 students in about 3,661 secondary schools formed the population of this study. The population is stratified in three ways:

- Gender (girls or boys)
- Form (I, II, III, IV)
- Category of school attended (District, Provincial, National, Private)

The researcher, however, concentrated only on students attending private secondary schools that have WWW access, who were treated as the accessible population. This is because the level of WWW adoption in education is higher in these schools than the public ones. Thus, they provide greater insights into the issues under study.

3.3 Sampling Design

The researcher applied judgemental sampling technique to construct samples for the study. This technique was adopted after a preliminary survey with the Ministry of Education and ICT Trust Fund revealed that though a sizable number of secondary schools in Kenya have Internet access (though no official list was available), it was not used by students but mainly by the school administration. Consequently, it emerged that

it would not be possible to rely on any scientific randomization techniques to get a representative sample. Thus the researcher relied on expert advice on which schools are likely to have students who could effectively provide practical and useful responses for the study.

3.3.1 Sampling Frame

As indicated earlier, the researcher did not get any official list of schools with WWW access for students which would have acted as the sampling frame. However, with the guidance of the senior ministry of education ICT officers and other stakeholders, the researcher settled on five private secondary schools in and around Nairobi as the accessible population. Still, the researcher did not opt for a sample frame because it emerged that the administrators of the chosen schools preferred that the students volunteer for the study and not be chosen randomly as this would infringe on their rights.

3.3.2 Sampling Techniques

Judgemental sampling technique was applied. The researcher worked with the teachers in charge of ICT in the chosen schools to get volunteers who were best placed to provide the most appropriate information for the research questions. The researcher took equal number of volunteers per form and where the school is mixed equal number of boys and girls.

3.3.3 Sample Size

After consultation with the experts, the researcher chose 155 students to interview. This number was deemed to be adequate given that the samples were representative. This number represents about 10.25% of the accessible population.

3.4 Data Collection Techniques

This research combined both qualitative and quantitative methods to collect data. These included; open ended questionnaires, interviews and surveys on the usage of WWW in schools.

Data was also collected from the log files of the computers that the students use for surfing the WWW. The researcher was mainly interested in the domains (.edu, .com, .net, etc) being visited by the students. Content analysis of the WWW sites was also done with the help of education specialists to determine their educational value.

3.5 Major data to be collected

The data collected explored the following areas:

- Demographics
- ICT skill levels
- Amount of time spent on the WWW
- Attitudes towards WWW
- Permissions to use WWW
- Avoidance of WWW
- Stated uses and purposes of usage of the WWW
- Actual WWW sites visited
- Recommendations on how make WWW usage in school better

3.6 Data Processing

All the questionnaires and interview notes were coded and stored in a computer spreadsheet for ease of analysis. A code book was constructed to facilitate data coding. Ms Excel computer package was used to store the data and draw the charts and graphs.

3.7 Data Analysis

The data was analysed both qualitatively and quantitatively. The qualitative analysis mainly dealt with the content analysis of the web sites visited by the students. The researcher studied the sites and with the help of two education professionals from the Ministry of Education assessed whether they have any educational value for secondary school students.

The quantitative analysis dealt with the descriptive data which have been used to summarise the information collected about the use of WWW in the classrooms in the secondary schools.

CHAPTER FOUR – FINDINGS

4.1 Introduction

Data was collected through a series of interviews held at the participating schools. Class teachers and ICT Masters helped collect some of the data while the rest was collected by the researcher.

The data about the actual web sites visited by the students was collected by the researcher from the WWW access computers.

4.2 Demographics

4.2.1 Type of schools covered

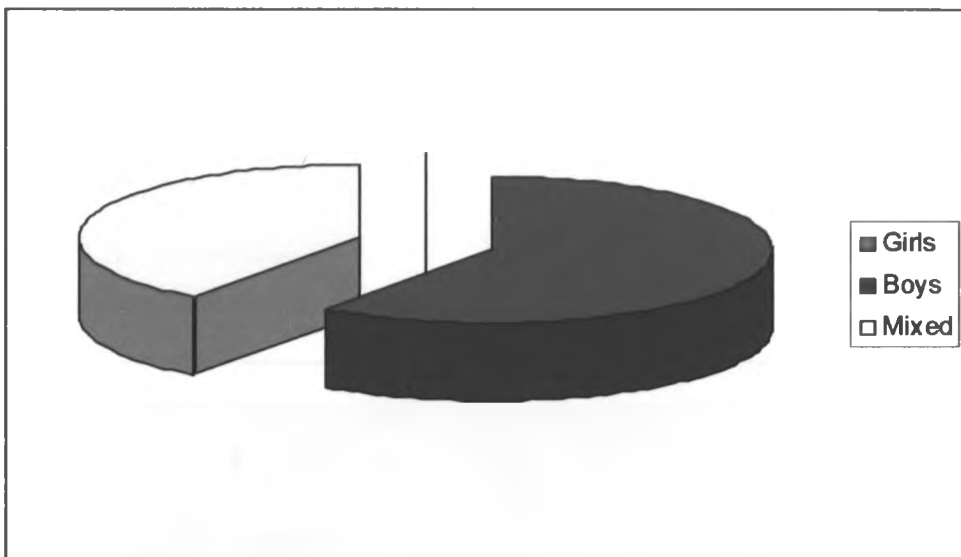


Figure 4.2.1 Type of Schools

Two Boys Schools and three Mixed Schools participated in the survey. No Girls school was visited due to procedural constraints.

4.2.2 Respondents according to Form

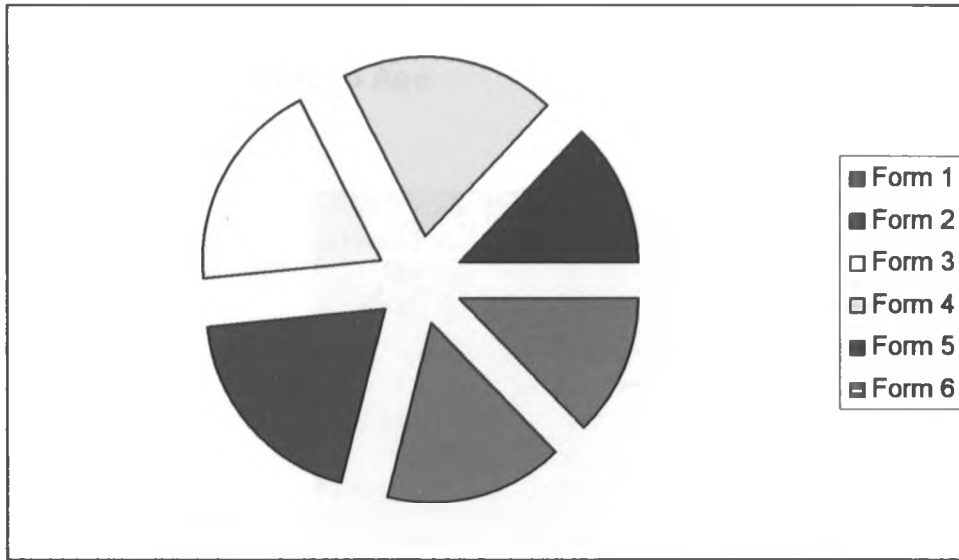


Figure 4.2.2: Respondents according to Form

There were only two schools having Form 5 and 6 classes hence the lower number of respondents from these classes. The other classes participated more or less on an equal population distribution.

4.2.3 Respondents according to Gender

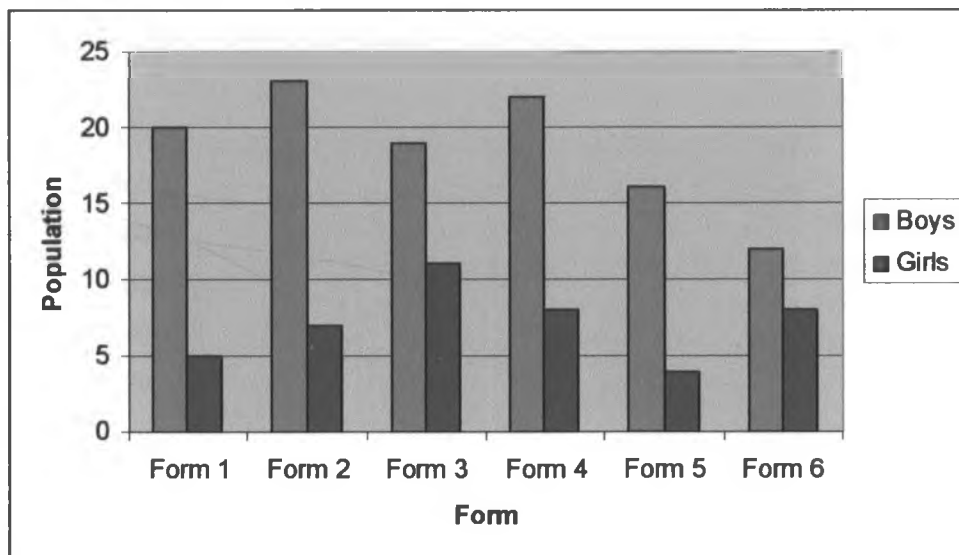


Figure 4.2.3: Respondents according to gender

As indicated earlier, no Girls' school participated in the survey hence the fewer number of girl respondents. In schools where there were girls, the number of respondents was split equally for boys and girls.

4.2.4 Respondents according to Age

Age (Years)	Number of Respondents
13	7
14	18
15	11
16	19
17	22
18	34
19	31
20	13

Figure 4.2.4: Respondents according to age

The student ages ranged between 13 and 20 years spread throughout the forms 1 to 6. It was not possible to balance the ages as it was not an important issue in this research.

4.3 Computer Knowledge

It was found that most students are generally computer-literate and have the basic skills to effectively use WWW. The chart below summaries the results:

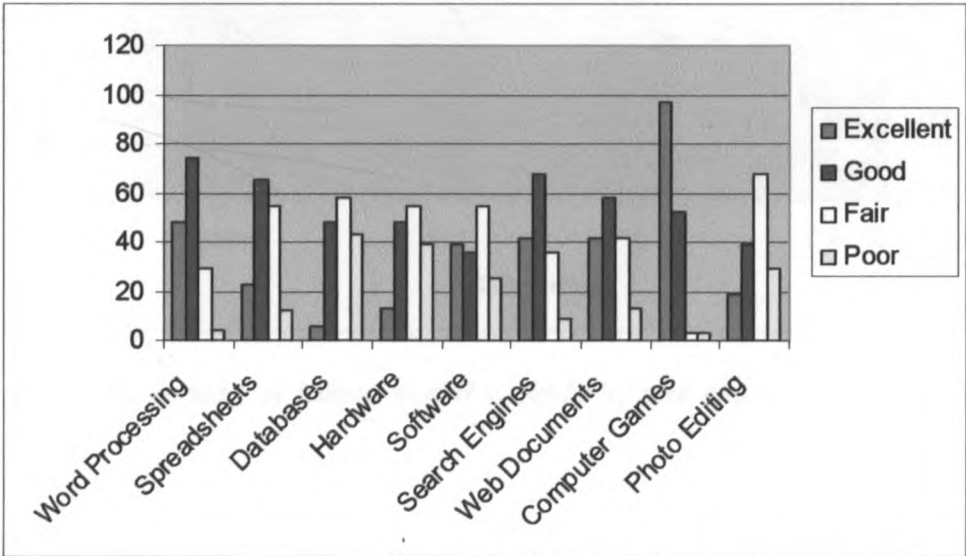


Figure 4.3.1: Summary of the students' computer skills

From the chart above (**Figure 4.3.1**), it emerges that majority (62.5%) of the students are excellent in computer games. This seems to be the skill most sought and perfected. The students have least knowledge in databases, hardware and photo editing where the poor scores 27%, 25% and 18.75% respectively are registered.

One Form II student indicated that he can create web pages using Macromedia Dream Weaver. Another Form III student also indicated that he is good in software development. Both students are students of Computer Science in their respective schools.

4.4 Amount of time spent on the WWW per week

The majority (45.8%) of the students indicated that they spend between 4 and 8 hours weekly on the WWW. This works out to over 1 hour daily if it were to be equally apportioned throughout the week. 16.7% of the students spend more than 10 hours weekly on the web i.e. more than 2 hours daily.

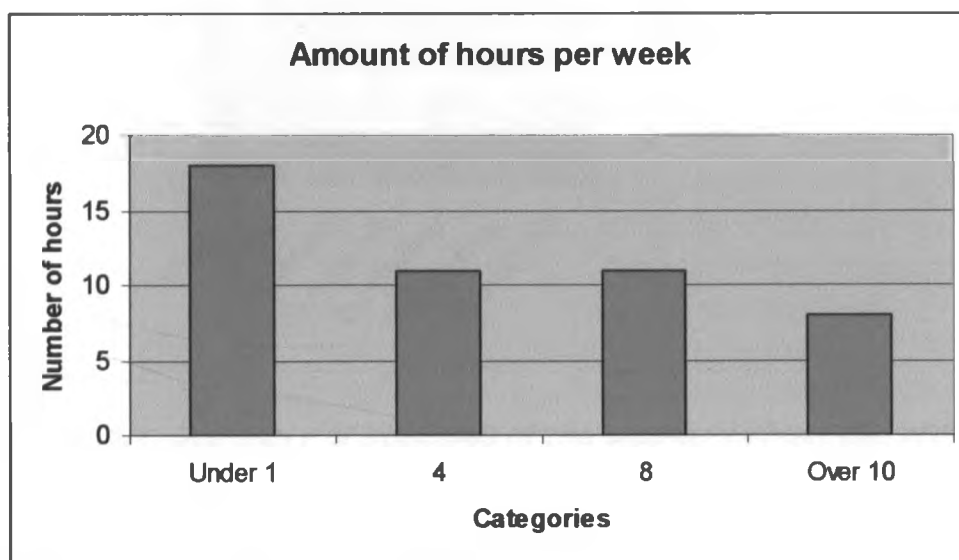


Figure 4.4.1: Summary of hours spent weekly by the students on the WWW

4.5 Attitudes about the WWW

45.8% of the students agree that web content is immoral while 64.6% agree that it is neither secure nor safe. However, 58% of the students strongly disagree that the WWW should therefore be used only by adults. 47.9% of the students say the web has too much information most of which is irrelevant (39.6%). Half the students (50%) say the web is not complicated to use while 54.2% corroborate that its usage does not waste time.

Thus majority (more than 50%) of the students believe that the web is immoral, insecure and has too much information which is grossly irrelevant for their studies. Similarly, more than 50% believe that the web is easy to use and does not take too much of their precious time. (See Figure 4.5.1)

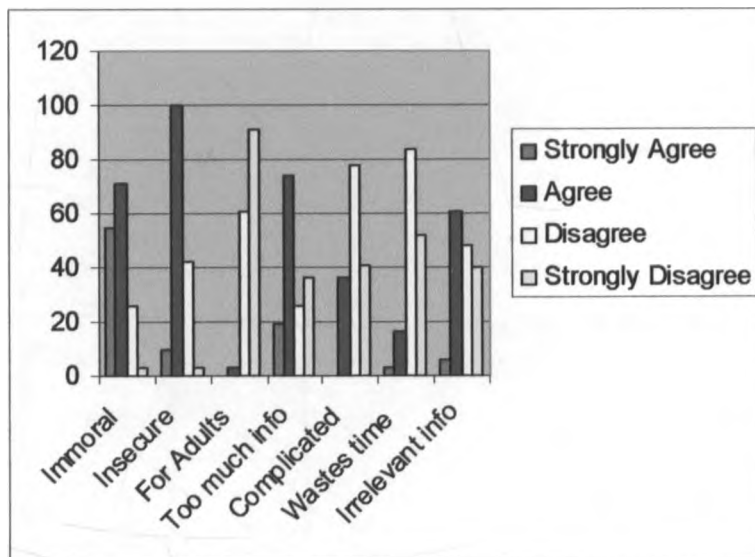


Figure 4.5.1: Summary of attitudes of the students about the WWW

4.6 Permission to use the WWW

All the respondents said they do not consciously avoid the WWW. They also added that they have parental permission to use it out of and in school.

4.7 Uses of WWW among students

From the **Figure 4.7.1** below, the students say they use the WWW very importantly for researching for school work (54%) and importantly for seeking new information (39.6%). Other prevalent uses are self education and curiosity satisfaction.

The average uses of the WWW are entertainment, linking up with new and old friends, communicating with family members and self education.

The least important uses of the WWW are releasing tension, building personal confidence and spending leisure time. There was also little mention of communication with teachers for educational purposes.

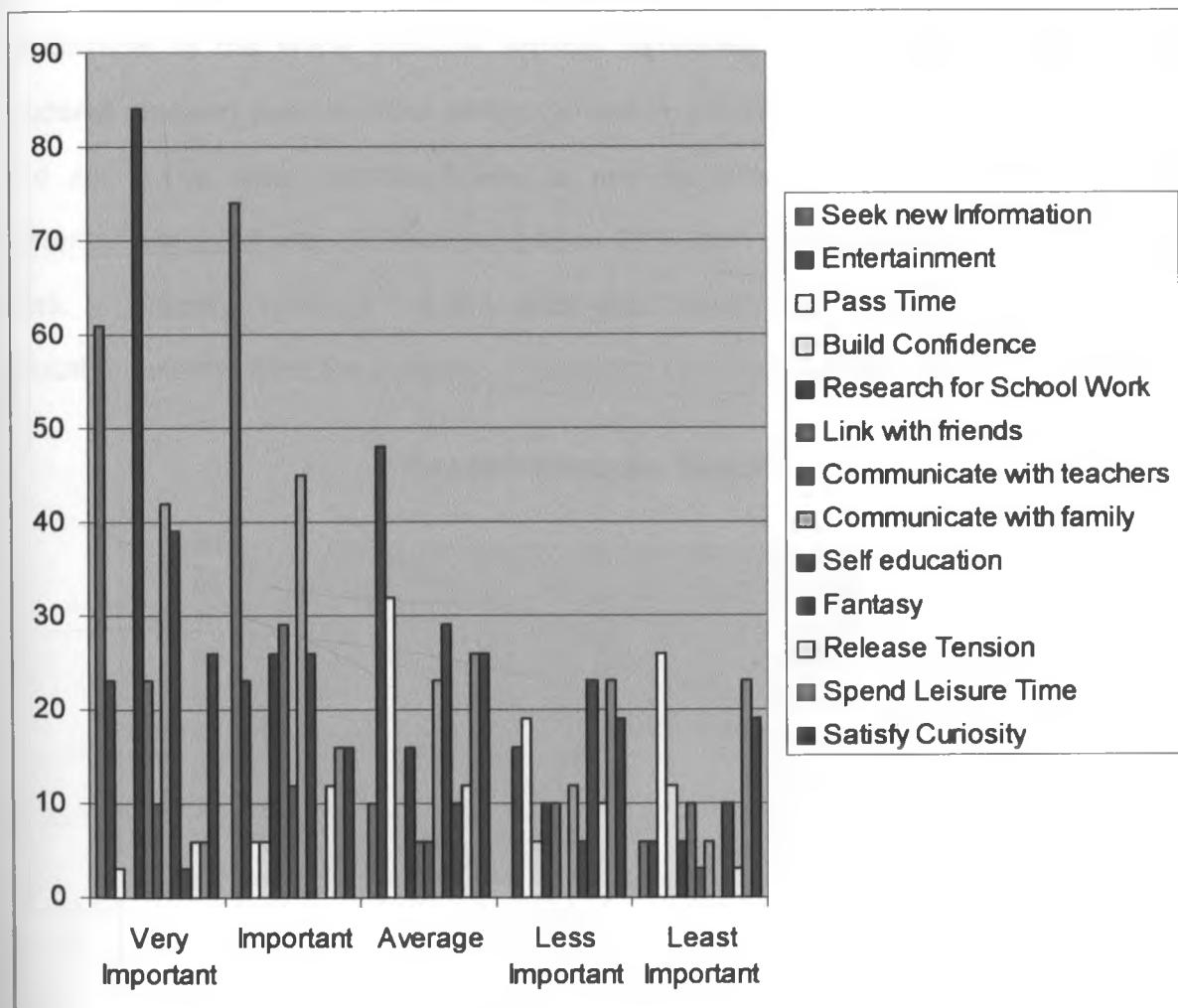


Figure 4.7.1: Summary of WWW uses

4.8 Web sites actually visited by the students

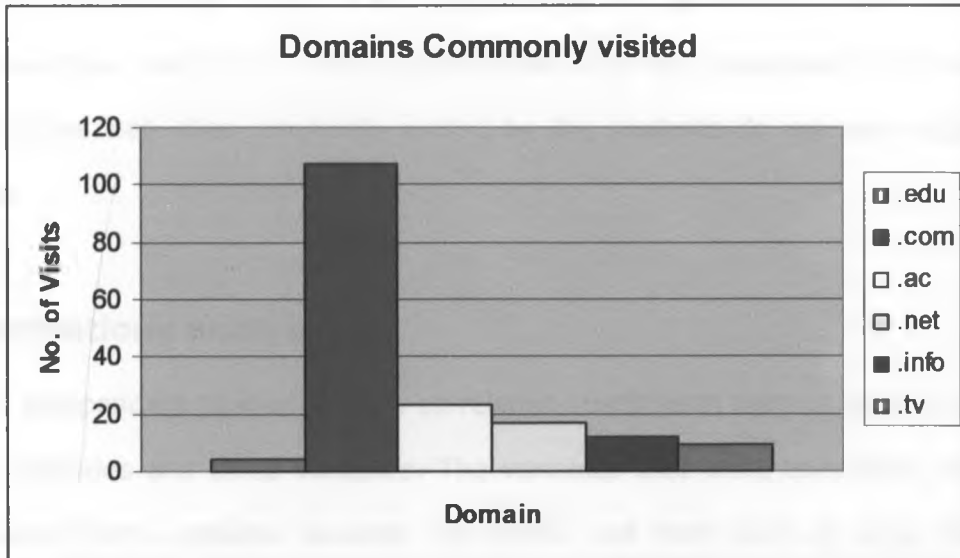


Figure 4.8.1: Domains commonly visited by the students

An analysis of the WWW domains actually commonly visited (**Figure 4.8.1**) by the students revealed that the most visited domain was .com followed by .ac, .net, .info, .tv and .edu in that order. Combined .edu, .ac and .net which are likely to have educational materials add up to only 28.3% compared to 69% .com which is basically for commercial sites. A content analysis of the web sites most visited was done with the help of two education experts from the ministry of education revealed the following:

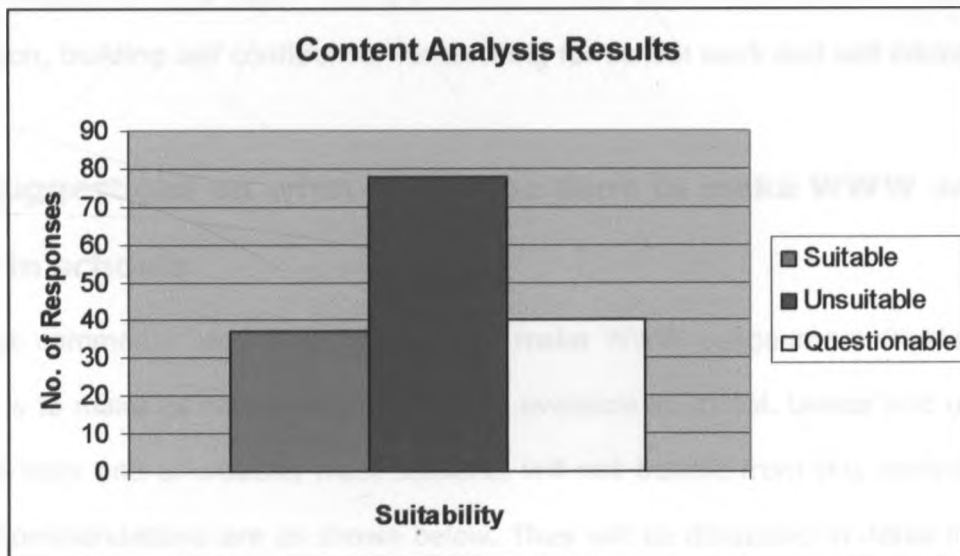


Figure 4.8.2: Content Analysis Results

It is evident that 50.3% of the web sites visited are unsuitable for education while 25.8% are questionable. Only 23.9% are suitable for secondary school education in Kenya. Assuming that most of the questionable sites are unsuitable, this implies that 75.83% of the web sites commonly visited by the students do not add value to their education.

4.9 Correlations analysis

Following independent student t tests, correlation coefficients were computed among the 13 use categories and three variables. The variables that were correlated with the 13 factors were form, attitudes towards the WWW and skill level at using WWW. Not surprisingly both attitude and skill are positively correlated with every type of use as defined by this study.

The few correlations between form and uses suggest that students in the lower forms are more likely to say that they use WWW for entertainment, for passing time, for satisfying curiosity or for fantasy.

Likewise students in the higher forms are likely to say they use the web for seeking new information, building self confidence, researching for school work and self education.

4.10 Suggestions on what should be done to make WWW usage better in schools

The most commonly recommended step to make WWW usage more fruitful (**Figure 4.10.1**) is to make its access free and readily available in school. Unless and until WWW access is easy and affordable, most students will not benefit from this technology. The other recommendations are as shown below. They will be discussed in detail in the next chapter.

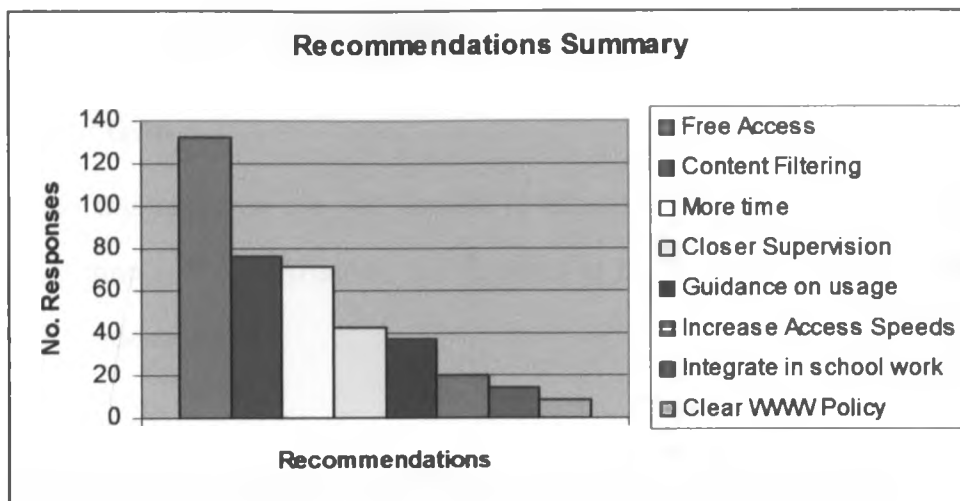


Figure 4.10.1: Recommendations

These findings are discussed in greater detail in chapter 5.

4.11 Conclusion

From the findings, the research hypothesis is confirmed: education is not the sole motivation for WWW use amongst secondary school students in Kenya.

CHAPTER FIVE – DISCUSSION

5.1 Introduction

The findings of this research are very crucial in helping to determine the value of WWW in secondary schools. In this chapter, the findings of the research are discussed in light of the research questions.

5.2. Computer knowledge and its relation to WWW use

Though most students are basically computer literate, their skill levels are different. In the correlation analysis, it emerged that students who have more advanced computing skills use the WWW better. This is because these skills are crucial in searching, locating, downloading, saving, formatting and using the information available on the web.

5.3 Time spent on the WWW

The findings clearly indicate that the students do not get ample time to effectively use the web. It is important for the school authorities to design and implement time tables that suitably allow the students to access the web effectively. However, it is crucial for the authorities to ensure that the students do not spend all time in the laboratories using web sites that do not add value to their education.

5.4 Students' attitudes towards the WWW

From the attitudes of the students exposed, it is evident that the students do not think of the web as an educational tool. Whilst some view it as a source of new information, others think it is immoral and only meant for adults. Thus, most of the attitudes indicate that the students view the web as an informational reservoir that they can exploit for many uses of which education is among the least important.

When prodded to justify some of their responses, the students said that they relied on the media, peers, parents and teachers to develop and maintain attitudes about the web.

5.5 Permission to use the web

The findings indicate that all the students have permission from their parents to access and use the web in school. However, it emerged that the parents have not given any guidance on what the students should or should not access. This decision is left to the students and the ICT masters.

5.6 Uses and gratifications of the web

This was the gist of this study. It is clear that the students do not mainly use the web for education purposes. A lot of money and time is being spent in ensuring that WWW is available in the schools. This should not be allowed to go to waste. So, the challenge is how to get the students use the web to aid their education.

CHAPTER SIX - CONCLUSION

Based on this exploration of WWW use in schools, several findings would appear to have policy implications for schools using or making plans to use the WWW for educational purposes.

First, while students believe the WWW to be a valuable source of new information, their actual use suggests other motivations as shown in the content analysis results of the web sites they commonly visit. Seeking out gratifications other than education, the students visit web sites which have no or less educational value more often. Something must be done to remedy these young minds from misusing the well-intended technology to their academic detriment and it must be done now.

The fact that the students' reported uses are not congruent with their actual uses is very disturbing. Either they falsely reported their intentions or intervening variables affected the process of searching for and obtaining relevant information. It is possible that the best of intentions may be confounded by the ease with which students can access a myriad of competing sites that vie for their attention. Another possibility is that the students' understanding of research is more broadly defined and includes looking for content that has little or no relationship to traditional academic pursuits.

When it comes to evaluation of the appropriateness of media technology in schools, media effects researchers cannot have it both ways. Either media effects are real and the potential benefit of educational media must be balanced by constant vigilance against access to WWW sites that are at best a distraction and at worst a hindrance to the educational and social development of the students. Or, media effects are limited and mediated by user motives, attitudes and use patterns and any potential benefit of educational media in the schools is contingent on the proper psychological and sociological predictor variables. If this is the case, attention to these factors must be a

top priority and WWW access must be implemented with the goal of creating the proper climate for learning to occur. In either case WWW literacy efforts are greatly needed. Since picking and choosing only the best web sites for students is definitely not the best way forward, giving students the tools to make wise decisions about media content is crucial.

CHAPPER SEVEN - RECOMMENDATIONS

7.0 Introduction

The researcher makes the following recommendations as requisite steps towards making the use of WWW more beneficial to the secondary school students in Kenya.

7.1 Train students and teachers in ICTs first

It is important that the ministry of education and all the people/organizations working on projects introducing WWW in schools first and foremost address the need to educate the students and teachers on ICTs. To bring web access alone is no guarantee for fruitful use.

The researcher recommends that a baseline survey on the skill needs and knowledge gaps amongst the students and teachers be carried out first and addressed before any computerisation and subsequently introduction of WWW access is done in the schools. Teachers, laboratory technicians and other people helping the students must also be trained first in general computing skills and later in web skills.

7.2 Schedule and closely monitor web access

The researcher recommends that web access be captured in the time table and that teachers be assigned this slot to supervise the students and keep them focussed on fruitful use of the technology. Students who wish to use the web more than others can be allowed to access the laboratories on weekends and after school. This too, should be monitored to ensure that the students do not squander this time on worthless sites. An average of four hours a week is recommended.

7.3 Help the students develop positive attitudes towards WWW as an educational tool

The researcher recommends that the students be educated generally about the nature, benefits and threats of the web so that they are aware of its potential to turn their educational lives around. It was revealed that most of the students do not know how to use search engines to locate information for school work. This and many other bottlenecks as far as publicity about the web is concerned should be given to the students. This will address the students' and their parents' fears and hopes on the potential of the web.

7.4 Parents/guardians should be interested in and closely monitor what their children do with the WWW

The researcher recommends that parents and guardians be educated on the opportunities and threats of the web so that they grant the permission based on information and that they can evaluate the effects of this permission and either withdraw or review it from time to time.

7.5 Filter out harmful content

It is recommended that the web access points should have filters and firewalls to sift harmful information or sites from the students. Though they are not 100% watertight, the filters will give the parents and guardians some assurance that the students are out of harm. At the same time the resulting permission of usage will allow the students to explore the web more and get more information. Muzzled usage is not only inadequate but can also limit what the students can do with the web.

There are many content filters available in the market today. The choice would depend on the costs, ease of use, protective features and scalability among other factors. It is recommended that the filters be reviewed from time to time and fine tuned accordingly.

7.6 Facilitate fruitful uses of the WWW

To help the students use the WWW better, the researcher recommends the following:

- Educate the students and teachers on the educational opportunities and threats in the WWW.
- Ensure that the infrastructure needed for effective WWW accessibility is acquired, configured and deployed. Where possible, involve the students in this exercise.
- Integrate the WWW into the daily learning activities in the school. Provide time and motivation for research, homework and evaluation of the students using the WWW by providing course materials, exercises, marking schemes and facilitating the students to submit their work through the web.
- Do not over-emphasize the negative facets of the web. This will make the students curious to confirm them.
- Develop and execute a detailed WWW access policy in the school and let the teachers and students be aware of it. Review it from time to time.
- Closely supervise the students while on the web. This will discourage naughty attempts to abuse web use.
- Invest in faster more reliable web connections. This will help the students explore the web more and use it better for education.
- The ministry of education needs to develop a strategy on how the schools can benefit from this technology based on facts and practical scenarios.
- The schools can identify and use web champions among the students to help their fellow students on how best to use the web to aid their education.
- Parents should closely monitor what their children are doing with the web both at home and in cyber cafes. It should be their burden and challenge to ensure that their children are adequately educated on and protected from harmful use of the web.

- The government, through the ministry of education, should facilitate the production and publishing of suitable web content that will meet the needs of the students. Currently, there are no serious local educational content on the web.
- The syllabi and curricula should be disseminated through the ministry or Kenya Institute of Education's web site. When teachers and students are referred to the web for educational material, they will have no option but to adopt it for that use.
- The ministry of education should set a good example for the schools to follow. It should revamp its web site to be more useful to the stakeholders. Today, the web site is more like an announcement board with stale and inadequate items.
- Schools should collaborate with each other through the web. Inter and intra-school debates, discussions, chat rooms and exchange facilities should be integrated to the web. This will make the tool more appealing and practical to the students.

These steps would greatly improve the perception of WWW as an educational medium thus enhancing its usage for that purpose in schools.

CHAPPER EIGHT – SUGGESTIONS FOR FUTURE RESEARCH

8.0 Introduction

The hype to introduce the WWW and other ICTs in classrooms is currently phenomenal throughout the world. The urge is even greater in the developing world where the educational sector is bedevilled by many problems among them being lack of adequate classrooms, learning resources and teachers.

In Africa, the NEPAD e-School Initiative is already being implemented. In Kenya, President Mwai Kibaki recently launched the first e-School project in Isiolo Girls Secondary School. Other schools earmarked for the project are Mumbi Girls (Central), Maranda High (Nyanza), Chavakali Boys (Western), Menengai High (Rift Valley) and Wajir Girls (North Eastern).

Besides this initiative by NEPAD, there are several other projects being undertaken by various organizations aimed at harnessing the potential of the WWW for education.

8.1 Potential areas for future research

To adequately assess the value of the WWW in education and also to prudently adopt it in schools, there is great need for research to ascertain whether the introduction and subsequent use of WWW has a direct impact on the performance of the students. If there is direct impact, is it negative or positive? It is also important to establish the factors that mitigate this impact and how they can be predisposed to incubate the desired results.

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APPENDICES

Appendix 1 - Schedule of activities

Activity	Duration	Deadline
Obtain letters of introduction and authorization	2 days	August 3, 2005
Visit the Ministry of Education for background information and orientation	2 days	August 5, 2005
Literature Review (revision)	2 days	August 7, 2005
Sampling and development of data collection instruments	1 week	August 13, 2005
Pilot-testing and review of the instruments	1 week	August 20, 2005
Data collection	2 weeks	September 2, 2005
Data Analysis	2 weeks	September 16, 2005
Report writing	1 week	September 23, 2005
Review and Final report	1 week	September 30, 2005

Source: Researcher (2005)

Appendix 2 - Budget

Item	Cost (Kshs)
Transport	15,000
Correspondence and communication	7,000
Stationery	2,000
Word processing	3,000
2 Research Assistants	20,000
Boarding/lodging	20,000
Lunches	5,000
Specialist consultation	20,000
Miscellaneous	8,000
Total	100,000

Source: Researcher (2005)

Appendix 3 – Questionnaire

Hello,

You are invited to participate in this research on the uses and gratifications of WWW among secondary school students in Kenya. The aim of the study is to unveil what motivates the students to use the WWW and how these can be exploited for education purposes. Your responses will only be reported in the aggregate and will be treated with utmost confidentiality. Thank you for your time.

Demographics

Sex
Age
Form
School

WWW skills

How do you rate the following computer and WWW usage skills (tick):

	Poor	Fair	Good	Excellent
Word processing				
Spreadsheets				
Databases				
Basic hardware installation and repair				
Basic software installation and repair				
Use of search engines				
Saving documents from the web				
Computer games				
Photo editors				

Other (specify).....

Hours of use

How many hours do you use the WWW per week? (Tick appropriately)

Under 1

4

8

Over 10

Attitudes about the WWW

Please tick accordingly:

	Strongly Agree	Agree	Disagree	Strongly Disagree
WWW contain immoral information				
WWW is neither secure nor safe				
WWW is for adults only				
WWW has too much information				
WWW is too complicated to use				
Use of WWW wastes time				
WWW has irrelevant information				

Other (specify).....

Uses of WWW

a) Do you use the WWW or do you avoid it (Tick accordingly)?

Avoid Use

b) If you use the WWW, what do you use it for (Tick appropriately and indicate how you rank the use in terms of importance on a scale of 1 – 5 where 1= most important and 5 least important):

Use	Response	Importance
Seek new information		
Entertainment		
Pass time		
Build self confidence		
Seek and connect with new friends		
Research for school work		
Communicate with teachers and fellow students		
Communicate with family members and friends		
Self education		
Fantasy		
Release tension		
Filling up leisure time		
Satisfying curiosity		

Others (specify)

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c) If you avoid the WWW, why do you do so?

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d) What would you like to see done by school authorities to make the use of WWW better for you?

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e) (i) Do have permission from your parent(s) to use WWW? Yes No

(ii) If no, why?

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