

# A Survey on Global System of Mobile Communication (GSM) on Academic Performance in Nigeria Senior Secondary Schools

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**Abstract:** *This paper examines access to various activities student do with their GSM (social network and browsing) and its effects on students' academic performance in secondary schools in Nigeria. The sample schools were selected in each geopolitical zone (total of six schools sampled) in Nigeria using simple random sampling. A total of one hundred and twenty (120) questionnaires were administered to the respondents. One hundred and six (106) questionnaires were returned. Two hypotheses: The more the time you spend on social networks the lower you grade and the more time you spend browsing the better your academic performance were formulated and tested using chi-squared test statistics. In all the hypotheses, it was observed that there is no enough evidence to show that there is a relationship between students spending time on social network/ browsing to betterment of grades in terms of academic performance.*

**Keywords:** Browsing, GSM, Social network, chi-square, third generation (3Gs)

## 1. Introduction

Nigeria being one of the biggest and fastest growing telecom markets in Africa, attracts a huge amount of foreign investment, and is yet stands at relatively low levels of market penetration [7]. Far reaching liberalization has led to hundreds of companies providing virtually all kinds of telecom and value-added services in an independently regulated market.

The mobile sector, which saw triple-digits growth rates five years in a row after competition was introduced, has been joined by a number of additional players under a unified licensing regime which has also boosted the country's underdeveloped Internet and broadband sector. Third generation (3G) mobile and WiMAX wireless broadband services are being rolled out at a rapid pace, backed by new national and international fiber links. After a decade of failed privatization attempts, the incumbent national telecom, Nitel and its mobile arm M-Tel are currently in liquidation.

The Nigerian Communications Commission (NCC)[9], has revealed that the number of fixed and mobile telephone subscribers in the country stood increased to over 107.36 million as at 30 September, 2012 from 102.36 million three months earlier and 95.88 million at the end of 2011. A statistics released by the NCC showed that GSM mobile operators accounted for 96.54% or 103.65 million of Nigeria's total telephony user-base at the end of the third quarter of 2012.

The above figure is up from 90.56 million users recorded nine months earlier, followed by CDMA mobile networks with 3.02%, or 3.24 million, (down from 4.6 million), while fixed and fixed-wireless operators claimed just 0.44%, or 474,345, of the total, compared to 719,406 users at end-2011. Nigeria GSM usage had risen to 113,000,000 as at the third quarter of 2012[10], which accounts to 68.4% of number of phones per population in the nation. This has

brought Nigeria to the 11<sup>th</sup> rank in the world in the use of GSM [4].

## 2. Evolution of GSM in Nigeria

In Nigeria, digital mobile operation started in the year 2001, when ECONET (now Airtel) was licensed. By July 2007, the Nigerian Communication Commission Press Release [8] reported that there was an expansion of telephone lines from "450,000 connected lines in May 1999 to over 38 million lines". This boosted tele density growth from 0.4 to 24. In March 2008, the Nigerian Communications Commission reported that there were a total of 60.9 million phone subscribers. The mobile telecoms penetration rate in Nigeria rose from 0.73 percent in 2001 to 32.79 percent in March 2008 [2]. This figure is highly significant because it represents about 21.6% of the 282 million mobile connections in Africa [6]. According to International Telecommunications Union (ITU), Nigeria with a mobile penetration rate of 26% and South Africa are Africa's leading mobile telephony powerhouses. These two countries accounted for an amalgamated total of 45% of the continent's industry [1].

In a case study of GSM in Nigeria, Niran et al [11] noted that the potential for growth in the number of phone lines in the decade remains high. Mobile penetration in Nigeria increased with a net addition of 3,425,000 in the fourth quarter of 2007, and a further net addition of 7,146,000 at the end of 2008[9]. According to Nigeria Telecommunications Report [8], it was envisaged that mobile penetration in Nigeria would rise to over 50% in 2009 and to about 106% penetration or over 184 million mobile subscribers at the end of 2013.

## 3. GSM Facilities and Academic Usage

There are several packages that are found to be predominantly used by people such as telephone conversation, short messaging services (SMS), voice

messaging, multimedia messaging services (MMS) and internet access, and this depend on the capability of each mobile phone technology and services rendered. These applications have been made possible through various developments in the mobile telephone technology such as General Packet Radio Service (GPRS), Wireless Application Protocol (WAP), and the 3G standard. The relevance of wireless communication services has recently managed to infiltrate the educational industry in an effort to improve learning and information delivery services such as lecture notes, examination results, admissions, bursary, and several other uses. At the secondary school level, access to subject topics, dictionaries, thesaurus, language translators, literatures and other uses are made available.

Etukudo [5] however, observed in his study of usage and effects of GSM in urban Lagos that there has been a tremendous shift from the conventional two-way verbal communication of telephone to the recent GSM mobile communication which has shown the impact technology has on human existence. He emphasized further that in the last seven years in Nigeria people became more inclined towards technology and mobile telephony as a burning example of the influence of communication technology on ease of human existence. He highlighted a few of the activities that GSM can be used for among which are; you can talk with friends and acquaintances, record events, listen to music, install games, academic applications, videos, transfer academic and non-academic information (data and files), visit world wide web. He conclude by saying that the use of GSM has been discovered to be of more positive influence on human activities than of negative not minding a few problems inherent as a result of service quality associated with various service providers across countries and locations.

Nix et al [12] reported that never in the history of the use of technology in education has there been a technology so widely available to citizens as mobile technology. They revealed that statistics are stunning. In July 2005 it was announced that ownership of mobile devices had reached 2 billion for the first time and was forecast that ownership would reach 3 billion as early as 2010 for a world population of 6.5 billion. In a research published in 2004 on audience characteristics, the British Broadcasting Corporation [11] stated that respondents in the 16-24 age bracket ranked ownership of a mobile phone as a 'necessity'. The 16-24 age group is precisely the age bracket of students at universities institutes of technology and higher and further education colleges.

Olofiniyi et al [13] in their study observed that a larger percentage of students in the senior secondary school have higher access to the GSM than the lower secondary school student. The study equally revealed that there was no significant relationship between access to GSM and student academic performance in public and private school sectors of that state. The GSM could be of both positive and negative effect in the academic environment. In addition to some usage afore mentioned it makes class management, including attendance and administration, easier and more effective as this will enable the teachers and the school head to communicate effectively with both students and their

parents. On the time-management level, it enhances coordination between teachers and students.

Some negative effects of mobile phone on students' performance at the Secondary School level also include the use of valuable study time in socializing on social networks which is also a thing of concern. Some student may be on various social networks till the early hours of the day meanwhile they are supposed to get adequate sleep, thereby making waking up for school the next day an issue and hence the inability to stay alert and awake in class due to inadequate sleep. This tells upon the academic output of such students.

Another negative effect of the GSM on the academics could be seen in the usage of abbreviations and slangs in text messaging and chats on the mobile phone, when the student get so used to this, it could hamper good sentence construction and spellings in their academic work.

It probably may increase in decline of moral values, such as tell lies of their locations to their parents or guardians, cheating with the mobile phone in examination, watching pornography and connecting with dangerous people on social networks etc. Awaz [3] also identified some emotional, moral and health hazards that the GSM could cause that could affect students.

Looking at these effects we discover that there are discover both positive and negative effects and an assessment of the degree of these on the academic performance of the student will be of relevance to education providers.

#### 4. Objective of the Study

The general objective of this study is to examine the effect of GSM usage on the academic performance of senior secondary school students in Nigeria. Two hypothesis were formulated

1. The more the time you spend on social networks the lower you grade
2. The more time you spend browsing the better your academic performance

#### 5. Methodology

The study adopted a descriptive survey design using questionnaire. The questionnaire was designed to elicit information on students experience in using mobile phones. It captures student's activities using GSM as, average stay on social network in a day, average stay browsing and other related activities, average time student do reading, and their grades in the past two most recent class examinations.

#### 6. Sampling Techniques

A total of one hundred and twenty (120) questionnaires were administered to six selected school where twenty (20) questionnaires administered to each school. A sample of a school per geopolitical zone in Nigeria was selected at random, making a total of six schools. Among the six schools selected two (2) were federal government Schools,

two (2) States own secondary schools and two (2) privately own by individuals. Among the questionnaires administered, one hundred and six (106) were answered correctly and returned. Therefore, the analysis in this work is based on the one hundred and six questionnaires.

### 7. Chi-Square

This model was used to test the hypothesis at 5% significant level. Also a descriptive analysis using line graph and doughnut charts were used. The formula used for chi square is given below.

$$\chi^2 = \sum \frac{(f_i - e_i)^2}{e_i}$$

### 8. Result and Discussions

A doughnut chart of what activity most students do with their GSM phone is shown below.

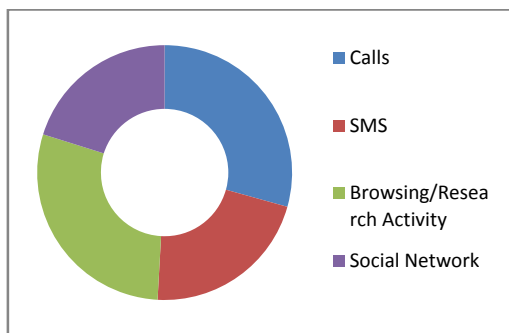


Figure 1: A doughnut chart showing students (GSM) activities

From figure 1, it can be observe that approximately the percentage given by use of GSM phone are as follows; 29.3% of the students make calls, 21.6% of students send SMS (Short Message Service), 29.0% of students do browsing/research activities, 57% stays on social network.

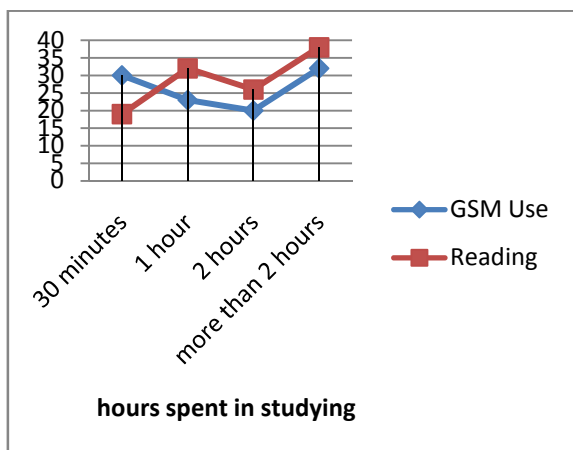


Figure 2: Average student stay on GSM VS Reading

From the graph, it can be concluded that student do more reading for longer hours than GSM activities. This depict that most students are conscious of their academic activities. They do GSM activities for short time and then concentrate

on their studies for longer hours. This shows a very good time management on the part of the students.

#### 8.1 Hypothesis one

‘The more the time you spend on social networks the lower you grade’. Our first hypothesis looks at the relationship between the time spent on social networks and academic performance. We feel that there is an inverse relationship between the two factors in that the more time a student spends on social networks the less time he has for academic activities, the less he is able to concentrate during studies because he may be busy chatting on the social network while studying. The measurement on time spent on social networks is measured by the number of hours spent on social networks daily and academic performance as the average number of credits obtained in the past two terms. Below is a table for average number of time student spending on social network and their grades in the last two examinations.

Table 1: Summary of time spent on social network and grades in last two examinations.

	30 minutes	1 hour	2 hours	More than 2 hours	Total
5 credits and above	23	22	13	32	90
4 credits and below	2	2	3	9	16
Total	25	24	16	41	106

Table 2: Chi square table result of Table 1

Chi-Square Stat	3.5088
Df	3
p-value	0.3196
Chi-squared critical	7.8147

As seen from table 2, since the critical value is less than the calculated value, we conclude that there is no enough evidence to infer that the time spent on social network has relationship with the grade of the students. We therefore, reject the hypothesis that “the more the time you spend on social networks the lower you grade”.

#### 8.2 Hypothesis two

‘The more time you spend browsing the better your academic performance’. Our second hypothesis looks at the relationship between the academic performance and the time a student spend browsing. We feel there is a direct relationship between the two factors, that as a student spends more time browsing he is making researches on his academics and this gives a better academic performance. Time spent browsing will be measured as number of hours browsing in a day and academic performance as the average number of credits obtained in the past two terms.

Table 3: Summary of time student spent browsing and their grades in the last two examinations

	30 minutes	1 hour	2 hours	More than 2 hours	Total
5 credits and above	31	19	22	17	89
4 credits and below	3	2	2	5	12
	34	21	24	22	101

**Table 4:** chi-square of Table 3

<i>Chi-Square Stat</i>	3.1756
<i>Df</i>	3
<i>p-value</i>	0.3653
<i>Chi-squared critical</i>	7.8147

As seen from table 4, since the critical value is less than the calculated value, we conclude that there is no enough evidence to infer that the time spent browsing has relationship with the grade of the students. We therefore, reject the hypothesis that "The more time you spend browsing the better your academic performance".

### 8.3 Discussion

At the end of the survey, data collected was analyzed using chi-squared to test the relationship between the variables. The study reveals that, all the hypotheses were proven wrong and shows no relationship between the variables.

## 9. Conclusion

The two hypothesis set were proved wrong using chi-squared test. These shows that there is no enough evidence of relationship between time spent browsing and betterment of grades, and also, time spent on social network cannot yields lower grades. These is due to the fact that, students over the years have improve on their time management strategy.

## 10. Future Work

Further research work could cover more secondary school both at the junior and senior level. Research could also be conducted using other test statistics.

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## Author Profile



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