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A Review on the Impact of Smartphones on Academic Performance of Students in Higher Learning Institutions in Tanzania

A Case Of Ruaha Catholic University (Rucu), Iringa

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***Abstract*— Smartphones act as mobile entertainment units where a user can: watch videos, listen to music, update blogs, as well as audio and video blogging. The aim of this study was to review the impact of smartphones on academic performance of students in higher learning institutions. Intensive literature review was done finding out the disadvantages and advantages brought by smartphones in academic arena. In the future, research will be conducted at Ruaha Catholic University to find out whether students are benefiting from using smartphones in their daily studies and whether do they affect their GPA at the end of the year.**

***Keywords*— Smartphones, Academic performance, higher learning students, Addictions, GPA, RUCU.**

I. INTRODUCTION

Recent developments in mobile technologies have produced a new kind of device: a programmable mobile phone, the smartphone [1]. The smart phone represents the current pinnacle of mobile phone development, coupling phone capabilities with the additional functionalities of a PDA. In this convergence between phone and handheld computer, the phone has the dominant genes—smart phones generally look more like phones than PDAs. The smart phone's evolution from the mobile phone influences how users tend to think of these devices, as reflected in the handset design. Smart phones are predominately communication devices, with additional computing power built in [2].

A smart phone is a device which has features of both a computer and a mobile device (cell phone). Unlike a normal mobile device a smartphone has a vast amount of both local storage and memory. Smartphones have operating units like computers. Smartphones act as mobile entertainment units where a user can: watch videos, listen to music, update blogs, as well as audio and video blogging. Different makes of smartphones include: I phone, Blackberry, HTC, Samsung etc. Most importantly with a smartphone one can access web 2.0, exactly like you the web you would use on the internet [3].

According to [4], On telecommunications sector, year 2010/11 saw unprecedented growth in both networks expansion and subscriber base. Vodacom, Celtel (now known as Zain) and later Zain emerged clearly as the market leaders in subscriber in terms of the subscriber numbers as shown in table below.

Table 1: Fixed and mobile subscribers as per 2011 statistics

YEAR	MOBILE CELLULAR (CELTEL, MIC(T) LTD,VODACOM & ZANTEL)	FIXED LINES (TTCL & ZANTEL)	TOTAL
2004/2005	2,963,737	154,420	3,118,157
2005/2006	5,076,310	52,720	5,229,030
2006/2007	6,720,072	169,135	6,889,207
2007/2008	10,268,673	159,370	10,428,043
2008/2009	14,723,175	179,849	14,903,024
2009/2010	19,424,264	168,531	19,592,795
2010/2011	22,076,715	175,249	22,251,964

So in principle, there were about 22,076,715 subscribers who were using mobile services like data and voice services but in 2013 the number of mobile subscribers increased to 27,442,823 which is about 19.55% increase and most of the customers are students either in higher learning institutions or in secondary schools. Most of the mobile subscribers in higher learning institutions own smartphones to easy voice communication as well as data connectivity for internet access.

Mobile learning devices enable learners and teachers to interact with one another anywhere, anytime. Students have access to any kind of information, and research at any point, also smartphones could become a distraction in any learning environment due their ability to become an entertainment unit and facilitate social networking [3].

Today there is a more complete, intricate, and accessible web of information in the world than ever has existed before – an "Age of Information," as it has been called. Technology is developing at an astonishing rate, facilitating new kinds of utility and entertainment that were unimaginable ten years ago. The process of human communication has evolved

into a multi-faceted one in our time, with texting, instant messaging, and video calling joining face-to-face relations among what are now the normal methods of our interaction. The smartphone is doubtless a tool that has the power to make its user master of his or her own sector of the digital world. But, as is true for most tools, the smartphone is a dual-sided blade, and it can cut its consumer as much as it can help them [6].

Table 2: Comparison of mobile technology with laptops[5]

Point of difference	Mobile technology	Laptops/Net books
Weight	Light weight, hence makes access of content easy	Heavy weight
User interactivity	Touch screen interface increases interactivity with user	Not much user friendly as compared to mobile devices
Switching	Fast switching and instant capability	Slow switching which leads to delays
Portability	Easy to port	Heavier, so makes it difficult
Cost to develop	Inexpensive for mobile platforms	Do not have free or low cost apps like mobile devices.

The aim of this study is to review the impact smartphones offers on the academic performance of higher learning students in Tanzania but the selected case is Ruaha Catholic University (RUCU).

Ruaha Catholic University (RUCU) is the successor of Ruaha University College (RUCO) which was established by the Tanzania Episcopal Conference (TEC) under its Trust Deed of the Registered Trustees of Ruaha University College through the generous support of well-wishers (friends of RUCU) within and outside the country.

The University is governed and administered in accordance with the Catholic Church Policy on Higher Education Institutions – Ex Corde Ecclesia and the provisions of the constitution establishing a University. Nonetheless, RUCU is a private and secular institution of higher learning that is open to all regardless of their faith or religious affiliation. It does not discriminate on any ground such as faith or their backgrounds, religious affiliation, race, ethnicity, gender, disability or caste.

The assumptions made on this review paper is that, the test scores, quizzes and assignment done by students are accumulated as the assessments which contributes to the final exam scores because at RUCU the continuous assessment takes 40% while the end of semester examination takes 60% of the total score (100%).

Figure 1: Students learning at Benjamin W. Mkapa library at RUCU.

II. BACKGROUND AND LITERATURE SURVEY

With the growing number of mobile applications embedded in modern mobile phones (particularly 3G and 4G phones) such as the MP3, Internet, Camera (still and video), TV, and the decrease in the size and the price of such devices, mobile phones have become omnipresent. The mobile phone is an anytime and anywhere tool, boosting the tendency to do things discreetly as well as openly. And this has made most of students in higher learning institutions to use a lot of time in browsing to find either academic or social informations in their smart phones.

In their study titled “Social Network: Academic and Social Impact on College Students”, [7] found that there is a correlation between the students GPAs and their usage of social networks. An interesting finding was that many of our respondents do not use social sites to look for college-related information; however, many of them encourage the idea of having online study groups. Another finding showed that the students tend to use social networks for social purposes more than the academic ones.

According to [8], students who use their mobile phones during class lectures tend to write down less information, recall less information, and perform worse on a multiple-choice test than those students who abstain from using their mobile phones during class.

The survey conducted by [9] showed some signs of addiction to respondent’s mobile phones. Differences in mobile phone use by gender were found, with female students showing increased mobile phone use for safety and socializing, interest in brand and trends, as well as signs of addiction.

In his research [10] found that African teenagers’ mobile phone usage was greatly affected by their parents in other ways too, an increased bill from excessive use would lead to scrutiny by their parents therefore forcing the students to use their phones less than they intended. In addition to this [11], concluded that smartphone provide access to modern society a

massive amount of educational and learning resources. In developing countries Smartphone can easily compensates the limited access of internet and data access, which in turn help their infrastructure and education development.

A recent study conducted by [12], shows that smartphones can have a huge impact on student achievement. Skeptics, including some parents, worry about kids wasting time in class, but so far the benefits of allowing personal technology in schools outweigh the risks. Students can access the Internet even when school budgets limit the number of computers available, and small numbers of devices can impact larger numbers of students if teachers allow group work.

According to [8], participants in three different study groups (control, low-distraction, and high-distraction) watched a video lecture, took notes on that lecture, and took two learning assessments after watching the lecture. Students who were not using their mobile phones wrote down 62% more information in their notes, took more detailed notes, were able to recall more detailed information from the lecture, and scored a full letter grade and a half higher on a multiple choice test than those students who were actively using their mobile phones.

A research conducted by [13], concluded that the differences due to age and gender do not appear to be particularly significant; most significant differences appear to be due to the mobile devices used or technologies available. For example, the use or not of certain technologies like social networking among students is high compared to downloading podcast or searching for answers during examinations; or the use of laptops/notebooks and iPads/tablets.

In their study titled “Smartphones: Fulfilling the Need for Immediacy in Everyday Life, but at What Cost?” [14] stressed that smartphones fulfil the demand for immediate access to social worlds. They conducted focus groups of college students to explore their perceptions and attitudes regarding uses and abuses of Smartphone technology. Overall, respondents believe more negatives than positives exist and the powerful positive of “being in the loop” keeps them “attached” to their devices.

According to [15], students who have smart phones were more likely to both access social media tools and spend time engaging with others. From an educational standpoint, this means there may very well be a “digital divide” between those who are making connections with others, and those who might be left behind. Similarly, professors may have to be wary of assigning projects involving social media to students as some may have an advantage in completing the work than others.

As it is demonstrated by survey done by [16], gender differences exist, but they are not big. Females appear to make more phone calls than male. Moreover, they take more photos and record more sounds than their male peers. In addition, they listen more hours to the radio than men and they tend to send and receive more messages from friends. On the other hand, males tend to use more the computers and Internet, but they do not access the Internet via their mobile devices. Furthermore, both groups find reasons in order to reduce the usage of their mobiles, but men mention more reasons than women do. They believe that loss of time and addiction are reasons of decreasing the use of the devices [17-19].

In her qualitative study [20] concludes that graduate students combine their personal lives with their student lives influenced by the use of smartphones. This finding can be understood as a statement that students can have a classroom at home or wherever making use of communication and educational applications offered by smartphones. In addition, [20] mentions another found finding about how smartphones are influencing and changing educational practices. For example, changes in the way to gather information, to receive instructions from teachers, to do homework, to collaborate with classmates, among others.

In his study [21], found that with a mixed method design that students using a smartphone application enjoyed and performed very well in a course, so they exceeded their performance of a comparison group (traditional course) with statistically significant differences. In addition to this [22], concluded that, smartphones are a phenomenon that has changed daily life and learning styles of students, has forced changes in teaching strategies for teachers, and has changed the rules and policies of educational institutions. Since these technological devices have all in one, have become popular among the educational community of almost every country around the world.

In an observational study of smartphone usage on the Stanford campus, [23] showed that the availability of always-on connectivity meant that the students had to exhibit the techno-social practices of balancing their extended networks with the immediate surroundings and to limit the negative impacts of smartphone usage (e.g., social pressure, and multi-tasking). Also [24-26] stressed that the use of mobile devices may lead to the development of a checking habit that involves brief and frequent content consumption (e.g., checking emails and Facebook updates).

In an article posted in [27], showed some startling statistics about the use of smartphones for cheating in the classroom. This could be through the use of text exchanges with other students, using the Internet to find answers, using advanced calculators and phone applications, taking snapshots of an exam, or reading notes that are saved on the phone to help on the test.

III. MATERIALS AND METHODOLOGY

The methodology adopted by this study was ‘Internet Search’. The study consulted different sources on the Internet to establish evidence and facts about the claimed issues. Where possible the websites of the specific resource were visited, for

example website of some journals which only put materials in html format rather than pdf or documents. The reviewed literatures are mostly available on the Internet. Another means employed is observations where the researcher was required to stay in main gate (Entrance gate) to observe the number of students entering the university with either smartphones or normal mobile phone. So generally secondary source of data were mainly used in a large part to come up to conclusion.

IV. OBSERVATIONS AND DISCUSSIONS

Majority of the students of Ruaha Catholic University are below 30 years of age, so they are moving very fast with the advancement of technology especially in tablets and mobile phones. It is possible that every student regardless of whether he/she is pursuing undergraduate studies, certificate studies, diploma studies, masters, doctoral or short courses provided by University, owns or is about to own the smart phone due to either mob psychology or education requirements (this means some class representatives prefer to send announcements from lecturer in charge of the course through social groups created by the class, for example WhatsApp group for the second year students pursing bachelor in Computer science with Software Engineering).

Those who owns smartphones at Campus are very busy and attentive to message notifications of either WhatsApp, twitter, Instagram, Facebook and other social networks making them vulnerable to time management as they use most of the time chatting each other rather than discussing about academic subjects.

Another observations from this study, is female and some few male students use most of their time taking selfie pictures through their smartphones so that they can upload or share in social network about the status and where are they at that particular time, so they can even go outside looking for the nice place or environment to take that pictures and share them with one another.

V. CONCLUSION

A description of smartphones along with its impact on academic performance of higher learning students have been clearly provided together with the advantages and disadvantages of having smartphones in colleges and Universities. Some researchers agree that, smartphone as a tool can help students to achieve or perform well in his/her studies but other scholars argue that, smartphones is a tool which hinders students in getting deserved score in their studies (GPA) for example one scholar stressed that students use smartphones for cheating in examinations by taking snapshots and share them in a group of let say WhatsApp group. In Ruaha Catholic University (RUCU), this type of cheating is strictly prohibited because students are not allowed to enter in an examination room with their mobile phones.

In this study, it was revealed that there is a great connection between age, gender and marital status on the addiction towards the use of smartphones in Universities and colleges in large in relation to the academic performance.

VI. FUTURE WORK

In the future, research will be done in RUCU to find out whether smartphones affect those students owning them in academic performance positively or negatively. So interview, observations and questionnaires will be used as a tool for data collections after then, SPSS or Microsoft Excel will be used for data analysis and interpretations.

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