PERCEIVED EFFECTS OF SOCIAL NETWORKING ON LEARNING BEHAVIOUR AMONG REGULAR UNDERGRADUATE UNIVERSITY STUDENTS IN MOMBASA COUNTY - KENYA

BY

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DECLARATION

By the Candidate

This thesis is my original work. It has not been presented for the award of a degree in any other University.

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DEDICATION

This thesis is dedicated to my wife Catherine Munga and children Stacy Itughanga and Tracy Muhonja. I also dedicate it to my uncle Mr. and Mrs.Pius Shilabula, late grandfather John Amukune and my grandmother Rose Amukune for their immense contribution in my life and studies. God bless you.

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OPERATIONAL DEFINITION OF KEY CONCEPTS AND TERMS

For the purpose of this study, the following terms were taken to mean the following:

Crowdsourcing is the practice of obtaining needed services, ideas, or content by soliciting contributions from a large group of people, and especially from an online community, rather than from traditional employees or suppliers.

E-learning-comprises all forms of electronically supported learning and teaching, which are procedural in character and aim to effect the construction of knowledge with reference to individual experience, practice and knowledge of the learner.

Facebook friends – number of friends a student had listed on their Facebook profile or social network.

Facebook browsing:- is the activity of surfing Facebook to socialize, learn from friends, daily activity, pass time, entertainment or work related.

Learning behavior; In this study it refers to the strategies that students employ to optimize learning while browsing Facebook. These strategies will be observed by:

- Communication (facilitating class discussions, class announcements, delivery of homework and assignments)
- collaboration (joining academic groups, sharing homework, projects and ideas)
- Resource or material sharing (exchanging multimedia resources, videos, audio materials, animated videos, resources and documents).

Regular student- this is a university student from first to fourth year who runs their academic calendar during the day, not a part-timeror institutional based nor distance learning students. Majority of them joined the university straight from

high school and they have not attained a first degree.

Self efficacy for self regulated learning-Self efficacy refers to students' beliefs regarding their capability to execute actions necessary to achieve designated outcomes. Self-efficacy for self-regulated learning taps students' confidence in utilizing a variety of self- regulatory strategies in the academic environment without the constraint of particular subject matters (Bong,1999). This variable will be measured with a subscale of the self efficacy for self regulated learning developed by Zimmerman et al (1992).

Social networking – is the use of internet based social media programmes to make connections with friends, family, classmates, customers and clients. In this study the Facebook will be handled among other social networks. This variable will be observed by;

- Number of total Facebook friends
- Time spent browsing Facebook per day
- Facebook intensity score

Social Media:-refers to the use of web-based and mobile technologies to turn communication into an interactive dialogue that allow the creation and exchange of user-generated content".

LIST OF ABBREVIATIONS AND ACRONYMNS

ANOVA	-	Analysis of Variance
CBT	-	Computer-Based Training
CCSL	-	Computer Collaborative Supported Learning
GoK	-	Government of Kenya
GPA	-	Grade Point Average
KNBS	-	Kenya National Bureau of Statistics
IBT	-	Internet-Based Training
ICT	-	Information Communication Technology
KIE	-	Kenya Institute of Education
LMS	-	Learning Management System
QDA	-	Qualitative Data Analysis
WBT	-	Web-Based Training

ABSTRACT

This study aimed at finding out the perceived effect of social network browsing on learning behaviour of University students in Mombasa County of Kenya. A cross sectional survey research design was employed in this study. Colleges in Mombasa County were stratified into private and public university colleges. Two colleges from each stratum were selected by convenience sampling and a sample size of 367 students selected. Students from each class in the nominal roll of the colleges were selected proportionately by systematic sampling to participate in the study. Both quantitative and qualitative data were collected by use of questionnaires, interviews and documentary search sheets. Thirteen variables on communication, collaboration and exchange of resource materials were used as variables depicting learning behaviour adopted during social network browsing. Social network browsing as an independent variable was measured by Facebook intensity scale. Self efficacy scale for self regulated learning was used to predict possibilities of learners engaging in learning activities while browsing Facebook. Descriptive data analysis was presented by use of frequencies and percentages while inferential analysis was done using Analysis of Variance (ANOVA), Correlation Analysis and Logistic Regression. Open-response items and interview responses were analysed using a Qualitative Data Analysis technique. Data analysis indicated that over 83% of the university students in Mombasa County actively use Facebook. This was attributed to cheapness, accessibility and ease of use of Facebook especially on mobile phones. Correlation analysis results showed that there is a relationship between time taken during Facebook browsing and number of Facebook friends. Similarly there was a strong relationship between use of Facebook for learning purposes and academic grade achieved. Logistic regression results established that Facebook browsing measured using Facebook intensity score affects positively the use of Facebook for learning. It also showed that self efficacy for self regulated learning score affect learning behaviour positively with a factor of 0.507. Therefore self efficacy for self regulated learning score could be used to predict whether a student would use Facebook for learning purposes or not although gender and age of the students does not. However social network browsing and engaging with academic activities at the same time was found to be detrimental educationally. These results have some implication for university students, university teaching staff, administrators and government policy makers. Students need to be aware too much Facebook use for non academic activities like socializing, pass time, entertainment leads to waste of time and Facebook addiction. However Facebook use for academic activities has educational benefits.

CHAPTER ONE
INTRODUCTION

1.1 Introduction

This chapter discusses; background to the study, statement of the problem, objectives of the study, research questions, significance of the study, assumptions, scope of the study, limitation and delimitation of this study. The theoretical and conceptual framework will later be discussed followed by description of operational terms used in this study in the last part of this chapter.

1.2 Background to the problem

In order to improve access to education, Kenyan Universities have introduced open and distance learning, e-learning and blended learning as an alternative delivery system. The Ministry of Education, Information Communication Technology (ICT) Education Policy recognizes the use of ICT as an important avenue to support and improve the delivery of quality education in Kenya. This policy seeks to address access to e-content, introduce ICT in training colleges in Kenya, and provide computers in schools and in-service teacher training programmes (GoK,2004). These are positive steps towards realization of the power of ICT both in education and changing the quality of human life.

The internet is an essential part of everyday life all over the world and especially to university students. Significantly, the use of internet facility is increasing daily especially among young people. In the last few years, the Web 2.0 tools such as social networking sites, blogs, wikis and web applications have emerged and users have experienced how these tools are changing human practice and social networking (Conole, 2008). New practices of sharing information have emerged

such as Flickr (photos), YouTube (video) and Slideshare (presentations). New mechanisms for content production, sharing, communication and collaboration have also emerged such as blogs and social networking sites (such as Facebook, Elgg and Ning) (Alexander, 2006). Use of these Web 2.0 tools has been significant for general social purposes; but arguably not to the same extent in an educational context. Therefore, in contrast to the lack of uptake of technologies in education, the impact of this technology in general day-to-day practice has been more pervasive (Conole, 2008). Use of computers, mobile phones, other handheld devices and the internet are now standard aspects of daily routine and activities. Organizations are technologically enabled; there is a core set of technologies for finding and using information and for communication. More precisely, e-mail is now the main communicative channel in working contexts. When searching for information Google is used widely, while; MS-Word and MS-PowerPoint are standard tools for production, presentation and sharing of content. Social networks and mobile phone have become the commonest modes of communicating in real time. At present, little empirical research has been conducted on the value of Web 2.0 such as Facebook in education (Crook & Harrison, 2008).

Boyd and Ellison (2007) defined social networks as web-based services allowing individuals to first construct a public or semi-public profile within a bounded system. Second, to articulate a list of other users with whom they share a connection, and third, to view and traverse their list of connections and those made by others within the system. Social networks started with Six.Degrees.com in 1997 followed by other social networks sites such as Livejournal, Friendster, LinkedIn, MySpace, Last.fm, Flickr, YouTube, and finally Facebook. Many other social

networking sites are being designed daily. By 2011 new social networking software like Twitter, Netlog, 2go and Badoo had come up and others are still emerging. The following are the top 10 social network sites as at May 2013 in ascending order; Facebook, Twitter, LinkedIn, Pinterest, Myspace, google+, deviantArt, Livejournal, Tagged and Orkut(ebizmba.com). In Kenya Facebook, Twitter, Myspace and more recently LinkedIn are the most common among college students. Twitter on the other hand is emerging as major socio network software in Kenya. It was founded in March 2006 by Jack Dorsey and by July, the social networking site was launched. By 2012 Tweeter had 500 million users(www.twitter.com).

In Kenya, Facebook is the most visited site after the search engine Google. Unofficial reports put Facebook's daily hits at two million (Mwaniki, 2010:8-9). By the year 2010 internet penetration in Kenya was only 10% of the population therefore only 3,995,570 people could access the service. Out of this population 2.2% were Facebook users (http://www.ciafrica.com). Many universities have also embedded Facebook links into their websites to ease accessibility and at the same time keep university websites vibrant and busy with student hits.

Historically, Facebook was founded by Mark Zuckerberg with his college roommates and fellow computer science students Eduardo Saverin, Dustin Moskovitz and Chris Hughes (Carlson, 2010). Facebook is commonly accessible in any computer that is connected online or any mobile phone that supports the internet. This makes it quite accessible to majority of people including university students with computers or have internet enabled phones. It is also common to find individuals having more than one social networks at the same time. Other sectors especially corporate sectors have

taken advantage of this technology and meaningful information has been shared among their participants. Facebook has been used for social networking, education, research and business. In business social networks have been used in advertising and introducing new products in the market. Business people have also taken advantage of the power of social networks to collect feedback from their clients. Other uses of social networks include; political campaigns, fund raising and news broadcasting. Some of the things you can do with social networks like Facebook include personal profile, messaging, groups, events, applications, media sharing and news feed.

Facebook is owned by Facebook, Inc. (Eldon, 2008). It is defined as "a social utility that helps people share information and communicate more efficiently with their friends, family and coworkers (Facebook.com). Since September 2006, anyone over the age of thirteen years with a valid e-mail address can become a Facebook user. Users can add friends and send them messages. The website's name stems from the colloquial name of books given to students at the start of the academic year by university administrations in the US with the intention of helping students to get to know each other better. The book has a set of faces with names that fellow students can identify their colleagues and ease the process of settling in the college.

After expanding its use to individuals outside the college and university system, the age group experiencing the most growth in Facebook usage was 25–34 year-olds, with an increase of 181%, and the 35 and older group increased 98% (Lipsman, 2007a). However, despite this growth in older age groups, Facebook remains primarily a college-age and emerging adult phenomenon.

By July 2010, Facebook had five hundred million users. Seventy percent of who were between the ages of 18-25 years. This is the commonest age for university students (Bumgarner, 2007). By April 2011: Facebook had more than 2.5 billion photos and 14 million videos uploaded each month, 3.5 billion pieces of content (i.e., web links, news stories, blog posts, notes, photos) shared each week, more than 3.5 million events created each month and more than 45 million active user groups(Facebook.com). Murphy (1967), defined learning as any activity that can develop an individual in any respect (good or bad) and makes his/her other behaviour and experience different from what that would have otherwise been. Learning brings about progressive change in the behaviour of an individual. The change may be to the negative or positive side. Whatever the direction of change it may be, it is always true that learning brings progressive changes in the behaviour of an individual and as a result of what the individual gets himself adjusted to the changing situation. Mangal (2011), defined learning as a process that brings relatively permanent changes in the behavior of a learner through experience or practice. He continues to say that learning is not absolutely permanent since the habits we pick up, the interest we develop, the skills we acquire, the knowledge we gain as a result of learning at different occasions can be unlearned, modified or replaced by some other set of differently acquired behavior (Mangal, 2011 p.143). Learning behaviour emphasizes the link between in which learners learn and their social knowledge and behaviour. This linkage does not occur in isolation, it is a product of a variety of influences and not simply the product of pupils unwillingness to learn or behave as required by the institution. These learning behaviours include; collaboration to accomplish a learning task, communication, engagement, motivation and resource shairing (Powell, 2004).

1.3 Statement of the Problem

The problem to be addressed in this study is threefold. First, Social networks have united many college students into an online world where they spend countless hours browsing profiles, meeting new people and exploring relationships. Social Network popularity such as Facebook's among the youth, raises questions about the website's impact on college student life (Barratt, Hendrickson, Stephens, & Torres, 2005). Has this exposure affected the way they learn or expect to be taught? Any technology that is able to attract and captivate so many students for so much time within a very short period carries implications for how those students view education and the world in general. This exposure to social networking software offers an opportunity for educators to understand the components of social networking that students find so attractive. These elements once identified can later be incorporated into teaching and learning process either by web based, face to face or a blend of the two. Similarly it gives an opportunity for educators to establish whether such technologies affect the way they learn. Secondly, knowledge can be created and exchanged to a large extent through informal social interactions such as social network browsing that allows the transfer and sharing of information, ideas and non-verbal communications. The critical question to be investigated concerns the kind of educational content created and shared among our university students on social networking software. Which subject areas or academic content if any do university student share, communicate or collaborate while browsing Facebook. Thirdly, the study sought to predict the type of students who will use Facebook to support their academic work rather than browsing as a daily activity, social, entertainment or pass time?

1.4 Purpose of the study

The purpose of this study was to investigate the perceived effects of social networking on learning behaviour among university students. In this study learning behaviour was taken to mean the strategies that students employ to optimize learning while browsing Facebook. These strategies were observed by: Communication, collaboration and resource or material sharing.

1.5 Objectives of the Study

The objectives of the study were to investigate:

i) whether university students use Social network sites for learning purposes

ii) factors that contributes to widespread use of social network sites among university students

iii) the influence of social networking on learning outcomes

iv) educational content students share through social network sites.

v) whether students' self-efficacy for self-regulated learning predicts their learning behaviours in Facebook environment.

1.6 Research Questions

i) Do university students use Social network sites for learning purposes

ii) What factors contribute to widespread use of Facebook among university students?

iii) Do university students Facebook browsing influence their learning outcomes?

iv) Which educational content do university students share on Facebook?

v) Do students self efficacy for self regulated learning predict their learning behaviours in a Facebook environment?

1.7 Significance of the Study

The Government of Kenya through its vision 2030 (GOK, 2007) has identified ICT to be the driving force of education. Various strategies have been put in place to promote e-learning including opening an open university at the Kenya Institute of Education (K.I.E) premises. It is therefore very important that Government departments and policy developers in charge of e-learning get to identify the factors that make an e-learning program attractive to students and those that discourage students from using those programmes. Facebook is one of the social networking software loved by majority of college students. The study identified some of the elements preferred by college students while using facebook which could be embedded in e-learning software.

This information is useful to teacher training colleges in identifying what features attract students to this software and whether teachers can borrow some of the elements and implement them in their teaching process whether web based, face to face or a blend of the two. It is also important to note what level these social networking software promote the available e-learning software.

Software developers more often than not develop programmes that make their work easier rather than concentrating on the needs of the users. This study will help to identify the various elements that learners find to be so attractive to them while browsing Facebook. Therefore if these developers adopt these features, then online learning will be very attractive to the learners. Mobile service providers as well, do hire software developers to develop different software targeting various markets.

Therefore providers who wish to target local students via their products will also get ideas on what to include or omit on content materials targeting university students.

University ICT managers have been given the task of providing reliable internet services to students. One of the social networking software demanded by students is Facebook. The level at which this software contributes to the core business of the university; teaching and learning is unknown. The study provided information to ICT managers that will help identify Facebook's contribution to the University mandate of teaching, learning and research. This information will also be vital to universities' dean of students especially the guidance and counseling department in helping to identify measures of stopping misuse of this software and promote learning.

1.8 Assumptions of the Study

The study made the following assumptions;

i. The targeted respondents are continuous users of Facebook and other social networks
ii. The responses given by the respondents will be a true reflection of their usage of social networks.

1.9 Scope of the Study

The study focused on perceived effect of social networking on learning behaviour in Mombasa County. This means that the findings of the study have limited generalisability to university students.

1.10 Limitations of the study

The following were the limitations of the study:

i. Limited availability of computer databases that could be used to monitor targeted students while browsing social networks. This is also a violation of students' rights.

ii. Finding volunteers who could agree not to use their Facebook page or other social network software for extended periods of time is difficult.

1.11 Delimitations of the study

The study confined itself to university students in both public and private universities located in Mombasa County. Secondly there are many factors that affects learning behavior of university students but this study focused on behaviour during social networking.

1.12 Theoretical framework

Bandura's social learning theory (Bandura, 1977) served as the theory for this study to investigate the impact of online social networking on learning. According to social learning theory, three elements, including individual learners, peers, and situations, potentially affect individuals' learning outcomes. Alavi (1994) also identifies individuals' active engagement in constructing knowledge, interpersonal interactions in corporative context, and problem-solving situations as distinguished attributes of effective computer-mediated learning. Social learning theory emphasizes the self-regulation of individual learning. In most cases, individuals self-initiate, regulate learning and actively construct knowledge by acquiring, generating, and structuring information. They can use symbols to represent events, to analyze their conscious experience, to communicate with others, to create and to engage in insightful actions.

Further, social learning theory emphasizes learning's social genesis and views learning as a social process in which individuals interact with peers or models, as well as situations. Individuals' learning, although self-initiated, often rely on the social context. Individuals' observations and interactions with peers (e.g., learning from each other by exchanging knowledge to achieve shared commonality) and situations (e.g., learning the environmental norms, cultures, policies) influence their cognition and behaviour. Thus, obtaining desirable learning outcomes requires social support from others and their understanding of situations. Moreover, the achieved learning outcomes will reinforce individuals' engagement in certain actions. From the social learning viewpoint, human behaviour is a continuous reciprocal interaction between learners themselves and the external environment.

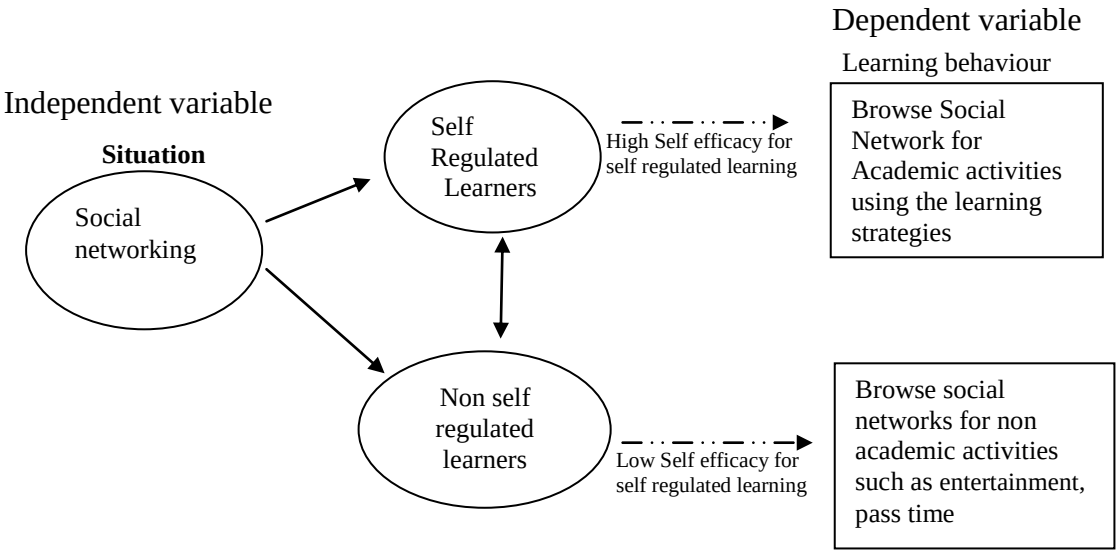
In the context of social learning theory, the use of social networks is the situation that faces majority of the university students today. The students have a choice of either using the situation to their advantage as they pursue their goals or be driven into negative use of the social networks. These participants can either be self regulated learners or not.

1.13 Conceptual framework

A conceptual framework was developed in order to explain the relationships among the variables utilized in this study. Learning behaviour was the dependent variable in this study. It was identified via the following learning strategies; Communication (facilitating class discussions, class announcements, delivery of homework and assignments), collaboration (joining academic groups, sharing homework, projects and ideas) and resource or material sharing (exchanging multimedia resources, videos, audio materials, animated videos, resources and documents). These

indicators were adapted from Mazman & Usluel, 2010. These learning strategies contribute to positive learning behaviour.

Figure 1.1: Role of self regulated learning and socialization during Facebook browsing on learning behavior.



Socialization on social networks as a daily activity to pass time, entertainment and charting with friends contributes to some non-academic activities and interferes with successful utilisation of social networks for learning purposes. It is envisaged that students with low self efficacy for self regulated learning will utilise the social networks to pass time and socialise as opposed to those students with high self efficacy for self regulated learning who will utilise the social networks to achieve their academic goals. The effect of this socialization will be identified by time spent charting with friends, social networking while attending a lecture, group discussion, studying and doing assignment. Social networking was the independent variable in this study. This variable was measured by five items adapted from Ellison Facebook intensity scale (Ellison, 2007) and was used as a surrogate measure of social network use. Two other variables included the number of Facebook friends and time spent during social network browsing. The higher the score the higher the attachment to the social networking site.

Zimmerman et al., (1992), observed that self-efficacy for self-regulated learning positively related to academic achievement, which in turn positively linked to students' grade goals and final grades. Likewise, Zimmerman and Bandura (1994) reported that self-regulatory efficacy for writing positively related to self-evaluative standards and academic achievement. This study will postulate high academic achievement with high scores of self efficacy scale for self regulated learning and low score of self efficacy with poor academic achievement. According to Zimmerman (1989:p4), self-regulated learners are individuals who are "metacognitively, motivationally, and behaviourally active participants in their own learning process". Other aspects of self-regulated learning include time management, regulating one's own physical and social environment and the ability to control one's effort and attention (Pintrich, 1995).

Since self-regulation is not a personality trait, students can control their behaviors and effects in order to improve their academic performance. In addition, self-regulated learning is particularly appropriate for college students, as they have great control over their own time schedule, and how they approach their studying and learning (Pintrich, 1995). Students who perform very well have high self efficacy for self regulated learning and self esteem.

1.15 Chapter Summary

This chapter discussed the background to the study, statement of the problem and the research objectives which lead to the research questions. The significance of the study was outlined which was followed by the definition of terms utlised in this study. Chapter 2 reviews the literature on use of social networking for learning, its popularity, impacts among college students and the role of self efficacy for self regulated learning.

CHAPTER TWO
REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter reviews the literature and research pertinent to social networking and learning. The main objective of this chapter was to gain some insight into the dependent and independent variables of the study. Thus the literature review aimed to: explore the use of social networks for learning purposes, to identify factors that contributes to widespread use of social networks among university students, discuss the effects of social networks on learning, the role of self efficacy for self regulated learning on web based learning. The last part of the chapter explores the existing gap that the study intends to fill.

2.2 The concept of learning

Different psychologists have defined learning differently. Learning is usually defined as a change in an individual caused by experience not by reflexes (Slavin, 2003). Murphy (1967) defines learning as every modification in behaviour to meet environmental requirements. He argues that one needs to learn new techniques and ways to enable him/her to adapt to the new environment. Despite the different definitions given by psychologists, they seem to agree on the following nature of learning. Firstly, learning as an adaptation or adjustment. One knows how to relate with a new environment such as new culture, new people, and new values. Secondly learning as an improvement. When one learns a new thing they never remain the same. Thirdly, learning brings about progressive change in the behavior of an individual. This change can either be positive or negative. Fourthly, all learning is goal oriented. It is the definiteness of the aim and clear understanding of the purpose which makes an individual learn immediately the technique of performing a

particular task. Fifthly, learning is an all-time process. It is everything we do that requires learning. It is a broad concept and not confined within the classroom setting. Lastly, learning is universal, continuous and covers all living creatures.

2.3 Learning Behaviour

Different researchers have used different terms to describe learning behaviour. In a systematic review of how theories have explained learning behaviour in school contexts, the research team identified the following keywords; collaboration, communication, engagement, motivation, self esteem, responsiveness, self regard, disruptiveness and disaffection (Powell, 2004). The researchers in this review were consistent with a view that behaviour used to describe learning reflect that learning in school contexts is influenced by the interaction of a range of individual, curricular and social variables. They identified three sets of relationship that affect the culture of learning behaviour. Firstly is the relationship with self or the individual himself then with others and lastly with the curriculum. The studies reviewed, revealed that,

> ... researchers have been pragmatic in selecting descriptors of learning behaviour by deciding what is needed for learning in school contexts and then researching those behaviours. There is thus preponderance in the studies of learning behaviours that result in learners staying on a prescribed task in group settings (engagement, motivation, participation, collaboration, communication). These essential learning behaviours are deemed by researchers to be influenced by person centred variables subsumed by the construct self-efficacy (Powell, 2004 p.9).

Online learning includes an intricate and complex interaction between neural, cognitive, motivational, affective and social processes' (Azevedo, 2002). In addition, learning is a transformation where the energy and impetus take place, not smoothly, but in leaps and bounds. Learners move from the known to the unknown (Dirckinck-Holmfeld, 2002). A further assumption is that participants learn about the use of computer networking along with learning about the topic. As long as the students

continuously use the computer they are also empowering themselves on how it works. Literature until now has distinguished between learning about ICT and learning with or through ICT (Cloke and Sharif, 2001), whereas in practice, success comes from integration.

Mazman and Usluel (2010) studied 606 Facebook users to design a structural model explaining how users could utilize Facebook for educational purposes. The survey questionnaire was posted online onto Facebook and users were allowed to respond to the questionnaire. Users of different groups sent the instrument to friends and colleagues. Adoption as a latent variable was explained by five observed variables; usefulness, ease of use, social influence, facilitating conditions and community identity. Facebook usage was handled under three headings: social relations, work related activities and daily activities. The construct of educational usage of Facebook was investigated under three topics; communication, collaboration and resource/material sharing. Despite the survey being open to all Facebook users 74% of the respondents were university students of ages between 18-25years. The results showed that 50% of educational usage of Facebook could be explained by user purposes along with the adoption processes of Facebook. The study also found out that people experience informal learning in personalized environments such as those offered by Facebook.

2.4 Use of Social Networking software for learning purposes

Tremendous growth in information and communication technologies has brought changes in various pedagogical and technological applications and processes. College students are adopting social networks with a lot of creativity. Studies have indicated that social network tools can be used to support educational activities by

making interaction, collaboration, active participation, information and resource or material sharing possible (Ajjan and Hartshorne, 2008;). Since students spend a lot of time with these software it is therefore very advisable to incorporate teaching and learning activities in these software.

While the current generation of Learning Management Systems (LMS) allow each student to have their personally chosen course(s) in which they are enrolled, many of these LMS lack social connectivity tools and personal profile spaces that can be used by the students involved. In contrast, students today demand more autonomy, connectivity, interaction and socio-experiential learning opportunities in their learning contexts (McLoughlin& Lee, 2007). Along the same lines, integration of new technologies in existing learning contexts has brought significant changes in overall learning processes and their outcomes. Because students complain about lacking opportunities for authentic communication due to non-personalized course content even when alternative delivery methods are employed.

There are a number of reasons why educators should embrace social networking in education; social media is not going away, when learners are engaged they learn better, safe social media tools are available and for free, replace online procrastination with social education and lastly social media encourages collaboration. In a study conducted by researchers at the University of Minnesota, social networking has the following benefits to learners. It allows learners to share exchange and collaborate on school assignments and projects. This collaboration fosters communicative skills and develops interpersonal relationships which is very important in the development of careers after school. It also allows learners to stay updated about their school news and get quick access to their classroom updates. In

addition social networking helps students develop critical thinking, problem solving, and global participation (Sarah, 2010).

The most prevalent use of social networks in the university community is creating profiles and groups to communicate events with users. Colleges are also using social networks for university marketing campaigns. Facebook seems to be perceived as

> … an excellent mechanism for communicating with our students because it allows us to go where they already are; it is an environment that students are already comfortable with (Mack, Behler, Roberts, & Rimland, 2007, p.4).

A growing number of college libraries are tapping into Facebook and MySpace to help them communicate with their students on matters related to what they offer. Many libraries across the United States are using MySpace and Facebook to reach students, announce library events, and answer research library-related questions. In one study, librarians wanted to determine which source students would use more to ask reference and research related questions: email, phone, instant message, Facebook, or in-person (Mack, Behler, Roberts & Rimland, 2007, p. 5). Students in this study preferred asking their reference and research related questions using Facebook and e mail even more than face to face.

Facebook is being considered as an educational tool because of its educational beneficial qualities such as enabling peer feedback, goodness of fit with social context and interaction tools (Mason, 2006). Educators and their students can use Facebook successfully by creating a Facebook group. To create a Facebook group go to www.facebook.com/groups and click create group, then set your preferred

settings. You have an option of making the group open or closed. If it is a closed group only members who have been invited will participate. Then invite the students to the group by copying the group address and pasting it in their e-mail addresses. Once they click on the link they will be taken to the group account which will be the classroom in this case. You only need one e-mail account to open the group and you can invite as many students as possible. Once the account is created course outlines and notes can be posted their. You can also choose to invite experts in your area to benefit from crowdsourcing (www.facebook.com).

Chickering and Gamson (1987), studied good practices in undergraduate education. Some of the good practice in undergraduate education include: encouraging contact between students and faculty, develops reciprocity and cooperation among students, encourages active learning, gives prompt feedback, emphasizes time on task, communicates high expectations, and respects diverse talents and ways of learning. These good practices can easily be achieved in a connected environment where learners can interact among themselves and the instructor can moderate the conversation and quickly respond to emerging challenges from the learners' side. This connected environment can easily be provided by the social networks at almost free of charge.

Mazer, Murphy and Simonds (2007) found positive perceptions from students about faculty use of Facebook. The primary purpose of this study was to explore the impact of teacher self-disclosure on Facebook on student motivation, affective learning, and classroom climate. Findings suggest that higher teacher self-disclosure may lead

students to higher levels of anticipated motivation and affective learning and lead to a more comfortable classroom climate". In this study, social networks seem to work to improve classroom climate for the instructor and therefore improve content delivery in a face to face teaching and learning.

John and Singwhat (2009) conducted a survey of first year tertiary business students across different campuses in Australia regarding their perceived views concerning traditional, blended and flexible instructional approaches. A structural equation modeling approach showed traditional instructional modes deliver lower levels of student-perceived learning quality, learning experience and learning skills. A combination of on-line and face-to-face learning approaches, embedded across each course, yields far higher levels of total learning effects. The blended learning mode offers additional student learning approaches that complement and change, the students learning and critical thinking processes into various levels of blended learning engagements. Such approaches include: social networks (like Facebook), business negotiations and role plays, interactive and dynamically changing business case and problem solving activities, virtual classrooms suites, video conferencing or teleconferencing (to external locations), on-line competitive simulations, gaming-style interactive networks (like SecondLife), and many direct workplace-linked learning tools.

Dawson (2008) explored the relationship between student's sense of community and the position within the formed social network. He provides recommendation to educators to embed computer-mediated communications in teaching practices for learner participation and progression in the curriculum. He identified the following benefits of social networking to students. Firstly, it is widely spread, easy and free

usage without much support from the University. This makes sure the university budget will not be affected while student activities still are in progress. Social networks also enhance communication skills, widening participation, social engagement and collaboration. Thirdly it also encourages peer support and review. Students can assist each other when they are stuck and this helps to promote learning. Fourthly, social networks create learning interest through community of learning. Lastly it creates educational engagement and sense of ownership when the learning process is published on the web. This makes the students to be able to retain access to their work, communication and learning history after they leave the University. To the institution social networks enhance blended learning experiences with similar benefits that students get. It also improves students' inductions and retentions.

In a study of 76 students of University of Glamorgan (Norah J. 2009) found out that most of the student interviewees had registered with several social software such as Facebook, Blog and MySpace. However, more than 70% of the respondents rarely or never use social software for learning. This phenomenon demonstrates a clear divide of social software usage for learning purposes and for private social life. Among the usage of social software for learning, Wikis was in the first rank of all of the more than 40% of the respondents always or often use Wikis within the learning process.

Chen (2009) studied 105 third grade undergraduate students in Accounting Information System at the University of Chaoyang, Taiwan. This study aimed to uncover how cognitive styles influence learners' learning behaviour in Web Based Learning System by analyzing learners' browsing records and propose a design model to provide personalized services for different learners. The results revealed that learners with different cognitive styles have similar but linear learning

behaviour, and learners with different cognitive styles adopt different navigation tools to process learning.

Ellison et al (2007) examined the relationship between use of Facebook, and the formation and maintenance of social capital in the Michigan State University students. Facebook, enables its users to present themselves in an online profile, accumulate ‘‘friends’’ who can post comments on each other’s pages, and view each other’s profiles. Facebook members can also join virtual groups based on common interests, see what classes they have in common, and learn each others’ hobbies, interests, musical tastes, and status of romantic relationships through the profiles. Findings showed that 94% of the undergraduate students they surveyed were Facebook members. Facebookusage was significantly associated with both bonding and bridging social capital.

2.5 Popularity of Facebook among university students

Students adopt information and communication technologies because of their widespread use, and needs that are potential to influence relationships, help build a sense of community and possible academic applications. Facebook presents students with choices about how to use technology in creative and useful ways. Even as a purely social activity, Facebook has the potential to teach students about appropriate citizenship in the online world. Like many emerging Internet applications, Facebook also emphasizes the importance of creating content over simply consuming it. By encouraging students to craft compelling profile, Facebook allows students to express themselves, communicate and assemble profiles that highlight their talents and experience (educause.edu).

Engeström (2005), in his contribution to what makes social networks most attractive argues that social networks are not just made for people to use generally but they consist of people who are connected by a shared object. This can be used as a basis for understanding why some social networks are successful whilst others fail. He provides examples of successful social networking sites built around social objects – such as flicker (photos), del.icio.us (bookmarks/URL) and 'eventful' (eventful.com) where the objects are events. Others include YouTube (video clips) and Slideshare (presentations). He continues to say that in education the primary social object is content and that the educational value is not in the content itself but the social interaction that occurs around the content.

Porter (2007) suggests that the success of sites such as Flickr, YouTube and Slideshare is based on their ability to make the activities of uploading, viewing and sharing as easy as possible. He also sees social relationships as key, arguing that relationships cannot be explained without the objects and experiences that we share. Dempsey (2008) summarised the notion of the relationships between people and objects and the importance of shared interest, through social objects as a necessary condition for social networks to work. The linking theme is that people connect and share themselves through 'social objects', pictures, books, or other shared interests, and that successful social networks are those which form around such social objects.

Social networks can either be object centric or egocentric. Facebook, Orkut, LinkedIn, Friendster are egocentric because they place an individual at the centre of the network experience. Object centric network places object at the centre of experience. Examples include Flickr (social object: photograph), Dopplr (social

object: travel instance), del.icio.us (social object: hyperlink) and Digg (social object: news item). The interesting thing about the social object is not the object itself, but the conversations that happen around them, Stutzman, (2007). The basis for designing social networks design is to build around social objects and principles for design which include ensuring that the objects are shareable, having a clear definition of the objects and the actions (verbs) that users perform on the objects, Engeström (2007).

2.6 Influence of social networking on academic outcomes

Research has examined the general impact of technology on academic achievement and development of children and teenagers. Positive and negative effects of technology on achievement have been documented. Media reports have continuously reported negative impacts of social networking. Lei and Zhao (2005) studied the specifics of access, acknowledging that quantity is not as important as quality when it comes to technology use and student achievement. Specifically, when the quality of technology use is not closely monitored or ensured, computer use may do more harm than good to student achievement in school. In addition, technology that was found to have a positive impact on academic achievement, or technology with educational value, was not popular and used less frequently. Other researchers have found that recreational internet use is strongly correlated with impaired academic performance (Kubey, Lavin, & Barrows, 2001; Junco & Cotton, 2010). Students who reported internet caused schoolwork problems were found to have spent five times more hours online than those who did not, and they were also significantly more likely to report that their Internet use caused them to stay up late, get less sleep, and miss classes. Students who reported academic problems were more likely to use the internet for real-time social activities such as instant messaging and chat rooms.

VandenBoogart, 2006 in an unpublished master's thesis, observed that heavy Facebook use was observed among students with lower GPAs. In another similar study by Kolek and Saunders (2008) found that there was no correlation between Facebook use and GPA in a sample of students from a public Northeast Research University. While in another exploratory survey study reported a negative relationship between Facebook use and academic achievement as measured by self-reported GPA and hours spent studying per week (Karpinski& Duberstein, 2009).

Junco et al (2010) investigated a total of 4,491 students in large four-year public universities in the United States on the effect of the perceived instant messaging on learning outcome. Three of the institutions were in urban settings and primarily non residential, and one was in a rural setting and was primarily residential. The outcome being examined in this study was whether instant messaging interferes with students completing their homework. Results showed that multitasking while instant messaging was related to academic impairment at the bivariate level. Students who reported that they do schoolwork while instant messaging very frequently and somewhat frequently were more likely than those who do this sometimes, rarely, or never to report academic impairment due to instant message use. Also, as students' level of reporting that they did something else on the computer while instant messaging increased, so did their reports of academic impairment due to instant message use. Similarly, students who reported doing other things, not on the computer, while instant messaging very frequently, somewhat frequently, and sometimes were more likely than those who did this rarely or never to report academic impairment as a result of instant message use. Females were more likely to report a detrimental impact of instant messaging on their schoolwork compared to males. Over 50% of each age group, other than those age 25 and older, reported that

multitasking while instant messaging was detrimental to their completing their schoolwork. Class standing was also significant in the bivariate analyses. The study also found out that females were more likely to report a detrimental impact of instant messaging on their schoolwork compared to males.

2.7 Self- Efficacy for Self-Regulated Learning and web based learning

Research suggests that self-efficacy, or students' beliefs regarding their capability to execute actions necessary to achieve designated outcomes (Bandura, 1986), has a stronger effect on academic performance than other motivational beliefs (Pintrich and Schunk,1996). Self-efficacy also has been found to have critical effects on various types of academic learning. In addition to self-regulated behaviors, research also shows that self-efficacy has a strong influence on effort and task persistence, particularly in the face of the difficulty. Self-regulated learning refers to students' perceived capability to use a variety of self-regulated learning strategies such as self-monitoring, self-evaluation, goal setting, planning, self consequences, and environmental restructuring (Zimmerman et al., 1994). The aforementioned studies indicate that self-efficacy is strongly related to student learning behaviors. To date, self-efficacy has been shown to have significant effects on both traditional and Web-based learning and performance.

Zimmerman and Schunk (1989) define self- regulated learning in terms of self generated thoughts, feelings, and actions, which are systematically oriented toward attainment of students' own goals. Self- regulated learners engage in academic tasks for personal interest and satisfaction. Self-regulated learners also have a large arsenal of cognitive and metacognitive strategies that they deploy when needed to accomplish academic tasks. They are also quite persistent in their efforts to reach

their goals (Wolters, 1998). Research in self-regulated learning supports an increase in academic performance when students actively engage in the academic process (Zimmerman, 1989). Therefore, self-regulated learners are typically high achievers. For example, students scoring in the top 1% on an achievement test more frequently use certain self- learning strategies that optimize, firstly personal regulation (e.g., organizing and transforming information), secondly behavioural functioning (e.g., providing their own rewards and punishments based on performance) and thirdly immediate environment (e.g., reviewing notes, seeking peer assistance, and seeking adult assistance). Zimmerman (1999) identifies five key aspects of students' efforts to self regulate their learning: goal setting, strategy use, context adaptations, social processes, and self- monitoring. No single self-regulatory process can explain the complexity and variations in students' efforts to learn on their own. When self-efficacy and personal goal setting were compared with the verbal subscale of the Scholastic Aptitude Test, there was an increase of 35% in predicting college students' final grades in a writing course (Zimmerman & Bandura, 1994).In a review of distance learner persistence studies, Gibson (1998) identifies self-efficacy as a key variable. Aside from its effects on persistence and quantity of effort, self-efficacy has also been positively correlated to quality of effort, such as in the use of deeper processing strategies. A study of internet searching strategies suggested that high internet self-efficacy students apply better information searching strategies than low internet self-efficacy students in a Web-based learning task (Tsai and Tsai, 2003).

Shung-Ling Wang (2007) in a study of 76 students in Taiwan investigated the role of self efficacy on web based learning. The results supported that self-efficacy predicted student use of learning strategies and related to elaborated feedback

behavior. High self-efficacy students applied more high-level learning strategies, such as elaborative strategy and critical thinking. Students who provided elaborated feedback also had higher self-efficacy than those who did not. Moreover, receiving elaborative feedback significantly promoted student self-efficacy while receiving knowledge of correct response improved student performance. However, the results indicated that feedback behaviors did not predict academic performance, which may be interfered by modeling effects. Cole (2009) further describes a 'failed experiment' that embed social software to support student engagement for a third year undergraduate module. The author asserts that social software (e.g. Wikis) is perceived differently in an educational context, compared with ordinary personal usage and this discourages student adoption. Tams (2006) also reports that the students' self-directed social learning have a limited influence on their self-efficacy.

2.8 Summary of existing gap

There is no consensus on the effects of technology usage on academic outcomes to date. This is partially due to the number of limited studies examining the educational impacts of technology usage(Crook & Harrison, 2008). In addition, very few studies have examined the impacts of technology on education in Africa and specifically Mombasa County of Kenya despite the increasing use of these technologies. Available studies outside Kenya have also focused on internet access via computers only despite the tremendous growth in mobile phone technology that provides cheap and easily accessible internet services. Mostly these studies have relied on online data collection which disadvantages a particular group of respondents. These studies have also not focused on the role of self efficacy for self regulated learning during Facebook browsing or even compare Facebook users and non users due to very few or non Facebook users in colleges. This study intends to fill this gap.

2.9 Chapter Summary

The literature review started with the discussion of the dependent variable in this study, by examining the concept of learning and learning behaviour. Use of social networking in learning and its impacts was later explored. Self efficacy for self regulated learning was defined and its role in motivating learners to pursue their goals despite challenges. Lastly the chapter addressed the gaps it intends to fill. Chapter 3 will address the research methodology adopted for this study.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter describes the methodology adopted in this study. The chapter covers the following subsections; the research design, study area, sample selection, data collection instruments, piloting, data collection procedures and analysis. Lastly the chapter highlighted some of the legal and ethical considerations the researcher upheld. The field research was carried out in university colleges within Mombasa County between April 2011 and September, 2011. Data was collected from primary and secondary sources using questionnaires, interview schedules and checklists.

3.2 Research Design

The study adopted a cross sectional, descriptive survey design to investigate the perceived effects of Facebook browsing on learning behavior of University college students in Mombasa County.

3.3 Study Area

The study was conducted in Mombasa County which is the headquarters of Coast Province in Kenya. The county lies Latitudes 3°56' and 4°10' South of the equator and Longitudes 39°34' and 39°46' East covering an area of 295 km² including 65 km² of inshore waters. It has four constituencies; Changamwe, Kisauni, Likoni and Mvita. The County is cosmopolitan and has a total population of 523,183 people and University student's population of 8,941(Kenya National Bureau of Statistics, 2009). Tourism is the most important economic activity for this County. The County has the following University colleges and campuses; Mombasa Polytechnic University College, Mombasa Campuses of Kenyatta University, University of

Nairobi, Moi University, Daystar University, Kenya Methodist University and Mount Kenya University. This is a representation of the major universities in Mombasa County and therefore able to produce a representative sample of both private and public universities for the study.

3.4 Sources of data

Two sources of data were used, namely the primary and secondary sources. Primary sources involved the use of oral interviews, checklists and questionnaires. The interviews were structured and it involved asking each informant similar questions to which they answered and the researcher noted down the important themes. The interview guide had a written list of questions that was covered in the interview in order to gain a detailed understanding of the perceived effect of social networking on learning behaviour (see appendix C).

Secondary source for data collection included books, journals, magazines, reports, records and internet sources. These sources are vital for further literature review in support of the proposed study. The researcher made use of literature available at registrar of academic programmes of the various colleges. The researcher made visits to Kenyatta University library, Kenya National Library Mombasa, Moi University Library, Mombasa Polytechnic University Library to review on various books and journals which is relevant to the study.

3.5 Target Population and Sample Selection

The target population for this study was regular undergraduate university students taking various courses in different campuses and colleges in Mombasa County. The present study adopted random stratified sampling technique to identify four colleges

that participated in the study. Mombasa county has seven colleges that were stratified into two strata; private and public universities. Two colleges each were selected from private and public by convenience sampling. Out of the three public universities in Mombasa County one was used for piloting leaving two colleges. There are three private universities in Mombasa County. During the time of this study one private university was in recess.

The following formula was used to determine the sample size. For a population less than 10,000 the sample size is obtained by using; (Mugenda and Mugenda, 1999)

$$n_f = \frac{n}{1 + \left(\frac{n}{N}\right)} \quad \text{.....eq(1)}$$

Where: n_f= sample size in a population less than 10,000

n = sample size in a population greater than 10,000

N = is the estimated target population

For this study, the estimated population is 8,000 students drawn from university colleges in Mombasa County. Sample size in the case of q population of over 10,000 would be obtained by:

$$n = \frac{z^2 pq}{d^2} \quad \text{.....} \quad \text{eq(2)}$$

Where n = sample size in a population greater than 10,000

Z = the standard normal deviate at the required confidence level (1.96).

p = the proportion in the target population estimated to have characteristics being measured (0.5).

q = 1 – p

d = the level of statistical significance set (0.05).

Using the formula in equation 2

$$n = \frac{1.96*1.96*0.5*0.5}{0.05*0.05}$$
$$= 384$$

Using this population, the sample size in 8000 students can be obtained using equation 1 i.e.

$$n_f = \frac{n}{1 + \left(\frac{n}{N}\right)} \quad \text{.....} \quad \text{eq(1)}$$

Substituting the value

$$n = 384$$

$$N = 8{,}000$$

$$n_f = \frac{384}{1 + \left(\frac{384}{8{,}000}\right)}$$

$$= 366.41211$$

Since there is no decimal person, the sample size is estimated to be 367.

Table 3.1: Sample size drawn from the various colleges

	Institution	Number of students	Sample size
A	**Private Universities**		
	Mombasa campus of Kenya Methodist University	600	26
	Mombasa campus of Mt. Kenya University	500	22
B	**Public Universities**		
	Mombasa Polytechnic University College	7000	306
	Mombasa campus of Moi University	300	13
	Total	**8400**	**367**

Source: Office of the Academic Registrar of the institutions, 2011

Three hundred and sixty seven (367) students from various colleges were selected by systematic sampling from the nominal roll of the students in the various colleges. The number of students per college was selected proportionately.

3.6 Data collection Instruments

3.6.1 Questionnaire

The questionnaire (Appendix A) was partly prepared by the researcher and three sections adapted from Ellison et al.(2007), Mazman and Usluel(2007) and Zimmerman et al (1992). The questionnaire comprised of seven sub-sections. In Section A, demographic characteristics of social network users was collected and Section B, collected information on users experience on using the internet and their level of Facebook usage. Social Networking intensity was measured using five items derived from Ellison et al. (2007). This measure includes two self-reported assessments of Facebook behavior, designed to measure the extent to which the participant was actively engaged in Facebook activities: the number of Facebook "friends" and the amount of time spent on Facebook on a typical day. This measure also includes a series of Likert-scale attitudinal questions designed to tap the extent to which the participant was emotionally connected to Facebook and the extent to which Facebook was integrated into their daily activities. Facebook intensity was treated as a surrogate measure for individuals' Facebook browsing. In section C, the respondents were asked on the educational content shared during Facebook browsing and their preference for Facebook. In Section D, the respondents were asked their views of Facebook in relation to their learning behaviour on Facebook that is communication, collaboration and sharing of resources during Facebook browsing. Section E, sought to find out how Facebook interferes with the respondents' learning activities in the college(adapted from Mazman & Usluel, 2007). Finally section F collected data on self efficacy for self regulated learning of the students. The measure was used to compare students who browse Facebook for learning purposes and those who did not. The self-efficacy for self regulated learning scale was adapted from Zimmerman et al (1992).

3.6.2 Documentary search record sheet

Documentary Search Record Sheet (Appendix B) was used to collect data from academic office. Data collected using this tool included; student population in a class, course and year of study. This information was necessary in helping to identify the number of informants per class who would participate in this study.

3.6.3 Interview guide

The interview guide (Appendix C) was designed to collect information from university cyber administrators and technicians. The interview guide was suitable since it was flexible and adaptive.

3.6.4 Checklist

Checklists (Appendix D) were used during field observation to collect information regarding availability of computer centres and information technology laboratories in colleges. The checklist also was also used to identify the number of computers and how often the computers were used to browse Facebook. This information was obtained from the software that manages the computers in the computer laboratory. This tool was also used to collect the type of internet connectivity the colleges used and properties of their university websites.

3.7 Piloting

3.7.1 Validity

Validity evidence for the instrument was provided by reviewing the questionnaire for the following: Clarity in wording, relevance of the items, use of Standard English, absence of biased words and phrases, formatting of items, and clarity of the instructions (Fowler, 2002). Two faculty and two graduate students were asked to use these guidelines to review the instrument. Based on the reviewers' comments, the instrument was revised prior to administration.

A pilot study was carried out at Mombasa Campus of Kenyatta University before the actual data collection. The researcher administered the questionnaire to 20(5% of sample size) students through convenience sampling (Mugenda & Mugenda 1999). This was to ensure representation of the overall target population. The time taken for the students to complete the questionnaire was obtained by recording the beginning and ending times for each student. Fifteen out of twenty students were able to complete the questionnaire within 20 – 25 minutes. Each student was also asked the following questions upon completion of the questionnaire: firstly what difficulties did you have in completing the questionnaire? Secondly were the written and oral instructions clear and concise? Thirdly did you encounter any difficulty with any section or individual question on the questionnaire? Lastly do you have any recommendations for improving the questionnaire? All these information was collected and used to improve the instrument. The students who participated in the piloting were not involved in the main study.

3.7.2 Reliability

The piloted data was analysed to calculate its reliability. The reliability coefficient of the questionnaire was calculated using Kuder Richardson Formula. A reliability coefficient of 0.7 was obtained. Several items that had ambiguous items were revised to improve the instrument and finally a coefficient of 0.87 was obtained.

3.8 Data collection procedure

The researcher obtained the research permit from the offices of National Council for Science and Technology and later visited university administrators of the various colleges to get clearance before collecting data. The researcher obtained a list of students of the various classes from the office of the registrar academics and

proportionately apportioned the number of questionnaires depending on the size of the class.

3.9 Data Management and Analysis

3.9.1 Quantitative analysis

The questionnaires were coded and a code book prepared. The data was keyed in into *Statistical Packages for the Social Sciences* (*SPSS*) version 17.1. Apart from basic descriptive analyses, correlation and logistic regression analysis was used to examine the relationship between Facebook browsing and learning behaviour. Analyses of Variance (ANOVA) was also used to evaluate differences in demographic variables and Facebook browsing between students who did and did not report that they used Facebook for learning purposes or not. Simple regression analysis was used to predict whether self efficacy for self regulated learning would predict students who will use Facebook for learning purposes or not. Generally, logistic regression is well suited for describing and testing hypotheses about relationships between a categorical outcome variable and one or more categorical or continuous predictor variables (Peng, C.J, et al, 2002).

3.9.2 Qualitative analysis

Open-response items and interview responses were analysed using Qualitative Data Analysis (QDA); based on an interpretative philosophy(Claudle,2004). The main idea behind QDA is to examine the meaningful and symbolic content of qualitative data in order to identify someone's interpretations. Claudle's framework for QDA involves two major sub processes: firstly, data reduction and pattern identification, and secondly producing objective analytic conclusions and communicating them. Data for each open-response item was reduced to the major themes and patterns within these themes was identified. Conclusions were drawn based on these main themes and patterns.

3.10 Legal and Ethical considerations

The purpose of the study was explained to the respondents by the researcher. This was to ensure that the respondents understood the purpose of the study and therefore gave an informed consent to take part in the study. In addition, this ensured cooperation from the respondents and avoids any form of suspicion on the part of the respondents. The researcher also insisted on voluntary participation of respondents in giving required information and avoid any form of breach of confidentiality. Permission to collect data was also sought from the office of the National Council for Science and Technology providing clearance for the researcher.

3.11 Summary of the Chapter

The chapter addressed the methodology of the study. Included were the research design, instrumentation, data collection and data analysis procedures. The next chapter covers data presentation and analysis.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.0 Introduction

This chapter describes the data presentation and analysis of the study. The chapter covers the following subsections; general information of the respondents and results of six objectives of the study.

4.1 General Information of the Respondents

4.1.1 Total Number of Respondents

A total of 367 respondents were served with questionnaires out of which 28(7.6%) had incomplete questionnaires and were thus excluded from analysis leaving 339 respondents for analysis. The 339 respondents left for analysis was 92.3% of the original sample.

4.1.2 Age and Gender of the Respondents

Respondents were asked an open question to state their ages which later was categorized as shown in Table 4.1.

Table 4.1:Age of the respondents by Gender

	Gender			
Age	**Female**		**Male**	
	Frequency	**%**	**Frequency**	**%**
16-18	2	0.6	2	0.6
19-21	44	13.0	54	15.9
22-24	56	16.5	132	38.9
25-27	9	2.7	21	6.2
28-30	1	0.3	6	1.8
31-33	3	0.9	1	0.3
34-36	3	0.9	2	0.6
40-55	2	0.6	1	0.3
Total	**120**	**35.4**	**219**	**64.6**

Majority of the respondents were male in the age bracket of 22-24 years (n=132, 38.9%) followed by 19-21 age category (n=54, 15.9%). The age bracket with the

least number of students was 16-18 with male 2(0.6%) and female 2(0.6%). The average age for university students in Kenya is 19 – 25 years (Bumgarner, 2007). Of the 339 respondents majority were male (n=219, 64.6%) and female (n=120, 35.4%). This is not unexpected since country wide the ratio of males to females is high in Kenyan universities especially in science oriented programmes that are offered by colleges like Mombasa Polytechnic University College.

4.1.3 Categories of courses enrolled in the colleges

The colleges offer a number of programmes in their various campuses and the catchment of the students is both within and outside the Mombasa County. Mombasa Polytechnic University College had the highest number of courses because of its size and it is also the oldest college in Mombasa County. A total of 38 different courses were enrolled by the respondents, 14 degree and 26 diploma prgrammes from the different colleges as shown in Table 4.2. Majority of the courses were from Mombasa Polytechnic University College since it had the highest number of respondents. For degree programmes, Bachelor of Business Administration had the highest number of respondents (n=81, 23.9%), followed by Bachelor of Industry and Biotechnology(n=18, 5.3%). Bachelor of Business Administration is offered by Mombasa Polytechnic and Kenya Methodist University Mombasa Campuses. In the Diploma Programmes category, diploma in Information Technology had the highest respondents (n=23, 6.8%).

Table 4.2: Courses enrolled by the respondents in the colleges

	Academic Programmes	Frequency	Percentage
1	Bachelor of Business Administration	81	23.9
2	Bachelor of Industry & biotechnology	18	5.3
3	B.Sc. Mechanical Engineering	15	4.4
4	B.Sc. In Electrical & Electronic engineering	13	3.8
5	B. Sc. Civil Engineering	10	3.0
6	Bachelor of Technology and Elect. Engineering.	10	3.0
7	Bachelor of Business Management	8	2.4
8	Bachelor of Business and Information Tech.	7	2.1
9	B.Sc. Architecture	6	1.8
10	Bachelor of Education Arts	6	1.8
11	Bachelor of Commerce	5	1.5
12	B.Sc. Computer Science	3	0.9
13	Bachelor of Human Resource Management	3	0.9
14	B.Sc. in Computer Engineering	2	0.6
	Diploma programmes		
15	Diploma in Information Technology	23	6.8
16	Diploma Business Administration	21	6.2
17	Diploma in Hospitality and Tourism Management	20	5.9
18	Diploma Community Development & counseling	18	5.3
19	Diploma in Business Management	13	3.8
20	Diploma in Electrical Power	8	2.4
21	Diploma in Building & Civil Engineering	6	1.8
22	Diploma in Environmental health	7	2.1
23	Diploma Nutrition & health Science	5	1.5
24	Diploma in Pharmacy	4	1.2
25	Diploma in Analytical Chemistry	3	0.9
26	Diploma in Automotive Engineering	3	0.9
27	Diploma Production engineering	3	0.9
28	Diploma in Catering & Hospitality	2	0.6
29	Diploma in Human Resource Management	2	0.6
30	Diploma in Journalism & Mass Communication	4	1.2
31	Diploma Medical Engineering	2	0.6
32	Diploma in Public Relations	2	0.6
33	Diploma in Broadcast Journalism	1	0.3
34	Diploma in Civil Engineering	1	0.3
35	Diploma in Accounts	1	0.3
36	Diploma in Chemical Engineering	1	0.3
37	Diploma in Sales and Marketing	1	0.3
38	Diploma International Freight management	1	0.3
	Total	**339**	**100**

Several programmes sampled had very few students but for the sake of this study they were represented as indicated in the methodology. They included Diploma in Purchasing, Accounts, Public Relations, Pharmacy, Sales and Marketing and Broadcast journalism. Each of these programmes had 0.3% (n=1). Majority of the courses offered by the various colleges are business and Information Technology related. It is worth noting that all the colleges in Mombasa County at least had a Diploma programme that allowed for progression to degree programme.

4.1.4 Level of classes

Different colleges offered different course units to their students. To identify the number of units taken, students were asked to state the number of units registered in that semester. This was later confirmed from the registrar in charge of academic affairs of the respective colleges. This was an important variable because it gives a glimpse of how occupied students are on campus.

The majority of students were in second year (n=164; 48.4%) compared to only 3.8% (n=13) in fourth year. This difference arose because most of the students who were willing and consented to participate in the study were second years as compared to their counterparts in fourth year who claimed to be very busy and are no longer interested in campus activities. Of the 157 (46.3%) students who had registered 6-7 units, 27.4% (n=93) were in second year while 14.5% (n=49) were third years. Only 3.8% (n=13) had registered more than 12 units. Mostly these students were enrolled in diploma courses in Applied Sciences in Mombasa Polytechnic University College(Table 4.3).

Table 4.3: Units registered in each class

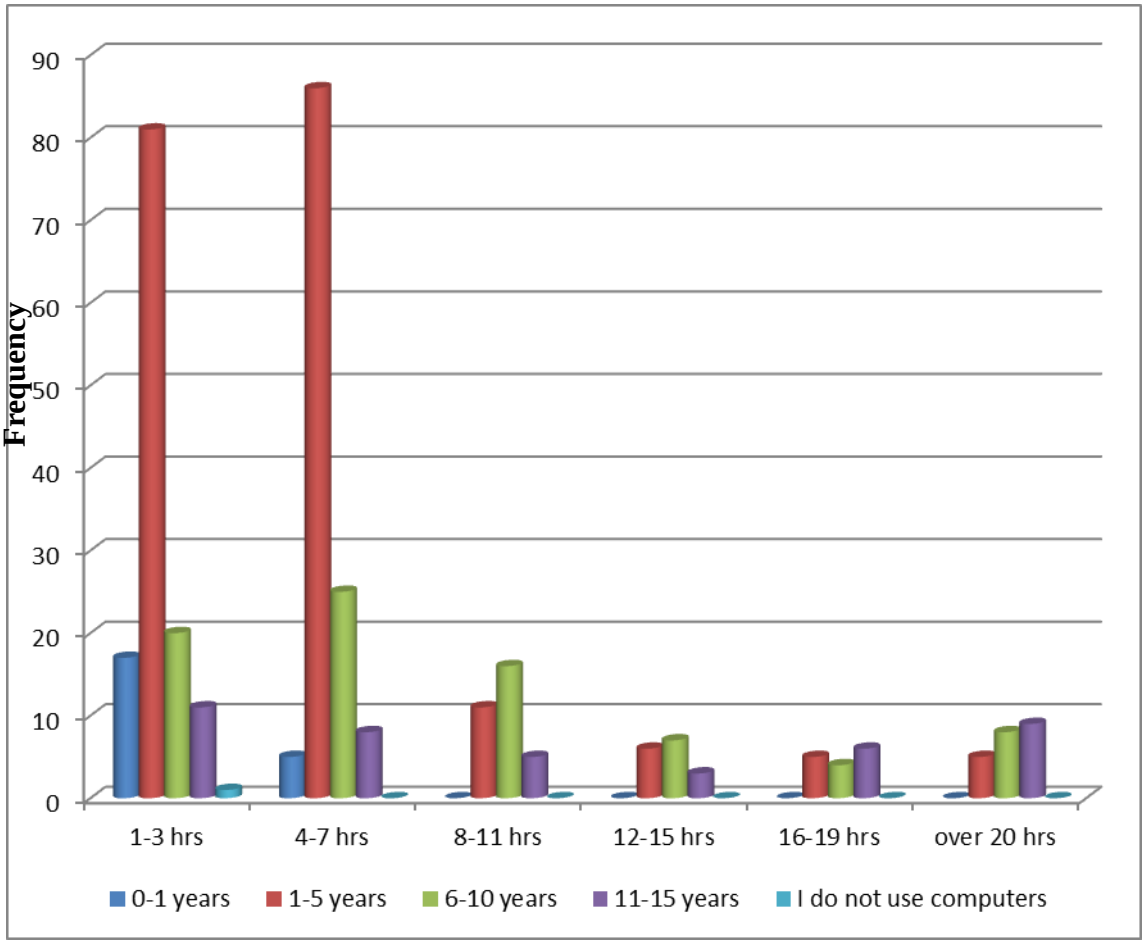
	Class level							
Units	**First**		**Second**		**Third**		**Fourth**	
registered	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**
4-5	6	1.8	4	1.2	4	1.2	0	0.0
6-7	12	3.5	93	27.4	49	14.5	3	0.9
8-9	11	3.2	52	15.3	59	17.4	6	1.8
10-11	1	0.3	9	2.7	14	4.1	3	0.9
> 12	0	0.0	6	1.8	6	1.8	1	0.3
Total	**30**	**8.8**	**164**	**48.4**	**132**	**38.9**	**13**	**3.8**

4.1.5 Experience in using computers

Respondents were asked to state their experience in using computers either before or after joining the college. This item was important because computers are mostly preferred when browsing the internet. Therefore computer familiarity could attract students to its usage and lack of it discourages students to use them.

Figure 4.1 indicates that majority of the respondents (n=130, 38.3%) spent an average time of 1-3 hours per week on the internet followed closely by 4-7 hours (n=124, 36.6%). This was mainly because many colleges in Mombasa County had restricted the time students are allowed to use computers to one hour per student to create equal opportunities for other students. Many of the students had only used computers for a period of 1-5 years (n=194, 57.2%) while the most experienced had used computers for 11-15 years (n=42, 12.4%). In the most experienced category, majority (n=11, 3.2 %) spent only 1-3 hours on the internet, may be because of their efficiency they were able to do much within this short period of time. There were more students in the least experienced category of 1-5 years (n=81, 23.9%), than the most experienced group of 11-15 years. Similarly there was only one student (n=1, 0.3%) who did not use computers.

Figure 4.1: Experience in using computers and average time spent on internet per week



A Chi Square test was performed to find out whether there is a relationship between experience and time spent in using computers. The results showed that there was a significant relationship (x^2=57.3; df =24; p=.000) between experience in using computers and average time spent on the internet per week at .05 level of significance. Therefore computer experience is an indicator of the time a student will spend while using computers.

Analysis of variance was also performed to find out whether there was any difference regarding experience in using computers among students who use social networking software and those who do not. Table 4.5 shows that there is a significant difference F(1,337) = 6.618, p =.011 at .05 level of significance between those who use social networking software and those who do not (Table 4.4). Those who use social networking software were more computer experienced than those who do not.

Table 4.4 ANOVA: Comparison of use of Facebook and experience in using computers

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.179	1	4.179	6.618	.011*
Within Groups	212.800	337	.631		
Total	216.979	338			

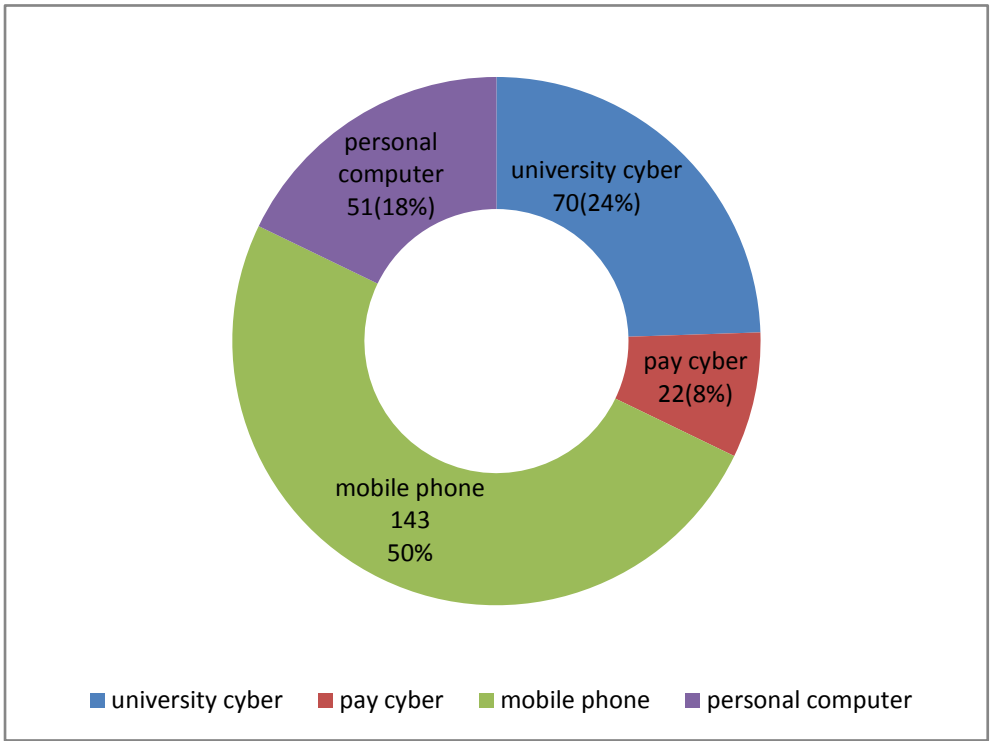
*p <.05 (mean difference is significant)

4.1.6 Mode of accessing the internet

All the constituent colleges had a number of methods of delivering internet to their students. The mostly used mode of delivery of the internet service to the students by the colleges was the local area network and wireless connectivity. For students who have their own laptops they could access the service wirelessly or use sockets positioned in strategic places in the campuses. The majority of students accessed the

internet by use of mobile phones (n=143, 50%), followed by the university cyber café (n=70, 24%), personal computer (n=51, 18%) and lastly pay cyber (n=22, 8%). Figure 4.2 has the details. The mobile phone was widely mentioned to be used together with other modes of accessing the internet. The mobile phones became very handy especially when other modes had failed.

Figure 4.2: Students different modes of accessing the internet.



Inventory checklist to find out the number of computers in the digital centres revealed that most of the time the computers were occupied and thus many students sought alternative means outside the college. The average computer to student ratio in the was 1:42 for the colleges in Mombasa County (Table 4.5). 1). In the U.S, the overall ratio of students to instructional computers with Internet access in public institutions of learning as of fall 2008 was 3:1. That number fell from 3.8 the last time it was measured in 2005. The ratio was 4:8 in 2002, and 12:1 in 1998.

Currently the ratio is 10:1. These numbers only include desktop or laptop computers and do not include any handheld devices (Mark, 2010). According to UNESCO, a ratio of student to computer ratio of 10:1 is still high.

Table 4.5: Number of Computer terminals in the various colleges for student use

College	Number of computers	Student population	Computer/student ratio
Mombasa Polytechnic	90	7000	1:70
KEMU-Mombasa campus	50	600	1:12
Mount Kenya-Mombasa campus	60	500	1:8
Moi university –Mombasa Campus	10	300	1:30
Total	**200**	**8400**	

For those who have personal computers the best alternative was to connect the wireless network of the institution. In some institutions they have instituted rules against browsing of Facebook in the university cybercafés, while others have limited the number of computers that can make a successful connection to Facebook site. This has increased the use of mobile phones rather than relying on university facilities.

4.1.7 Social networking software used

Respondents were asked to identify the social networking software they used. This was a closed question though the second part of this item allowed members to indicate any other social networking software used. Table 4.6 shows the identified social networking software. They included Facebook, Twitter, and My Space. Others used but on a little scale were badoo and netlog. The majority of the respondents (n=290, 85.6%) agreed that they use social networking software and only 14.5% (n=49) do not subscribe to any of the social networking software.

Table 4.6: Social networking software used

	Frequency	Percent
Facebook	282	83.2
Twitter	7	2.1
My Space	1	.3
None	49	14.5
Total	**339**	**100.0**

Out of this 83.20% (n=282) had Facebook accounts and only a total of 2.4%(n=8) had registered in Twitter and My Space. This seems to agree with Facebook.com statistics that over 70% of its users are between the ages of 18-25 years which is the commonest age for majority of university students (www.Facebook.com/statistics). Some students indicated that apart from using Facebook as the main social networking software they also use others but on a very limited scale. These software included 2 go, badoo, tagged and netlog. It is worth noting that different types of social networking software target different clientele as discussed in the literature review.

4.2 Facebook popularity among undergraduate university students in Mombasa County

The first objective of this study sought to find out the factors that make Facebook popular among university students. Respondents were asked to state the factors that attract them to Facebook. As shown in Table 4.7, 83.2% (n=282) of the students sampled indicated to be users of Facebook. Therefore any content placed on the university Facebook page will be seen by 83.2% of the student body in Mombasa County. In a study conducted by EDUCAUSE Center for Applied Research (ECAR) in 2006, from a sample of 36,950 students from 126 U.S. Universities and one Canadian university, showed that 90% of students who use social networking websites, 97% said they used Facebook. This 97% reported actively engaging on the site daily. If the two samples are compared, fewer students browse facebook than the sample from the U.S.

4.2.1 Factors that make Facebook popular among the University students in Mombasa County

Students were asked to state the factors that attract them to the use of Facebook. This was an open question and respondents had an opportunity to state more than one factor and even explain it where possible. The responses were analysed using the Qualitative Data Analysis technique (Claudle,2004). Data for each open-response item was reduced to the major themes and patterns. Conclusions were drawn based on these main themes and patterns. Table 4.7 shows the factors identified, organized starting with the most frequent factor. Majority of the respondents (n=118, 41.3%) said that Facebook is cheap and easy for them to use while 14.7 % (n=42) said that accessibility on phones is their biggest attraction to Facebook. Since the phone has become a common gadget they can still remain connected with their friends and favourite pages while still far away from computers.

Table 4.7 Factors for Facebook popularity among University students in Mombasa County

		Frequency	**Percentage**
1	Cheap, fast and easy to use	118	41.3
2	Easy accessibility on phones	42	14.7
3	Communicate with friends and relatives	37	12.8
4	Forum to meet all category of people	22	7.7
5	Share educational content with colleagues in other colleges	16	5.6
6	Meet Social groups online	12	4.3
7	Chat with colleagues in real time	11	3.6
8	Entertainment	8	2.7
9	Encourages one to frequently access the internet	5	1.7
10	Easy to upload files such as video, documents and pictures	4	1.4
11	Enhances user creativity and innovativeness	3	1.0
12	News update	3	1.0
13	Marketing tool	3	1.0
14	Others	2	0.6
	Total	**286**	**100**

A small percentage of 7.7% (n=22) mentioned sharing of educational content with colleagues as a very important factor to them when using Facebook. Currently Facebook is almost a universal social networking software, 7.7 % (n=22) saw this as an important factor that allows them to meet all kinds of people and communicate with friends and relatives (n=37, 12.8%). Five(5) 1.7%,said that they use Facebook as a platform to link to other activities on the internet. This activities include uploading files such as video, documents and pictures (n=4, 1.4%). Such tasks are a little bit complicated with other software. Kariuki, J. (2006) in a study of how universities utilize the internet technology for learning found out that there is poor usage of the learning systems due to the poor perceptions that users have towards the e-learning platforms and the contents provided.

Another major factor that contributes to Facebook popularity among the students is the use by the colleges as an official means of communication to their staff and students. All university colleges in Mombasa have a website either used by the college alone or as members of the bigger university community. A Checklist was used to identify the availability of Facebook link in the university websites. The checklist was filled using desktop research. The content of student and university staff discussions as revealed on the Facebook wall was also recorded on this checklist.

Majority of the colleges have Facebook link at least in one of the pages. This page has been used to keep students updated with campus affairs in real time. Similarly students are able to share with colleagues information already found on the website and thus improve communication. University administration has therefore taken

advantage of Facebook popularity among students and included a link into the university websites. This official inclusion of Facebook page into university sites has prompted students to rely on Facebook page as an official linkage with the university. All the universities represented in Mombasa County except Mount Kenya University had a Facebook link located in their university website. Similarly all the links were placed on the first page of the website commonly known as the home page except Kenyatta University which had placed it on the student online services page(Table 4.8).

Table 4.8: Facebook link in universities and colleges websites

University / college	Page location	Other social networking software	Content on the Facebook pages
Mombasa Polytechnic University College	Home	Twitter, linked in	- campus news and updates - campus politics official notices to students
Kenya Methodist University	Home	Twitter	- campus news and updates -official notices to students -students requests to university admin
Moi University	Home	None	-University alumni -campus news and updates
University of Nairobi	Home	Twitter, RSS	-campus news and updates -official notices to students -students requests to university admin
Mount Kenya University	None	None	
Kenyatta university	Student online services	Twitter, RSS	-campus news and updates -official notices to students -students requests to university admin
JKUAT	Home	Twitter, linked in	-campus news and updates -official notices to students
Daystar	Home	None	-campus news and updates -official notices to students

This shows the importance that the university administration had placed on this form of communication. All Facebook pages on these sites contained official communication of the university to the public and students. These information included scholarships, partners in education, research, visiting professors and donations to the universities. Students also took this opportunity to get further clarification from the university administration on issues like opening dates and activities on campus.

4.2.2 The level of Facebook integration into University Students daily activities

To measure how Facebook was integrated into student daily activities and how emotionally attached they were on it, five items derived from Ellison et al. (2007) Facebook intensity scale were used. The Facebook Intensity score is computed by calculating the mean of all of the items in the scale (Elison et al 2007).

The average number of total Facebook friends was 201-250 friends (M=5.6573), who spent an average time of 31-40 min per day on Facebook (M=3.4616). Junco, R(2011) in another study with a large sample (N=2368) examined the relationship between frequency of Facebook use, participation in Facebook activities and student engagement found out that students in this sample spent a mean of 101.09 min (SD 99.16) on the site per day and checked Facebook a mean of 5.75 times per day. Therefore students in Mombasa are moderate users if compared to this sample. On whether Facebook is part of their everyday activity (M=2.996) they were neutral but consented that they will be sorry if Facebook would shut down(M=3.6469). Respondents also agreed (M=3.675) that they feel proud to tell people that they are on Facebook. When asked whether they feel out of touch when they have not logged

onto Facebook, the respondents were neutral (M=3.136) but agreed (M=3.78) that they felt they are part of Facebook community (Table 4.9).

Table 4.9: Summary statistics for Facebook integration into University students activities

Individual items and scale	Mean
About how many total Facebook friends do you have at your college or elsewhere *1=10 or less, 2=11-50, 3=51-100, 4=101-150, 5=151-200, 6=201-250, 7=251-300, 8=301-400, 9=more than 400*	5.6573(6)
In the past week, on average, approximately how many minutes per day have you spent on Facebook? *1=less than 10, 2=11-20, 3=21-30, 4=31-40 min, 5=41-50 min, 5=over 51 min*	3.4615(3)
Facebook is part of my everyday activity *1=strongly disagree to 5=strongly agree*	2.9965(3)
I am proud to tell people I'm on Facebook	3.6748(4)
Feel out of touch when I have not logged onto Facebook for a while	3.1364(3)
Feel part of Facebook community	3.7797(4)
I would be sorry if Facebook shut down	3.6469(4)
Facebook intensity score	3.67(4)

Note: N = 286.
The values in bracket shows the average rounded off to 1 decimal place

4.2.3 Number of Facebook friends and time spent browsing Facebook

To get a deeper insight on the time spent during Facebook browsing, a cross tabulation was run between the number of friends students had on their Facebook profile and time spent during Facebook browsing. Table 4.9 shows that 21%(n=60) said that they spend more than 51 minutes on Facebook every day. This is slightly above the average of 31-40 minutes as shown in Table 4.8. This has made them make more than 400 Facebook friends. For respondents who had few friends i.e. less than 10 also spent less than 10 minutes on Facebook.

Table 4.10: Total no of Facebook friends per student and time spent on Facebook per day

Total no of Facebook friends	Minutes spent on Facebook per day						
	1-10 minutes	11-20 minutes	21-30 minutes	31-40 minutes	41-50 minutes	Over51 minutes	Sub total
less than 10	3(1.0%)	0(0.0%)	2(0.7%)	2(0.7%)	1(0.3%)	0(0.0%)	8(2.8%)
11-50	8(2.8%)	7(2.4%)	5(1.7%)	1(0.3%)	3(1.0%)	4(1.4%)	28(9.8%)
51-100	4(1.4%)	14(4.9%)	10(3.5%)	6(2.1%)	1(0.3%)	4(1.4%)	39(13.6%)
101-150	8(2.8%)	10(3.5%)	3(1.0%)	6(2.1%)	4(1.4%)	1(0.3%)	32(11.2%)
151-200	7(2.4%)	7(2.4%)	12(4.2%)	6(2.1%)	4(1.4%)	4(1.4%)	40(14.0%)
201-250	4(1.4%)	0(0.0%)	6(2.1%)	4(1.4%)	1(0.3%)	3(1.0%)	18(6.3%)
251-300	5(1.7%)	6(2.1%)	8(2.8%)	8(2.8%)	3(1.0%)	3(1.0%)	33(11.5%)
301-400	1(0.3%)	9(3.1%)	4(1.4%)	0(0.0%)	2(0.7%)	6(2.1%)	22(7.7%)
More than 400	4(1.4%)	5(1.7%)	4(1.4%)	9(3.1%)	9(3.1%)	35(12.2%)	66(23.1%)
Total	44(15.4%)	58(20.3%)	54(18.9%)	42(14.7%)	28(9.8%)	60(21.0%)	286(100.0%)

Cassidy(2006); reported that a typical user of Facebook spends about 20 minutes a day on the site and two-thirds of users log in at least once a day. In another study Ellison et al (2007) found that Facebook members report spending between 10 and 30 minutes on average each day and report having between 150 and 200 friends listed on their profile. Thus in this study it seems students spend more time than average browsing Facebook than other similar students elsewhere. If you compare this with findings in this study, the students in this study spent twice as more time.

A chi-square test, was also run to find out whether there is a relationship between the number of Facebook friends and time spent browsing Facebook. The results revealed that there was a significant ($x^2(40, N=286) = 109.94$, $p < .001$) relationship between number of friends a student had listed on their Facebook profile and time spent browsing Facebook at .05 level of significance. It can therefore be concluded that the more the number of Facebook friends one had the more the time spent on Facebook

4.3 University students' use of Facebook for learning purposes.

The second research question of this study sought to establish whether university students use Facebook for learning purposes, the strategies used and its effect on their learning behaviour. Students were asked to state whether they used Facebook for academic purpose. Academic purposes are all activities that support the various academic programmes and specializations they have enrolled in the university.

Figure 4.3: Use of Facebook for academic purpose

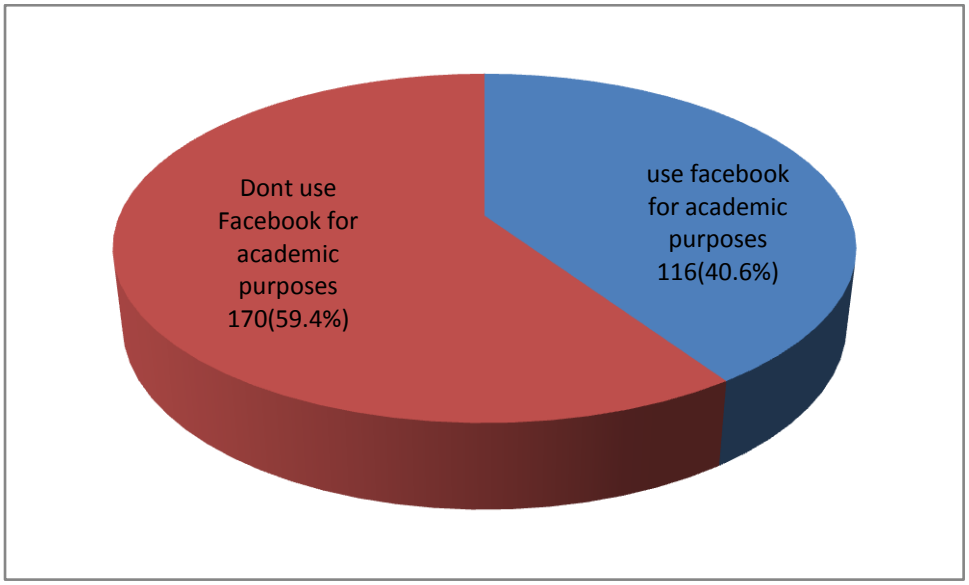


Figure 4.2 shows that majority of the respondents (n=170, 59.4%) said that they do not use Facebook for academic purpose while 40.6% (n=116) agreed that they use Facebook for academic purposes. From the proportion that use Facebook for academic purpose 22.7% (n=65) confirmed that Facebook had positive impact on their academic performance while 17.8% (n=51) had received no impact on their academic performance. In this group of students also, 22(7.6%) out of the total 34 grade A was achieved by them and non 0(0.0%) obtained the grade D which was the worst in this study as shown in Table 4.11.

Table 4.11: Impact of Facebook browsing on academic performance

Use of Facebook for academic purpose	If FB browsing had an impact in academic performance		Sub total
	Yes	**No**	
Yes	65(22.7%)	51(17.8%)	116(40.6%)
No	37(12.9%)	133(46.5%)	170(59.4%)
Total	**102(35.7%)**	**184(64.3%)**	**286(100.0%)**

Therefore Facebook browsing in some ways had improved their academic achievement for those who used facebook for academic purposes.

Out of the proportion that did not use Facebook for academic purposes 46.5% (n=133) said that Facebook had no impact on their academic performance while only 12.9% (n=37) said that Facebook had an impact on their academic performance(Table 4.12).

Table 4.12: Use of Facebook for academic purpose and the average grade

Use of Facebook for academic purposes	Average grade							
	A		B		C		D	
	Freq	%	Freq	%	Freq	%	Freq	%
Yes	22	7.6	67	23.3	27	9.4	0	0.0
No	12	4.2	100	34.7	57	19.8	3	1.0
Total	**34**	**11.8**	**167**	**58.0**	**84**	**29.2**	**3**	**1.0**

To establish the possibility of Facebook browsing affecting academic performance, an ANOVA was conducted to test for differences in the mean scores of the Average Grade of the students scored in the last immediate semester between the students who use Facebook for academic purposes and those who do not. Student academic grades were harmonized into a scale of A to D(Table 4.13).

Table 4.13 ANOVA: Comparison of use of Facebook for academic purpose and average academic grades

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	3.071	3	1.024	4.382	.005*
Within Groups	65.880	282	.234		
Total	**68.951**	**285**			

*p <.05 (Note: The mean difference is significant at the .05 level.)

As shown in Table 4.14, the ANOVA results showed that there is a significant difference between the use of Facebook for academic purpose and average academic grade in the last semester, F (3,282) = 4.382, p = .005. To identify exactly where there was differences in the grades a Least Squares Differences Post Hoc test was performed (Table 4.14).

Table 4.14: Least Squares Difference Post Hoc Test for Differences in use of Facebook for academic purposes by Average Grade

Dependent Variable	(I) Average grade	(J) Average grade	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Use of Facebook for academic purposes	A	B	-.2410(*)	.09103	.009	-.4202	-.0618
		C	-.3256(*)	.09825	.001	-.5190	-.1322
		D	-.6471(*)	.29111	.027	-1.2201	-.0740
	B	A	.2410(*)	.09103	.009	.0618	.4202
		C	-.0846	.06478	.192	-.2122	.0429
		D	-.4061	.28158	.150	-.9603	.1482
	C	A	.3256(*)	.09825	.001	.1322	.5190
		B	.0846	.06478	.192	-.0429	.2122
		D	-.3214	.28400	.259	-.8804	.2376
	D	A	.6471	.29111	.027	.0740	1.2201
		B	.4061	.28158	.150	-.1482	.9603
		C	.3214	.28400	.259	-.2376	.8804

* p <.05 (The mean difference is significant at the .05 level.)

As shown in Table 4.10, a Least Squares Difference Post Hoc test ran identified where the specific differences were. The specific differences were in grade A, B and C groups (all p <.05) indicated by asterisk. Therefore, for students who used Facebook for academic purposes would score higher than those who did not.

A correlation analysis was done to test whether there was any correlation between average grade obtained in the last semester and use of Facebook for academic purposes. The results in Table 4.15 showed that there was a moderate positive (r=0.196) and significant (p<0.001) correlation between the average grade obtained in the last semester and the use of Facebook for academic purposes.

Table 4.15: Correlation analysis of average grade and use of Facebook for academic purposes

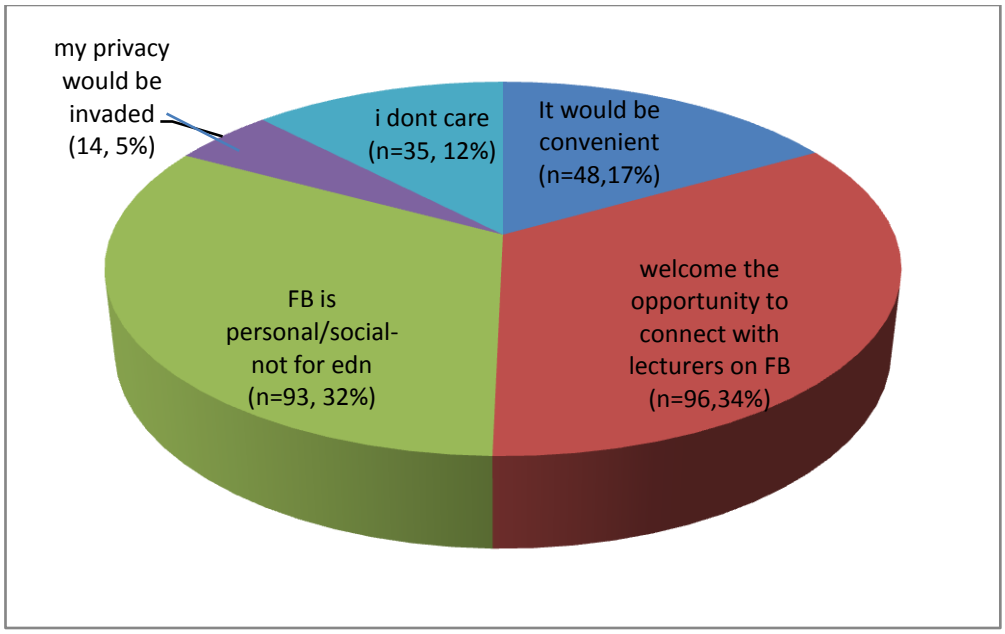
	Average grade	Use of Facebook for academic purpose
Average grade	1	.196(***)
	.	.001
Use of Facebook for academic purpose	.196(***)	1
	.001	.

***p < .001. (Correlation is significant at the 0.001 level . N=286)

4.3.1 Willingness to use Facebook for class

Respondents were asked to state their feelings about using Facebook for normal university classes or lectures and their lecturer as a moderator or facilitator for the content that will be shared. This was a closed item that had an option to include any other additional feeling not captured in the options. Given that 82% of university students have Facebook accounts, this can be an important avenue to bridge the gap between members of the faculty and students.

Figure 4.4: Willingness of respondents in using Facebook for class activities.



Majority of the students (n=96, 33.6%) felt that they would welcome the opportunity to connect with lecturers on Facebook. An additional 16.8% (n=48) consented that using Facebook for class would be convenient to them and 12.2%(n=35) did not care. On the other hand 32.5%(n=93) felt that Facebook is personal and not for education while 4.9%(n=14) said that their privacy would be invaded. In general 50.3%(n=144) consented in using Facebook for class and 37.4%(n=107) did not consent, while 12.2 %(n=35) were not sure and can swing either side.

4.3.2 Learning behaviour used during Facebook browsing

Respondents were asked their learning strategies on Facebook which was categorized into communication, collaboration, material and resource sharing during Facebook browsing. Thirteen items were adapted from Mazman and Usluel(2010) and edited to fit the current study. The instrument generated had a reliability coefficient of .866 and was found reliable to measure the effect of Facebook browsing on learning behaviour.

Table 4.16: Descriptive statistics for learning behaviour during Facebook browsing

Learning behaviour	Mean	SD
Communication		
change of class schedule 1=Strongly Disagree,2=Disagree, 3=neutral, 4= Agree, 5= Strongly Agree	2.9196	1.33922
pass message to my course instructor	2.0140	1.01557
Use Facebook for class discussion	2.4476	1.18279
Use Facebook to deliver homework or assignment	2.1189	1.10177
Use Facebook to inform colleagues of links and resources related to our course	3.1608	1.30935
Collaboration		
Use Facebook to enroll to academic groups related to my course	2.7552	1.33623
Use Facebook to participate in group work activities	2.6993	1.28983
Use Facebook to exchange ideas on class projects	2.9091	1.29186
Resource and material sharing		
Use Facebook to exchange multimedia resources with colleagues	3.3741	2.67737
Use Facebook to exchange visual material related to my course	2.7587	1.24584
Use Facebook to exchange academic videos	2.5035	1.23330
Use Facebook to exchange academic documents	2.6189	1.23893
Use of Facebook made be become a better computer user	3.8811	1.24528

Note: Valid N = 286.

The students disagreed on the use of Facebook to pass message to course instructor (M=2.014, SD=1.0156) and use Facebook to deliver homework (M=2.1189, SD=1.10177). This is expected since in the majority of the colleges the faculty does not us Facebook to communicate to the students. In the rest of the learning behaviour they were neutral. This meant that in some instances the students agreed or disagreed on the use of Facebook for learning purposes. However they agreed that use of Facebook had made them to become better computer users (M=3.8811, SD=1.24528). To get a deeper insight the responses were categorized into Strongly Disagree, Disagree, Agree, Strongly Agree and Undecided so that the numbers for every opinion can be established.

Table 4.17: Learning behaviour during Facebook browsing

ITEM	SD	D	A	SA	U	TOTAL
Communication						
I use Facebook to share change of class schedules with my course mates	57 (19.9)	66 (23.1)	95 (33.2)	31 (10.8)	37 (12.9)	286 (100)
I use Facebook to pass message to my course instructor	98 (34.3)	124 (43.4)	20 (7.0)	9 (3.1)	35 (12.2)	286 (100)
I use Facebook to facilitate a class discussion	64 (22.4)	114 (31.9)	52 (18.2)	16 (5.6)	40 (14.0)	286 (100)
I use Facebook to deliver homework or assignment	92 (32.2)	119 (41.6)	21 (7.3)	15 (5.2)	39 (13.6)	286 (100)
Collaboration						
I use Facebook to inform colleagues of links and resources related to our course	43 (15.0)	55 (19.2)	105 (36.7)	41 (14.3)	42 (14.7)	286 (100)
I use Facebook to enroll to academic groups related to my course	64 (22.4)	75 (26.2)	71 (24.8)	31 (10.8)	45 (15.7)	286 (100)
I participate in group work activities via Facebook	63 (22.0)	79 (27.6)	69 (24.1)	25 (8.7)	50 (17.5)	286 (100)
Material and Resource Sharing						
I exchange ideas on class projects via Facebook	50 (17.5)	74 (25.9)	92 (32.2)	28 (9.8)	42 (14.7)	286 (100)
I exchange multimedia resources on Facebook with colleagues	36 (12.6)	58 (20.3)	113 (39.5)	43 (15.0)	36 (12.6)	286 (100)
I exchange visual materials related to my course on Facebook	53 (18.5)	82 (28.7)	73 (25.5)	23 (8.0)	55 (19.2)	286 (100)
I exchange academic videos on Facebook	70 (24.5)	92 (32.2)	48 (16.8)	21 (7.3)	55 (19.2)	286 (100)
I exchange academic documents on Facebook	63 (22)	83 (29)	56 (19.6)	22 (7.7)	62 (21.7)	286 (100)
Facebook has enabled me to become a better user of the computer	24 (8.4)	24 (8.4)	104 (36.4)	110 (38.5)	24 (8.4)	286 (100)

SD=Strongly Disagree D=Disagree A=Agree SA=Strongly Agree U=Undecided

Majority of the respondents (n=95, 33.2%) agreed and 10.8%(n=31) strongly agreed that they use Facebook to share changes of class schedules. This has eased their communication especially when they want to communicate bulk messages. However 34.3% (n=98) strongly disagreed and 43.4 % (n=124) disagreed on the use of Facebook to pass message to the course instructor. Similarly 32.2 % (n=92) strongly disagreed and 41.6%(n=119) disagreed on the use of Facebook to deliver homework or assignment to the instructors. This confirms that university students in Mombasa County rarely use Facebook to communicate with the faculty or course lecturers.

4.3.3 Effect of Facebook browsing on learning behaviour

Logistic Regression was used to examine whether Facebook browsing to socializing, entertainment and pass time affects students' use of Facebook for learning purposes as envisaged in the conceptual model. Facebook use for learning purposes was taken as the dependent variable. This variable was measured by 13 learning strategies adapted from Mazman and Usluel (2010) and later averaged to a single score. The variable was recoded into a dichotomous, yes and no so as to assess whether their browsing behavior affected their utilization of Facebook for learning purposes. If a respondent responded either strongly agree, and agree, the response was recoded as 1 (or Yes) and if they answered disagree or strongly disagree was recoded as 0 (or No).The independent variables utilized for this objective was the Facebook intensity score (Ellison et al 2007). A high score indicates a high Facebook attachment. Gender as a socio-demographic was used as a control variable (male=1).

Table 4.18 shows the logistic regression results. The results indicate that one increase in Facebook intensity score had an effect of increasing usage of Facebook for learning purposes by 0.0447 (β =0.0447 significant $p<.001$) holding other independent variables constant. However gender (β=.467 not significant) and age(β=.035 not significant) of the students had no effect. Gender and students age have no significant effect on the usage of facebook for learning purposes.

Subsequently respondents were asked to state the effects they have noticed to their learning behaviour as a result of Facebook browsing in their last semester. This was an open question. Responses were summarized and categorized into positive, negative and no effect. The responses were organized starting with the most frequent to the least.

Table 4.18: Results of logistic regression exploring the relationship of students Facebook intensity score and gender to their odds of reporting use of Facebook for learning purposes.

Independent variables	B	SE	Wald	Sig	OR	95%CI
Facebook intensity score	.0447	.140	10.235	.001***	1.564	1.189-2.057
Gender	.467	.268	2.042	.081	1.452	0.81-1.595
Age	.035	.125	.080	.777	1.036	0.811-1.324
Class level	-.531	.196	7.364	.007**	.588	0.401-0.863
Constant	0.308	.739	0.174	.677	.735	
Likelihood ratio chi square	20.282***		Nagelkerke R^2=105	.100		

*p <.05 ** p < .01 ***p < .001.

Table 4.20 shows positive and negative effects of Facebook browsing as self reported by the respondents. The biggest positive effect reported was the educational links that the students got during facebook browsing (n=16, 6%), followed by source of general knowledge (n=9, 3%) and the least being increase computer usage (n=2, 1%). Respondents were able as well to report some negative impacts of Facebook browsing, 8% (n=28) said that Facebook is time wasting for other important activities and 7% (n=27) consented that their academic grades had lowered due to wasting too much time on Facebook. A good proportion of students also reported no impact of Facebook on their learning. This was due to abiding to a well planned studying timetable (n=36, 13%), browsing Facebook in free time only (n=17, 6%) and avoiding to be addicted to Facebook browsing (n=16, 6%).

Table 4.19: Perceived effects of Facebook browsing on learning behavior of the students

Effect	Frequency	percentage
Positive		
Got educational links and content	16	6
Get information from colleagues	10	4
Source of general knowledge not found in class	9	3
Social relation and cohesion has improved	8	3
Encouragement from Facebook friends to work hard	7	3
Allow inter-campus exchange	7	4
Class page on Facebook has improved class performance	6	3
Sharing assignment	5	2
Promotes use of language for literary purposes	4	1
Provides latest updates	4	1
Exchange links on conducting research	4	2
Form of relaxing	4	2
Enquiries from lecturers	2	1
Expanded my thinking	2	1
Increase computer usage	2	1
Negative		
My grade have lowered due to time wastage	48	19
Entertainment	13	4
Pass time	10	3
Use Facebook for socializing	9	3
Facebook is addictive	7	3
Interfere with class or lectures	5	2
Attracted to Facebook during studies	2	1
Delay in finishing homework	2	1
No impact		
Abide to well planned timetable	36	13
Browse Facebook in free time	22	8
Not addicted	16	6
My academic performance has not changed	8	3
Academics come first	8	5
Facebook can't handle math problems	4	1
Balance Facebook browsing well	4	1
visit Facebook after class only	2	1
Not daily routine	2	1
Total	**286**	**100**

4.4 The extent to which Facebook browsing influences other selected learning outcomes

The third research question aimed to find out if during the process of Facebook browsing it influenced with other selected learning activities that students were undertaking. The outcome being examined here is whether Facebook browsing interferes with successful completion of those learning activities. These learning activities included six offline activities and one online learning activity. The variable were coded as very frequently (100% of the time) somewhat frequently (75% of the time), sometimes (50% of the time), rarely (25% of the time) and never (0% of the time)

Table 4.21 shows that majority of the respondents (n=115, 40.2%) consented that they rarely browsed Facebook while attending a class but only a paltry 3.1% (n=9) accepted that they very frequently browsed Facebook while attending a class, 6.6 % (n=19) frequently and 4.5 %(n=13) somewhat frequently. In total 32% (n=92) browse Facebook during a lecture or class. During a group discussion, 4.9% (n=14) very frequently browsed Facebook, while 30.8% (n=88) never browsed Facebook. In total 41.3% (n=182) browse Facebook while participating in group discussions. During private study, 9.1 %(n=26) very frequently browsed Facebook and 20.3 %(n=58) never. In general 57.0%(n=153) very frequently, frequently somewhat and sometimes browsed Facebook while doing private reading. While studying in the library, 4.9 %(n=14) very frequently browsed Facebook and 49.7 %(n=142) never browsed Facebook in the library. When those who browse very frequently, frequently, somewhat frequently and sometimes was summed up, 27.6 %(n=82) browsed Facebook while studying in the library.

Table 4.20: Interference of learning activities due to Facebook browsing

	Very frequently	Frequently	Somewhat frequently	Sometimes	Rarely	Never
Attending a class	9(3.1%)	19(6.6%)	13(4.5%)	51(17.8%)	29(27.6%)	115(40.2%)
In group discussion	14(4.9%)	16(5.6%)	22(7.7%)	66(23.1%)	80(28.0%)	88(30.8%)
Private reading in the hostel	26(9.1%)	30(10.5%)	33(11.5%)	74(25.9%)	65(22.7%)	58(20.3%)
Studying in the library	14(4.9%)	13(4.5%)	14(4.9%)	41(14.3%)	62(21.7%)	142(49.7%)
Internet search online	62(21.7%)	90(31.5%)	30(10.5%)	55(19.2%)	33(11.5%)	16(5.6%)
Project work	17(5.9%)	36(12.6%)	33(11.5%)	65(22.7%)	69(24.1%)	66(23.1%)
Doing an assignment	16(5.6%)	38(13.3%)	29(10.1%)	68(23.8%)	70(24.5%)	65(22.7%)
In your free time	158(55.2%)	84(29.4%)	19(6.6%)	19(6.6%)	6(2.0%)	0(0%)

During internet search, 21.7(n=62) browsed Facebook very frequently, 31.5 %(n=90) frequently and 5.6 %(n=16) never. In total 82.9 %(n=237) browsed Facebook in the course of searching information online. Maybe this explains why many colleges prohibits browsing of Facebook in the university cybercafés. When handling a project 5.9 %(n=17) very frequently browsed Facebook, 12.6 %(n=36) frequently and 23.1 %(n=66) never. Almost similar results were found when students were doing an assignment, 5.6 %(n=16) browsed Facebook very frequently, 13.3 %(n=38) frequently and 22.7 %(n=65) rarely. To a big contrast majority of the respondents accepted that, during free time 55.2%(n=158) very frequently browsed Facebook, 29.4 %(n=84) frequently and 0 %(n=0) rarely. Again majority of the students spend their free time on Facebook. If this is done in the cybercafé, it could be wasting an opportunity for someone else to utilize the computer on a more gainful activity like finishing an assignment.

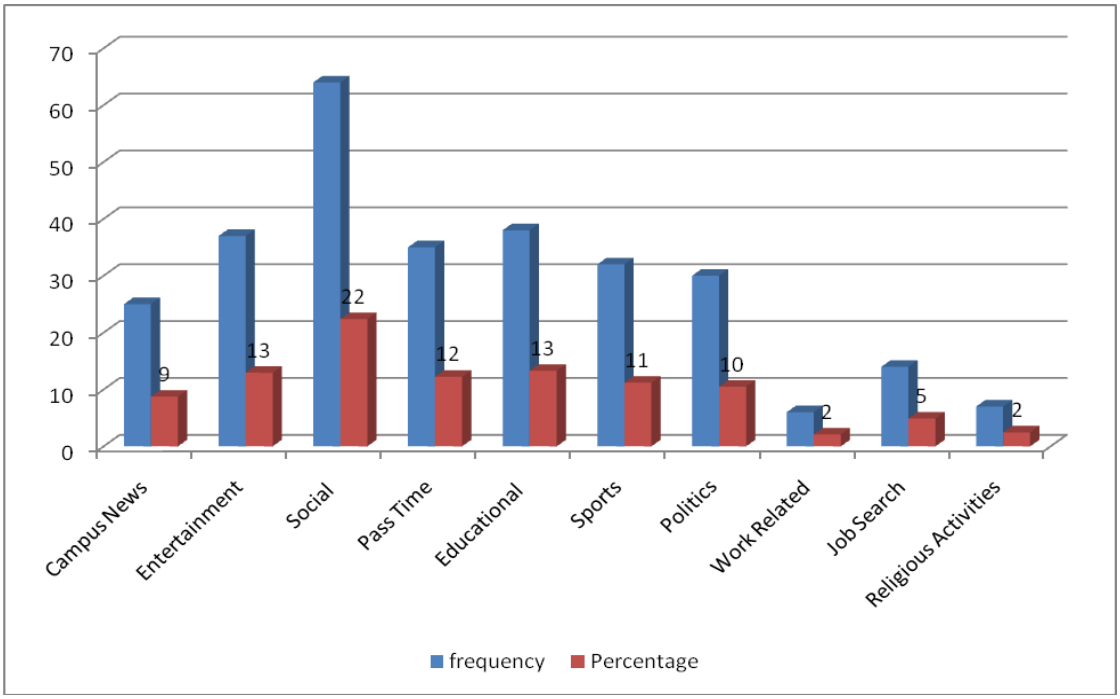
The research conducted by Mayer and Moreno (2003) shows that paying attention to instant messaging and to school work at the same time will yield reduced capacity for essential processing and representational holding while increasing the incidental processing necessary for a given task. Engaging in instant messaging use while trying to learn increases the student's cognitive demands especially in the area of incidental processing. This suggests that the learner has less cognitive resources to engage in the essential processing necessary to focus on information and, in turn, to engage in deep, meaningful learning. Students also learn less when they are holding representations in working memory and trying to engage in essential learning for instance, when they are instant messaging and trying to follow a conversation while working on homework. Therefore those who multi task at higher rates would require more mental work (Jackson, 2008) and yield less educational benefit.

4.5 Educational content university students share through Facebook.

The fourth research question sought to establish the content shared by university students during Facebook browsing. Respondents were asked to state the subjects they frequently share on Facebook before narrowing down to specific educational subject areas they share. This was a closed question but had an opening to allow respondents to identify as many subject areas within the provided list.

Students were asked to identify among the seven (7) subject areas their choice of general subjects that they mostly engage in Facebook. Social (n=62, 22%) was the most popular followed by educational (n=33, 13%) and lastly was religious activities (n=7, 2%). Figure 4.5 has the details.

Figure 4.5: General Subject areas shared on Facebook by the University students in Mombasa County



Apart from the general subjects indicated above the respondents were asked to indicate the specific topic areas that they have exchanged using Facebook during their last visit to the Facebook page. This was an open question and topics in different areas of specialization were presented. Topics related to similar theme were brought together and later linked to a common subject area. Respondents presented a variety of topics that they have discussed, shared or collaborated in their last visit to the Facebook page. Items or pieces of discussion related to similar areas were identified and brought together and later compared for similarities.

Table 4.21: Specific academic subjects shared on Facebook

Subject	**N**	**%**
Business related topics	15	14.15
Information Technology	9	8.49
Biochemistry	6	5.66
Engineering	5	4.72
History	5	4.72
Religion	4	3.77
Math	2	1.89
English Language	2	1.89
Other educational benefits		
Assistance to handle assignment	21	19.81
Online discussion in various subjects	14	13.21
Conduct online research via Facebook	7	6.6
Share lecture notes	6	5.66
Student exchange with foreign universities	5	4.72
Academic motivation	3	2.83
Change of class or lecture	2	1.89
Total	**106**	**100**

Gail, S. et al (2008) in a study sponsored by EDUCAUSE Centre for Applied Research (ECAR) aimed at investigating the utilization of information technology among the undergraduate in the US, he established that half of the social networking users use these sites to communicate with classmates about course related topics. Only 5.5% use them to communicate with instructors about course related topics.

This state of affairs is not very different in Kenya. In fact this seems to agree with the current study. Kilemi Mwiria (2007) established that one of the factors for poor acceptability of e-learning resources was because the content was mainly packaged in the west and mainly not contextualized in an African view where the training is taking place. This greatly interferes with adoption. This is contrary to Facebook which is egocentric software, which puts the student or the shared object to be the centre of focus.

4.7 Does self efficacy for self regulated learning predict learning behaviors of University students during Facebook browsing

The sixth research question sought to find out whether self efficacy for self regulated learning can predict the learning behaviour of university student while browsing Facebook. Self-regulated learning refers to the motivational orientations and learning strategies that students employ to attain desired goals (Zimmerman 1989). It is not specific to a particular subject area. For the university students in this study it was found to be appropriate since the students take a variety of different areas of specialization and therefore using a specific self efficacy for a particular subject it would be inappropriate. Zimmerman and Martinez-Pons (1990) summarize the process of self-regulated learning as "the degree to which students are metacognitively, motivationally, and behaviorally active participants in their own learning process". Metacognitive processes refer to a student's ability to plan, organize, and evaluate learning strategies for learning processes; motivation encompasses self-efficacy and high intrinsic motivation; and behavior refers to the characteristics of the strategies that students employ to optimize learning. This is very important since university students are free to do what they feel is appropriate. They have a choice between optimizing the university facilities for their learning or decide otherwise.

To measure the self efficacy of the students, a subscale of the self efficacy for self regulated learning developed by Zimmerman et al (1992) was used. In the current study the items used had a Cronbach reliability coefficient of .844 which was found reliable to measure the students self efficacy. As worded, a higher score on an item indicated a greater degree of confidence in that element assessed by the scale. A computed mean score of all test items was used to represent a measure of Self Efficacy for Self Regulated Learning score.

Table 4.22 shows that on average the self efficacy of the respondents in all the items was three (3) when rounded off to the nearest whole number . On comparison with non Facebook users the average was also at three (3). This implied that they had a strong belief that they can; finish homework by deadlines, study when there are other interesting things to do, concentrate in class, arrange a place to study, use the library, organize school work, participate in class discussions, master courses taken in the current semester and do an excellent job on the tasks assigned to them. Therefore there is no difference between Facebook users and non Facebook users on self efficacy for self regulated learning.

Table 4.22: Descriptive statistics for self efficacy for self regulated learning.

		Facebook users N=286		Non users N=48	
	strength of the belief that they can	**Mean**	**SD**	**Mean**	**SD**
1	Finish homework assignments by deadlines (1=Very Weak, 2=Weak, 3=Strong, 4=Very Strong)	3.15	0.87	3.17	0.86
2	Study when there are other interesting things to do	2.57	0.83	2.69	0.88
3	Concentrate during class	3.22	0.81	3.17	0.66
4	Arrange a place where I can study without distractions	3.27	0.74	3.27	0.76
5	Use the library to get information for class assignments?	3.15	0.90	3.25	0.86
6	Plan your schoolwork?	3.04	0.75	2.85	0.80
7	Organize your schoolwork?	3.06	0.77	2.94	0.83
8	Before I begin studying I think about the things I will need to do to learn.	3.08	0.79	2.69	0.85
9	Remember information presented in class and textbooks?	3.03	0.70	3.79	4.51
10	Participate in class discussions?	3.07	0.81	2.98	0.88
11	Master the courses you are taking this semester?	3.20	0.76	3.00	0.82
12	Do an excellent job on the problems and tasks assigned for the courses you are taking this semester?	3.24	0.72	3.25	0.79

A logistic regression was used to establish whether self efficacy for self regulated learning can be used to predict learning behaviour of university students while browsing Facebook. Learning behaviour was the dependent variable measured by a single variable that asked respondents to state whether they would use Facebook for academic purposes or not. The dichotomous variable was coded 0 for no and 1 for yes and self efficacy for self regulated learning score as the independent variable(Table 4.23).

The results presented in Table 4.23 suggest that self efficacy for self regulated learning score affect learning behaviour positively with a factor of 0.507. Therefore when self efficacy for self regulated learning score increases by one score it can be predicted that use of Facebook for learning purposes will also increase by a margin of 0.507 when other factors are held constant. Generally university students are basically self regulated learners and therefore there is no need to deny them access to Facebook on the grounds that they are wasting time.

Table 4.23: Results of logistic regression exploring the possibility of students self efficacy for self regulated learning score to their odds of reporting use of Facebook for learning purposes.

Independent variables	**β**	**SE**	**Wald**	**Sig**	**OR**	**95%CI**
Self efficacy for self regulated learning score	.507	.217	5.436	.020**	1.660	1.084-2.543
Constant	-1.972	.696	8.032	.005	.139	
Likelihood ratio Chi Square	5.618**		Nagelkerke R^2=0.026	.100		

p<.05**p<.01p<.001.**

4.7.1 Relationship between Self Efficacy for Self Regulated Learning and average grade.

As shown in table 4.23 above the average self efficacy for self regulated learning was 3 indicating that the learners had strong belief in themselves in regulating their own learning. Self efficacy for self regulated learning score was compared with average grade of the students as shown in Table 4.24.

Majority of the high academic quality grades of A(30 out of 34) and B(146 out of 165) was obtained by students who had a score of 3 and 4 on Self efficacy for self regulated learning scale. This agrees with a study conducted by Zimmerman, 1989 that self-regulated learners are typically high academic achievers.

Table 4.24: Cross tabulation of Self Efficacy for Self Regulated Learning Score and average grade

	Average grade				
Self Efficacy for Self Regulated learning Score	**A**	**B**	**C**	**D**	**Sub total**
1.00	0(0.0%)	1(0.3%)	0(0.0%)	0(0.0%)	1(0.3%)
2.00	4(1.4%)	18(6.3%)	7(2.4%)	0(0.0%)	29(10.1%)
3.00	19(6.6%)	105(36.7%)	64(22.4%)	3(1.0%)	191(66.8%)
4.00	11(3.8%)	41(14.3%)	13(4.5%)	0(0.0%)	65(22.7%)
Total	**34(11.9%)**	**165(57.7%)**	**84(29.4%)**	**3(1.0%)**	**286(100.0%)**

4.7.2 Relationship between self efficacy for self regulated learning and learning behaviour on Facebook.

Self efficacy for self regulated learning was also used as a predictor variable for learning behaviour during Facebook browsing and a correlation calculated as shown in Table 4.24. The prediction postulated here is that the identified variables will predict positively that the students will use facebook for learning purposes rather than entertainment or waste of time. There was a significant relationship between finishing homework assignment by deadlines and passing message to the course instructor on Facebook, p=.000. There was also a relationship between concentrating during class session and passing message to course instructor using Facebook p=0.012. A relationship was also observed between arranging for a place to study without distractions with communicating about changing of class schedule via Facebook, p=.026. Another relationship was noted between planning for school work and use of Facebook to participate in group work activities, p=.009 and use of

Facebook to exchange academic videos p=.01. There was a relationship between organizing school work and use of Facebook to participate in group work activities, p=.011 and use of Facebook to exchange academic videos, p=.007. Students who indicated that they could remember information presented in class showed a relationship with pass of message to course instructor using Facebook p=.023 and participating in group work activities, p=.046.Another relationship also occurred between participation in class discussion and change of class schedule p=.018 and use of Facebook to enroll to academic groups related to their course. Lastly a relationship was noted between doing an excellent job on the problem and tasks assigned for the courses they are taking during the semester and use of Facebook for class discussion p=0.008.

Table 4.24: Summary Correlation between the self efficacy for self regulated learning subscales and learning behaviour.

Self efficacy for self regulated learning subscale	Learning behaviour during Facebook browsing	Pearson Correlation coefficient	P – value
Finish homework assignments by deadlines	Pass message to my course instructor	0.229	0.00***
Concentrate during class	Pass message to my course instructor	0.148	0.012**
Arrange a place where I can study without distractions	Change of class schedule	0.132	0.026**
Plan school work	Use Facebook to participate in group work activities	0.154	0.009**
Organize school work	Use Facebook to participate in group work activities	0.150	0.011**
Remember information presented in class and textbooks	Pass message to my course instructor	0.134	0.023**
	Use Facebook to participate in group work activities	0.118	0.046**
	Change of class schedule	0.140	0.018**
Participate in class discussion	Use Fb to enroll to academic groups related to my course	0.152	0.01**
	Use of Facebook to exchange academic documents	0.142	0.016**
Do an excellent job on the problem and tasks assigned for the courses you are taking this semester	Use Facebook for class discussion	0.156	0.008**

p<.05**p<.01p<.001.**

4.8 Summary of the chapter

Chapter IV covered the data analysis and presentation. It also featured the descriptive analysis for the sample, ANOVA analyses, reliability analyses, Chi-Square test, Correlation analysis and logistic regression analyses to answer the research questions. Chapter V that follows includes major findings and conclusions from the study and future research.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.0 Introduction

The first part of this chapter covers the summary of the study findings and its implications. This will be followed by conclusions, recommendations and suggestions for further research.

5.1 Summary of the study

College students in Kenya and other parts of the world have taken up technology and made it as part of their daily activities. Facebook is one of the social networking software that is used by up to 70% of the youth aged between 18-25 years (Facebook.com) and 82% of the University students in Mombasa County. In Kenya alone unofficial reports put Facebook's daily hits at two million (Mwaniki, 2010:8-9). The main purpose of the study was to investigate the effects of Facebook browsing on learning behaviour among university students. A review of literature showed that there is no consensus on the effects of technology usage on academic outcomes to date. This is partially due to the number of limited studies examining the educational impacts of technology usage. In addition, very few studies if there is have examined the impacts of technology on education in Africa and specifically Mombasa County of Kenya despite the tremendous use of these technologies. In addition many studies have not been able to compare Facebook users and non users due to very few or no Facebook users in colleges. Similarly many studies have also not focused on the role of self efficacy for self regulated learning during Facebook browsing. This study intended to fill this gap.

Facebook browsing was the independent variable which was measured by seven items adopted from Ellison et al (2007). One of these items measured time taken while Facebook browsing, another on the number of Facebook friends one had on his Facebook profile and five items were attitudinal. The dependent variable was the learning behaviour adopted by university student while browsing Facebook. The learning behaviour was depicted by 13 items covering communication, collaboration and resource sharing on Facebook. These items were adapted from Mazman and Usluel 2010.

Figure 1.1 (p.11) outlines the conceptual framework for the study. The figure depicts constructs believed to impact learning behaviour during Facebook browsing. The figure depicts student Facebook browsing for learning purposes and for entertainment or to pass time. It is predicted that students with high self efficacy for self regulated learning will browse Facebook with more emphasis on academic reasons while those with low self efficacy will browse Facebook with non academic reasons.

Data for this study was collected from 338 undergraduate students enrolled at the University colleges in Mombasa County during the 2010/2011 academic year in the month of September, 2011. The participating colleges were selected purposively. Questionnaires were administered to whole classes chosen by systematic sampling. The data were then subjected to various statistical analyses to refine the measures and answer the research questions. The following statistical procedures were used to address the six research questions: descriptive statistics, ANOVA analyses, reliability analyses, Chi-Square test, and logistic regression analyses. The following were the

research questions framing the study;

(i) Do university students use Social network sites for learning purposes

(ii) What factors contribute to widespread use of Facebook among university students?

(iii) Do university students Facebook browsing influence their learning outcomes?

(iv) Which educational content do university students share on Facebook?

(v) Do students self efficacy for self regulated learning predict their learning behaviours in a Facebook environment?

5.1.1 Summary of the main findings

The number of male students in the colleges in Mombasa County are more than female and belong in the age bracket of 22-24. The average time spent during any browsing session was 1-3 hours per week and many of the students had used computers for a period of 1-5 years. There was a significant relationship between experience in using computers and average time spent on the internet per week. The mostly used mode of delivering internet to students in all the colleges was local area network and wireless connectivity. The commonest mode of connecting to the internet by the university students was mobile phone, followed by the university cyber café, personal computer and lastly pay cyber.

Facebook was found to be used by 82.0% (n=278) of the university students in Mombasa County and less than one (1) percent used Twitter and My Space. On total number of Facebook friends the respondents had a total of 201-250 Facebook friends who spent an average time of 31-40 minutes per day on Facebook. There was

a significant relationship between the number of total Facebook friends and time spent browsing Facebook per day.

The current study had five research questions. The first question aimed to find out the factor that contributes to widespread use of Facebook among university students. The identified factors were; Facebook is cheap and easy to use, accessibility on phones, Facebook is universal social networking software, Facebook is a platform to link to other activities on the internet such as uploading files such as video, documents and pictures. Another important factor was use of Facebook by university colleges to pass official communication to students.

The second research question sought to establish whether university students use Facebook for learning purposes and its effect on their learning behaviour. The study found out that 60% (n=170) of the university students do not use Facebook for academic purposes while 40.0% (n=116) agreed that they use Facebook for academic purposes. From the proportion that use Facebook for academic purpose 22.7% (n=65) confirmed that Facebook had positive impact on their academic performance while 17.8% (n=51) had received no impact on their academic performance. In this group of students also, 22(7.6%) out of the total 34 grade As were achieved by them and non 0(0.0%) obtained the grade D which was the worst in this study. Correlation analysis showed that there was a moderate positive ($r=0.196$) and significant ($p<0.001$) correlation between the average grade obtained in the last semester and the use of Facebook for academic purposes. It also showed that another moderate but positive ($r=0.240$) and significant ($p<0.001$) correlation between learning behaviour as a dependent variable and Facebook intensity score. Respondents also reported

effects they have noticed in the last semester due to Facebook browsing. The biggest positive effect to academic performance was the educational links that the students got in Facebook (n=16, 6%), followed by source of general knowledge (n=9, 3%) and the least being a form of relaxing (n=2, 1%). Negative impacts of Facebook browsing included; time wasting 8% (n=28), Facebook addiction 7% (n=27) leading to low academic grades. A good proportion of students also reported no impact of Facebook on their academic performance due to abiding to a well planned studying timetable (n=36, 13%), browsing Facebook in free time only (n=17, 6%) and avoiding to be addicted to Facebook browsing (n=16, 6%). Logistic regression results showed that one increase in Facebook browsing measured by Facebook intensity score had an effect of increasing usage of Facebook for learning purposes by 0.0447 (β=0.0447 significant $p<.001$) holding other independent variables constant. However gender (β=.467 not significant) and age (β=.035 not significant) of the students had no effect.

The third research question sought to establish the extent to which Facebook browsing interferes with other learning activities. Generally 32% (n=92) of the university students in Mombasa county browse Facebook during a lecture or class, 41.3% (n=182) browse Facebook while participating in group discussions. During private study, 57.0% (n=153) browse Facebook, 82.9 %(n=237) browsed Facebook in the course of searching information online and when handling a project 18.5 %(n=53). To a big contrast majority of the respondents accepted that, during free time 84.6%(n=242) they browsed Facebook as their biggest pass time.

The fourth research question aimed at establishing the educational content university students share through Facebook especially for those who use Facebook for learning, 19.81%(n=21) used Facebook to get assistance on completing assignments, 14.2%(n=15) business oriented subjects, 8.5%(n=9) information technology, 4.7%(n=5) engineering, 5.7%(n=5) biochemistry, 6.6%(n=7) conduct online research. Others included social (n=62, 22%), educational guidance (n=33, 13%) and religious activities (n=7, 2%).

Lastly the fifth research question sought to establish whether self efficacy for self regulated learning can predict learning behaviors of university students during Facebook browsing. The study found that on the average the students had an average self efficacy for self regulated learning score of three(3)out of the possible four(4) implying that they had a strong belief that they can; finish homework by deadlines, study when there are other interesting things to do, concentrate in class, arrange a place to study, use the library, organize school work, participate in class discussions, master courses taken in the current semester and do an excellent job on the tasks assigned to them. Logistic regression results showed that self efficacy for self regulated learning score can be used to predict whether university students in Mombasa county can use Facebook for learning purposes or not. An increase in the score by one has an effect of increasing the probability of using Facebook for learning purposes positively by 0.507.

5.2 Implications of the findings

In view of these findings the following are the implications. Studies on the number of Facebook friends and time spent browsing Facebook have come up with different results. This study found that on the average students spent 30 to 50 minutes per day

and had an average of 201-250 friends. Ellison et al (2007) in his study about Facebook and social capital found that students spent averagely 10 to 30 minutes per day and had 150 to 200 friends, while Cassidy (2006); found that students spent 20 minutes and logged at least once a day. Junco R. (2011) found that students spent an average of 101.09 minutes per day and checked Facebook 5.75 times per day. Therefore there seems to be no agreed number of Facebook friends one can have as a standard measure. There was a significant relationship between the number of Facebook friends and time spent on facebook.

University students rated cheapness, ease of use and accessibility of Facebook on their mobile phones as their biggest attraction to Facebook browsing. Similarly these factors if integrated into e-learning software developed by universities may be able to attract up to 82% of university students. While universities are complaining with poor utilization of their e-learning software by the students, Facebook is experiencing a big acceptance across and some of the activities performed on Facebook are exactly aimed by the colleges in platform. Facebook is egocentric social networking software because it places the student at the centre stage of discussion. This makes the student to feel appreciated and their concerns if responded to improves the participation of the student to the content under discussion. The same concept can be applied to face to face teaching by placing the student at the centre stage of teaching or class discussion and providing customized guidance to individual students since they are all different.

Facebook browsing was found to have both positive and negative effects on learning behaviour of university students in Mombasa County. Many university students do

not use Facebook for learning purposes and they reported a drop in academic grade due to time wastage, Facebook addiction and failure to complete assignments in time. However those who use it for learning purposes were able to register better academic grades than those who do not. This was because of linkage to educational links, sharing assignments, encouragement from friends and improved social cohesion. Those students who abide to their reading timetable and engaged in Facebook with a certain goal also reported good academic grades. The study found that there was a significant relationship between academic grades and use of Facebook for academic purposes. Logistic regression results also revealed that the more students browsed Facebook the higher their probability of utilizing Facebook for learning.

Despite the fact that majority of the students used Facebook for social activities, the following subjects were also shared among the students; handling assignments, business oriented subjects, information technology, engineering, biochemistry and conducting online research. It is therefore possible to use Facebook in majority of the other subject areas. A Facebook link can be integrated into the e-learning platform and customized to access educational content. Similarly members of the faculty can join a registered Facebook group for particular classes and continue with an online discussion where they can invite expert advice from colleagues therefore benefiting from crowd sourcing. Lecturers as well can share their experiences in handling various topics with colleagues and these experiences can be saved on Facebook network. Hamann and Wilson (2002) found that students who participated in a web-enhanced class outperformed those students in a traditional lecture format. This suggests that internet based learning modules actively engage students in a manner unique from the traditional class lecture.

The study also found out that students engaged themselves in Facebook browsing during lectures, academic group discussions, class project, private study and while searching information online. Engaging in browsing Facebook while trying to learn increases the student's cognitive demands especially in the area of incidental processing. This suggests that the learner has less cognitive resources to engage in the essential processing necessary to focus on information and, in turn, to engage in deep, meaningful learning. Students also learn less when they are holding representations in working memory and trying to engage in essential learning. This multi tasking results in reduced educational benefit (Mayer & Moreno 2003). Therefore Facebook browsing while attending a lecture, reading or participating in group discussion should be discouraged.

Majority of the students in Mombasa County had a self efficacy for self regulated learning of three (3) out of four (4). This score is predictive since most of university students are good academic performers and that is why they qualified to join the university in the first place. The study found out that self efficacy for self regulated learning score can be used to predict whether university students in Mombasa county can use Facebook for learning purposes or not.

5.3 Conclusion

Over 80% of university students in Mombasa County actively browse Facebook. This is because it is cheap, accessible and user friendly. Facebook browsing was found to have positive effects on learning outcomes for those students who used it for learning. However use of Facebook for entertainment, pass time and socialization had some negative effects on learning outcomes. Similarly Facebook browsing while attending lectures, group work and private reading is counterproductive.

Self efficacy for self regulated learning was high for the sampled students which averaged to three out of four. This score can be used to predict whether a student can use Facebook for learning purposes or not. The higher the score the higher the probability of a student using Facebook for learning purposes. Gender and age of the student were found not to be a predictive indicator for students using Facebook for learning purposes or not. It is therefore worthwhile to use the self efficacy scale for self regulated learning to predict whether students will engage in Facebook for learning purposes. Actually the original idea behind Facebook was to help university students to know each other and share common information faster of which academics is the core.

5.4 Recommendations

Following the above conclusions the following are the recommendations

1. Majority of university students have Facebook accounts (82%) and by extension are computer literate and therefore it will be worthwhile to engage university students in computer related academic assignments, projects and researches.
2. Use of social network among students and faculty is very limited although over 50% of the students are ready and willing to engage their instructors via these social networking sites. Instructors can use Facebook to announce change of class schedules, facilitate discussions, exchange academic videos, documents and assignments.
3. Facebook is a powerful tool that can support excellent academic performance to university students. Students should therefore be allowed to have a free choice of social network site they are willing to use especially if they use it for learning.

4. Student related information can be delivered to students freely via university Facebook pages since majority of them have registered on these social networking sites.
5. University administration through the admission office can develop a tool to establish the self efficacy of their students and use this to predict whether their students will use Facebook for learning purposes or not.
6. University students spend a lot of time socializing on Facebook. This can be detrimental to academic excellence. There is need to balance time used on Facebook to avoid addiction and concentrate on Facebook use for academic purposes since Facebook is a rich source of educational content if well utilized.
7. Students need to be informed through student counseling units that engaging in Facebook browsing while in a lecture or during private study competes with cognitive resources to engage in the essential processing necessary to focus on information which results to poor educational benefit.
8. Software developers in charge of developing e learning software need to adopt some of the features that attract students to Facebook. These features include; easy accessibility both on phone and computer, cheapness, interactivity, learner centeredness, ability to upload and download content.

5.5 Suggestions for further Research

1. A comparative study needs to be done between Mombasa county and other counties or the other different social networking software.
2. The nature of analysis in this study is correlational which does not suggest causation. Other similar studies need to be done to investigate the causal patterns.

REFERENCES

Ajjan, H., & Hartshorne, R. (2008).Investigating faculty decisions to adopt Web 2.0 technologies: theory and empirical tests. The Internet and Higher Education, 11(2), 71-80.

Alexander, B. (2006). Web 2.0: A new wave of innovation for teaching and learning?, *Educause Review*41 (2) (2006), pp. 32–44.

Alavi, M. (1994).Computer-mediated collaborative learning: an empirical evaluation, *MIS Quarterly***18** (2) (1994), pp. 159–174.

Angela, Y.Y, Tian, S.W, Vogel D.and Ron C.W.(2010). Can learning be virtually boosted? An investigation of online social networking impacts,*Computers & Education***49** (2) (2010), pp. 176–192.

Azevedo, R (2002) beyond intelligent tutoring systems: using computers as METAcognitive tools to enhance learning?*Instructional Science*, 30, pp 41-45

Barratt, W., Hendrickson, M., Stephens, A., & Torres, J. (2005). TheFacebook.com: Computer mediated social networking. Student Affairs Online, 6(1), 1–5.

Bandura, A. (1977). Social learning theory, Prentice-Hall, Englewood Cliffs, NJ (1977).

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory, Prentice Hall, Englewood Cliffs, NJ (1986).

Bong, M. (1999). Role of self-efficacy and task value in predicting college students' course performance and future enrolment intentions. Paper presentedat the annual convention of the American Psychological Association. Boston, MA.

Boyd, M.D & Ellison N.B, (2007) Social network sites: definition, history, and scholarship, *Journal of Computer-Mediated Communication*13 (1) (2007), pp. 210–230.

Bumgarner, B.A. (2007). You have been poked: exploring the uses and gratifications of Facebook among emerging adults, First Monday 22(11) (2007) Retrieved 20.02.2009.

Carlson, Nicholas (2010). "At Last, the Full Story Of How Facebook Was Founded".Business

Insider.http://www.businessinsider.com/how-Facebook-was-founded-2010-3

Cassidy, J. (2006, May 15). *Me media*.*The New Yorker*, 50-59.

Caudle, S.L.(2004). Qualitative data analysis. In: J.S. Wholey, H.P. Hatry and K.E. Newcomer, Editors, *Handbook of practical program evaluation* (2nd ed.), Jossey-Bass, San Francisco (2004), pp. 417–438.

Chickering A. &Gamson Z., (1987).*Seven Principles for Good Practice* Retrieved on August 10, 2005

Chen, M. (2009). Gender and computers: The beneficialeffects of experience on attitudes. *Journal of EducationalComputing Research*, 2(3), 265-282.

Cloke, C & Sharif, S (2001). Why use information and communications technology? Some theoretical and practical issues, *Journal of InformationTechnology for Teacher Education*, 10(1 & 2), pp 7-17

Cole, M. (2009). Using Wiki technology to support student engagement: Lessons from the trenches, *Computers and Education***52** (1) (2009), pp. 141–146.

Conole, G. (2008). New schemas for mapping pedagogies and technologies. Ariadne article, July 2008.http://www.ariadne.ac.uk

Cooper J. & Weaver K.D. (2003)., Gender and computers: Understanding the digital divide, Lawrence Erlbaum Associates, Mahwah, NJ

Cotten, S. R., Anderson, W. A. ,&Tufekci, Z.(2009). Old wine in a new technology, or a different type of digital divide? New Media & Society, 11 (7), 1163–1186.

Crook, C., & Harrison, C. (2008). Web 2.0 technologies for learning at key stages 3 and 4: Summary report. Retrieved October 14, 2008, from http://schools.becta.org.uk/uploaddir/downloads/page_documents/research/web2_ks34_summary.pdf

Dawson, S. (2008). A Study of the relationship between student social networks and sense of community, *Educational Technology & Society***11** (3), pp. 224–238.View Record in Scopus | Cited By in Scopus (4)

Dempsey, L. (2008). Some thoughts about egos, objects, and social networks blog posting, 6 April 2008. http://orweblog.oclc.org/archives/001601.html [1/8/08]

Dirckinck-Holmfeld, L (2002). Designing virtual learning environmentsbased on problem orientated project pedagogy, in *Learning in VirtualEnvironments*, Ed L Dirckinck-Holmfeld and B Fibiger, Samsfundslitteratur,Frederiksberg

Educause learning initiative (2006). Seven things you should know about Facebook. www.educause.edu/resources.

Eldon, E. (2008). Growth Puts Facebook In Better Position to Make Money". *VentureBeat*.http://venturebeat.com/2008/12/18/2008-growth-puts-Facebook-in-better-position-to-make-money/. Retrieved 2008-12-19.

Ellison, N.B., SteinfieldC. & Lampe, C. (2007). The benefits ofFacebook "friends": social capital and college students' use of online social network sites, *Journal of Computer-Mediated Communication***12** (2007), pp. 1143–1168.

Engeström, J. (2005). Why some social network services work and others do not — Or: the case for object cantered sociality, blog posting, 13 April 2005. http://www.zengestrom.com/blog/2005/04/

Engeström, J. (2007). Micro blogging – tiny social objects on the future of participatory media, cited in K.Anderson (2008), blog entry, 13th June 2007.http://strange.corante.com/archives/2007/06/13

Fowler, F.J. (2002).*Survey research methods* (3rd ed.), Sage, Thousand Oaks, CA.

Gibson, C.C. (1998).The distance learner's academic self-concept. In: C.C. Gibson, Editor, *Distance learners in higher education: Institutional responses for quality outcomes*, Atwood Publishing, Madison, Wisconsin (1998) (pp. 65–76).

Government of Kenya(2004). E-Government strategy: The strategic framework, administrative structure, training requirements and standardization framework. Government Press, Nairobi-Kenya.

Government of Kenya (2007) Vision 2030.Government Press, Nairobi-Kenya.

Government of Kenya (2009) Kenya National Bureau of Statistics; 2009 Population and Housing National Census Nairobi-Kenya.

Jackson, M. (2008).Distracted: The erosion of attention and the coming dark age . Amherst, NY : Prometheus

John H. &Singwhat T. (2009).Smart utilization of tertiary instructional modes. Computers and Education Volume 51, issue 4, December 2008, Pages 1036-1053.

Junco, R& Cotton, S.R. (2010).Perceived academic effects of instant messaging use. Journal of Computers and Education Vol 56, 370-378

Karpinski, A. C. & Duberstein, A. (2009). A description of Facebook use and academic performance among undergraduate and graduate students. In Poster presented at the meeting of the American Educational Research Association, San Diego, CA.

Kariuki, J, (2006) Elearning in Africa: Random Reflections about elearning in Africa, elearning in Kenyan universities. http://elearning fundi.blogspot.com/2006

Kolek, E. A., & Saunders, D. (2008). Online disclosure: An empirical examination ofundergraduate Facebook profiles. NASPA Journal, 45(1), 1–25.

Kubey, R. W., Lavin, M. J., & Barrows, J. R. (2001). Internet use and collegiateacademic performance decrements: Early findings. Journal of Communication, 51, 366–382.

Lei, J., & Zhao, Y. (2005). Technology uses and student achievement: A longitudinalstudy. Computers & Education, 49, 284–296.

Lipsman, A. (2007a). Facebook sees flood of new traffic from teenagers and adults.ComScore.Retrieved November 13, 2009 from http://www.comscore.com/press/release.asp?press=1519.

Mack, D. M., Behler, A., Roberts, B., &Rimland, E. (2007). Reaching students with Facebook: Data and best practices. Electronic Journal of Academic and Special Librarianship, 8(2) Retrieved from http://southernlibrarianship.icaap.org/content/v08n02/mack_d01.html.

Mangal, S.K.&Mangal, U.(2011). Essentials of Educational Technology.Asoke K. Gosh, PHI Learning Private limited, M-97,Connaughtcircus,New Delhi-1100001

Mason,R. (2006).'Learning technologies for adult continuing education '.Studies in Continuing Education, 28 (2), 121-133.

Mark Warscher (2010). New Reports on Technology in US Schools: The Changing Divide. Retrieved on 28th April 2013. http://papyrusnews.com/2010/10/26/new-reports-on-technology-in-us-schools-the-changing-divide/

Mayer, R.E., & Moreno, R. (2003).Nine ways to reduce cognitive load in multimedia learning.Educational Psychologist, 38 (1), 43 – 52.

Mazer, J.P., Murphy, R.E., & Simonds, C.S. (2007).I'll see you on "Facebook": The effects of computer-mediated teacher self-disclosure on student motivation, affective learning, and classroom climate. Communication Education, 56(1), 1−17

Mazman, S. G. &Usluel, Y. K. (2010). Modelling educational usage of Facebook, Computers &Education, doi:10.1016/j.compedu.2010.02.008

McLoughlin, C., & Lee, M. J. W. (2007). Social software and participatory learning: pedagogical choices with technology affordances in the Web 2.0 era. Paper presented at the Ascilite, Singapore.

McNaught, C. (2003). Identifying the complexity of factors in the sharing and reuse of resources, in *Reusing Online Resources*, Ed A Littlejohn, KoganPage, London

McMillan, J. H. (2001). Research in Education: a conceptual introduction 5th Ed. Addison Wesley Longman, Inc

Mwaniki, P. (2010, July 26). Mind your Netiquette. The Daily Nation p.8-9

Mwiria, K. (2007). Partnership for higher education in Kenya. http://books.google.co.ke

Mugenda, O.M&Mugenda A.G. (1999). Research Methods: Qualitative and Quantitative approaches. Acts Press, Nairobi, Kenya.

Murphy, G. (1967). Introductory aspects of modern parapsychological research.*Transactions of the New York Academy of Sciences*, *30*, 256-260.

Norah J. (2009). Get out of MySpace! Computers and Education Volume 54, issue 3, April 2010, Pages 776-782

Peng, C. Y., So, T. S., Stage, F. K., & St. John, E. P. (2002). The use andinterpretation of logistic regression in higher education journals:
1988–1999. Research in Higher Education, 43, 259–293.

Pintrich, P. R. (1995). Understanding self-regulated learning. In P. R. Pintrich (Ed.), *Understanding self regulated learning* (pp. 3-12). San Francisco, CA: Jossey-Bass.

Pintrich, P. R &Schunk, D.H.(1996). Motivation in education: Theory, research, and applications, Merrill/Prentice Hall, Englewood Cliffs, NJ (1996).

Porter, J. (2007). The social graph and objects of sociality, blog posting, 11 September 2007,http://bokardo.com/archives/the-social-graph-and-objects-of-sociality/ [1/8/08]

Powell, S., Tod, J. (2004) A systematic review of how theories explain learning behaviour in school contexts. In: Research Evidence in Education Library. London: EPPI-Centre, Social Science Research Unit, Institute of Education.

Salmon, G (2003). E-Moderating: the key to teaching and learning online. TJ International, Padstow, Cornwall. Gt Britain.

Shu-Ling Wang, Pei-Yi Wu (2007). The role of feedback and self-efficacy on web-based learning: The social cognitive perspective. Computers and Education Volume 51, issue 4, December 2008, Pages 1589-1598

Sarah H. Kessler(2010). The Case for social Media in Schools, 9 September 2010. http://mashable.com/2010/09/29/social-media-in-school/. Retrieved on 28th April 2013.

Slavin, R. E. (2003). Educational Psychology: Theory and Practice, 7th Edition.

Stutzman, F. (2007). Social network transitions, blog posting, 11 May 2007, http://chimprawk.blogspot.com/2007/11/social-network-transitions.html [1/08/08]

Tams, K. (2006). Self-directed social learning: The role of individual differences, *Journal of Management Development***27** (2) (2006), pp. 196–213.

Tsai, M.J& Tsai, C.C(2003).Information searching strategies in web-based science learning: The role of internet self-efficacy,*Innovations in Education and Teaching International* **40** (1) (2003), pp. 43–50

www.twitter.com. Twitter turns six. March 21, 2012. Retrieved December 18, 2012

www.ebizmba.com/articles. Retrieved on 15th April 2013

VandenBoogart, M.R. (2006).Uncovering the social impacts of Facebook on a collegeCampus. Unpublished Master's Thesis.Kansas State University.

Wolters, C. A. (1998). Self-regulated learning and college students'regulation of motivation. Journal of Educational Psychology, 90, (2), 224-235.

Zimmerman, B.J. (1989). A social cognitive view of self-regulated academic Learning. Journal of Educational Psychology, 81, 329-339.

Zimmerman, B. J.,& Bandura, A. (1994).Impact of self-regulatory influences on writing course attainment. American Educational Research Journal, 31, 845-862.

Zimmerman, B. J., Bandura, A. & Martinez-Pons, M. (1992).Self Motivation for academic attainment: The role of self-efficacy beliefs andpersonal goal setting. American Educational Research Journal, 29, 663-676.

Zimmerman, B.J., &Schunk, D.H. (1989). Self- regulated learning and academic achievement: Theory, Research, and Practice. New York: Springer.

Zimmerman, B.J., & Martinez-Pons, M. (1990). Student differences in self regulatedlearning: Relating grade, sex, and giftedness to self-efficacy andstrategy use. Journal of Educational Psychology, 82, 51-59.

Zimmerman, B.J. (1999). Commentary: toward a cyclically interactive view of self-regulated learning. International Journal of Educational Research, 31,545-551.

APPENDICES

APPENDIX A: Questionnaire

Introduction

The purpose of this study is to find out whether Facebook browsing affects the learning behavior of University students. You have been randomly selected to participate in this study. Am kindly requesting your cooperation in filling this questionnaire. You need not sign the questionnaire and you are assured that your response will remain CONFIDENTIAL. Please answer all questions and remember there is no right or wrong answer. Thank you.

Section A:

1. What is your age? ☐
2. Gender: Female ☐ Male ☐
3. Please indicate the name of your college.....
4. (i) Indicate your faculty or school.....

   (ii) What course or degree programme have you enrolled for?

   .....
5. What year of your course or programme are you in.....
6. In your last semester how many units/courses did you register for?

   (a) 4-5 (b) 6-7 (c) 8-9 (d) 10-11

   (e) more than 12
7. What was your Average Grade or GPA in your last academic year?

   A B C D E F

   GPA (specify)……
8. How many hours per week do you engage in your private study

   (a) Less than 3 hours (b) 4-7 hours

   (c) 8-11 hours (d) 12 or more hours

Section B:

1. How many years have you been using computers(not only for internet access)

   (a) 0-1 year (b) 1-5 years (c) 6-10 years

   (d) 11 -15 years (e) I do not use computers

2. What is your commonest mode of accessing the internet? (*Tick as many*)

   (a) University cyber café (b) Mobile phone

   (c) Pay as you surf cyber café

   (d) Personal computer (e) Others (specify)……

3. What is the average time you spend on internet per week?

   1 – 3 hrs ☐ 4 – 7 hrs, ☐ 8 – 11 hrs ☐

   12 - 15 hrs ☐ 16 - 19 hrs ☐ over 20 hrs ☐

4. Are you a user of any of the social networking software(s)?

   Yes ☐ No ☐

5. If yes above, which social network? (*If No go to Section F)*

   (a) Facebook (b) Twitter

   (c) My Space (d) Others (specify)……

6. About how many total Facebook friends do you have ?

7. Less than 10 ☐ 11-50 ☐ 51-100 ☐

   101-150 ☐ 151-200 ☐ 201-250 ☐

   251-300 ☐ 301-400 ☐ More than 400 ☐

8. In the past week, on average, approximately how many minutes per day have you spent on Facebook?

   1 – 10 min ☐ 11 – 20 min ☐ 21 – 30 min ☐

   31 - 40 min ☐ 41 – 50 min ☐ over 51 min ☐

9. Please rate the following items based on your usage of Facebook
   SD = Strongly Disagree D= Disagree N=Neutral A=Agree
   SA = Strongly Agree

	ITEMS	SD	D	N	A	SA
i	Facebook is part of my everyday activity					
ii	I am proud to tell people I'm on Facebook					
iii	Facebook has become part of my daily routine					
iv	I feel out of touch when I have not logged onto Facebook for a while					

v	I feel I am part of the Facebook community					
vi	I would be sorry if Facebook shut down					

Section C:

10. On average what subject(s) areas do you share on Facebook (*Tick as*

Educational ☐ job search ☐ Politics ☐

Campus news ☐ Sports ☐ social ☐

Entertainment ☐ work related ☐ Pass time ☐

Others (specify)…….

10. Do you use Facebook for academic purposes?

Yes ☐ No ☐

11. If yes above, what is the educational content that you last shared on Facebook?.....

.....

.....

Has Facebook browsing had an impact in your academic performance?

Yes ☐ No ☐

If Yes, how?

.....

.....

If No, why not?

.....

.....

13. What are your feelings about using Facebook for class?(*You may choose more than one answer)*

(a) It would be convenient

(b) I would welcome the opportunity to connect with lecturers on Facebook

(c) Facebook is personal/social – not for education!

(d) My privacy would be invaded

(e) I do not care

(f) Others (please specify)…….

14. What factors makes Facebook convenient for you?(*List as many as possible)*
.....
.....
.....
.....

15. What feature(s) of Facebook would you like implemented in e-learning software(s)
.....
.....
.....
.....
.....

Section D:
Please rate the following items based on your learning activities during Facebook browsing
SD = strongly disagree D= Disagree N=Neutral A=Agree
SA = strongly agree

	ITEM	**SD**	**D**	**N**	**A**	**SA**
i	I use Facebook to share change of class schedules with my course mates					
ii	I use Facebook to pass message to my course instructor					
iii	I use Facebook to facilitate a class discussion					
iv	I use Facebook to deliver homework or assignment					
v	I use Facebook to inform colleagues of links and resources related to our course					
vi	I use Facebook to enroll to academic groups related to my course					
vii	I participate in group work activities via Facebook					
viii	I exchange ideas on class projects via Facebook					
ix	I exchange multimedia resources on Facebook with colleagues					
x	I exchange visual materials related to my course on Facebook					
xi	I exchange academic videos on Facebook					
xii	I exchange academic documents on Facebook					
xiii	Facebook has enabled me to become a better user of the computer					

Section E:

1. How often do you browse Facebook while(*Tick which best explains your answer)*

		Very frequently	Frequently	Somewhat frequently	Sometimes	Rarely	Never
i	Attending a class						
ii	In group discussion						
iii	Private reading in the hostel						
iv	Studying in the library						
v	Internet search online						
vi	Project work						
vii	Doing an assignment						
vii	In your free time						

2. State any effects of Facebook browsing that can affect learning of university students

(a) Positively

(i).....

(ii).....

(iii).....

(iv).....

(v).....

(b) Negatively

(i).....

(ii).....

(iii).....

(iv).....

(v).....

Section F:

1. Please read each statement below carefully and indicate how strong yourbelief is that you could accomplish each of the following tasks by marking your answer according to the 4 point key below. Mark your answer by placing a tick on one and only one box on the answer sheet.

1 = Very Weak 2 = Weak 3 = Strong 4= Very Strong

INDICATE THE STRENGTH OF YOUR BELIEF THAT YOU CAN:

	Opinion	**1**	**2**	**3**	**4**
i	Finish homework assignments by deadlines				
ii	Study when there are other interesting things to do				
iii	Concentrate during class				
iv	Arrange a place where I can study without distractions				
v	Use the library to get information for class assignments?				
vi	Plan your schoolwork?				
vii	Organize your schoolwork?				
viii	Before I begin studying I think about the things I will need to do to learn.				
ix	Remember information presented in class and textbooks?				
x	Participate in class discussions?				
xi	Master the courses you are taking this semester?				
xii	Do an excellent job on the problems and tasks assigned for the courses you are taking this semester?				

2. Do you have any further comments regarding Facebook browsing and learning behaviour of University students?

.....

.....

.....

.....

Thank you.

APPENDIX B: Document Search Guide

Date…….

Document……

Office…….

Officer in charge…….

S.NO	PARTICULARS	INFORMATION	REMARKS

APPENDIX C: Interview Guide to University Cyber Administrators

(i) What factors contribute to widespread use of Facebook among university students? Probe

(ii) Do university students use Facebook for learning purposes? Probe

(iii) Does university students Facebook browsing interferes with their academic activities? Probe

(iv) Which educational content do university students share on Facebook? Probe

(v) Is there gender difference between those who use Facebook for learning purposes and those who do not? Probe

(vi) What would happen if the university management would decide to ban Facebook browsing at the campus? Probe

(vii) What features of Facebook do you think should be integrated into e learning softwares?Probe

(viii) What is the effect of Facebook browsing on learning behaviour of university students? Probe

APPENDIX D: Checklist of university ICT facilities

UNIVERSITY_____

TYPE OF UNIVERSITY_____

STUDENT POPULATION_____

SNO	EQUIPMENTAND MATERIALS	REMARKS
A	**Lab**	
	No. of computers	
	Browsing speed	
	Opening time	
	Closing time	
	Accessibility	
	Capacity	
B	**Library**	
	No. of computers	
	Browsing speed	
	Opening time	
	Closing time	
	Accessibility	
	Capacity	

APPENDIX E: Checklist for University Websites

University / college	Page location	Other social networking software	Content on the university Facebook pages