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An empirical study of Internet usage pattern of undergraduate students in South Africa

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ABSTRACT

The pattern of Internet use and the rate at which undergraduate students use the Internet should be greatly influenced by the primary purpose for which it has been provided (academic). The use pattern and use rate of the Internet for this purpose also has much to do with its adoption as a medium of meeting information needs over other media. The uses and gratifications theory on which this research is anchored, suggests that media use serves functions by some specific content or by the medium in question. It sees the audience as active seekers of media in a goal-oriented way that provides them with the means of gratifying a variety of needs and that media users are aware of their needs. 390 respondents were surveyed at the Nelson Mandela and Fort Hare Universities using quantitative and qualitative methods. With findings from the study indicating a 72.3%, attesting to making use of the Internet daily for an average of six hours, entertainment, communication and social networking purposes were the main activities undergraduate students spent the time on. The use of the Internet for academic purpose ranked last. From the findings of the study, the goal of undergraduate students when using the Internet, as assumed by UGT, is not to fulfil the cognitive need type. The use of the Internet is mainly driven by the desire to meet the social interaction need type (communication and social networking), which is not the primary reason which Institution provides free campus-wide Internet access.

Keywords: Internet use pattern, Internet use rate, Undergraduate Students, Uses and gratifications theory, Library Information Resources, South Africa.

1. INTRODUCTION

The arrival of computers and the Internet has meant that enormous volumes of information resources that were formerly mostly limited to libraries and bookstores can be made available and accessible to a much wider community. Since the introduction of the Internet into the academic community, it has become the most popularly used electronic information resources and services in academic environments the world over by both academic staff and students alike to support their teaching, learning and research (Ani, 2010). The World Wide Web is an extraordinary resource for gaining access to information of all kinds, including historical, and each day, a greater number of sources become available online. According to Adekunmisi, Ajala and Iyoro (2013), the Internet is a public, cooperative, and self-sustaining facility accessible to hundreds of millions of people worldwide. The Internet has broken down fences of communication and information access from anywhere in the world, and its capacity to transmit a vast amount of information to anybody anywhere in the world often makes it to be referred to as "Information Highway".

Technology also improves education as it connects students and teachers with electronic resources and digital textbooks. It gives them access to new forms of information such as instructional videos and computer games. Students appreciate digital education because it engages them in the learning process and provides instant feedback on their academic performance (West, 2012). Many organisations have also assisted schools with computer aided learning facilities; for example, Facebook has implemented an innovative education program with the non-profit edX and Airtel in Rwanda. Called SocialEDU, the project gives students free access to the group's educational software plus a free phone to access the information. Pupils can take online classes and collaborate with fellow students through social media accounts (Newcomer, 2014).

Internet use has become a common practice across generations (Anunobi, 2006), which has made it an indispensable part of our modern life in accordance with the information technologies that have been growing rapidly (Ozkisi & Topaloglu, 2015). Another reason for this rapid growth, according to Askoy (2012), is the global availability of the Internet which significantly makes it different from other information media. The introduction of the Internet into academic has witnessed an increase in Internet use among students and faculty members. Cravener (1999) noted that the increasing comfort among faculty members in the use of ICT for instructional purposes has consequently improved effectiveness of online teaching as well as reception among learners (Bavakutty & Salih, 1999). By providing dissemination of, and access to, enormous academic resources in almost all fields of human endeavour throughout the world, the Internet has become an invaluable tool for learning, teaching and research in institutions of learning (Ojedokun & Owolabi, 2003). The dearth of relevant learning and research materials in many university libraries in Africa makes the Internet the best alternative for up-to-date information to global academic resources for students.

The Internet is considered the most effective and efficient medium of knowledge transfer and dissemination from the advanced nations to the developing nations in the digital age. Thus, infusion of the Internet into university education in Nigeria, as put forth by Nwagwu, Adekannbi and Bello (2009) has intensified access to archived information sources from various parts of the world, and it forms a first port of call for the Nigerian students to seek information for their learning and research. Parameshwar and Patil (2009) studied the use of the Internet by faculty and research scholars at Gulbarga University's library in India. The study showed that faculty members had longer experience of using the Internet than the research scholars. Hanauer, Dibble, Fortin and Col (2004) surveyed a diverse community college to assess the use of Internet by students for health-related information. The survey showed that although all the students surveyed had free Internet access through their community college, only 97% of the students reported having access to the Internet. The survey further noted that

83% of Internet users had access to the Internet at their homes, and 51% of the respondents accessed Internet at college or at the library. Just over 80% of the students reported they accessed the Internet mostly for college work.

1.1. THEORETICAL FRAMEWORK

This study was anchored on the Uses and Gratifications Theory (UGT). UGT assumes that media use serves functions by some specific content or by the medium in question (Katz, Haas, & Gurevitch, 1973). It sees the audience as active seekers of media in a goal-oriented way that provides them with the means of gratifying a variety of needs and that media users are aware of their needs. The uses and gratifications theory is a media-use model that helps in the evaluation of user motivations of media usage and access. The main focus of the theory is to explain the reasons that people choose a specific medium over alternative communication media and to clarify the motivation behind the use of a particular medium.

UGT takes the viewpoint that audiences are active participants in the use and exchange of media and that they use the media to satisfy their needs. An interesting part of Uses and Gratifications theory is the emphasis on the human being as a (seemingly) rational and active self-aware entity (Blumler & Katz, 1974), making this theory as being the very opposite to the Hypodermic Needle Theory. Lastly, the theory urges us to look deeper into the very nature of human beings by exploring the many facets of the needs to "be connected" socially and psychologically through communication (Katz et al., 1973). UGT assumes information seekers/audience are active and not passive and consciously select content and media that satisfy information needs or desires. The audience takes an active role in interpreting and integrating media to their own lives. A student may choose to visit the library to do some research/ get an assignment done, or for escapism, or simply use the discussion room with friends. An individual may write a blog to fulfill needs for assertiveness. UGT's perspective emphasizes that motives, attitudes, and behaviors related to media consumption will vary by individual or group. Based on perceived needs, social and psychological characteristics, and media attributes, individuals use media and experience related gratifications (Papacharissi, 2009). The summary of UGT assumption is that: the audience is active, and its media use is goal oriented; people have various uses (needs) they seek to satisfy through media; audience members take initiative to link need gratification to a specific media; that media compete with other sources for need satisfaction.

Five different constructs were identified from the theory relating to different need types. These constructs are: Cognitive need type – which relates to acquisition of information, knowledge and comprehension with media such as the Internet, the library and the television serving this need type. The Affective need type is second – and it deals with needs involving emotional, pleasant or aesthetic experiences. Movies and the Internet could serve this need type. Personal Interaction need type deals with enhancing credibility, confidence and status. Social interaction need type relates to improving connection with family, friends, classmates and lecturers which the Internet could be used to achieve through email, instant messaging and social media platforms. The last construct is Tension Release – which deals with escape and diversion and this need type could be met through television, the library and the Internet.

According to Shao (2009), people respond to media based on how they want to consume, participate, or produce content. The proliferation of user generated media content on the Internet has become very rich (but not necessarily creative) exactly due to the reasons of UGT and how it appeals to users. Information seeking in general is a complex activity, but applying this theory when studying information seeking processes and behaviour helps gain an understanding as to why certain decisions are made in the use of certain information sources and resources. UGT research shows that there are

three gratifications for using a media: content gratifications, process gratifications, and social gratifications (Ruggiero, 2000). In UGT theory, the word *gratification* is defined as "feeling of satisfaction". The Expectation Confirmation Theory was, therefore, used to evaluate the resources/services that the library provides to library users and to measure satisfaction levels.

2. RESEARCH OBJECTIVE

The main aim of this paper was to illustrate the Internet use habit of undergraduate students in the Eastern Cape Province. The specific objectives of the study are:

1. To find out the frequency of Internet use among undergraduate students in the Eastern Cape Province.
2. To find out the Inter use pattern of undergraduate students in the Eastern Cape Province

3. METHODOLOGY

This study used a survey research design, accompanied by methodological triangulation with quantitative and qualitative data collection. Data was collected through questionnaire and focus group discussion sessions with undergraduate students at two selected universities: University of Fort Hare and Nelson Mandela University in the Eastern Cape Province, South Africa. Only undergraduate students that are enrolled for a 3 or 4-year programme at the university that leads to the award of a Bachelor's degree/diploma were included in this study. First-year students were excluded from the study because they had not stayed long enough on campus when the data were being collected.

The study adopted the stratified sampling procedure. This multifaceted sampling approach begins with the division of the population into strata. Five strata were constituted as follows: Stratum 1: Faculty of Social Science & Humanities/ Arts (SSH/Arts); Stratum 2: Faculty of Science & Agriculture; Stratum 3: Faculty of Law; Stratum 4: Faculty of Education; and Stratum 5: Faculty of Management & Commerce/ Economic Science (M&C/ Eco. Sci.). The stratification process took into consideration issues of programmes that are common to the selected universities and programmes that are offered for a minimum of 3 or 4 years.

With the assistance of the Institutional Planning Offices of both universities, the researcher was availed the complete list of registered students for the 2015 academic session with a total of 11416 undergraduate students. Calculations from the Raosoft® sample calculator with an error margin of 5%, a significant level of 95%, a response distribution of 50% and an estimated population size of 11416 yielded a minimum effective sample size of 372 participants. The minimum effective sample was calculated just to ensure a minimum number that could adequately represent the population of the study.

A total of 450 questionnaires were distributed, 412 were returned, but only 390 were usable, providing an overall response rate of 86.7%. Six focus group discussion of between five to eight undergraduate students was also carried out. A test-retest reliability method using Cronbach Alpha was adopted to determine internal consistency, reliability and overall reliability of each of the variables identified in the study. The coefficient alpha for the scale, as a whole, was 0.90.

To ensure that ethical guidelines for research with human subjects were followed, the research proposal was submitted for approval by the Faculty Research and Higher Degrees Committee, University of Fort Hare Research and Ethics Committee and The Research and Ethics Committee at the Nelson Mandela University. The study was judged to have met ethical standards for human subject research, and all ethical procedures of UFH and NMU were followed, culminating in the issuing of an ethical clearance certificates from both universities

4. FINDINGS AND DISCUSSION

This section presents the results of the survey conducted to determine the Internet use pattern and use rate of undergraduate students. The main aim of this study was to ascertain the amount of time undergraduate students spend using the Internet and the major activity they spend the time on while accessing the Internet. To understand the usage of the Internet among undergraduate students, the frequency of use was asked as revealed in Figure 1. Most of the respondents - 282 (72.3%) stated that they use the Internet daily, 96 (24.6%) use it almost every day while 12 (3.1%) use the Internet occasionally.

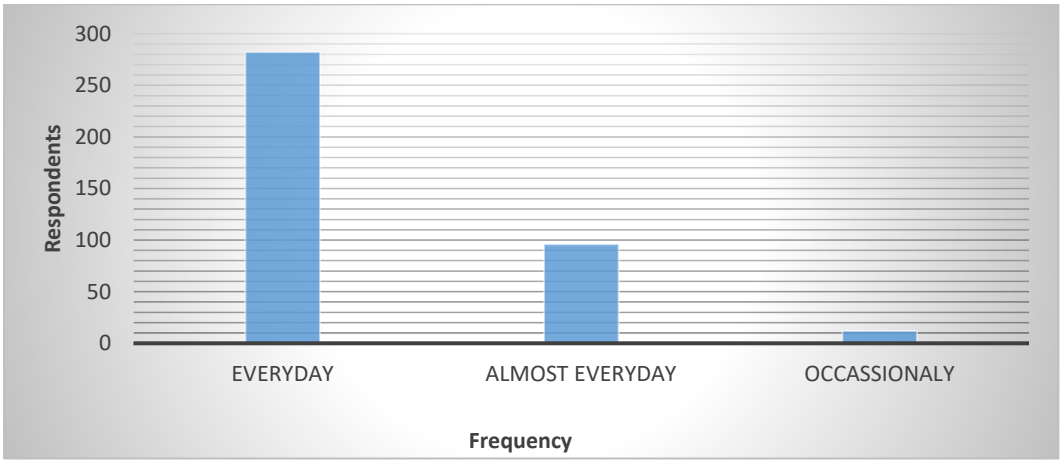


Figure 1: Frequency of using the Internet

The use of the Internet has become very essential for students as it has become a daily necessity for academic work (Bidin, Shamsudin, Asraf, & Sharif, 2011). Daily Internet use by students has also been reported in previous studies (Odell, Korgen, Schumacher, & Delucchi, 2000; Otunla, 2013; Waithaka, 2013). Internet usage has also been reported to be most prevalent among younger and more educated people (Bashir, Mahmood, & Shafique, 2008).

This result is in contrast with findings from Adekunmisi, Ajala and Iyoro (2013) where results revealed that most respondents (70%) used the Internet weekly. The researchers attributed this factor to the high cost of accessing the Internet in Nigeria as the majority of the Internet centres were privately owned by individuals whose aim was purely for profit (Adekunmisi et al., 2013). A study on Internet access and use by undergraduate students in three Nigerian universities reported 54.2% of the population using the Internet occasionally (Ani, 2010), while Bashir et al. (2008) reported 47% of the respondents using the Internet two to three times a week.

A report by the Pew Research Center (2016) stated that while Internet access has been rising in emerging and developing nations, those worldwide who have internet access are voracious users. The report further revealed that roughly three-quarters of adult internet users across the 40 countries surveyed in 2015 say that they use the internet at least once a day, with majorities in many countries saying that they access the web “several times a day” (Pew Research Center, 2016). This increase in Internet use, as reported in the study, could be as a result of free Internet available to students and staff of the university community. The report from Pew Research Center (2016) also opined that the most avid Internet users are found in regions with lower internet rates like the Middle East, Latin America and Africa. The research also indicates that Internet use has grown over the years as Ani (2010) reported that under 12% of the study population of undergraduate students at three Nigerian universities were using the Internet daily.

Overall, internet users in emerging and developing countries are more likely to use social media compared with those in the developed world. It is important to remember, however, that internet access

rates in the emerging and developing world still trail those of advanced economies, so the number of people participating in social networking is still smaller than a share of the total population in many of these emerging countries. Additionally, within nearly every country, Millennials (those ages 18 to 34) are much more likely to be internet and smartphone users compared with those ages 35 and older. This significant age gap appears in both advanced economies and among emerging and developing nations. Younger internet users also tend to access the internet at least daily and participate in social networking at higher rates than their older counterparts (Pew Research Center, 2016).

Students were asked to indicate how much time they spent accessing the Internet on both their computers and mobile devices. This result is shown in Figure 2.

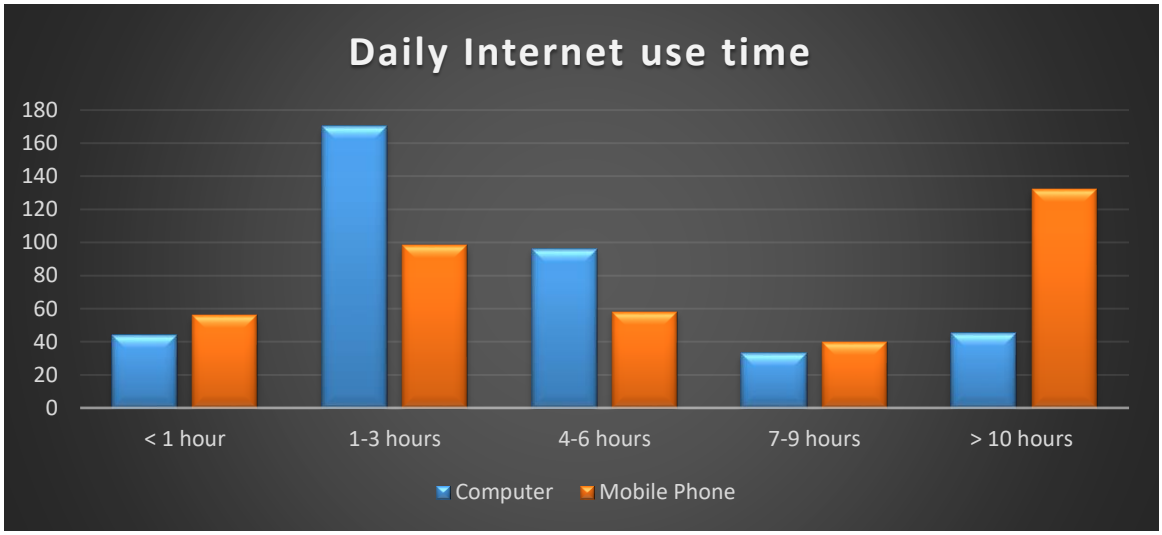


Figure 2: Amount of time spent on the Internet daily

Figure 2 indicates that 56 (14.6%) of the respondents spend less than 1 hour accessing the Internet on their mobile device, 98 (25.5%) spend between 1-3 hours while majority of the respondents 132 (34.4%) spend 10 hours or more accessing the Internet on their mobile devices. It is also revealed that more students 214 (55.1%) spend 3 hours or less accessing the Internet on laptop/desktop computers, 129 (33.2%) spend between 4-9 hours while 45 (11.6%) spend 10 hours or more on the computer accessing the Internet. Qualitative results from the focus group sessions also revealed that respondents spend an average of 4-6 hours daily Internet using the Internet. A student reported, "you are just on your phone and you just go on". Another member of the group said, "just think of how much you spend on your phone, you just keep going and going, six hours minimum". A group of Science students noted they used the Internet for between 2-3 hours a day because of busy school work. From Figure 2 above, 44% of the respondents spend more than 7 hours on their mobile phones accessing the Internet. This finding reveals how much Internet use among undergraduate students has tremendously increased over the years as Ruzgar (2005) reported between 1-10 hours weekly Internet use among Turkish students.

This result amplifies the research findings from a study at Baylor University reported by Wood (2015) where Internet use among female college students was found to be an average of 10 hours a day on their cell phones, while male students spent nearly eight hours. A similar study on undergraduate students in a Nigerian university by Adekunmisi et al. (2013) reported that 82.5% of the respondents surfed the Internet for two hours or less daily while only 6% used the Internet for more than five hours daily. Limitations such as affordability of long hours of Internet browsing due to high cost were cited in the study. This reason might have accounted for 4% of the respondents preferring overnight browsing

which has less financial burden on Internet users but negatively affects academic productivity (Adekunmisi et al., 2013).

The activities of respondents when they go on the Internet were also polled. Respondents were asked to indicate their use of the Internet for activities such as academic, communication, entertainment, social networking. The result is shown in Figures 3-6 and Tables 1-4. However, it has been acknowledged that information needs as such are difficult to study empirically, thus most user studies focus on information seeking activities, rather than on actual information needs (Case, 2002).

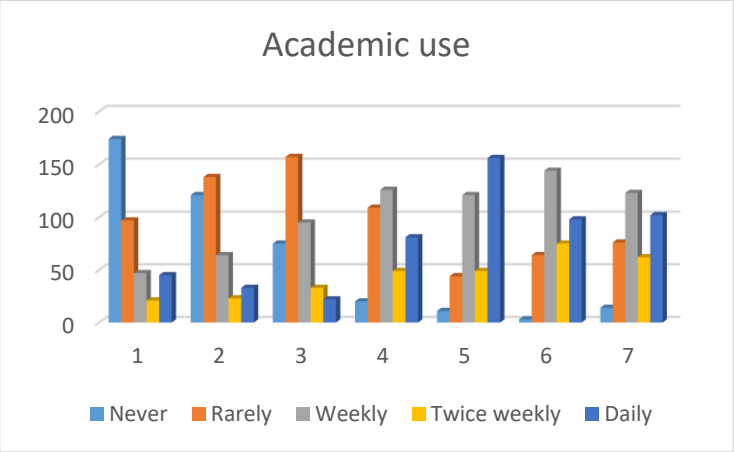


Figure 3: Academic Use of the Internet by Respondents

Table 1: Ledger/Mean for Academic use of the Internet

Legend		Mean
1	Take online lectures and classes	2.13
2	Reading E-books	2.23
3	Downloading journal articles	2.40
4	Looking up reference materials	3.16
5	Information surfing for study	3.77
6	Assignments	3.52
7	Research	3.43

It is evident from the results in Figure 3 and Table 1 above that under academic grouping, undergraduate students use the Internet more for information surfing for studies ($\bar{x}$ 3.77), followed by assignments ($\bar{x}$ 3.52) and research ($\bar{x}$ 3.43) while taking online lectures and classes comes last with a mean of ($\bar{x}$ 2.13). Communication use of the Internet was also queried which is reported in Figure 4 and Table 2 below.

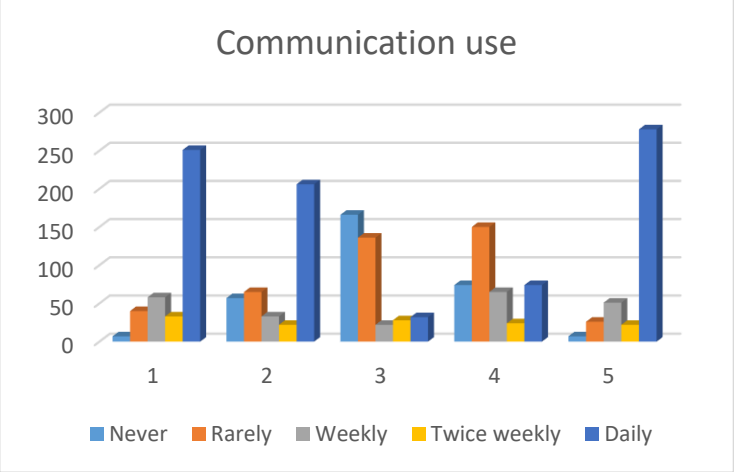


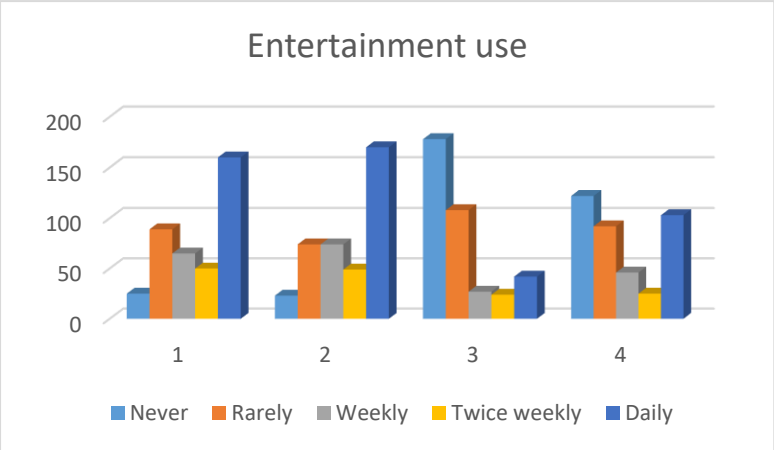
Figure 4: Communication Use of the Internet by Respondents

Table 2: Ledger/Mean for Communication use of the Internet

Legend		Mean
1	Send and receive emails	4.24
2	Make and receive calls	3.67
3	Video chatting	2.02
4	Meeting new friends	2.67
5	Keeping in touch with friends	4.40

Undergraduate students also used the Internet for communication purposes including keeping in touch with friends ($\bar{x}$ 4.40), emails ($\bar{x}$ 4.24), making and receiving calls ($\bar{x}$ 3.67) as shown in Figure 4 and Table 2 above.

Table 3: Ledger/Mean for Entertainment use of the Internet

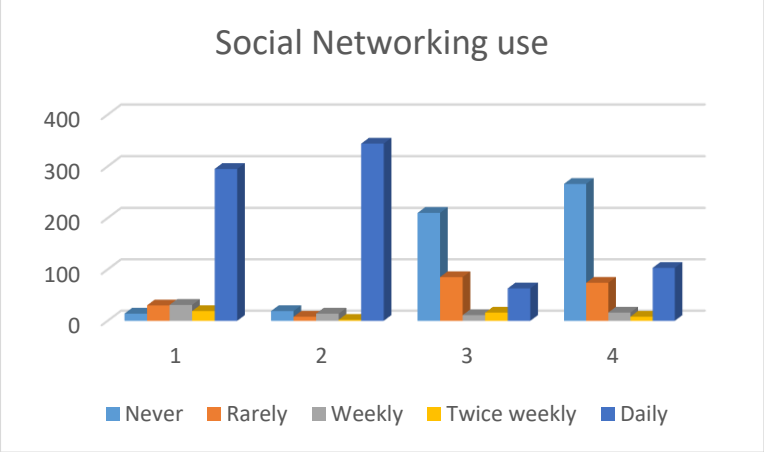


Legend		Mean
1	Play and download music	3.59
2	View and download videos	3.69
3	Play podcast	2.06
4	Watching online TV	2.73

Figure 5: Entertainment Use of the Internet by Respondents

Another activity undergraduate students commonly used the Internet for was entertainment, and as revealed in Figure 5 and Table 3 above, entertainment purposes respondents utilised the Internet for include watching and downloading of videos ($\bar{x}$ 3.69), playing and downloading of music ($\bar{x}$ 3.59) and watching online TV ($\bar{x}$ 2.73).

Table 4: Ledger/Mean for Social Networking use of the Internet



Legend		Mean
1	Facebook, Twitter, Myspace	4.42
2	Instant messaging (Whatsapp, BBM)	4.66
3	Talking in chat room	2.06
4	Create or maintain a personal blog	1.54

Figure 6: Social Networking Use of the Internet by Respondents

As shown in Figure 6 and Table 4 above, respondents' favourable disposition towards ICT and socialisation was reflected through the use of the Internet for social networking activities such as instant messaging (WhatsApp, BBM) ($\bar{x}$ 4.66), Facebook, Twitter and Myspace ($\bar{x}$ 4.42).

From the results in Figures 3-6 and Tables 1-4, it can be inferred that undergraduate students use the Internet more for communication and social networking activities when compared to academic activities. This was also echoed during the focus group session. Respondents during the focus groups stated that they used the Internet more for social media. A student noted, "I sometimes find myself in that situation, I don't spend much time on the Internet anymore. I just download what I need and leave. I do have a social life outside social media" (Student Focus Group Discussion, February, 2016). Majority of the respondents in this study which Prensky (2001) referred to as *digital natives* are "used to receiving information really fast, prefer their graphics before their text rather than the opposite, they prefer random access (like hypertext) and thrive on instant gratification and frequent rewards and prefer

games to “serious” work” (Prensky, 2001). The social networks which have the utmost popularity, especially for young people, has been drawing attention of researchers and academics (Tektas, 2014).

As a communication tool, reports from college students in the United States showed that 42% of college students say they use the Internet primarily to communicate socially, with a vast majority (85%) considering the Internet to be an easy and convenient choice for communicating with friends. The report further revealed that 72% of the students are frequently looking for email, checking email at least once a day (Jones, Johnson-yale, Millermaier, & Seoane, 2008; Stork, Calandro, & Gillwald, 2013). A survey on Internet access and use by undergraduate students in three Nigerian universities found that more than 70% of the respondents make use of the Internet to send/receive emails (Ani, 2010). Social networks are growing more and more popular, especially among the students with the developments in technology. Ozkisi and Topaloglu (2015) reported that 75% of the students at two Turkish schools access/use at least one social network account a day. This indicates that social networks are highly popular, and the main purpose of going online is to log onto Facebook and Twitter (Ozkisi & Topaloglu, 2015).

In all categories listed in this study, Internet use for communication purposes ranked first ($\overline{x}$ 3.4), followed by social networking ($\overline{x}$3.17), Entertainment (3.02) with academic purposes in the fourth place (2.95). A study in 2002 by the Pew Internet Centre showed that undergraduate Internet users are heavier users of instant messaging and online chat than those in the overall online population (Jones, 2002). A study of Economics students’ use of the Internet at Istanbul University revealed that the majority of the respondents (approximately 76%) are using electronic resources for entertainment such as chatting and social networking, download films, music or playing games and shopping. Other findings reported from the study showed that searching for a homework or projects and getting knowledge for academic purposes via internet (24% of the respondents) comes later than playing games, shopping online or surfing internet (Deniz & Geyik, 2015). The researchers asserted that information technologies and Internet play a key role in the daily life of university students, but most of the students do not use the Internet for course related readings and research needs (Deniz & Geyik, 2015). Adekunmisi et al's. (2013) study of Internet use among students of Olabisi Onabanjo University, Nigeria, showed that 60% of the respondents’ purpose of browsing the Internet was to send e-mails to friends, parents, lecturers and colleagues (especially those using the Internet for distance learning purposes); 44% of them used it for academic purposes; 22.5% browsed to get or know current happenings all over the world while 10% signified its use for distance learning purposes.

It is important to note, too, that although activities like communicating via email, social networking, use of instant messaging apps and chatrooms may be categorised as “non-academic” use of the Internet, they can also be important learning activities, especially with the everyday use of electronic devices to access networked academic environments, communicating with instructors and the blurring of boundaries between virtual and real life spheres. According to Jones (2002), college students use the Internet nearly as much for social communication as they do for their education. However, just as they use the Internet to supplement the formal parts of their education, they go online to enhance their social lives.

5. CONCLUSION

The main focus of this study was to find out the Internet use pattern and the Internet use rate of undergraduate students. The use of the Internet was reported to be daily among 72.3% of the respondents. The amount of Internet use time among undergraduate students was staggeringly high compared to previous reports (Adekunmisi et al., 2013; Ani, 2010). The striking dissimilarity in Internet use time could be as a result of the fact that most undergraduate students in this study have access to

unlimited campus-wide Internet access. Communication and social networking are the activities that commonly take undergraduate students' time while using the Internet.

The pattern of Internet use among respondents revolves mainly around instant messaging (WhatsApp and BBM; $\bar{x}$ 4.66), Facebook, Twitter ($\bar{x}$ 4.42), emails ($\bar{x}$ 4.24) and Internet surfing for study ($\bar{x}$ 3.77), which showed the highest use of the Internet for academic purpose by undergraduate students. Findings from the quantitative data corroborate the results from the quantitative findings with additional revelations of staying online longer than intended looking through social networking sites such as Facebook. Anderson's (2001) study on the use of Internet among college students also reported a similar result among respondents.

Some studies have noted the heavy use of the Internet by college students to satisfy the tension release need type in UGT (Hu, 2008; LaRose & Eastin, 2004; Sipal, Karakaya, & Hergul, 2011). Generally, academic use of the Internet is relatively low compared to other categories identified for the study and considering the fact that the primary purpose of providing free campus-wide Internet access is to enhance academic productivity among students and academics. The assumption from UGT that users are active in their selection of the media and media content as well as make deliberate choices among the media alternatives available to them based on their needs (Larose, 2011) portrays that the real reason undergraduate students select the Internet as information media is predominantly outside academic purposes.

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