

# Smartphones' Effects on Academic Performance of Higher Learning Students.

## A Case of Ruaha Catholic University – Iringa, Tanzania

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**Abstract—** Smartphone abuse to addiction is becoming more problematic nowadays in Tanzania because most students whether higher learning students or low level students are more addicted to applications found on smartphones like WhatsApp, twitter, Facebook and the like. The aim of this study was to find out the impact of smartphones on academic performance of higher learning students. A total of 100 students having smartphones were surveyed regarding the usage of smartphone to their academic performance. Data collected after survey were analyzed using SPSS and excel tools, and then percentage analysis were done to find the key contributors towards academic performance and smartphone usage or addiction.

**Keywords—** Smartphone, Higher learning students, Academic performance, Information technology, WhatsApp, Social networks, GPA.

### I. INTRODUCTION

Into today's world, digital technology changes so rapidly and integrates into our society at such an accelerated rate, it is hard to keep up with it, let alone reflect on the effects it has on our lives. Although Facebook, YouTube, and Twitter, did not exist a mere decade ago, they are now ubiquitous forms of media and communication in our culture. Today's generation of teenagers, born in the 1990s, aptly labeled the "iGeneration", are the most connected generation ever. These iGen teens are digital natives growing up in an era of a massive influx of technology. They do not know of a world that does not include the Internet and easy access to technology. Parents of iGen youth, however, are "digital immigrants" [1].

Technology addiction problem has been treated important, especially in the education field of secondary schools, because adolescent is more vulnerable to the addiction. Internet addiction was an important issue a few years ago. However, smart phone addiction has become a more serious problem recently. In order to prevent the addiction and to provide new educational methods for the secondary school students, many researchers have proposed various kinds of research works such as new addiction measurement scales and the environmental or personal factors that cause the addiction so far [2, 3].

Smartphones are the new generation of mobile phones, they have emerged over the last few years and already have conquered the market. Smartphones with their mini keyboards are not just phones, but have computer functions as email, calendar and address book, and office programs for reading and editing. The multimedia phone features such as camera, video, sound recordings or podcasting is advanced and can compete with specialized equipment. Smartphones can be customized with new software, and the variety of these programs is increasing. The social communication platforms (like Facebook, Twitter, Instagram, WhatsApp, etc.), GPS functions and games are especially popular.

Today Smartphone's enable consumers, advertisers and publishers how to better engage, socialize using the ubiquitous experience this advanced platform by leveraging it's of the firm. The focus of income statement is on the operating revenues and expenses. User groups of financial reports for decision-making require data related to all easy to use and availability characteristic [4].

Smartphone abuse to addiction is becoming more problematic nowadays in Tanzania because most students whether higher learning students or low level students are more addicted to applications found on smartphones so that they download and run numerous applications with smartphone even without Internet connection.

The aim of this study is to know how the students of Ruaha Catholic University (RUCU) are using the smartphones and then find out the impact of smartphones on academic performance of higher learning students in Tanzania because no research has been conducted to find out why the academic performance of students are degrading (or becoming poor) day to day. So the nature of this research is exploratory one because it tries to explore the reasons behind poor academic performance.

### II. BACKGROUND AND LITERATURE SURVEY

As defined by Tuckman [5], performance as the obvious expression or demonstration of sympathetic, ideas, skills and knowledge of a person and planned grade clearly indicate the performance of a student. So student's academic performance are given more

emphasis and keeping in view all the factors adversely or positively impacts on their academic performance. Majority of students use smartphones for leisure purposes and only few uses for educational development purposes.

A research was conducted by [6] to study the relationship between academic performance and Facebook usage. Sample were taken from population of 219 university students and they found that Facebook users had lower Grade Point Averages and they were online most of the time and utilized very less time for their studies in comparison with students who did not use Social Networking Services (SNS). Only 26% of students reported that SNS impacted positively and helped to grow in their lives and 74% said that it had adverse impact like procrastination, lack of concentration or distraction and poor time management.

In their research titled "*Smartphone Addiction in University Students and Its Implication for Learning*" Lee *et al* [7], found that the higher the addiction level is, the lower level of self-regulated learning the students have, as well as low level of flow when studying. Further interview for smartphone addiction group was conducted, it has been found that the smartphone addict—learners are constantly interrupted by the other applications on the phones when they are studying, and does not have enough control over their smartphone learning plan and its process.

Grosbeck *et al* [8] and [9], in their study found that the majority of students spend significant time on Facebook more for social uses (to stay in touch with friends and family, to share / tag photos, to engage in social activism, volunteering etc.) and less for academic purposes, even if they take part in discussions about their assignments, lectures, study notes or share information about research resources etc.

In their research concerning Online Social networking (OSN) Paul *et al* [10], their results revealed a statistically significant negative relationship between time spent by students on OSN and their academic performance. The time spent on OSN was found to be heavily influenced by the attention span of the students. Specifically, we determined that the higher the attention span, the lower is the time spent on OSN. Further, attention span was found to be highly correlated with characteristics that predict or influence student behavior, such as their perceptions about society's view of social networking, their likes and dislikes of OSN, ease of use of OSN, etc.

According to Salehan *et al* [11], As the penetration of mobile phones in societies increases, there is a large growth in the use of mobile phones especially among the youth. This trend is followed by the fast growth in use of online social networking services (SNS). Extensive use of technology can lead to addiction. This study finds that the use of SNS mobile applications is a significant predictor of mobile

addiction. The result also shows that the use of SNS mobile applications is affected by both SNS network size and SNS intensity of the user [12, 13].

The relationship between Facebook use and grades was examined in a large sample by Junco [14], and reveals that unlike previous research, his study used university records to collect GPA data. Time spent on Facebook was negatively related to overall GPA. Time on Facebook was also negatively related to time spent preparing for class. Some Facebook activities were positively and some negatively related to outcomes.

As per [15], smartphone poisoning means connection to poisoning phenomena habitually using a smartphone without special purpose for and showing anxiety and restlessness without a smart phone.

According to [16-18], an increasing reliance on cell-phones among young adults and college students may signal the evolution of cell-phone use from a habit to an addiction. Although the concept of addiction has multiple definitions, traditionally it has been described as the repeated use of a substance despite the negative consequences suffered by the addicted individual.

A research done by Junco [19], shows that Females tend to see technologies like cell-phones and Internet as tools of communication – as a means to maintaining and nurturing relationships. Men, on the other hand, tend to see the Internet and related technologies as sources of entertainment.

As per Chakraborty *et al* [20], although various etiological theories could be used to explain which cell-phone activities are most likely to lead to addiction (e.g., Escape Theory), Learning Theory seems particularly appropriate. Learning Theory emphasizes, among other things, the rewards gained from various cell-phone activities.

According to [21], the regression analysis was used to analyze the data. Extroversion, neuroticism and Openness to experiences are all positively correlated to FBA (Facebook Addiction). Also, there is negative relationship between FBA and Academic performance.

Smartphone's addiction is a major impact on academic and social life. As per Sarwar *et al* [22], surveys show that Smartphone addiction is interfering with our night's sleep. According to the survey, 33% of mobile workers admitted that they check their phones for email and message throughout the night. Nearly 50% of those surveyed said, they wouldn't even think of going to bed without have their Smartphone's tucked under their pillows [23, 24].

According to [25] and [26], smartphone abuse is increasing in the 21st century as more and more adolescents enjoy exploring their Smartphone's in their free hours. Smartphone overuse can be a sign of Smartphone addiction.

According to the research done by Lapointe *et al* [27], their results revealed that four smartphone user profiles. In two of these profiles, users are exhibiting addictive behaviors. In the first group, the users' profile corresponds to that of other types of additions. In the second group, known definitions of addiction do not apply and the characteristics of these users are very different. Their results then suggest that adopting traditional conceptualizations of addiction will not be sufficient to define, understand and manage IT addictive behaviors.

As per research done by [28], the organizations expect their employees to respond to the emails immediately even after working hours, due to that employee feel compelled to respond to official emails. Many Smartphone users engage in continuous monitoring of their work related emails, which creates compulsive routines of chronic checking and in the long run it is responsible for increased stress. There are evidences that Smartphone usage is responsible to blur the distinctions between the work and family life. The Smartphone causes the employees to take the work into the home domain. As a consequence, the blurring work and family life might lead to a worsened work–family balance.

According to [29], the use of the Internet has become a part of life of every student and a mean to search for the information as and when it is needed. These days, use of mobile phones for internet purposes has become a routine and number of mobile consumer accessing the Internet is surpassing fixed line internet users. The Smartphone with the capability of always connected makes it much easier for the students to avail this type of education facility and makes the Smartphone a perfect fit device for distance learning.

As per [30], text messaging plays an important role in college student's life, too. A survey conducted at the University of Colorado and several other universities in 2010 found that text messaging and emailing are two of the most commonly used functions on smart phones among college students, followed by reading news, watching videos and reading books.

**III. MATERIALS AND METHODOLOGY**

The methodology employed in this study involves both secondary and primary data collection methods. Secondary information sources used for the present research include the journals, magazines and internet sources. A well-structured and administered questionnaire was prepared and distributed to the University students of different levels from short causes to PhD at Ruaha Catholic University for data collection as primary source. 100 students from all levels have been surveyed for the purpose of data collection. The data was collected based on convenience methodology. Students having strong experience of smartphones have been considered as respondents to collect information. The data collected were analyzed through percentages and frequencies in which the data were presented in table formats, pie

charts and histograms which were obtained using Excel and some using SPSS (Statistical Package for Social Science). The study was conducted during January 2015 to March 2015.

**IV. RESULTS AND DISCUSSIONS**

The following are the results and findings obtained from primary data which were collected through questionnaires and interviews.

Table 2: Gender of the students using smartphones

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	43	43.0	43.0	43.0
ValidFemale	57	57.0	57.0	100.0
Total	100	100.0	100.0	

The information in the table above can also be presented in a pie chart below.

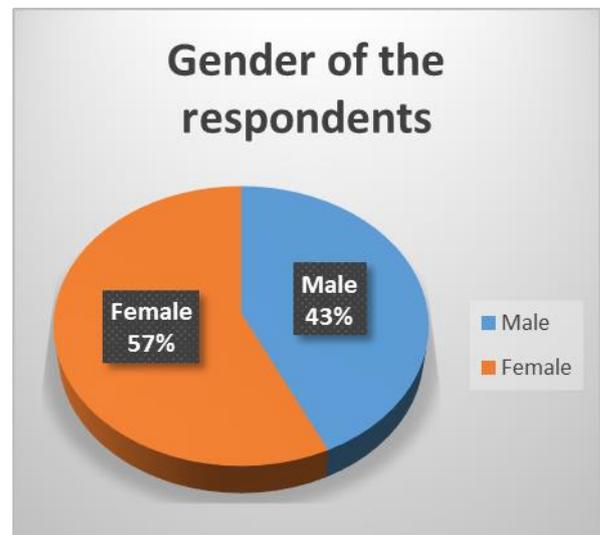


Figure 1: Gender of the students using smartphones.

According to Figure 1 above, it can be easily concluded that female students (57%) from RUCU use smartphones more than male students.

Table 2: Age of the respondents owning smartphones

	Frequency	Percent	Valid Percent	Cumulative Percent
below 20	25	25.0	25.0	25.0
20-25	50	50.0	50.0	75.0
25-30	15	15.0	15.0	90.0
Valid 30-35	8	8.0	8.0	98.0
above 35	2	2.0	2.0	100.0
Total	100	100.0	100.0	

The information above shows that the age group between 20 -25 (50%) own smartphones than any other age group followed by the age group below 20 (25%) which indicates that teenagers are more aware in technological advancement than the age above 35 which thinks that owning a smartphone is a luxury thing that is not necessary. And that age group of 20 - 25 mostly are still not married, so they use smartphones either to strengthen their relationships or to find relationships through social networking sites like Facebook, twitter, Instagram etc. The information in the table above can also be shown in the chart below.

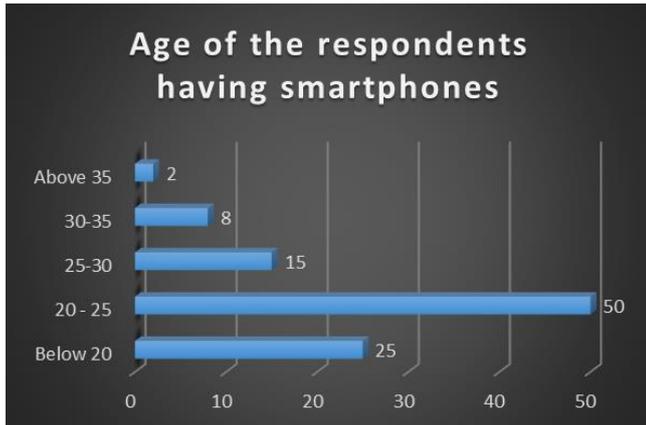


Figure 2: Shows the age of the respondents having smartphones

Table 3: Marital status of the students using smartphones at RUCU

	Frequency	Percent	Valid Percent	Cumulative Percent
Married	14	14.0	14.0	14.0
Not married	85	85.0	85.0	99.0
Divorced	1	1.0	1.0	100.0
Total	100	100.0	100.0	

The information in table 3 above can also be presented in histogram as shown below

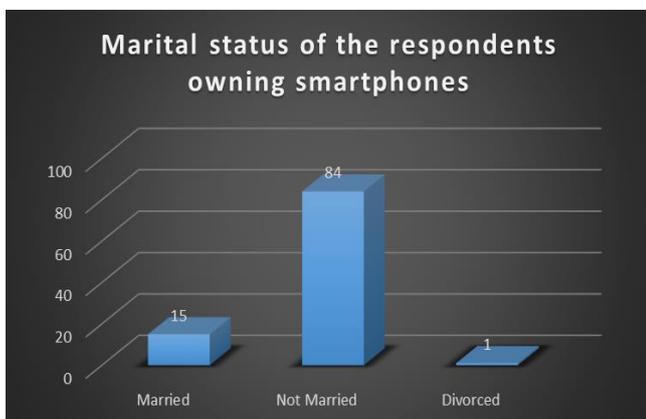


Figure 3: Shows the marital status of the respondents owning smartphones.

Referring to the figure 3 above, it can be seen that, the large number of the students owning smartphones are the teenagers in the sense that they are still not married so they use smartphones either to largely communicate with their boyfriends/girlfriends because they are just in relationships, while few percentage of the students at RUCU owning smartphones are married and they seem to be more disciplined in the use of their smartphones either for communication with their family or for academic purpose.

Table 4: Showing the program taken by the respondents at Ruaha Catholic University

	Frequency	Percent	Valid Percent	Cumulative Percent
Short courses	5	5.0	5.0	5.0
Certificate	8	8.0	8.0	13.0
Diploma	12	12.0	12.0	25.0
Bachelor	65	65.0	65.0	90.0
Masters	9	9.0	9.0	99.0
PhD	1	1.0	1.0	100.0
Total	100	100.0	100.0	

The information in table 4 above shows that, the majority of the respondents having smartphone at RUCU are taking undergraduate studies (bachelor degree programs) which is about 65% of the total respondents followed by diploma program which amount to 12% of the total respondents, this indicates that bachelor degree students who falls in the age category of 20 – 25 or generally below 25 who can be grouped as teenagers are the one who are more familiar with the advancement of technology and social networking. As it can be seen, this group mostly uses their smartphones mainly for social networking on the social sites like Facebook, twitter, Instagram etc., rather than using their phones for academic purpose. The information in the table above can also be presented in the bar chart below.

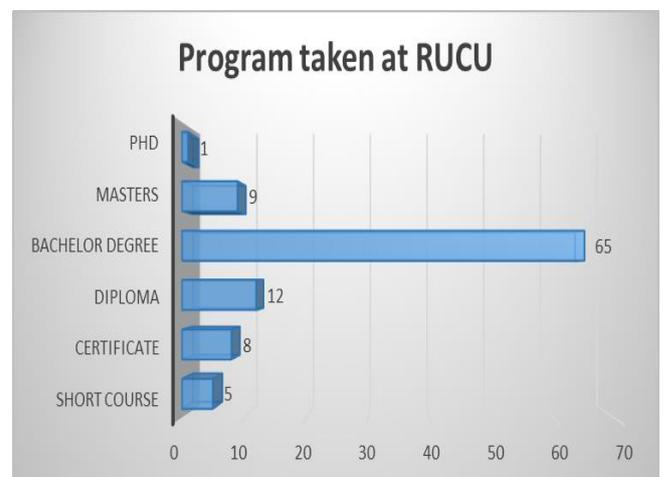


Figure 4: Bar chart showing the respondents program taken at RUCU.

Table 5: Showing the use of smartphone

	Frequency	Percent	Valid Percent	Cumulative Percent
Social purpose	65	65.0	65.0	65.0
Academic purpose	20	20.0	20.0	85.0
Both	15	15.0	15.0	100.0
Total	100	100.0	100.0	

The information in the above table can also be presented in a pie chart shown below

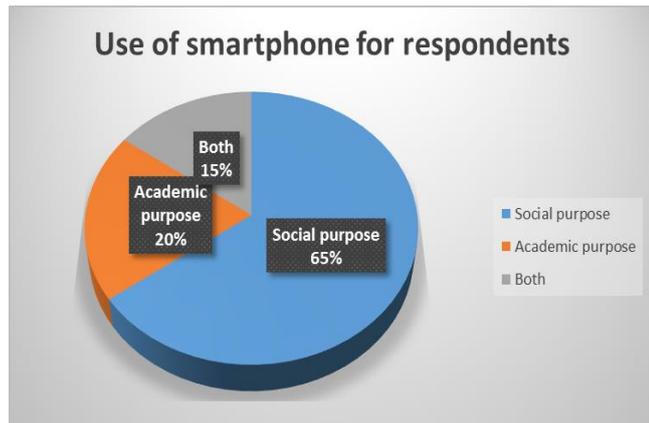


Figure 5: Showing the purpose intended for smartphone at Campus

As it can be shown above, the majority of respondents responded positively on the use of smartphone for social purposes (65%) like communications, chatting with friends browsing some social news for celebrities compared to 20% who use their smartphone for academic purposes like sharing of materials or notes provided by lecturers/instructors. And one of respondent during direct interview revealed the following:

*"...I always use my smartphone to chat with my boyfriend who is doing business at Dar es Salaam and he is very jealousy in the extent that if my phone is switched off he reacts badly to me guessing that I'm with someone dating. So due to this I can't afford to switch off my phone even if I'm in the class getting lectures I have to put my phone in vibration mode to wait if any message comes on my way from him, I have to respond quickly ..."*

So the above testament shows that most of students in higher learning institutions tends to use smartphones for social related purposes than academic purpose which let them to lose concentrations in class when instructor/lecturer is giving his/her lectures and this causes the drop in academic performance.

Table 6: Showing average hours per day spent on social communication by respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
1 - 3 hours	15	15.0	15.0	15.0
3 - 5 hours	35	35.0	35.0	50.0
5 - 7 hours	48	48.0	48.0	98.0
More than 7 hours	2	2.0	2.0	100.0
Total	100	100.0	100.0	

According to the table above, the average hours spent on social usage of smartphone by majority of the respondents (48%) lies on 5 -7 hours per day which is too much for students to spend those hours on social issues rather than academic issues which eventually affects academic performance because the time needed by student to concentrate on his/her studies is almost occupied by social interactions like Facebook chatting (uploading new images using her smartphone) , twitter, WhatsApp and other social network sites. The information on the table 6 above can also be presented in figure 6 below.

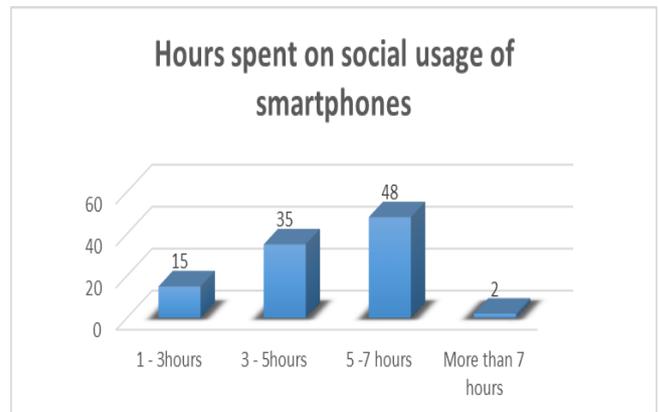


Figure 6: Time spent on social usage of smartphone by respondents.

Table 7: Smartphone addiction to respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	86	86.0	86.0	86.0
No	14	14.0	14.0	100.0
Total	100	100.0	100.0	

The table above shows how higher learning students are addicted to using smartphone as some said that they cannot afford to have it switched off because they have put their mind in waiting state to receive either calls, messages or even emails from

their friends. So when they are in class they put their smartphones in vibration modes in case that, they will respond immediately when they receive either WhatsApp messages from their groups or elsewhere, so this makes them not to concentrate on listening to the lecturers/instructors. The information in table 7 above can be presented in a pie chart below.

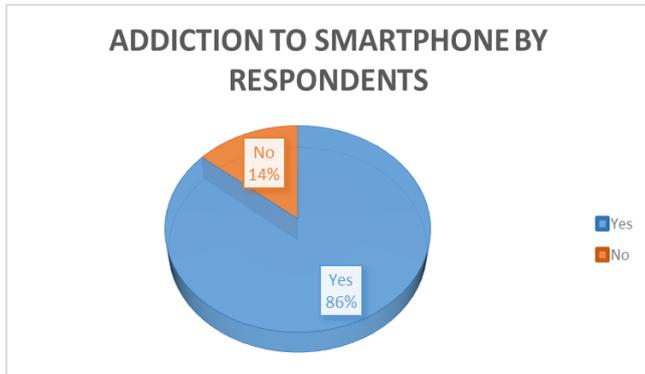


Figure 7: Showing addiction of respondents on the usage of smartphone.

Some of the respondents stressed that, they cannot afford to be without a smartphone even for a single day even if it is stolen/get breakdown they will try hard to buy new one immediately rather than waiting for some days to pass on which then shows that they are much addicted to the usage of smartphones.

When asked about distractions they get when they are in class and someone text him/her, the majority accepted that, they are distracted from the lectures and start on concentrating on replying the messages send to them which eventually causes poor academic performance at the end of semester. Also most of respondents, responded in response to smartphone addiction that, they regularly visit social network sites like Facebook even though they are doing some school work either at dormitories or at home which makes them so much addicted to smartphone. In testament of this one of the respondent during live interview replied as follows:

*“...When I’m doing my school work like assignment or discussing timed essay questions and at the same time WhatsApp notifications comes, I have to forget everything I was doing and start interacting with the person or group who sent me the message. And indeed if I’m bored with the conversations then it will be the end of doing my school work and either have a sleep or go out for more socialization...”*

So for this scenario, the smartphone addiction lead to the distractions from studies and hence causes GPA dropout.

Table 8: Showing average GPA per semester of the respondents.

	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 2.5	48	48.0	48.0	48.0
2.5 - 3	22	22.0	22.0	70.0
3 - 3.5	10	10.0	10.0	80.0
3.5 - 4.4	16	16.0	16.0	96.0
Above 4.4	4	4.0	4.0	100.0
Total	100	100.0	100.0	

According to the table above majority of the respondents’ GPA is less than 2.5 (48%) as shown followed by 22% whose GPA lies between 2.5 – 3, indicating that smartphone usage has impacted the academic performance of the students, while very few students are able to cope with smartphone usage and still perform well in the class. This means the use of smartphone has direct impact on the academic performance of higher learning students.

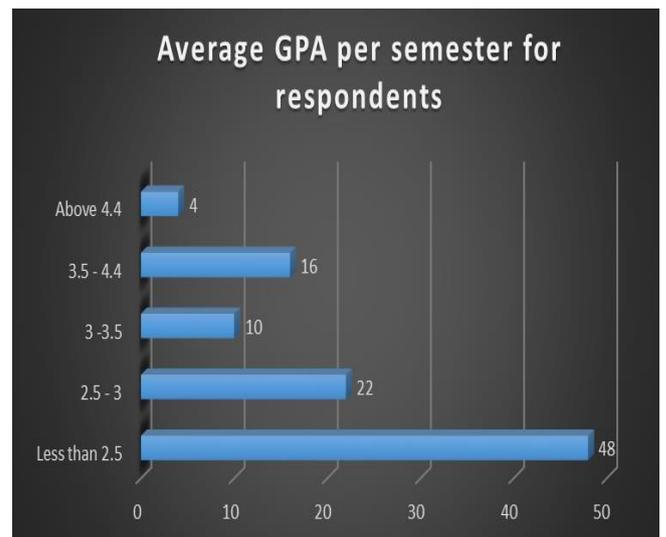


Figure 8: Bar chart showing the average GPA per semester for the respondents

So the percentage in figure 8 above reveals that, for smartphone users at RUCU, very few succeed to get the first class while they still use or are addicted to smartphone usage but the majority gets less than 2.5 (Gentleman GPA). So there is a negative correlation between smartphone usage and academic performance of higher learning students.

## V. CONCLUSION

According to discussion above, it is now easy to draw conclusion on the impact of smartphone on the academic performance of higher learning students, in which the results has revealed that the smartphone bring negative results or progression on students’ performance academically. So there is a need to evaluate and understand better the use of smartphones for higher learning students because

students make their own choice and preference on which mobile application to use, as it is discussed above almost 48% of the respondents agreed that they tend to use smartphone for about 5 – 7 hours per day on social communication sites (65%) like Facebook, twitter, Instagram, WhatsApp and the like without considering that those time spent on social network could have been used on academic related works and hence yield good results at the end of semester examinations. Also among the smartphone addicted group, female are more addicted than male because 57% of the respondents were female and among those female most of them 75% are below 25 years old of the age which indicates that teenagers are more addicted to smartphone usage, and most notable results are that they are taking bachelor degree (65%), diploma (12%) or certificate (8%) so they are not self-controlled.

Furthermore, there is positive correlation between genders, age group, marital status, addiction to smartphone usage, program taken at University and the usage of smartphone in the sense that there is a certain group affected by those factors mentioned. But there is also a negative correlation between high academic performance and the factors mentioned earlier because the majority GPAs of the surveyed respondents were found to be below 3.

Therefore to conclude, there is negative impact of smartphone usage on higher learning students in Tanzania.

## VI. RECOMMENDATION AND FUTURE WORK

For the student grade to improve even though they are with their smartphones, some restrictions must be made on the usage of smartphone like making regulations that no student is allowed to enter into lecture room with his/her smartphone switched on in order to make them concentrate on listening and taking notes from the lecturer.

In the future, research must be done to find out the impact of smartphones on brain or human head, in the sense that do they cause any biological effects on human head or brain leading to the addiction students are having on them? Or do they cause any harmful effects biologically on human skin or fingers? Because most of the students are concentrating with their fingers to chart while they are in the lecture room?

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