CHAPTER ONE
INTRODUCTION

1.0 Overview

This chapter contextualizes the problem statement. It gives a background of Web 2.0 in education, discusses the statement of the problem, the purpose and objectives of the study. It also discusses the significance of the study, the theoretical framework and provides operational definitions of the study.

1.1Background of the study

The World Wide Web (WWW) has undergone a huge transformation from a resource for scientist to a worldwide source of information for billions of users. It has transitioned into a more social participatory stage called Web 2.0 under which an information user becomes the provider of information by creating, organizing and sharing content (Anderson, 2007). As demonstrated by Selwyn (2007), not so many internet users would fail to notice the recent development of Web 2.0 especially much-advertised tools like Facebook, Wikipedia and YouTube. Even casual internet users are now aware of the concept of social networking sites. Since being announced as the Time Magazine's 'Person of the Year' at the end of 2006, Web 2.0 is seemingly dominating the practices in which digital technologies are being used all over the world. To this end, Varinder and Kanwar (2012) feel that, Web 2.0 has become an inescapable part of most people's daily lives and whether we like it or not, it has come to stay.

There are several Web 2.0 tools, as confirmed by Ware (2009) who writes that, these tools include Social Networking Sites such as Facebook, LinkedIn, Friendster, Tagged, Twoo, and others.; Web Logs for example Wordpress and Livejournal; Bookmarking sites which includes http://del.icio.us, Diigo, and CiteULike; Q &A sites such as Yahoo answers; Wikis; Instant Messaging, video sharing sites for instance You Tube. For the purpose of this study, the main

concentration was on Social Networking Sites (SNS), Web Logs (Blogs), Wikis, and Video Sharing Sites

Web 2.0 is becoming an essential information source for a large number of people worldwide. As reported by Hughes (2009), the use of the Web 2.0 tools is high and prevalent especially among the younger generation. Venkat (2011) indicates that the number of people using Web 2.0 is high: as of 2010, 160 million people were using MySpace, about 250 million people were logging to Facebook each day, twitter had about 15 million frequent users, people were watching not less than 2 billion videos on YouTube on a daily basis, not less than 10 million people were contributing to Wikipedia, and 175,000 blogs erupted daily. Certainly, the sharing and collaboration of information through online media is transforming the lives of millions of internet users, and in no population is this more visible than the youths of today. The change is undisputable, and therefore, students, not overlooking those at the University of Zambia have to evolve along with it.

1.2 Background of the University of Zambia

The University of Zambia (UNZA), Zambia's largest university was founded in 1966 and it began with three schools namely Education, Humanities and Social Sciences, and Natural Sciences (UNZA, 2010). As facilities developed and needs were recognised new schools were added: Law, Engineering, Medicine, Agricultural Sciences, Mines, and Veterinary Medicine.

1.2.1 Campuses

UNZA currently has two campuses, namely Great East Road and Ridgeway Campuses. The Main University Campus- Great East Road Campus is "situated on the south side of the Great East Road about nine (9) kilometres from the city centre in Lusaka" (UNZA, 2010: 14). The following schools are located at the main campus; Education, Law, Natural Sciences, Humanities and Social sciences, Engineering, Mines, Agricultural Sciences and Veterinary Medicine

The Ridgeway Campus is situated near the University Teaching Hospital on John Mbita Road, and is about nine hectares in extent. This campus specifically houses students pursuing medical and pharmacological courses (UNZA, 2010).

For this study, our concentration was on the Main campus, where students from two study areas were selected namely; Library and Information Studies (LIS) in the School of Education as well as the School of Veterinary Medicine.

1.3 Web 2.0 and Education

Education may be classified as formal, non-formal or informal; According to Coombs in Arlen (nd: 73), formal education is defined as "the hierarchically structured, chronologically graded educational system running from primary school through the university and including, in addition to general academic studies, a variety of specialized programs and institutions for full-time technical and professional training." At UNZA formal education is achieved through lectures, tutorials, laboratory sections, clinical experience, and seminars, among others. Non formal education is defined by Kleis in Arlen (nd: 73) as "any intentional and systematic educational enterprise in which content is adapted to the unique needs of the students in order to maximize learning and minimize other elements which often occupy formal school teachers." And "informal education deals with everyday experiences which are not planned or organized. When these experiences are interpreted or explained by elders or peers they make up informal education" (Kleis in Arlen, nd: 73). Therefore, informal education mainly points to the broad social procedure in which human beings gain the knowledge and skills required to perform in their society. In all these different ways of education, students are expected to be pro-active.

Web 2.0 applications have continuously raised the awareness of a number of researchers on the prospects of using these tools for educational purposes. According to Armstrong and Franklin (2008: 12):

There are two important reasons why Web 2.0 matters to universities. Students will increasingly be using Web 2.0 technologies in their social lives, at work and in previous study, and will begin to expect that their courses will make use of them too…and perhaps more importantly, because Web 2.0 provide a new set of powerful educational affordances.

However, the fact that students are using a technology is not really a reason per se to use it in their education, but as alluded to earlier, Web 2.0 is made up of several technologies which provide different capabilities. It is anticipated that some of these technologies will have a significant impact on how students engage with their education.

There is still divided opinion over the advantages of using Web 2.0 in education. Bryant (2006) in Mcloughlin and Lee (2007) explains that Web 2.0 tools have potential to handle the diverse needs of today's students, by providing them with opportunities to collaborate and network in an online environment. Safran, Helic and Gutl (2007), adds that Web 2.0 enables students to achieve their potential via improved access to information resources and experts which go beyond their school or country boundaries. This idea is shared with Klamma and Spaniol (2008) who suggest that Web 2.0 applications have astounding potential of linking learners in collaborative environments with decreases in bounders. This simply means that with the possibility to interact in a non-physical environment, learners are able to collaborate without having to worry about physical boundaries of time and space.

Researches have shown that Web 2.0 has ground breaking opportunities for higher education, for instance, in a research where Swain (2008) did a survey among the students at Kansas State University, he concluded that Web 2.0 has relevance for higher education. Furthermore, in an experimental study by Ullrich et al (2008), it was concluded that Web 2.0 applications offer significant advantages in learning. These studies show that Web 2.0 can indeed encourage students to actively participate in learning.

Although some scholars like Selwyn (2007) predict significant potential for Web 2.0 applications in transforming learning, others have raised concerns over the use of these tools in education. Information overload is one of the issues that influence the mind of most experts concerning the educational use of Web 2.0 applications. Reuben (2008) writes that Web 2.0 has several types of media, so much that learners can easily be overloaded with information, which may be difficult to deal with by those who are not information literate.

Despite the concerns raised over the educational use of Web 2.0 tools among students, research shows that the majority of university students are using Web 2.0 tools for different purposes

(Holliday and Li, 2004; Gardner and Eng, 2005). However, there is not much evidence on the extent to which Web 2.0 tools are being used for educational purposes among UNZA undergraduates.

1.4 Problem statement

Despite these purported benefits of Web 2.0 applications in the education circles, a review of literature found that efforts made in understanding the educational use of these tools at universities have mainly concentrated on developed countries especially Europe and North America. Little has been done in developing countries like Zambia. Due to this gap in knowledge, very little is known about the extent to which undergraduate students in Zambia are using or intend to use these resources for educational purposes and the challenges they face in the use of such tools. In addition, there is little understanding of the factors influencing the adoption of Web 2.0 tools among undergraduates. This research therefore sought to bridge the above knowledge gap

1.5 Purpose of the study

To investigating the use of Web 2.0 tools for educational purposes among undergraduate students at the University of Zambia.

1.5.1 Research objectives

1. To establish which Web 2.0 tools are being used by undergraduate students and for what purposes
2. To explore undergraduates' perceptions on the use of Web 2.0 tools in learning
3. To investigate factors that influence undergraduate students to adopt the use of Web 2.0 tools for educational goals
4. To establish challenges undergraduates face in the use of Web 2.0 tools

1.5.2 Research questions

1. Which Web 2.0 tools do undergraduate students use and for what purposes?
2. What are undergraduates' perceptions on the use of Web 2.0 tools in learning?
3. What factors influence undergraduate students to adopt the use of Web 2.0 tools for educational goals?
4. What challenges do undergraduates face in the use of Web 2.0 tools?

1.6 Significance of the study

The use educational use of Web 2.0 among students is a new idea, and a great opportunity for higher education, whose potential is still being exploited. Therefore, the current study gives an insight on the use of Web 2.0 tools for educational goals by undergraduates at the University of Zambia. The findings also add to the already existing literature in the field of Web 2.0 and may prompt further research.

1.7 Theoretical Framework

The theoretical framework of this study is based on the Theory of Planned Behavior (TPB), proposed by Ajzen (1985). TPB is a conceptually simple theory and it is easy to apply in several contexts. Hence, it was anticipated that the TPB would be powerful in understanding the adoption and use of Web 2.0 technology among undergraduates.
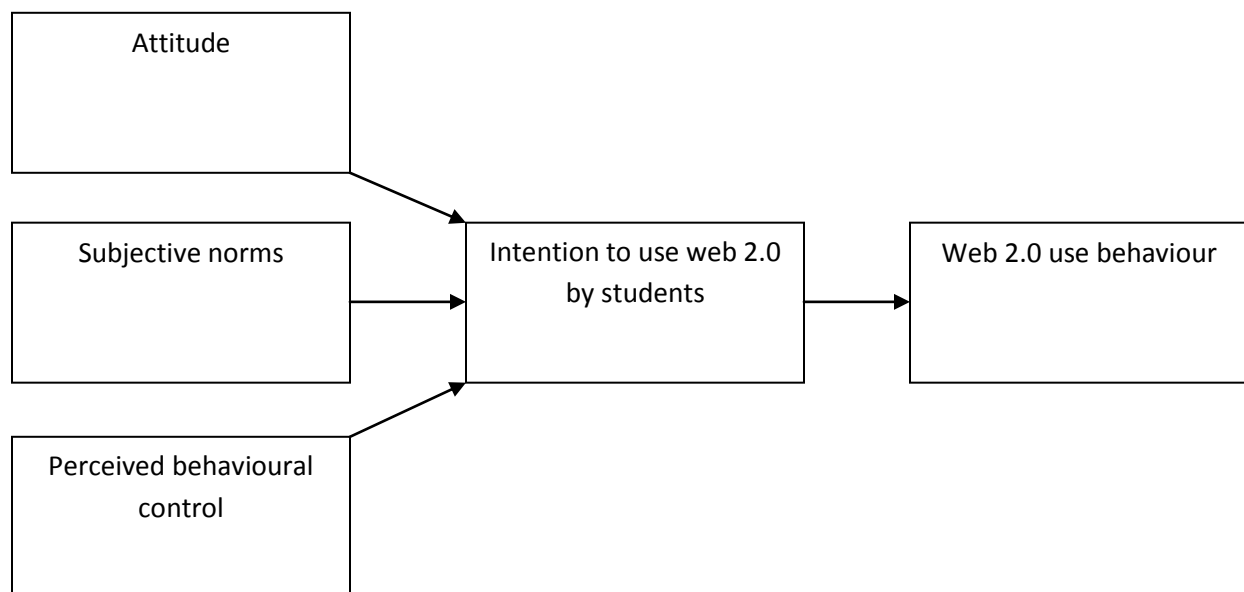
1.7.1 Theory of Planned Behavior

The TPB posts that attitudes, perceived behavioral control, and subjective norms determine intentions and influence behavior. Therefore, a person's behaviour is said to be driven by behavioural intentions, and behavioural intentions are in turn a function of a person's attitude towards behaviour, the subjective norms encompassing the conduct of that behaviour, and an individual's opinion of how easy it is to perform that behaviour (Ajzen, 1991).

1.7.2 Theory of Planned Behavior and Information Science

In an effort to apply the generalized model of TPB in Information Science (IS), a Decomposed TPB by Taylor and Todd (1995) has been widely used; which suggests that compatibility, perceived usefulness, and perceived ease of use are a genealogy of attitude. Additionally, they propose that superior's and peer influence is a genealogy of subjective norm. And finally, they suggest that perceived behavioral control is determined by resource facilitating conditions, self-efficacy, and conditions of that technology.

The above variables as shown in illustration 1, suggested by Taylor and Todd (1995) helped in explaining factors that led students to adopt and use of Web 2.0 tools to support their educational goals.

Attitude		
Subjective norms	Intention to use web 2.0 by students	Web 2.0 use behaviour
Perceived behavioural control		

Illustration 1: Students' use of Web 2.0 model: Based on the Theory of Planned Behavior by Ajzen (1991).

1.8 Concepts and Assumptions

1.8.1 Attitude

Ajzen (1991) writes that attitude is the degree to which a person favors a particular behavior. Taylor and Todd (1995) decomposed attitude into three basics: compatibility, perceived usefulness (PU), and perceived ease of use (PEoU).

Compatibility is the extent to which the adoption of technology fit the task the user is doing; perceived usefulness points to the extent to which a person feels that the utilization of that technology will enhance their job performance; And finally, perceived ease of use is the extent to which the user of a certain technology expects it to be free of much effort. These three factors are said to positively impact the adoption and use of new technology. The higher the compatibility; ease of use; and perceived usefulness, the more positive the attitude towards the use of technology is expected to be (Davis et al., 1989; Rogers, 2003).

Regarding the current study, compatibility of Web 2.0 applications with students' academic requirements was expected to influence the adoption and utilization of Web 2.0 tools for educational objectives via attitude. Perceived usefulness referred to the degree to which students felt that using Web 2.0 tools would assist them in their studies. It was expected that ease of use was going to be a vital factor in determining behavioral intentions via attitude toward Web 2.0 applications (Taylor and Todd, 1995).

In a summary, the study looked at attitude as the students' willingness to use Web 2.0 applications for educational objectives. Subsequently, students' positive attitude towards the use of Web 2.0 tools to support their education was expected to affect their adoption and use of the aforementioned applications.

1.8.2 Subjective norms

According to Ajzen (1991), subjective norm is an individual's view of whether people relevant to them believe that the behavior should be done. Accordingly, subjective norms describe the

social pressure an individual experiences when doing a particular behavior (Ajjan and Hartshorne, 2009). Therefore, subjective norms illustrate how the behavior of an individual could transition based on how important others expects one to behave (Taylor and Todd 1995).

Applied to students' utilization of Web 2.0 applications, subjective norms refers to students' perceptions of how important others perceive their behavior. It was expected that if students felt that their lecturers support the use of Web 2.0 applications for educational purposes, then that would positively affect their intention to use that technology. Therefore, students' subjective norm in the use of Web 2.0 was expected to influence use intentions.

1.8.3 Perceived behavioral control

According to Ajzen (1991) perceived behavioral control is defined as one's view of the difficulty of performing a given behavior. In this regard, perceived behavioral control entails the control an individual feels over their behavior. In the current study perceived behavioral control was broken down into two factors: facilitating conditions and self-efficacy (Ajzen 1991). Facilitating conditions depict the accessibility of resources required to use the technology (Triandis 1979). The availability of facilitating conditions was likely to affect behavioral intentions and ultimately the usage of technology (Taylor and Todd 1995). Self-efficacy is defined as the individual's comfort degree in utilization the technology. It was expected that higher self-efficacy would result in higher degree of usage of technology (Taylor and Todd 1995).

In the case of Web 2.0, self-efficacy is explained as the students' perceptions of their capabilities in using Web 2.0 technologies to support their education. Such Capabilities would specifically refer to a student's skill to operate the technology. Facilitating conditions were deemed important in determining intention to adopt and use web-based educational technologies among New Zealand educators (Tetiwat and Huff, 2002). Consequently, students' self-efficacy of utilizing Web 2.0 applications and the accessibility of resources and the technology itself was expected to positively affect usage behavior.

1.9 Operational Definitions

In our study, the following concepts will be used with the following operational meanings:

1.9.1 Web 2.0

According to Varinder and Kanwar (2012: 8), Web 2.0, also known as social media, refers to "all web based applications which allow for creation/exchange of user generated content and enable interaction between the users." Additionally, Vankat (2008) states that the term Web 2.0 essentially covers a set of technologies comprising of interactive media that allow people to create, modify, and share information. In this study, Web 2.0 refers specifically to blogs, wikis, video sites and social networking sites.

1.9.2 Blogs

According to Doctorow (2002) as cited in Salehe (2008: 26), "the term blog originally comes from the phrase 'web-log', which refers to a simple webpage containing paragraphs of opinion, information, personal diary entries, or links arranged in a chronological order with the most recent entry first in the style of an online journal." Anderson (2007) highlights that a blog is an interactive media which mainly involves posting and commenting on ideas written by blog visitors under which there is an exchange of opinions between the blog author and the contributors who comment on the contents of the blog in a conversational manner. However, the comments made by the blog visitors are subjected for review and moderation by the author of the blog before they can be published.

1.9.3 Wiki

Wiki, which means 'What I Know Is', is an open-access Web site allowing several users to contribute in the creation of content collaboratively (Venkat, 2010). Therefore, a wiki refers to a site that anyone can edit. Additionally, Sahele (2008:23), states that the "underlying concept of a

wiki is the fact that it acts as a collaborative tool and hence facilitates more effectively the production of group work." The most well-known example of a wiki is Wikipedia.

1.9.4 Social Networking Sites

SNS as proposed by Boyd and Ellison (2007), are 'web-based services which allow individuals to (1) create a public profile within a bounded system, (2) come up with a list of fellow users with whom they share a connection, and (3) view and survey their list of connections within the system'. Lenhart and Madden (2007) add that SNS allow users not only to create personal profiles but also establish a number of networks that connect them with family, friends, and others.

1.9.5 Video Sites

Video sites allow for the creation and sharing of videos. YouTube is a well-known implementation of video sites. Such sites have opened new opportunities for users to impart visual stories rather than textual ones (Venkat, 2010).

1.9.6 Attitude towards the use of web 2.0

Attitude refers to one's opinion or general feeling about something. And according to Ajzen (1991), attitude is the extent to which an individual favors a particular behavior. In our study, attitude towards the use of web 2.0 will refer to a student's personal opinion or evaluation of using web 2.0, including a students' readiness to use web 2.0.

1.9.7 Learning

Learning refers to the acquisition of knowledge or skill. For our study, learning refers to the process by which a student acquires knowledge or skill in relation to their field of study.

1.9.8 Education

In this study, education refers to a system of learning and all the processes which support that learning.

1.9.9 World Wide Web

The World Wide Web which is also known as the Web, refers to computer-based network of resources of information that combines text and multimedia. The information on the web can be accessed via the Internet (Vassiliki and Garoufallou, 2011).

1.9.10 Internet

Refers to a computer-based world wide information system; the Internet is made up of many interlinked computer networks. Each network links computers and enables them to share information and processing power (Vassiliki and Garoufallou, 2011).

CHAPTER TWO

LITERATURE REVIEW

2.0 Overview

The purpose of this chapter is to review relevant literature on the use of Web 2.0 applications for educational purposes among university undergraduates. The literature towards meeting this goal was purposefully searched and selected on the basis of relevance to Web 2.0 and education. Some of the terms that were used to search for literature were: Web 2.0 applications, Social media, and Web 2.0 in education. The literature search was conducted at the University of Zambia Library as well as on the Internet using Google as the search engine. Electronic databases searched included Emerald, UNZA's institutional repository-Dspace, ERIC and the Loughborough University's institutional repository.

2.1 Potential of web 2.0 in education

Web 2.0 provides online users with interactive applications in which they can create, edit and have control over web-based content. These applications have continuously raised the concerns of researchers on the possibilities of using them for educational objectives. According to Ajjan & Hartshorne (2009), many Web 2.0 tools, although not specifically designed for use in teaching and learning, have many characteristics that promote their use in different educational settings. This study concentrated on blogs, wikis, social networking sites and video sharing sites.

2.1.1 Blogs

Redecker, Mutka and Punie, (2010), write that blogs are of great importance among university students because they are avenues through which students can connect with one another, to experts and lecturers. This enables them to tap into the tacit knowledge of their peers and experts in a given field of interest. Venkat (2011) further stresses the potential of blogs in information sharing by suggesting that students and faculty can quickly share information, including lecture content and other education-related information.

Salehe (2008) in his research found that blogs allow students to comment on each other's thoughts and opinion. Salehe provides evidence by revealing that Alexander Halavais at the State University of New York at Buffalo created a blog for a 180-person law class; giving merit for postings arousing lively discussion. This type of comment-based discussion in a web-based environment promoted a dynamic learning atmosphere and created peer-group relationships that enhanced classroom interactions.

Another example as revealed by McLoughlin, et.al (2008), is that Pre-service teachers who were studying secondary teaching courses at the Australian Catholic University were using blogs to engage in peer review with their course mates while doing their teaching practicum, during which they were sent to geographically separated schools in the entire Australian Capital Territory. They share experiences and encouragements with one another. Subsequently, these blogs facilitated for peer-to-peer mentoring thereby blending formal and informal learning practices.

Concluding on the use of blogs for education purposes, it is clear from the above discussion as Vankat (2008) suggests, that, blogging helps to enhance learning by allowing students to acquire collaborative skills that may be useful to them in professional contexts. Therefore, blogs can help students to actively participate in learning and hence take responsibility of their own educational destinies.

2.1.2 Wikis

Learning methods that could most likely be supported by wikis are collaborative in nature. In collaborative learning, students work together in groups to support the learning of their individual members (Parker and Chao, 2007).

Sahele (2008), states that wikis are increasingly being used for course information and for notes. Wikis offer the advantage of being easy to create, update and to link new pages as new thoughts emerge. Smith and Toland (2008) give an example of the educational use of wikis of on-campus and distance education students pursuing library and information studies at Victoria University

of Wellington. Students were collaboratively working in groups to produce web-based resource guides using a wiki. Each group was expected to produce three deliverables: the resource guides; presentation of the completed guide to the class as well as online reflective journal in which students were asked to document the stages of creating the guide and reflect on their individual contributions to the project. Accordingly, such projects facilitated for content generated by students and the joint creation of knowledge artifacts.

To conclude on wiki use in education, students can work in teams collaboratively on projects. Wikis can also be used to involve experienced professionals to enhance learning experiences.

2.1.3 Social networking Sites

SNS can be used for educational purposes, especially for exchanging information to support students' studies. According to Liu (2010), most university students are using SNS, they have established personal profiles which can be used by instructors to post class announcements. Additionally, the biggest benefit of using SNS as a learning tool is the continuity it offers after the academic semester over. Students will be able to keep in touch with classmates and update each other on latest information. Therefore, SNS may be more suited for informal learning than as a publishing tool for syllabi and assignments.

2.1.4 Video Sharing Sites

Web 2.0 is witnessing a huge emergence of video creation and sharing. With such sites, students can create digital content themselves and publish it online, giving birth to a resource of user-generated videos from which students and lecturers can mutually benefit. This would encourage more pro-active approaches to learning. One case in point as reported by Vankat (2011), involves a group of students that wrote, filmed, edited and uploaded videos through Web 2.0 applications. "Ah," created by students of the Supinfocom University in France, was uploaded to various video-sharing sites, including YouTube and is now viewed by thousands of people. Therefore, these tools facilitate increased participation, which, in turn, stimulates creativity by enabling the best ideas to surface and keep evolving as participants shape and review them.

Concluding on the potential of web 2.0 in education, unlike many traditional web-based applications, Web 2.0 tools rely on user contributions and interactions, which are important elements in the education circles. Therefore, Web 2.0 enhances innovation by enabling learning processes that are dependent on personalization and collaboration, and thus its relevance in education.

2.3. Adoption and use of Web 2.0 tools in learning

The values and attitudes an individual has and the reaction they expect from the larger group play a significant role in the adoption and use of new technology. Ajzen (1991) argued that social influence from important others influence the adoption and use of new technology. This can be illustrated by a research investigating the use and relevance of Web 2.0 among researchers by Collins and Hide (2010). It was revealed that high levels of local support are crucial to propel adoption, and that an absence of this can prevent adoption. In some cases, lack of adoption may be because the researcher has no interest in changing their working practices unless they can understand why it is important to do so. For instance, Collins and Hide (2010) further argue that those who did not use Web 2.0 tools indicated that they needed people to recommend why they needed to change into using something new. Non users also felt that Web 2.0 has potential to enhance research, but realistically they admitted that they did not have sufficient knowledge to make use of it. The study also revealed that a lack of support from institutional IT services was a barrier to adoption.

Most researches have revealed insufficient knowledge to use Web 2.0 for educational purposes as the most prominent factor for its low usability. Supporting this argument, Vassiliki (2011), in his research on the use and awareness of Web 2.0 tools by Greek LIS students found that students were still unaware of potential use of social media in education. They indicated that they did not have adequate knowledge to enable them to effectively use these tools for educational purposes.

Furthermore, Majhi and Maharana (2011) conducted a study on familiarity of Web 2.0 and its application in learning in two Indian Universities. About 500 respondents of whom were

students, teachers and research scholars of Utkal and Sambalpur universities in the State of Odisha were surveyed. The study found that Social networking sites and wikis were the most commonly used Web 2.0 applications among the respondents. However, blogs and video sites, with the highest degree of educational value were not yet popular in both institutions. Further, the research found that although the academic communities were quite interested to use those tools in their learning process, but they did not have sufficient knowledge and skills to use them.

Literature also shows that learning styles in an institution has an impact on the adoption and use of Web 2.0 applications among students. According to Hartshorne and Ajjan (2009), specific course requirements and instructions are likely to affect students' adoption and use of Web 2.0 applications for educational purposes. Thus, it suffices to suggest that instructors interested in increasing students' educational use of Web 2.0 tools might have to provide students with the opportunities and environments that promote the use of Web 2.0. Hartshorne and Ajjan (2009) further indicate that existing educational technological tools being implemented in coursework might affect students' perceptions toward Web 2.0 applications. Supporting this argument, Selwyn (2007) explored the relationship between learning styles and Web 2.0 utilization and established that there was a significant correlation coefficient between learning styles and Web 2.0 utilization for educational goals.

Numerous researches have been done on the usage pattern of SNS among university students. A review was done by Lampe et al., (2008) who reported that the main purpose students use SNS specifically Facebook is to maintain existing relationship with known people; that is to communicate with family and friends. He also found very few education-related activities on Facebook. However, a study by Armstrong and Franklin (2008), at Michigan State University, found that students use social media to support learning. It was established that close to half (49%) of students had used Facebook to arrange for a study group, 53% to discuss class work and 34% indicated having used Facebook to collaborate with peers on class assignments. Most students (69%) had used Facebook simply to ask their course mate about schoolwork.

Vassiliki (2011) also investigated the use and awareness of the Web 2.0 tools by Greek LIS students at Alexander Technological Educational Institute of Thessalonik. It was revealed that

LIS students were using Social Networks mainly for keeping up to date and for meeting new people. According to Vassiliki, the results showed that generally, most of the students did not believe that Social networks could help them in their studies; they felt that social networks' major role was to entertain them. The results suggested that Greek students had not yet incorporated social networking in their educational lives.

2.4 Concerns of using Web 2.0 tools in learning communities

Literature shows that some scholars are concerned about the negative impacts the use of web 2.0 technologies in education would have on students. Below are some of the challenges and concerns pertaining to the use of Web 2.0 in education.

2.4.1. Access to ICT, basic digital skills and internet bandwidth

Africa is the second largest continent after Asia, in size and population. Its population as of December 2011 was estimated at 1,037,524,058, and out of this number, only 139, 875,242 was the estimated number of internet users, the penetration rate being 13.5 percent (Internet World Stat, 2012). Coming down to Zambia, although being one of the proponents of Internet in Sub-Sahara Africa in the early 90s, this benefit has not been exploited in that the country still lags behind many African countries that started Internet services just a few years ago (Ministry of Communications and Transport, Zambia, 2006).

The Internet market in Zambia is still developing, out of a population of 13,881,336 as of December 2011, approximately 882, 170 people were using the internet and the internet penetration rate was 1.3 percent. This shows that the usage of the Internet in Zambia has been very low (Internet World Stat, 2012). This has been due to the undeveloped ICT infrastructure, inadequate ICT basic skills, and poor internet bandwidth, among others. As rightly stated by the Ministry of Communications and Transport (2006), in the Zambia ICT policy of 2006, the potential for vigorous internet use is undermined by poor telecommunication infrastructure development in the country, poor accessibility to telephony and high internet access costs. This brings about a huge challenge because if people have limited or no access to internet services,

they cannot effectively use Web 2.0 technologies. Bynum (2011), points out that while social media penetrates society with the availability of internet broadband, most institutions in the developing countries like Zambia lack stable broadband internet access. This deprives the students of unlimited access to Web 2.0 tools.

Access to ICT in schools and basic digital skills make up a major barrier for the use of Web 2.0 for educational goals. In particular, apart from problems associated with internet access and low bandwidth, some students do not have Web 2.0 supportive infrastructures such as computers. And some students do not feel confident enough with their ICT skills to experiment with Web 2.0 tools in a learning environment (Bynum, 2011).

2.4.3. Time commitment

Time commitment is another issue that worries experts concerning Web 2.0 applications and its educational use. Reuben (2008) highlights that adding social media to workloads that students have to deal with in higher education may result into time intensity. In this regard, findings of a research done by Shaffie et al (2011) at the University of Malaysia showed that despite the popularity of social network sites among university students, the majority of users which was about 57.3 percent only spent less than five hours per week. This was due to the fact that university students are expected to fulfill other school related obligations such as attending lecturs and doing their assignments. It was revealed that some students decided not to experiment with the educational opportunities of Web 2.0 applications as they felt that they would worst a lot of time in so doing.

A research done by Collins and Hide (2010) on the use and relevance of Web 2.0 for researchers demonstrated that time coupled with the number of Web 2.0 tools available to researchers were hindrances in the widespread adoption of these applications. Several users felt that they would require a lot amount of time to sign up and explore the new technologies.

2.4.4. Information overload

Information overload is one the concerns that dominate the minds of experts with regard to the use of Web 2.0 applications for educational purposes. As Reuben (2008) points out, the emergence of Web 2.0 has produced several kinds of media, so much that those who subscribe to a lot of these applications can easily find themselves overloaded with information. Chen et al (2005) argue that, information overload can reduce students' ability to process information to a reasonable degree, thereby decreasing their ability to create new knowledge. This could pose a challenge for those students who are not information literate as they would find it difficult to organize and interpret information meaningfully.

Researching further on the challenges of using Web 2.0 tools in educations, Redecker, Mutka and Punie (2010), established that university students faced problems such as electricity failure, low internet bandwidth, insufficient infrastructure such as computers, and managing time for using Web 2.0 during the semester. In their study on academic use of social media, Hussain, Gulrez and Tahirkheli (2012) also reported that low bandwidth was a serious challenge regarding students' educational use of Web 2.0 tools.

To conclude on literature review, there is not a lot of refereed published material on the subject of Web 2.0 and education in general, let alone work that focuses specifically on the use of Web 2.0 tools among university students for education purposes. Research studies on the general and actual use of Web 2.0 technologies in Africa not to mention Zambia is still scanty as little research known has been undertaken to investigate the use of Social media for educational purposes among students. This study therefore bridges the gap by investigating the use of web 2.0 applications for educational purposes among UNZA undergraduates.

CHAPTER THREE
RESEARCH METHODOLOGY

3.0 Overview

This chapter reports methods and techniques used in the collection and analysis of data. These comprise the research design, study population, sampling procedure, data collection, research instruments, method of data analysis, and limitations.

3.1 Research Design

According to Kombo and Tromp (2006: 70), "a research design is used to structure the research, to show how all of the major parts of the research project work together to address the central research questions." This study combined quantitative and qualitative approaches to research. Bryman (2004) writes that each of these methods; quantitative and qualitative, has strengths and weaknesses, and therefore, using both allows for the advantages of both approaches while countering weaknesses inherent in each approach if used without the other (Jorosi, 1989 in Akakandelwa, 1999).

Quantitative method involves numerical measurements, which comprises various types of data collection tools such as structured questionnaires. Weiss (1998) adds that the quantitative approach has the benefit of allowing the researcher to make conclusions with a known level of confidence, it permits making of exact statements. Additionally, according to Gay (2003) as cited in Mwalimu (2009), the qualitative method makes use of the non-numeric data such as words, and other contextual factors that cannot be controlled. In this respect, the qualitative aspect of this study created insights in the use and choice of Web 2.0 applications. Therefore, it made it possible to draw conclusions based on the respondents' perspectives and understanding.

3.2 Population description

According to Kombo and Tromp (2006: 76), "a population is a group of individuals, objects, or items from which samples are taken for measurement." This study was conducted at the University of Zambia. Two selected programs, namely; Library and Information Studies (LIS) and Veterinary Medicine (Vet.Med) were selected to gain insights from science and non-science based students in the use of Web 2.0 applications. The estimated population was four hundred and twenty-seven (427) for LIS; and one hundred and twenty-five (125) Vet.Med students.

3.3 Sample size determination

According to Kombo and Tromp (2006: 77), a sample is "a set of people selected from a larger population for the purpose of survey." Two programs at UNZA; the sample size was estimated using the formulae drawn below:

SS= $\dfrac{Z^2 *(P)*(1-P)}{C^2}$ **Finite population: new SS= $\dfrac{SS}{1+ (SS-1)/pop}$**

Where:

Z = Z value (e.g. 1.64 for 90% confidence level); P = percentage picking a choice, expressed as decimal (.5 used for sample size needed); C = confidence interval, expressed as decimal (.04 = ±4); Pop = population

Using the formulae above, 279 students were drawn from the population. The formula was used because it helps to overcome the problems associated with the vastness of the study population (Dean et-al 2009). It also helped the researcher to make her sample large enough thereby giving a good representation of the population.

3.4 Sampling procedure

Stratified random sampling was adopted in selecting the participants for the study. Weiss (1998) argues that stratified random sampling is a method which endeavors to restrict the possible samples to those which are less extreme. It ensures that everyone in the population is represented in the sample in order to decrease the error in the estimation. In stratified sampling the population is first divided into disjoint groups, called strata. A pre-determined size is drawn independently from each stratum. Then the collection of these samples makes up a stratified sample. If simple random sampling is used in the selection of participants from each stratum then the corresponding sample is referred to as a stratified random sample.

Following the above, the researcher classified students into subgroups according to program of study. Lists of students per field of study were used to draw random samples from each subgroup. As argued by Akakadelwa (2000), it is easier to sample students from separate faculty lists than to combine both lists and then take an overall random sample.

This technique was selected because it gives a perfect representative sample of the population from which it was drawn. In addition, stratification makes samples more efficient where the strata are believed to be internally homogenous (Carpenter and Vasu, 1978, as cited in Akakandelwa, 2000). Furthermore, stratified random sample as reported by Gray (2004) can give one or more trait representative of the sample, which can lead to true cross section of the population. This method therefore, addressed the problem of biasness in the selection of respondents because each student had an equal and non zero chance of being selected. It therefore allowed for generalization of the results obtained from the sample to the study population.

3.5 Data collection

Primary data was collected by the use of self-administered questionnaire, while secondary data was collected from print and online documents.

3.6 Research Instrument

The research instrument that was used was self-administered questionnaire; which is technique of data collection in which each person is asked to answer the same set of questions in a predetermined manner. The researcher found the questionnaire to be a suitable data collection tool because it allowed for the combination of both qualitative and quantitative approaches to research, using a combination of open-ended and close-ended questions, respectively (Beiske, 2002, as cited in Daka, 2010). On one hand, Akakandelwa (2000) adds that closed ended questions help to obtain fairly straight forward data, hence make it easy to analyse the questions.

On the other hand, open ended questions permitted the participants to answer freely and express their opinion in their own words. Therefore, self-administered questionnaires were an appropriate instrument because they allowed for the collection of large amounts of data from the participants within the limited time available.

3.6.1 Piloting and Validation of questionnaire

Researchers have shown concern on the importance of piloting and validating research questionnaires. Questionnaire testing as argued by Bryman (2004) is vital in the identification of problems for both participants and researchers with respect to question wording and content; and visual design. Gray (2004) stresses the importance of piloting by suggesting that all the content of the questionnaire should be taken into account when piloting a questionnaire.

For the purpose of this study, the questionnaire was tested using 15 students that shared similar characteristics with the target respondents, who filled in the questionnaire in the presence of the researcher and made suggestions that helped improve the quality of the questions. Adjustments were made accordingly before administering the questionnaire to the target group.

3.7 Data analysis

Quantitative and qualitative techniques were employed in analysing the data from the study. Statistical Package for Social Scientists (SPSS) was used to analyze quantitative data. SPSS was selected because it is easy to use and generate statistical tables. It is a software package specifically made for analysis data. Therefore, SPSS was useful in summarizing data in a manner that gave answers to research questions. Qualitative data analysis as Hatch (2002: 148) observes;

> *Means organizing and interrogating data in ways that allow researchers to see patterns, identify themes, develop explanations, make interpretation……Researchers always engage their own intellectual capacities to make sense of qualitative data. It always involves mind work.*

In this regard, the researcher sorted the qualitative data into categories of responses, generated themes, made interpretations and drew conclusions.

3.8. Limitations

There was an inability to sample students from all programmes at UNZA because the sample would have been too large to be handled by the researcher. This entails that the results of the study and any inferences drawn only imply with reference to the population surveyed. Another limitation was that distance and parallel students were not included in the sample population. Hence the results are not applicable to them given the different learning conditions with the population that was sampled.

CHAPTER FOUR
PRESENTATION OF FINDINGS

2.0 Overview

This chapter presents the research findings on the data collected on the use of Web 2.0 applications for educational purposes among university undergraduates in Zambia. The findings will be presented according to the research objectives as set out in chapter one.

4.1 Questionnaires

A total of 279 questionnaires were distributed among LIS and M.Vet.Med students. Out of the total number, 269 responded, that is, 96.41 percent response rate.

4.2 Characteristics of respondents

Of the 269 respondents, 170 (36.2 %) and 99 (36.8%) of them were BALIS and MVet students respectively. Regarding gender distribution of the respondents, 123 (45.7 %) were male while 146 (54.3%) were female. In terms of year of study, 86 (32.0%) were second years; 77 were B.ALIS while 9 were M.Vet.Med students, 65 (24.2%) comprised of those in third year; 45 and 20 were B.ALIS and M.Vet.Med students respectively. Fourth years were 80 (29.7%); 48 were B.ALIS students while 32 were under M.Vet.Med. Fifth and sixth year students were all under M.Vet.Med with 14 (5.2 %) and 24 (8.9 %) respectively. Considering the age groups of the respondents, only 3 (1.1%) were below 18 years old, 136 (50.6%) were aged between 18 and 23, 104 (38.7%) percent comprised those who were between 24 and 30, 21 (7.8%) were between 31 and 36, and 5 (1.9%) were above 36 years.

4.3 Web 2.0 tools used by undergraduate students and purpose for utilization

In order to investigate the use of Web 2.0, students were asked if they were familiar with the term web 2.0 applications. It was revealed that 14 (5.2%) said 'YES', while 256 (94.8%) said NO, as they were not familiar with the term. Respondents were further asked if they were familiar with the new technologies such as Social Networking Sites (SNS), Wikis, video sharing

sites and blogs. It was revealed as presented in table 1 that 268 (99.6%) were aware of the existence SNS, 262 (97.4%) were familiar with wikis, 235 (87.4%) were aware of video sharing sites while 105 (39.0%) were familiar with blogs.

Table 1: awareness of web 2.0 applications			
Web 2.0 tool	**Count**	**Percent**	**Percent of cases**
Social networking site	268	30.8%	99.6%
Wikis	262	30.1%	97.4%
Video sites	235	27.0%	87.4%
Blogs	105	12.1%	39.0%

When asked about the use of web 2.0 applications, it was discovered that 267 (99.3%) respondents were using at least one of the web 2.0 applications. Those who indicated that they were using the web 2.0 tools were further asked to indicate the specific applications they were using. As shown in table 2 below, 260 (97.4%) of the respondents stated that they were using social networking sites, 236 (88.4%) were using wikis, 179 (64.4 %) were using video sharing sites while 80 (30.0%) were using blogs.

Table 2: use of web 2.0 applications			
Web 2.0 tool	**Count** **Percent**		**Percent of Cases**
SNS	260	34.8%	97.4%
Wikis	236	31.6%	88.4%
Video sharing sites	172	23.0%	64.4%
Blogs	80	10.7%	30.0%

4.3.1 Use of social networking sites

It was further revealed that of the 260 respondents that were using SNS, 151 (58.1%) were using the application to stay in touch with family and friends; this was followed by 62 (23.8%) who

were using it as a forum to express ideas and opinions; 33 (12.7%) were using the tool to meet new people; nine (3.5%) used SNS as a tool for organizing a study group/class meeting; and five (1.9%) were using SNS for exchanging knowledge and ideas to support learning.

Further analysis through cross tabulation between programme of study and use of SNS showed that 93 (57.1%) B.ALIS students were using the application to communicate with family and friends. This was compared with 58 (58.1%) of M.Vet.Med students who also indicated having used the tool for the aforementioned reason. Furthermore, comparing those who were using SNS as a forum to express ideas revealed that B.ALIS students amounted to 42 (25.8%) while those from M.Vet.Med were 20 (23.8%). It was also observed 19 (11.7%) B.ALIS and 14 (12.7%) M.Vet.Med students were using the tool for meeting new people. Five (3.1%) B.ALIS and four (3.5%) M.Vet.Med students reported that they were using SNS to communicate with course mates about course work. And one (1.9%) M.Vet.Med respondent was using the tool for exchanging information to support learning as compared with four (2.5%) B.ALIS students as presented in figure 1 below.
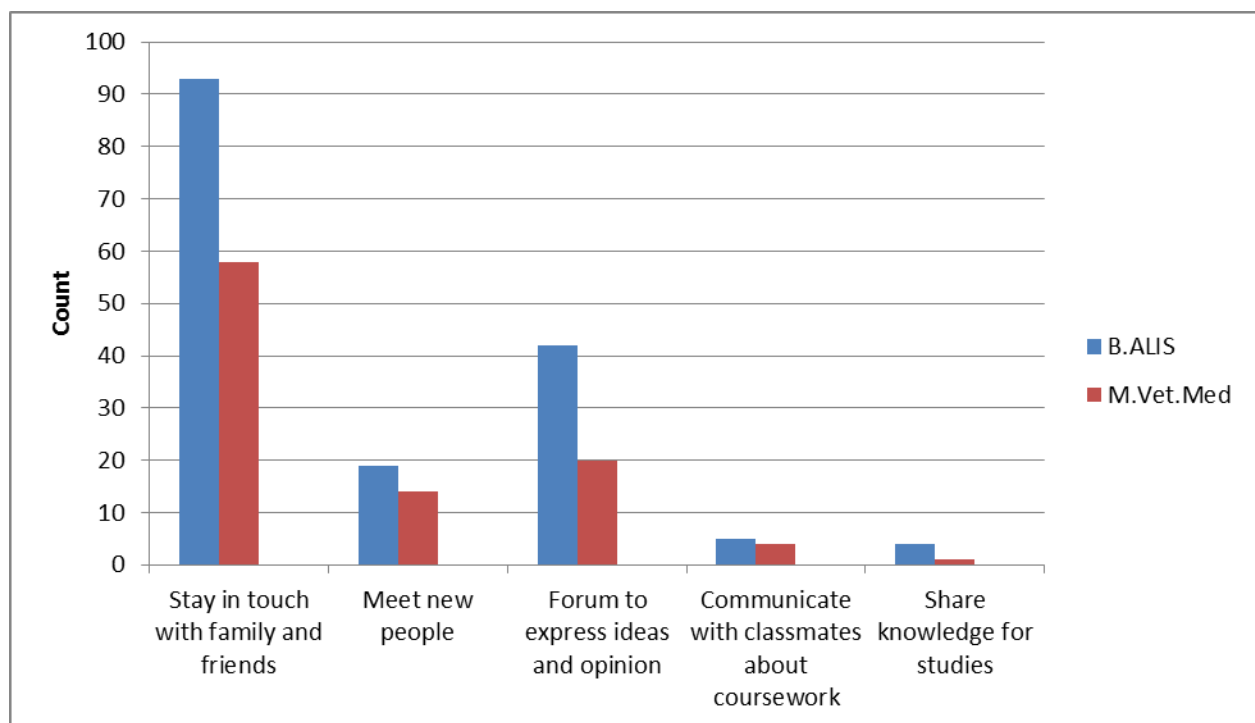
Fig. 1: use of SNS

Pearson correlations showed that there is no significant relationship between program of study of the students and use of social networking sites as shown in table 3 (r =-.029, p> 0.05)

Table 3: symmetric measures programme of study*Use of SNS					
		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	-.029	-.471	3.127	.638[c]
Ordinal by Ordinal	Spearman Correlation	-.029	-.471	2.347	.638[c]
N of Valid Cases		267			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

Pearson's correlation shows that there is a positive relationship between age group and the use of social networking sites (r=0.189, p<0.001), as presented in table 4.

The findings show that three (100%) of the respondents who were below 18 years old, 135 (100%) of those aged between 18 and 23, 99 (96%) of those who were 24 and 30, 19 (90%) of the respondents between 30 and 36 years, while three (60%) of those above 36 years were using SNS.

Table 4: symmetric measures Age group*Use of SNS					
		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.189	.090	3.127	.002[c]
Ordinal by Ordinal	Spearman Correlation	.143	.059	2.347	.020[c]
N of Valid Cases		267			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

Further analysis as set out in table 5 showed that there is no significant relationship in the use of SNS with respect to gender of the respondents (r=0.011, p>0.05).

Table 5: symmetric measures Gender*use of SNS					
		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.011	.061	.172	.864[c]
Ordinal by Ordinal	Spearman Correlation	.011	.061	.172	.864[c]
N of Valid Cases		267			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

Pearson's correlations into the use of SNS showed that there is a significant positive relationship between rate of skill and use of SNS (r=0.287, p<0.001), shown in table 6. It was found that 4 (100%) of those who rated themselves as very good; 160 (99.4%) as good; 82 (98.7%) as fair; and 14 (73.7%) were using SNS.

Table 6: symmetric measures Rate of skill*use of SNS					
		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.287	.082	4.885	.000[c]
Ordinal by Ordinal	Spearman Correlation	.226	.068	3.778	.000[c]
N of Valid Cases		267			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

4.3.2 Use of wikis

Respondents were also asked what they were using wikis for. It was found out that of the 236 respondents who were using wikis, 204 (86.4%) were using the tool for research to meet their coursework demands, 26 (11.0%) to search for terms and meanings, while 6 (2.5%) indicated that they were using the tool to consolidate ideas with others.

In order to compare the use of wikis between programmes of study, cross tabulations were done accordingly as presented in figure 2. It was revealed that 79 (84.0%) M.Vet.Med students compared with 125 (88.0%) the B.ALIS students were using the application to search for background and introductory information to meet demands for their studies. It was further

observed that 12 (8.5%) B.ALIS and 14 (14.9%) M.Vet.Med students were using the tool for searching terms and meanings; while those who were using wikis for the collaboration of ideas with peers were five (3.5%) from B.ALIS and one (1.1%) from M.Vet.Med.
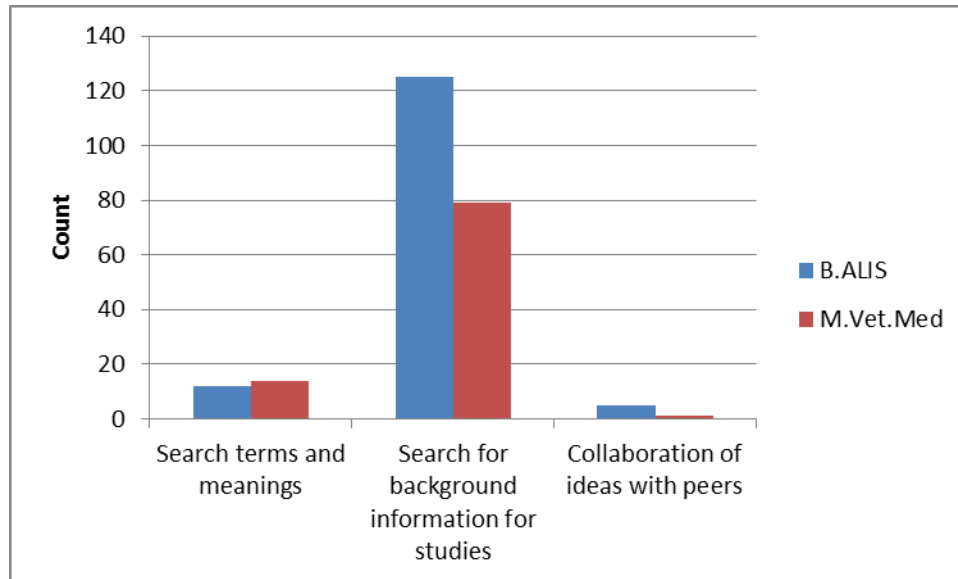

Fig.2: use of wikis

As shown in table 7, there is no statistically significant relationship between programme of study and the use of wikis, (r =.122 P> 0.05)

Table 7: symmetric measures programme of study*Use of wikis					
		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.122	.064	1.874	.062[c]
Ordinal by Ordinal	Spearman Correlation	.121	.064	1.862	.064[c]
N of Valid Cases		236			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

There is no statistically significant relationship between the use of wikis and skill possessed by the respondents (r = 0.109, p>0.05), shown in table 8.

Table 8: symmetric measures Rate of skill*Use of wikis					
		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.109	.050	1.682	.094[c]
Ordinal by Ordinal	Spearman Correlation	.109	.056	1.681	.094[c]
N of Valid Cases		236			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

4.3.3 Use of video sharing sites

Furthermore, in order to investigate the use of web 2.0 applications, respondents were asked to indicate what they used video sharing sites for. It was revealed that of the 174 respondents who were using video sites, 150 (86.2%) were using the tool to find videos for entertainment purposes, this was followed by 14 (8.0 %) who were using the application to find videos on academic related issues, nine (5.2 %) represents those who were using the tool to find how to videos; while one (0.6 %) student was using the tool to create subject specific videos.

A cross tabulation of programme of study and use of video sites was done where it was established that 102 (91.9%) B.ALIS students as compared to 48 (76.2%) from M.Vet.Med were using the aforementioned application for entertainment purposes. It was also found that those who were using the tool for finding videos on academic related issues comprised of eight (7.2%) students from B.ALIS and six (9.5%) from M.Vet.Med. Additionally, one (0.9%) and eight (12.7%) B.ALIS and M.Vet.Med students were using the tool to find how to videos respectively.

It was further established that one (1.6%) of the M.Vet.Med students was using video sites to create how to videos while none of the B.ALIS students was using the tool for that purpose (shown in figure 3).
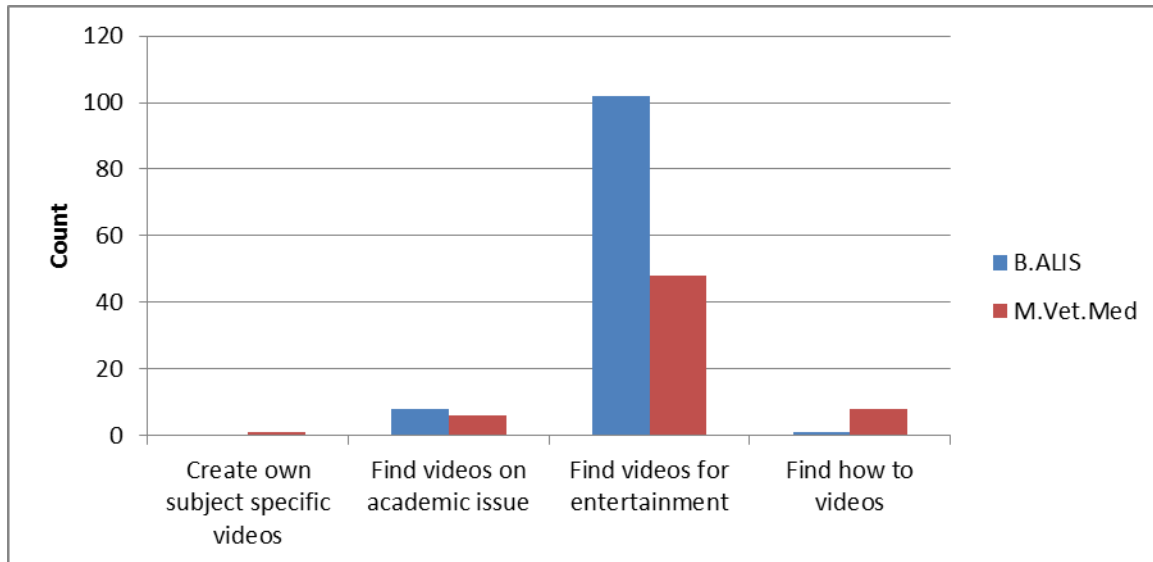
Fig.3: use of video sharing sites

There is a significant relationship between use of video sites and rate of skill as shown in table 9, (r =0.301, p<0.001). It was shown that 4 (100%) of those who rated themselves as very good, 120(74.5%) as good, 45 (54.2%) as fair, and 4 (21.1%) as poor, were using video sites.

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.301	.061	5.133	.000[c]
Ordinal by Ordinal	Spearman Correlation	.289	.061	4.913	.000[c]
N of Valid Cases		267			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

Table 9: symmetric measures Rate of skill*use of video sites

As shown in the table 10 below, a chi-square test of association revealed that there is a significant difference in the use of video sharing sites between B.ALIS and M.Vet.Med students, p<0.05, hence the significance of the relationship.

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.994 [a]	3	.003
Likelihood Ratio	14.339	3	.002
Linear-by-Linear Association	1.035	1	.309
N of Valid Cases	174		
a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is .36			

Table 10: chi-Square tests Use of video sharing sites * Programme of study Crosstabulation

4.3.4 Use of blogs

Respondents were also asked to state what they were using blogs for. It was revealed that of the 80 who were using the application, 65 (81.2%) were using the tool to exchange questions and answers on general knowledge; eight (10.0 %) were using the application for updating academic knowledge, 6 (7.5 %) to follow academic discussions, while one (1.2 %) for consolidating ideas with others.

From cross tabulations presented in figure 4, it was revealed that 43 (78.2%) B.ALIS and 22 (88.0%) M.Vet.Med, students were using blogs for questions and answers on general knowledge. It was also established that eight (10.0 %) B.ALIS and none from M.Vet.Med were using the application for updating knowledge on specific topics. Three (5.5%) of B.ALIS and 3 (12.0%) of M.Vet.Med students were using the tool for updating academic discussions. Additionally, one (1.2 %) B.ALIS and none of the M.Vet.Med students were using the tool for consolidating ideas with others.
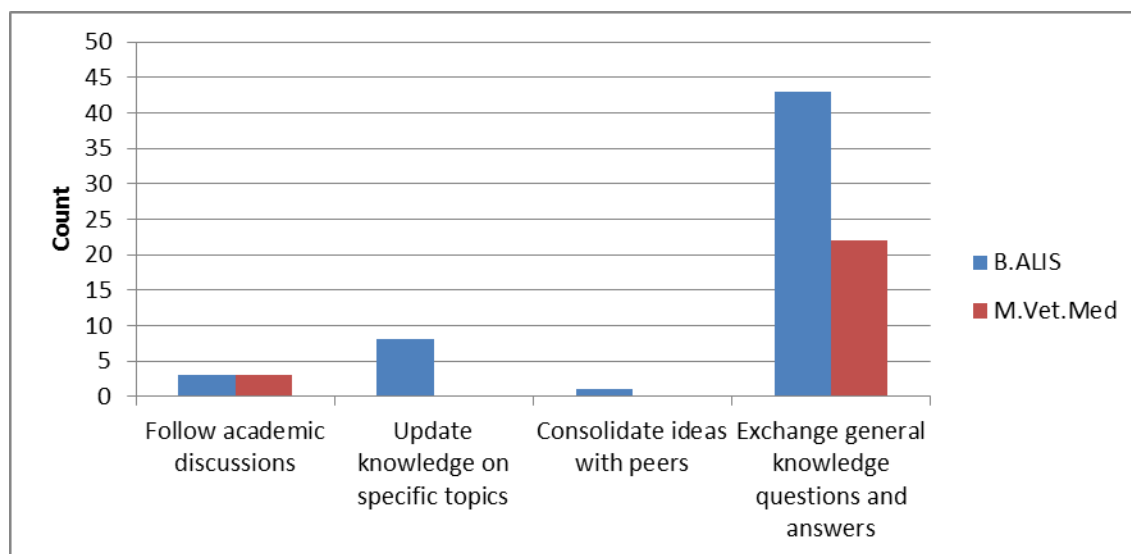

Fig.4: use of blogs

As shown in table 11 there is a statistically significant relationship between rate of skill of the respondents and the use of blogs (r = 0.163, p<0.05). The study showed that 4 (100%) of those

who rated their skill as very good; 56 (34.8%) as good; 18 (22.0%) as fair; and 2(10.5%) as poor were using blogs.

Table 11: symmetric measures rate of skill*Use of blogs					
		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.163	.053	2.688	.008[c]
Ordinal by Ordinal	Spearman Correlation	.166	.055	2.743	.007[c]
N of Valid Cases		266			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

4.4 Undergraduates' perception on the use of Web 2.0 tools in learning

4.4.1 Why Web 2.0 is desirable in education

In order to investigate students' use of Web 2.0 tools in education, respondents were asked to state why they would consider it desirable to incorporate the aforementioned applications in their education. Of the 267 respondents that were using at least one form of Web 2.0 applications, it was discovered that 112 (41.9%) would support the use of Web 2.0 applications in education as it would increase student-lecturer interaction; this was followed by 75 (28.1%) who indicated that these tools could help improve learning, knowledge sharing and collaboration, 52 (19.5%) considered Web 2.0 applications as flexible and easy to use; those who felt that the use of Web 2.0 tools in education would help integrate generated knowledge into critical thinking skills and problem solving amounted to 10 (3.7%); while 12 (4.5%) stated that such tools would facilitate international academic interaction; and six (2.2%) were missing values

Further analysis through cross tabulations showed that 65 (38.7%) B.ALIS and 47 (47.5%) M.Vet.Med students would support the use of Web 2.0 tools in education in order to enhance student-lecturer interaction. It was also found that 46 (27.4%) B.ALIS and 29 (29.3%) M.Vet.Med students indicated that the use of Web 2.0 in education would facilitate learning, knowledge sharing and collaboration. In addition, 34 (20.2%) drawn from B.ALIS and 18 (18.2%) from M.Vet.Med stated that Web 2.0 tools were favourable for educational use because of ease of use of the application, nine (5.4%) B.ALIS and one (1.0%) M.Vet.Med students indicated that the use of Web 2.0 in education would help integrate generated knowledge into critical thinking skills and problem solving; while eight (4.8%) B.ALIS and four (4.0%) M.Vet.Med students stated web 2.0 tools would facilitate international academic interaction (shown in figure 5 below).
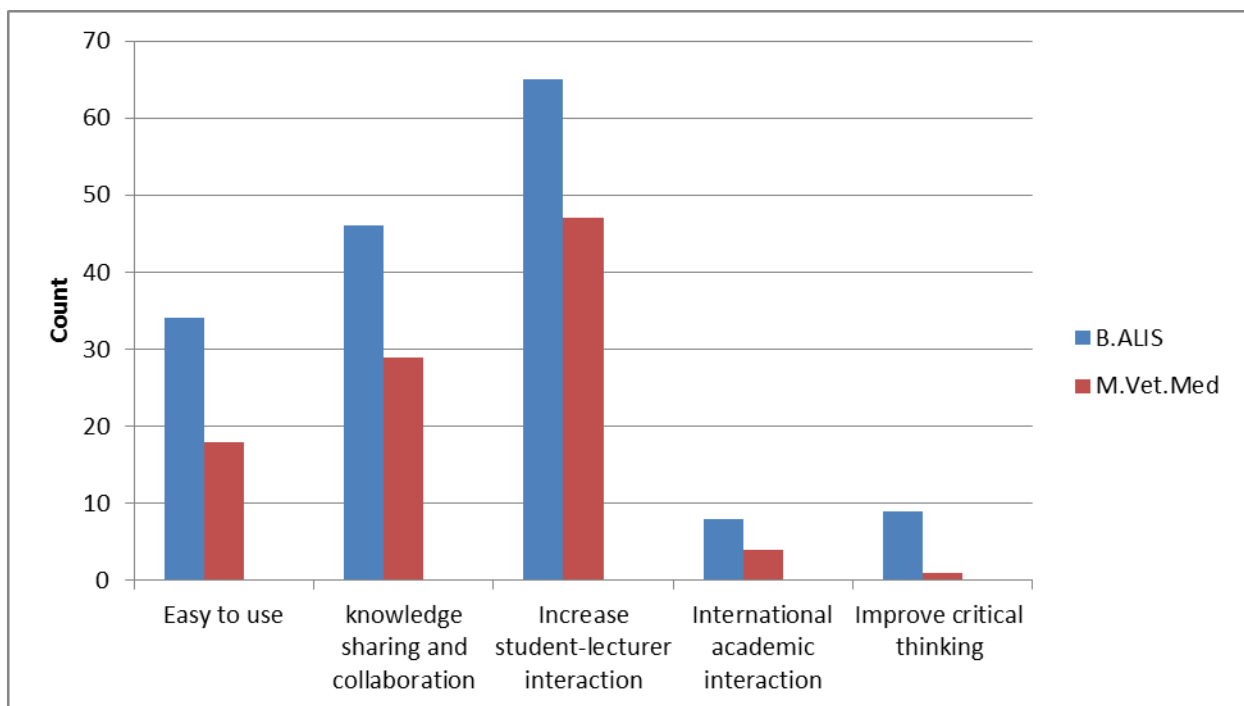
Fig.5: why web 2.0 in education

There is a significant relationship between rate of skill and the response given on desire to use web 2.0 in education (r = .020, p< 0.05), shown in table 12. The findings suggest that 3 (75%) of those who rated their skill as very good; 32 (19.9%) as good; 16 (19.3%) as fair; and 0% as poor,

felt that ease to use of Web 2.0 tools was considered a reason regarding why such tools should be used for educational purposes.

Table 12: symmetric measures rate of skill* web 2.0 ease of use					
		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.207	.095	3.445	.001[c]
Ordinal by Ordinal	Spearman Correlation	-.006	.064	-.098	.922[c]
N of Valid Cases		267			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

4.4.2 Preferred Web 2.0 to learn through

When asked what Web 2.0 applications respondents would prefer to learn through, it was discovered that, 170 (63.7%) indicated wikis; 38 (14.2%) preferred SNS; 30 (11.2%) stated that they would prefer videos site; 17 (6.4%) were in favour of blogs; and 12 (4.5%) were missing values.

In order to further establish preferred web 2.0 tools in learning between programmes, cross tabulations were done and it was established as set out in figure 6 that 109 (64.9%) B.ALIS and 61 (61.6%) M.Vet.Med students would prefer learning through wikis, 20 (11.9%) B.ALIS and 18 (18.2%) M.Vet.Med indicated SNS, 12 (7.1%) B.ALIS and 18 (18.1%) M.Vet.Med students suggested video sites; while 10 (6.7%) B.ALIS and seven (7.1%) M.Vet.Med students stated that they would prefer learning through blogs.
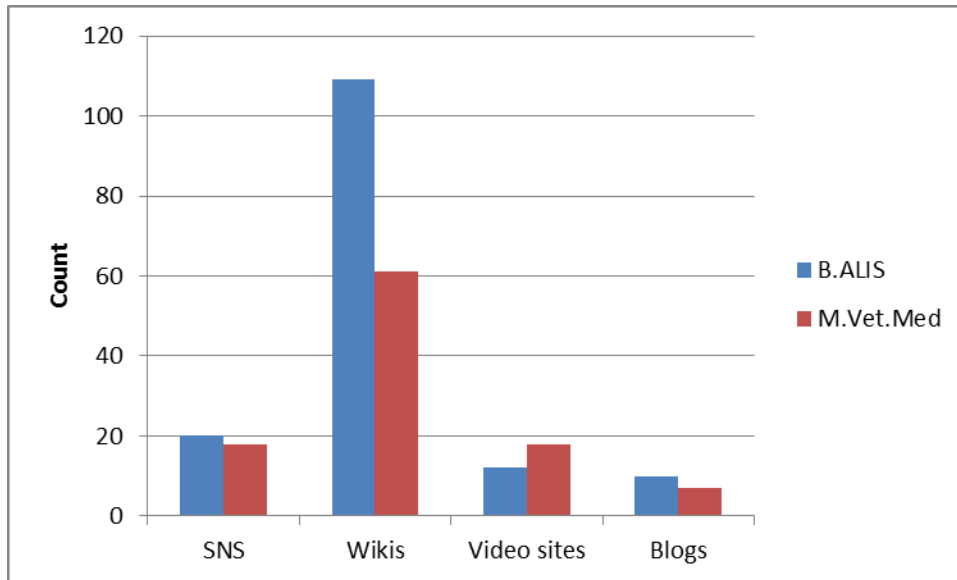
Fig.6: preferred web 2.0 tool to learn from

4.5 Factors that influence undergraduates to adopt the use of Web 2.0 tools

Respondents were asked to state what factors influenced them to use Web 2.0 applications. It was revealed as shown in figure below that, 100 (37.5%) comprised those who felt that recommendation from lecturers would influence adoption, 66 (24.7%) considered usefulness in educational activities as one of the factors determining adoption, 44 (16.5%) pointed to having access to computers and Internet, 30 (11.2 %) pointed to the ease of use of Web 2.0 tools as a factor influencing adoption; while 25 (9.4%) indicated increased chances of knowledge acquisition. In addition, two (0.7%) comprised of the missing values.

In order to provide a comparative understanding regards factors influencing use of web 2.0 tools for educational purposes, a cross tabulation was done accordingly as presented in figure 7. It was established that 65 (38.8%) B.ALIS and 35 (35.4%) M.Vet.Med students indicated recommendation by lecturers; those who stated usefulness in educational activities amounted to 43 (25.6%) of B.ALIS and 23 (23.2%) of M.Vet.Med students; the distribution of those who pointed to the accessibility of computers and Internet between B.ALIS and M.Vet.Med was 32 (19.0%) and 12 (12.1%) respectively; 21 (12.5%) of the B.ALIS students indicated the ease of use of web 2.0 tools as compared to nine (9.1%) of the M.Vet.Med students. Additionally, seven

(4.2%) of B.ALIS and 18 (18.2%) M.Vet.Med students stated that knowledge acquisition influenced the adoption use of web 2.0 tools for educational purposes.
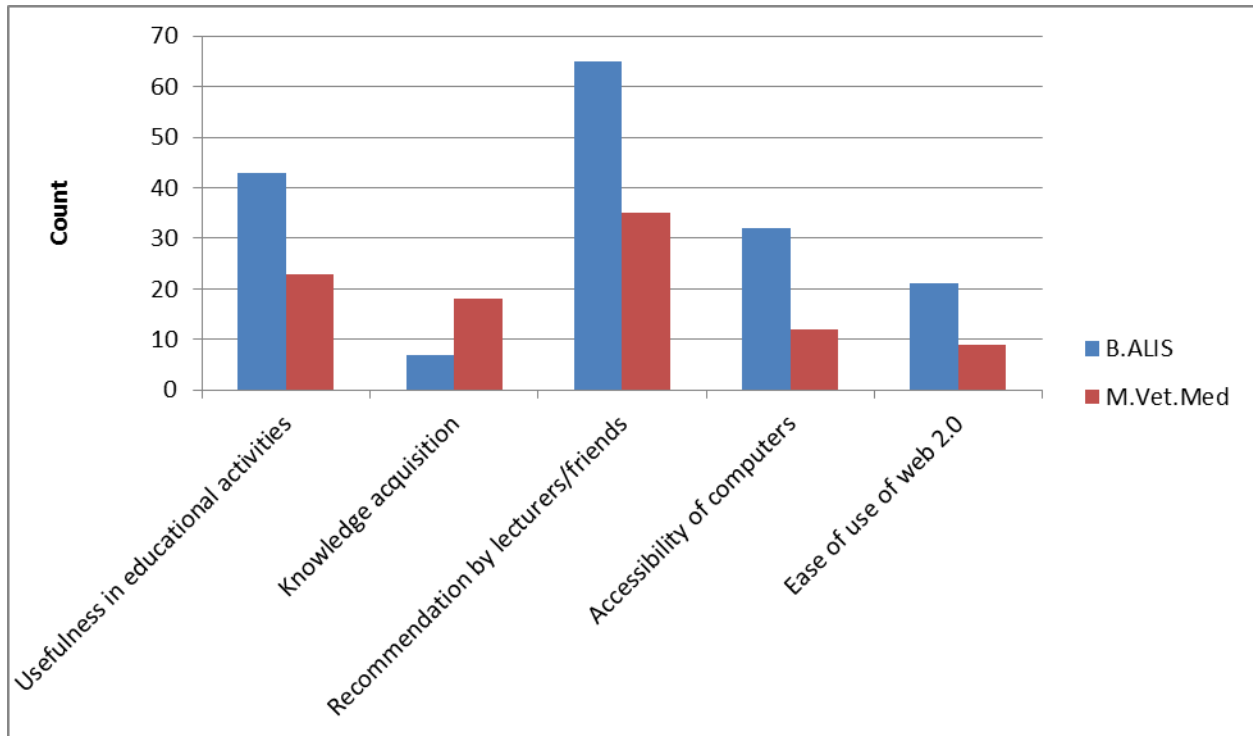

Fig.7: Factors influencing of web 2.0 tools

4.6 Challenges undergraduates face in the use of Web 2.0 tools for educational purposes

In order to investigate the challenges students face when using Web 2.0 for educational purposes, they were asked to indicate the problems they faced when using such applications. It was discovered that of the 267 that were using Web 2.0 tools, inadequate knowledge and skill to use such tools for educational purposes constituted 116 (43.4%); 67 (25.1%) slow internet connectivity; 63 (23.6%) pointed out to limited access to computers; 19 (7.1%) stated time constraints; and 2 (0.7%) indicated that there is too much information available through web 2.0 applications.

Cross tabulations between programme of study and problems encountered showed that 80 (47.6%) of the B.ALIS and 36 (36.4%) of the M.Vet.Med students felt that they had inadequate knowledge and skill in the use of Web 2.0 tools for educational goals; slow internet connectivity constituted 43 (25.6%) and 24 (24.2%) of B.ALIS and M.Vet.Med students respectively; limited access to computers had a distribution of 34 (20.2%) of the B.ALIS and 29 (29.3%) of the M.Vet.Med students; those who had problems to do with time constraints amounted to 10 (6.0%) B.ALIS and nine (9.1%) M.vet.Med students; and one (0.6%) B.ALIS and one (1.0%) M.Vet.Med pointed to too much information available through Web 2.0 applications.
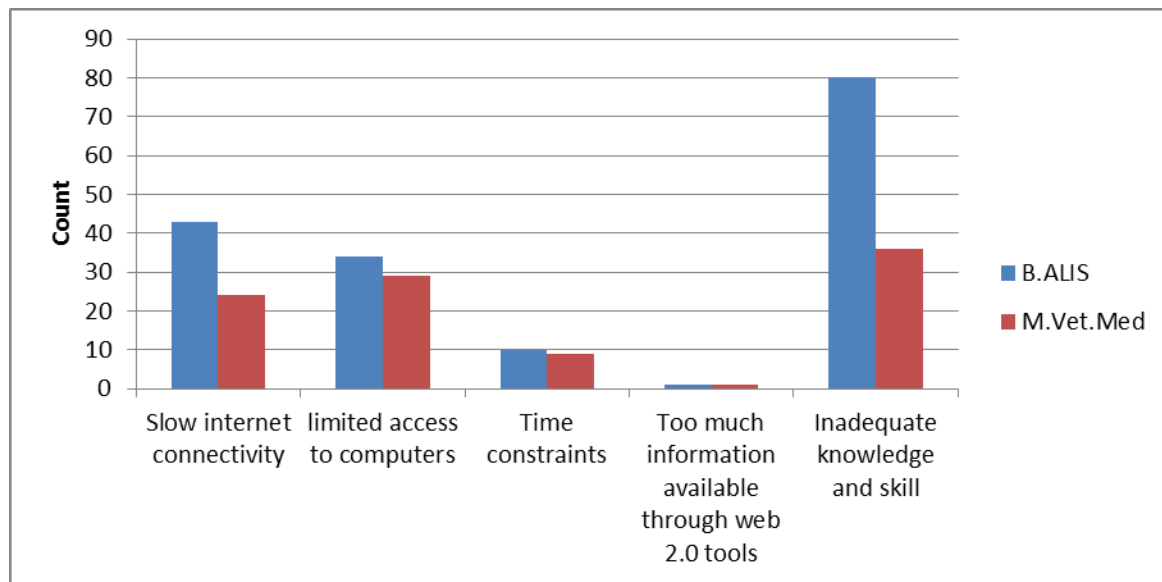
**Fig.8: problems encountered when using web 2.0**

Pearson's correlation in the table 13 shows that there is significant positive relationship between the problems encountered and programme of study of a student (r=0.129, p<0.05)

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.129	.062	.062	.036[c]
Ordinal by Ordinal	Spearman Correlation	.131	.061	.061	.033[c]
N of Valid Cases		267			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

Table 13: Symmetric Measures programme of study * problems encountered

4.6.1 Skill in the use of Web 2.0 applications

In order to understand students' ability to use Web 2.0 applications in education, data collected revealed that 161 (60.3%) rated their skill in the use of Web 2.0 applications as fair, 83 (31.1%) as good; 19 (7.1%) as poor; while 4 (1.5%) rated themselves as very good.

Cross tabulations revealed that B.ALIS and M.Vet.Med students who rated their skill as fair were 99 (58.9%) and 62 (62.6%) respectively; 49 (29.2%) B.ALIS and 34 (34.2%) M.Vet.Med indicated that their skill was good; 10 (6.0%) of the B.ALIS students rated themselves poor as compared with 9 (9.1%) M.Vet.Med students; and those who felt that their skill was very good were distributed between B.ALIS and M.Vet.Med by 4 (1.5%) and 1(1.0%) respectively.
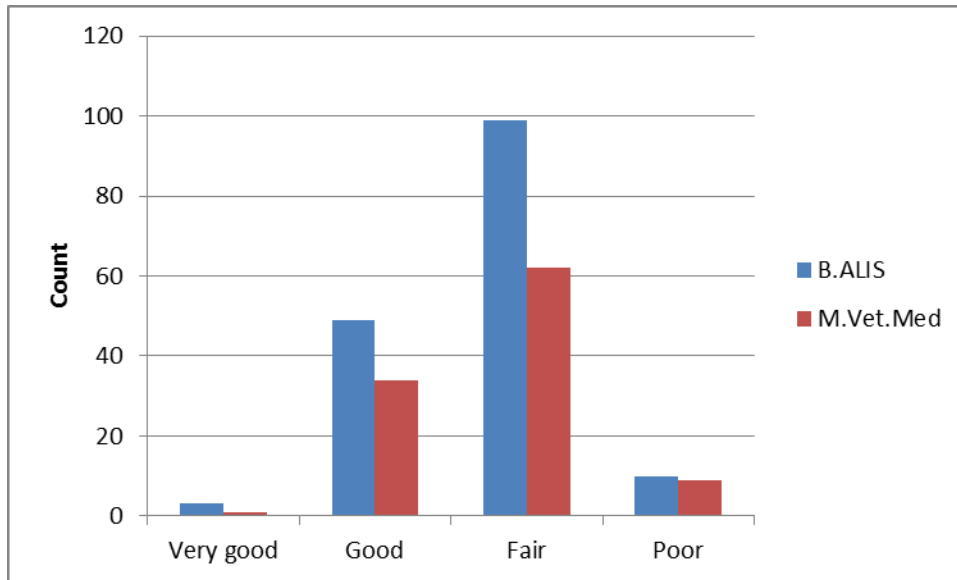
Fig.9: rate of skill in using web 2.0

In probing further, respondents were asked to explain their rank in the use of web 2.0 applications. It was observed that those who ranked themselves as poor mainly suggested:

- o Lack of training in the use of web 2.0 applications
- o Inadequate exposure to such applications.
- o Lack of practice

Those who rated themselves as fair mainly suggested that;

- o They were not very experienced in the use of web 2.0 applications
- o Still learning some computer skills
- o Not very computer literate
- o Face challenges when using such tools
- o Have never had quality computer training but have basic knowledge to use web 2.0 applications through self-training.

This was shown from for instance, respondent number 005 who stated that, "*my knowledge about Web 2.0 is not much, am still acquainting myself with such technology.*" Respondent number 030

indicated that, "*I have never had quality training to use these technologies; I learnt most of the skill through friends and self-training.*"

Those who rated themselves as good indicated that they were;

- o Computer literate
- o Rarely face challenges in the use of web 2.0 applications.
- o Able to surf the Internet with less difficult

This was revealed from for instance, respondent number 134 asserted that, "*I am computer literate and it is not difficult for me to obtain information from facebook and YouTube.*" Respondent number 196 indicated that, "*I am able to login, search and share information without much difficulty.*" Additionally, respondent number 087 said that, "*I hardly fail to use these applications whenever I want to.*"

Those who suggested that they were very good mainly indicated that they;

- o Had adequate exposure in the use of computers and surfing the Internet
- o Web 2.0 tools are easy to use once one is computer literate

Furthermore as show in table 14, Pearson's correlation shows that there is a fairly strong and significant relationship between the rate of skill possessed and problems encountered in the use of web 2.0 applications.

Table 14: Symmetric Measures Rate of skill * Problems encountered		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.589	.045	11.878	.000[c]
Ordinal by Ordinal	Spearman Correlation	.465	.057	8.551	.000[c]
N of Valid Cases		267			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

4.6.2 Barriers in the use of Web 2.0 for educational purposes

To further investigate the challenges encountered in the use of Web 2.0 for educational purposes, respondents were asked to state the hindrances they were facing when using Web 2.0 applications. Is was revealed that 89 (33.1%) student felt that they lacked recommendations from lecturers in the use of such applications; 61 (22.7%) indicated that such tools were not incorporated in their lecturers' teaching style; 52 (19.3) felt that they did not have sufficient knowledge and skill in the use of such tools for educational goals; 32 (11.9%) pointed out that they had limited access to computers and/Internet; 21 (7.8%) felt that such applications when used in learning could take too much of their time; and 10 (3.7%) did not see any educational relevance of Web 2.0 applications. Additionally, there were a total of four (1.5%) missing values.

Cross tabulations presented in figure 10 show that 79 (46.5%) B.ALIS and 10 (10.1%) M.Vet.Med students felt that lack of recommendation from their lecturers to use Web 2.0 for educational goals prevented them from incorporating these tools in their education; those who felt that lecturers not incorporating web 2.0 tools in their teaching style amounted to 28 (16.5%) and 33 (33.5%) between B.ALIS and M.Vet.Med respectively; 26 (15.3%) of the B.ALIS and 26

(26.3%) of M.Vet.Med students indicated inadequate knowledge and skill in the use of such applications; limited access to computer and/Internet was distributed between B.ALIS and M.Vet.Med by 17 (10.0%) and 32 (11.9%) respectively; 11 (6.5%) and 10 (10.1%) of the B.ALIS and M.Vet.Med respectively, stated taking up too much time; and six (3.5%) B.ALIS and four (4.0%) M.Vet.Med students did not see any educational benefits of web 2.0 applications.
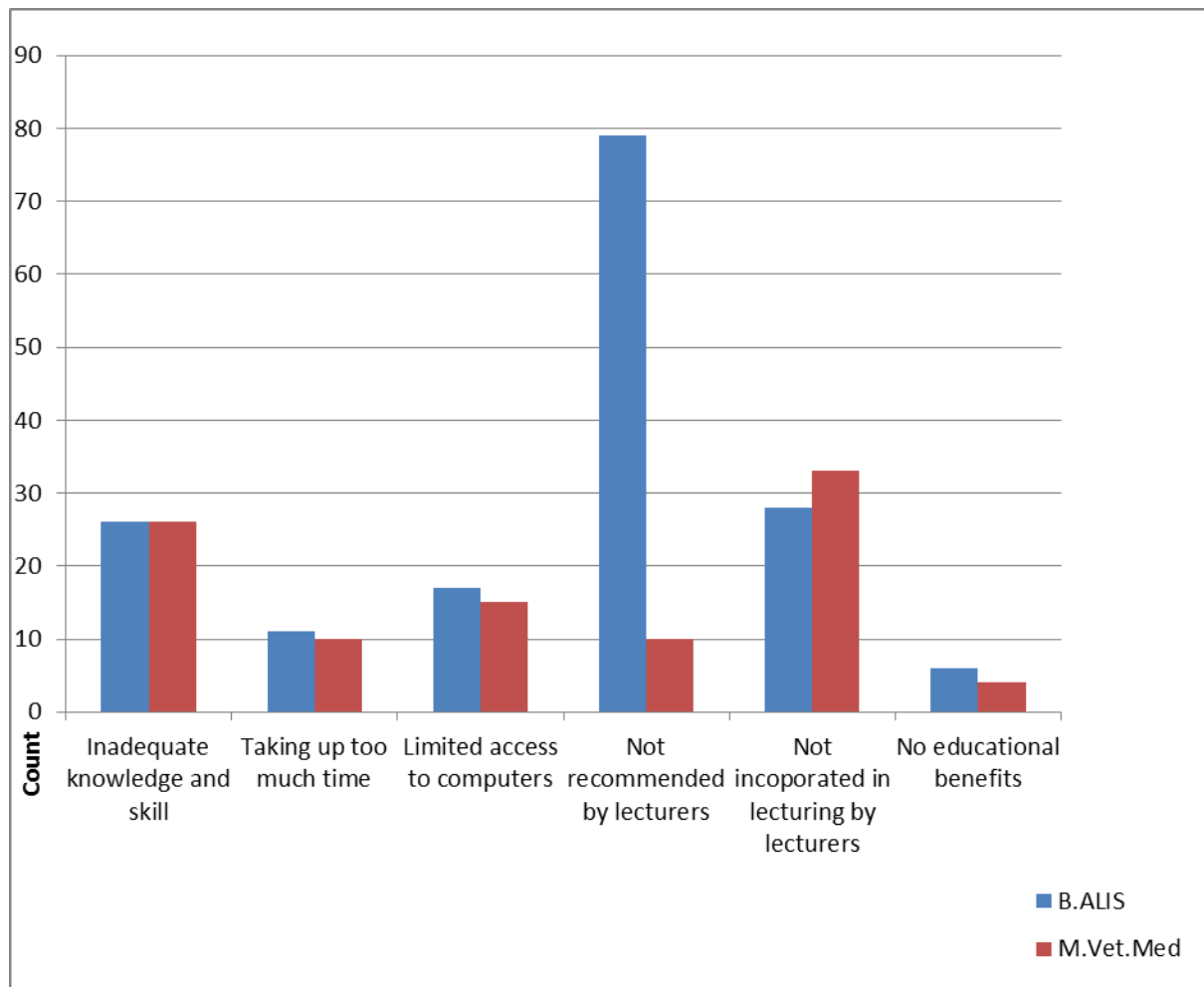
Fig. 10: hindrances from using web 2.0

When asked to explain what could be done in order to improve the use of web 2.0 in the education circles, the following themes emerged:

- Lecturers should encourage students to use of such applications in academics
  - ✓ "*lecturers should allow students to use Wikipedia in assignment*"
  - ✓ "*lecturers should tell students which of these new technologies should be used for studies*"
- Access to computers in the university should be improved
  - ✓ "*there is limited access to computers, we have to book days in advance. So the university should acquire more computers*"
  - ✓ "*access to computers is limited, there few working computers in the labs*"

- The university should increase internet bandwidth
  - ✓ "*there is slow internet connectivity in campus*"
  - ✓ "*UNZA should improve on the speed of the internet*"

- Short courses should be conducted in the use of web 2.0 applications
  - ✓ "*if these technologies are to be used in education, then short courses should be introduced to enhance our skill*"
- Lecturers must post educational information on such applications
  - ✓ "*our lecturers should take advantage of social networking and post class updates and other educational related information*"
- Lecturers should be encouraged to use Web 2.0 applications
  - ✓ "*lecturers should incorporate these tools in their teaching*"

4.7 Summary

This chapter gave a presentation of the research findings. Tables and graphs were used and interpretations were given. The next chapter will provide a discussion of these findings and a conclusion and recommendations will be drawn based on the discussion.

CHAPTER FIVE
DISCUSSION OF THE FINDINGS

5.1 Overview

This chapter presents a discussion of findings of the research on the use of Web 2.0 applications for educational purposes among university undergraduates in Zambia. The presentation is arranged according to the research objectives as set out in chapter one. This chapter will also draw a conclusion based on the findings, make recommendations and highlight areas requiring further research.

5.2 Web 2.0 tools used by undergraduate students and purpose for utilization

The research established that due to students' ignorance about the exact nature of Web 2.0, 94.8 percent indicated that they were not familiar with the term Web 2.0. However, when asked if they were aware of specific Web 2.0 applications, it was revealed that social networking sites (99.6%) were the most popular followed by wikis, video sites and lastly blogs (39.5%). Furthermore, it was established that 99.3 percent were using at least one form of Web 2.0 applications. From these findings, it is clear that despite the fact that most of the respondents were aware about some features of Web 2.0 tools and that they were using those tools, they did not know that those tools are called Web 2.0 tools. This entails that LIS and Vet.Med students were using Web 2.0 tools but were not aware of the exact nature of these applications.

The research further found that the most used Web 2.0 application among undergraduates were the social networking sites (SNS) with 97.4 percent. The high use of SNS could be because it is the most popular and most heavily used social media worldwide (eBizMBA, 2010). The findings of the current study showed that the majority with slightly more than 50 percent of the undergraduates were using SNS for communicating with family and friends. These findings are in line with the findings by Lampe et al., (2008) who reported that the main reason why students use SNS is to communicate with their families and friends. Unlike a study by Armstrong and Franklin (2008), at Michigan State University who established high educational use of SNS in

supporting learning, where almost half (49%) of students had used Facebook to organize a study group and 53% to talk about class work, the results of the current study showed very little educational related use of the SNS by the students. Only 3.5 percent had used SNS as a tool for organizing a study group; and 1.9 percent for exchanging knowledge and ideas to support learning. The results of the current study therefore, indicate that although SNS can be used for educational purposes specifically for exchanging knowledge and supporting students' studies, SNS have not yet penetrated the educational lives of most LIS and Vet.Med undergraduates.

Another interesting finding is that there is a relationship between age and the use of SNS. The younger age groups were using the tool more than the older groups. There was 100 percent usage for those below 23 years as compared to 60 percent of those above 36 years. These results are in line with Usluel (2011), where a 18-25 age group was found to be dominant users of social networks as compared to the other age groups. Koca (2009) argues that most of the SNS users are young people most of whom being below the age of 25. The popularity of SNS among young individuals can be explained by Roblyer et al., (2010) who asserts that social networks provide young people with more flexibility in expressing themselves in ways that they could not possibly achieve in a physical environment. Hence, SNS play an important role in younger generation's lives.

When taken as individual groups, there were no significant differences in the use of SNS with respect to gender of the students. These results are contrary to Usluel (2011) and Mazman, Usluel & Çevik (2009) who found that females were using SNS more than males. The difference could be because the current research did not examine the frequency with which these tools were being used.

The second most used Web 2.0 application among the undergraduates were wikis with 88.4 percent. These findings are in line with Majhi and Maharana (2011) who reported that Wikis and social networking sites were the most commonly used Web 2.0 tools by the academic community in India.

The reviewed literature showed that ideally, wikis are meant for engaging users to frequently update wiki pages in a collaborative manner by adding new information, and creating links between pages (Parker and Chao, 2007). This entails that the main purpose of wikis is to promote the collaboration of ideas among peers. Despite this educational benefit inherent to wikis, the current study established that very few students, 2.5 percent were using the tool for collaborative purposes.

The above can be explained by the finding that there is little knowledge regarding the intended purposes of wikis. Some respondents did not understand why their lecturers considered information obtained from wikis not credible. For instance, respondent number 43 recommended that, "*lecturers should be allowing us to make reference of Wikipedia in our assignments*". Similarly, respondent number 109 stated that " *I am not motivated to use wikis because lecturers do not permit making reference to such sources*." The results clearly indicate that undergraduates did not know that a wiki is a collaborative tool whose users are hardly passive information recipients, but can be involved actively in the creation and editing of documents. The above findings are also an indication that students are somewhat familiar with wikis but they are not advanced users. Most of them are chiefly consumers, not producers of content on wikis. Therefore, there is need for a clearly guided approach in the use of such tools.

Video sharing sites were third on the rank regarding the web 2.0 applications used by the undergraduates. A number of scholars like Vankat (2011), report that video sharing sites can be used for academic purposes such as getting how to information and finding videos on various academic related issues. However, it was established that the main purpose the majority of undergraduates (86.2%) used these sites was to entertain themselves. Very little educational related use was indicated as less that 20 percent were using the application to find videos on academic related issues.

Differences between B.ALIS and M.Vet.Med students were however noted regarding the use of video sharing sites. Although using the tool for entertainment purposes was topping the list for both programmes, it was established that the use for educational related purposes was higher among M.Vet.Med as compared to B.ALIS students. Less than 1 percent and slightly above 12

percent B.ALIS and M.Vet.Med students were using the tool to find how to videos. This difference could be because complicated procedures in M.Vet.Med may require audio-visual explanations which a student can download from video sites.

Blogs were the least used of the four Web 2.0 applications under investigation. Blogs provide personalized web atmosphere in which students can join discussion forums with their peers, which gives them greater flexibility of study (Venkat, 2011). Of those who were using blogs, the majority (81.5 %) were using them to get information on general knowledge by sharing questions and answers with other people. Some specific educational uses of blogs were noticed where 10.0 percent were using the application for updating academic knowledge 7.5 percent to follow academic discussions. These findings are contrary to Ellison and Wu (2008), Hall and Davison (2007), Williams and Jacobs (2004) who reported that students mainly use blogs to improve higher-order learning skills by following discussions on specific educational discussions. The difference could be because of the students' low levels of awareness of the existence and nature of blogs.

The findings also show that there is a relationship between the rate of skill possessed and use of SNS, video sites as well as blogs. Those who rated themselves highly were using the Web 2.0 applications more than the lower ranks. Skill, which the theoretical framework discussed as perceived behavioral control was expected to affect use of Web 2.0 applications. The current findings therefore confirm the hypothetical proposition in the theoretical framework. However, no significant relationship was established between the use of wikis with respect to skill possessed.

5.2.1 Summary

The above discussion provides answers to the question raised by objective number one which sought to investigate Web 2.0 tools used by undergraduates and purpose for utilization. It was established that undergraduates utilize all the four Web 2.0 applications under study; SNS being the most used, followed by wikis, videos and lastly blogs. It was further revealed that students use Web 2.0 applications for a variety of purposes. SNS were mainly used for communicating

with family and friends, wikis for research to meet coursework demands, video sites for entertainment purposes while blogs were used mainly for exchanging questions and answers on general knowledge. Some education related uses of these applications among the respondents were also noted.

5.3 Undergraduates' perception on the use of Web 2.0 tools in learning

No significant differences were noted between programme of study and students' attitudes towards the use of Web 2.0 in education. It was established that a good number of the students, slightly above 40 percent felt that the use of Web 2.0 applications in education would promote student-lecturer interaction. Additionally, about 28 percent recognized the fact that such tools would help improve learning through knowledge sharing and collaboration of ideas. About 19 percent felt that these tools were desirable for use in education because of their flexibility and ease of use. Though these figures are quite low, they underscore Bryant (2006) views that web 2.0 applications offer significant possibilities for learners who have needs to enhance their learning experience through enriched interactions.

Although SNS were the most used among undergraduates, they were second to wikis regarding the most preferred tools to learn through. This finding confirms Swapna (2010) projections that the fact that students are familiar with new technology in their social lives does not always translate into their desire to use that technology for educational goals.

Although several scholars such as Venkat (2011) and Salehe (2008) place high academic value in the use of blogs in a learning environment, undergraduates were not aware of this as only 6.4 percent indicated a preference to learn through them. This finding is in line with Majhi and Maharana (2011), who reported that blogs, with the highest degree of educational value were not yet popular among the academic communities in two Indian universities. The findings from the current research on the use of blogs can be explained as a down spiral emanating from the fact that only 39 percent of the respondents were aware of the existence of blogs, which translated into a 30 percent usage.

In another angle, the findings show that skill possessed had an effect on students' perception on the use of Web 2.0 applications. There was a significant relationship between the skills students had in the use of these tools and their perception of Web 2.0. Those with higher skill rates were found to consider ease of use as a reason why Web 2.0 should be used for educational purposes.

Furthermore, a relationship between programme of study and preferred Web 2.0 applications among undergraduates was found. However, the research could not conclusively determine the nature of the relationship.

5.3.1 Summary

The above discussion provides answers to the question raised by objective number two which sought to investigate students' perceptions on the use of Web 2.0 applications in learning. It was established that students appreciate the fact that such applications can help in student lecturer interaction as well as in the collaboration of ideas and sharing of knowledge. A good number also recognized the ease of use of these applications.

5.4 Factors that influence undergraduates to adopt the use of Web 2.0 tools

The study established that there were no significant differences in the factors affecting the use of Web 2.0 applications with respect to programme of study. The findings showed that students would be encouraged to adopt the use of Web 2.0 applications if their lecturers recommended so. At the same time, it was noted that usefulness in educational activities as well as access to computers were very important factors in determining the educational use of Web 2.0 tools.

These findings are in line with the theoretical model and the reviewed literature. Firstly, Collins and Hide (2010); Taylor and Todd (1995) state that social influence from important others affect the adoption and use of new technology. In this instance, about 37 percent considered their lecturers as important social influence in adopting the educational use of Web 2.0 applications. This finding affirms the expectation in the theoretical framework that if a student feels that their

lecturers support the use of Web 2.0 applications in their education then that would positively affect their intention to use it.

Secondly, Davis (1989) points out that compatibility and perceived usefulness which is the extent to which the technology adoption suits the task the user is doing are important factors in prompting adoption of new technology. The findings in the current study affirm the expectation in the theoretical framework that students' perceived usefulness and compatibility of Web 2.0 in their educational goals would affect adoption and use. As shown in the findings, students indicated that they would adopt Web 2.0 if they felt that it would assist them in their education.

Thirdly, the findings agree with the theoretical framework which indicated that the availability of technology and facilitating resources such as internet accessibility was expected to influence the intention to adopt the use of Web 2.0 applications. Subsequently, Bynum (2011) provides an interesting explanation that internet accessibility affects adoption and use of Web 2.0 applications since the social web penetrates society with the accessibility of internet. The aforementioned finding is also in line with Teliwat & Huff (2004) who found that facilitating resources were significant in forecasting intention to adopt online educational technology among New Zealand educators.

5.4.1 Summary

The about discussion provides answers to the question raised from objective number three which sought to investigate factors that influence undergraduates to adopt the use of Web 2.0 tools. It was established that the main factors influencing them are recommendations from lecturers, usefulness in their education as well as the accessibility of computers and the Internet.

5.5 Challenges undergraduates face in the use of Web 2.0 tools for educational purposes

The study showed that there were no significant differences in the problems encountered with respect to programme of study of the students under study. Inadequate knowledge and skill to use Web 2.0 tools for educational purposes 116 (43.4%); was the major problem students faced

with regards to the educational use of such applications. This was followed by slow internet connectivity and limited access to computers. These results are in line with Vassiliki (2011) who also found that lack of knowledge in the use of social media for education purposes was the main challenge faced by students by Greek students.

An understanding of the challenges encountered by the students in the use of Web 2.0 applications required an investigation into their skill in the use of such tools. It was revealed that 161 (60.3%) rated their skill as fair. This group of respondents had basic knowledge to use Web 2.0 applications but were not very experienced users. One case in point was respondent number 005 who stated that, "*my knowledge about Web 2.0 is not much, am still acquainting myself with such technology.*" Respondent number 030 indicated that, "*I have never had quality training to use these technologies; I learnt most of the skill through friends and self training.*" Subsequently, these students were not very computer literate as they were still learning some computer skills. Hence, they still faced challenges when using some of the Web 2.0 tools.

Students whose skill was good, 83 (31.1%) were computer literate. For instance, respondent number 134 asserted that, "*I am computer literate and it is not difficult for me to obtain information from facebook and YouTube.*" Respondent number 196 indicated that, "*I am able to login, search and share information without much difficulty.*" Additionally, respondent number 087 said that, "*I hardly fail to use these applications whenever I want to.*" Therefore, this group of respondents rarely faced challenges when using Web 2.0 applications and were able to surf the Internet with less difficulty.

Students whose skill in the use of web 2.0 was poor 19 (7.1%) lacked training in the use of web 2.0 applications. They had inadequate exposure to such applications and lacked practice. And, 4 (1.5%) who were very good in the use of web 2.0 had adequate exposure in the use of computers and surfing the Internet and hence, to them, web 2.0 tools are easy to use.

Further investigations showed a fairly strong and significant relationship between the rate of skill possessed and the responses given in terms of the problems encountered in the use of web 2.0 applications. It was revealed that those who rated themselves as very good were less likely to

have problems such as too much information available through Web 2.0 as well as inadequate knowledge in the use of Web 2.0 tools, as compared to the other ranks.

When asked what prevented the students from using Web 2.0 applications for educational purposes, it was revealed that there is a significant difference in factors hindering the use of Web 2.0 tools with respect to programme of study of the respondents. It was found that 46.5 percent of B.ALIS students lacked recommendations from lecturers in the use of such applications as compared to M.Vet.Med where a scanty number (10.1%) registered for the aforementioned challenge. As reported earlier on, lecturers play an important role in the adoption of new technology for educational purposes among students. Consequently, students were reluctant in adopting the use of Web 2.0 applications in their education because their lecturers had not recommended the use of such applications.

M.Vet.Med students cited lack of incorporation of these tools in lecturing by their lecturers (33.5%) as the top hindrance while it was second on the rank among the B.ALIS students. According to Hartshorne and Ajjan (2009), students' adoption and use of Web 2.0 applications for educational purposes is likely to be affected by specific course requirements and instructions. Hartshorne and Ajjan (2009) further propose that learning style has an impact on attitude and adoption of new technology among students. They suggest that technology tools being implemented in coursework might influence students' perceptions towards the educational use of Web 2.0 applications. Therefore, unless lecturers and other course instructors provide students with opportunities and environments that promote the use of Web 2.0 in their course work, students are less likely to adopt and use these tools.

M.Vet.Med and B.ALIS students also differ in that while the former considered not having sufficient knowledge and skill in the use of Web 2.0 application (26.3%) as a second hindrance the latter reported only 15 percent. This difference could be because LIS students are exposed to Information Communication and Technology related courses as compared to their Vet.Med counterpart.

An interesting finding is that only a few students less than four percent considered Web 2.0 applications as not having any educational relevance, which implies that the students are well aware of the advantages of Web 2.0 tools in education. However, the fact that students attach

some educational value to some web 2.0 applications has not translated into actual educational use. This is attributed to challenges associated with the use of web 2.0 in education

5.5.1 Summary

When analysed as a unit, it was revealed that the main challenges students faced regarding the use of Web 2.0 applications for educational purposes is inadequate knowledge in the use of such tools for educational purposes, this was followed by limited access to computers and the internet. Inadequacy in their skills was noted as most of them rated themselves as fair, which entails that they needed exposure and training. A number of hindrances in using these tools were also noted between programmes of study where lack of recommendation from lecturers and not incorporated in the lecturers' teaching style were on top among B.ALIS and M.Vet.Med students, respectively.

CHAPTER SIX
CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Although Web 2.0 applications are becoming potential tools for educational use among students in institutions of higher learning, the number of LIS and Vet.Med students that admitted that they were making use of Web 2.0 applications for educational purposes was is still minimal.

LIS and Vet.Med students utilize all the four Web 2.0 applications under study; SNS being the most used, followed by wikis, videos and lastly blogs. SNS were mainly used for communicating with family and friends, wikis for research to meet coursework demands, video sites for entertainment and blogs for exchanging questions and answers on general knowledge.

This study has also shown that LIS and Vet.Med undergraduate students appreciate learning experiences that Web 2.0 tools may provide. The students' perception of Web 2.0 in learning is positive. They felt that Web 2.0 should be incorporated in learning not only because of the ease of use but also that web 2.0 can enhance student-lecturer interaction in an online environment; and also improve knowledge sharing and collaboration. Although the students take Web 2.0 for granted as tools mainly meant to entertain them, the numbers that would like to see these applications incorporated in education to enrich their learning experience are encouraging.

The current research also showed that students may relax to adopt the use of Web 2.0 in their educational lives because their lecturers had not incorporated such tools in teaching, needless to say that such tools were not being recommended by their lecturers and/instructors. Students therefore lack guided experience regards the use of these tools in a classroom environment and/ in their course work. It is however important noting that there is potential to increase the educational use of Web 2.0 among students. This can be achieved by rising the knowledge levels as the low usage levels were attributed to the lack of knowledge on the nature of Web 2.0 tools and its educational potential.

6.2 Recommendations

- Lack of knowledge and skill in the use of Web 2.0 applications for educational purposes was found to negatively affect the use of web 2.0 tools. Therefore, it is important to provide the education of using these tools effectively. Students need to be educated on the internet use as well as the necessary hardware and software to enhance the use of Web 2.0 applications.

- Considering the results of the current study, there is a clear indication that lecturers play an important role in students' adoption and use of new technology for educational goals. Lecturers must therefore play a role in determining which Web 2.0 tools their students should adopt for educational purposes. They should provide their students with opportunities to exercise the use of such tools in their coursework.

- Further research is needed that studies lecturers' acceptance and utilization of Web 2.0 applications for teaching and researching.

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APPENDIX: QUESTIONNAIRE

THE UNIVERSITY OF ZAMBIA

DIRECTORATE OF RESEARCH AND GRADUATE STUDIES

Dear respondent,

I am a post-graduate student at the University of Zambia. I am undertaking a research on the 'use of Web 2.0 applications for educational purposes among university undergraduates students at the University of Zambia: A case of two programmes at the University o Zambia,' for my Masters in Library and Information studies (MLIS). You have been randomly selected to participate in this study by way of responding to this questionnaire.

Be sure that your anonymity will be guaranteed and data supplied by you will be treated most confidential and will be used to aggregate statistical tables, analysis and interpretation of results leading to academic research only.

Thank you for taking time off your academic activities.

Yours Sincerely,

Thabiso Mayaba Mwiinga

RESPONDENT CONSENT FORM

I do hereby declare that I have freely allowed the said Thabiso Mayaba Mwiinga to administer this questionnaire to me. I understand that the responses I am going to give in this questionnaire will be used for purely academic purposes. I do also understand that I have the right to refuse to participate in this undertaking and to terminate it any time without prior notice

_____

   Respondent Signature

SECTION A: BACKGROUND

1. Gender

    1. Male   { }
    2. Female   { }

2. Age

    1. Less than 18 years   { }
    2. 18-23 years   { }
    3. 24-30 years   { }
    4. 31-36 years   { }
    5. Above 36 years   { }

3. What is your program of study?

    1. B.A LIS   { }
    2. M.Vet.Med   { }

4. What is your year of study?

    1. 2nd { }
    2. 3rd { }
    3. 4th { }
    4. 5th { }
    5. 6th { }

SECTION B

5. Are you familiar with the term Web 2.0?

    1. Yes   { }
    2. No   { }

6. Which Web 2.0 applications are you aware of? [Please tick the relevant]

    1. Social Networking Sites (e.g. Facebook) { }
    2. Wikis (e.g. Wikipedia)   { }
    3. Video Sharing Sites (e.g. You Tube)   { }
    4. Blogs (e.g. Wordpress)   { }
    5. Other (specify)………………………………………………………….

7. Do you use any of the Web 2.0 applications mentioned in Q7?

    1. Yes   { }
    2. No   { }

8. If your answer to in question 6 above is NO, proceed to question 14, and if your answer is YES, please specify (√), what do you use the applications you have ticked on question 6 above for?

a. Social Networking Sites (e.g. Facebook)　　[Please tick the relevant]
    1. Stay in touch with family and friends   { }
    2. Forum to express ideas and opinions   { }
    3. Communicate with classmates about course work   { }
    4. Share knowledge and ideas to support learning   { }
    5. Meet new people   { }
    6. Other (specify)…………………………………………………………..

b. Wikis (e.g. Wikipedia) [Please tick the relevant]
    1. Search terms and meanings   { }
    2. Research for studies   { }
    3. Collaboration of ideas with others   { }
    4. Other (specify)…………………………………………………………..

c. Video Sharing Sites (e.g. You Tube) [Please tick the relevant]
    1. Create own subject specific videos   { }
    2. Find videos on current academic issues   { }
    3. Entertainment   { }
    4. Find how to videos   { }
    5. Other (specify)…………………………………………………………..

d. Blogs (e.g. Wordpress) [Please tick the relevant]
    1. Follow academic discussions   { }
    2. Update new knowledge on certain topics   { }
    3. Consolidate ideas with peers   { }
    4. Exchange general knowledge questions and answers with other people   { }
    5. Other (specify)…………………………………………………………..

9. In your opinion, why would it be desirable to incorporate Web 2.0 applications in learning?

   1. Yes   { }

   2. No   { }

10. If your answer to question 9 above is yes, why do you think so? [Please tick the relevant]

   1. It is flexible and easy to use   { }
   2. Improve student learning, knowledge sharing and collaboration   { }
   3. Increase student-lecturer interaction   { }
   4. Facilitate international academic interaction   { }
   5. Improve critical thinking and problem solving skills   { }
   6. Other (specify)……………………………………………………………………..

11. If your answer to question 9 above is NO, please explain why

………………………………………………………………………………………………………
………………………………………………………………………………………………………
………………………………………………………………………………………………………
………………………………………………………………………………………………………

12. Which of the following Web 2.0 applications would you like to use in formal learning? [Tick only one option]

   1. Social Networking Sites (e.g. Facebook)   { }
   2. Wikis (e.g. Wikipedia)   { }
   3. Video Sharing Sites (e.g. You Tube)   { }
   4. Blogs (e.g. Wordpress)   { }
   5. Other (specify)…………………………………………………………………..

13. What factors influence you to use Web 2.0 for educational purposes? [Please tick the relevant]

   1. Usefulness in my educational activities   { }
   2. Increases my chances of knowledge acquisition   { }
   3. Recommendation from lecturers   { }
   4. Have access to computers and the internet   { }
   5. Ease of use of Web 2.0 applications   { }
   6. Other (specify)…………………………………………………………….

14. In your opinion, what problems would you encounter if you were to use Web 2.0 applications in learning? [Please tick the relevant]

    1. Slow internet connectivity in the university   { }
    2. Limited access to computers   { }
    3. Time constraints   { }
    4. Too much information available through Web 2.0   { }
    5. Not having excellent skills to use Web 2.0 effectively   { }
    6. Other (specify)……………………………………………………………………….

15. How would you rate your skill in the use of Web 2.0?

    1. Very good   { }
    2. Good   { }
    3. Fair   { }
    4. Poor   { }
    5. Very poor   { }

16. Please explain your response to question 15 above...

………

………

17. What factors hinder you from using Web 2.0 for educational purposes? [Please tick the relevant]

    1. Lack of knowledge and skills on the use of such applications   { }
    2. Taking up time   { }
    3. Limited/ no access to computers and the internet   { }
    4. Do not see any educational benefits   { }
    5. Lack recommendation from lecturers   { }
    6. Not incorporated in the teaching style by lecturers   { }
    7. Other (specify) ……………………………………………………………………….

       …………………………………………………………………………………………………

       …………………………………………………………………………………………………

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18. In your opinion, how can the factors you have identified in question 17 above be addressed in order to encourage the use of Web 2.0 applications for educational purposes?
………………………………………………………………….

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Thank you for your cooperation