

# Survey on Social Media Network Participation, Impact on Biology Students' Performance in Senior Secondary Schools in Minna Metropolis, Niger State, Nigeria

Katcha, M. A.

Department of Science and Environmental Education, University of Abuja, Nigeria

Babagana, M.

Department of Science Education, Federal University of Technology, Minna Nigeria

Ndagi Mohammed Jibril Musa Ndagi Danjuma Alhaji Mohd  
Niger State Secondary School Education Board, Minna, Niger State, Nigeria

## Abstract

This study looks at social media network participation. its evident impact on performance on senior secondary School students in biology, the study was aimed at identifying social media network sites and their usage among students, how students networked and participated on social media networks, time invested by students on social networks, the effects of social media networks participation on student's academic performance within the context of the social learning and the axe and gratification theories. To achieve the objectives of the research, the study used a mixed method approach which involved the survey of students in four senior secondary schools and interviews of heads of the schools. The study revealed that majority of respondents used social networks for chatting for downloading videos, music and listening to music. In addition, majority of respondents experienced negative effects such as, late submission of assignment, less study time and poor performance in biology and addiction problems due to the heavy participation on social media networks Furthermore. there was a high addiction rate among students in the usage of social media network., Nevertheless, there were few cases where other students experienced improvement on their performances as a result of participation on social media networks. Recommendations generated from the research studies were: students should reduce their exposure to social media and pay more attention to their studies, students, especially those willing to record huge academic success should guide themselves against the use of social media and the government, schools and other well to do individuals .should encourage hard work by rewarding successful students through Scholarship schemes and other incentives.

## INTRODUCTION

The Internet revolution changed the information world with regard to sharing, speed Storage and retrieval of information in whatever form irrespective of the person's location. Through the Internet a number of web technologies emerged and one technology that is making waves with regard to information sharing and communication are the social media networks. The social media has become one of the most important communication means in recent times. However, social networking exist so as to provide communication among people regardless' of the distance, making it open to people easily share information, files and pictures and videos, create blogs and send messages, and conduct real-time conversations.

More interestingly the evolution of social media has cut across all facets of society with its positive and negative impacts. Social media has transformed and impacted on communication, learning, research and education in general. Among the vast variety of online tools which are available for communication is the Social networking sites (SNS) that have become the most modem and attractive tools for; connecting people throughout the world (Aghazamani, 2010).

According to Boy and Hillison (2007). "Social networking sites are web-based services that allow individuals to construe: a public or semi-public profile within a bounded system, articulate a list of other users with whom they share a connection, and view and traverse their list of connections and those made by others within the system". These sites are used to interact with friends, peers and others that are found in groups on these sites. The sharing of information ranges from news, debates, gossips, feelings or statement of mind, opinions, research etc.

Davis (2012), referred to social media technology (SMT) as "web-based and mobile applications that allow individuals and organizations to create, engage, and share new user-generated or existing content, in digital environments through multi-way communication". Through this platform, individuals and organizations create profiles, share and exchange information on various activities and interests. An interesting aspect of social media is that, it is not limited to desktop or laptop computers but could be accessed through mobile applications and smart phones making it very accessible and easy to use. Examples of these social media platforms both on the

web and mobile application include Facebook, Whatsapp, Twitter, YouTube, wechat, palm chat, Instagram, blogs etc. These systems are referred to as social, simply because they allow communication with friends and family so easily and effectively.

Biology as a subject is the study of living things and their vital processes. The field deals with all the physiochemical aspects of life. As a result of the modern tendency to unify scientific knowledge and investigation, however, there has been an overlapping of the field of biology with other scientific disciplines. Modern principles of other sciences—chemistry and physics, for example—are integrated with those of biology in such areas as biochemistry and biophysics. Because biology is such a broad subject it is subdivided into separate branches for convenience of study. Despite apparent differences, all the subdivisions are interrelated by basic principles. Thus, though it was once the custom to separate the study of plants (botany.) from that of animals (zoology), and the study of the structure of organisms (morphology) from that of function (physiology), the current practice is to investigate those biological phenomena that all living things have in common.

A number of studies have been conducted to find out the impact of social media on academic performance of biology students. According to Ito, (2009), teens use these technologies for a number of positive activities, which include exploring deeper into interest-driven communities and participating in various activities. Ahn (2011) adds that "Social Network Sites (SNS) provide a platform for the youth to participate in communities that help them to learn, and practice skills within a particular knowledge area". Similarly, a study by Fishman, (2005), also indicated that college students produce tremendous volume of writing through various social media tools such as blogs, emails and other social media environments.

American Educational Research Association conducted a research and it was declared on its annual conference in San Diego, California '2009) that SNSs users study less and generated lower grades eventually (21stccmuryrscholar.org) similarly by Kirschner and Karpinski (2010), also found a significant negative relationship between Facebook use and academic performance. They concluded that students who use Facebook spend fewer hours per week studying on an average than Facebook non users and this resulted in lower mean grade point averages (GPAs). Junco (2012) examined the relationship among numerous measures of frequency of Facebook use with time spent preparing for class and overall GPAs. Hierarchical linear regression analysis from the study by Junco (2012). indicates that time spent on Facebook was significantly much and negatively correlated with overall performance of students.

Earliest research and interviews with some teachers and students exposed a number of challenges in relation to student's participation on social media networks results to show performance level in biology, high addiction rate among students which affects their time of studying biology. The less time and interest shown by students on biology equally results to low input of efforts to studying and general performance in Biology.

Several studies in relation to social media have been conducted in the United States, Ghana and even Nigeria. They however have focused on social media use in basic schools. Amofah-Serwah and Dadzie, (2015) have focused on social media usage in tertiary education level (Apeanti and Danso (2014). But not much have been investigated or narrowed down as to the effect of social media on biology performance of senior secondary school students. Since many studies have been conducted in basic schools and tertiary institutions, the researcher finds it necessary to conduct this study on the impact of social media participation on the performance of biology students in Senior Secondary Schools. Believing this will add a new dimension and fill the research gap between basic and tertiary institutions in terms of the effect of social networks on students' performances in biology

### **Statement of the Problem**

There have been a lot of debates and a viewpoint as to the impact Social media has over society and specifically, its effect on education. The most important things in students' life are studying, learning good habits and gaining knowledge to become a person with moral character. But today, as we see in various studies, this optimal learning process is seriously jeopardized by students becoming entrapped by the ploys of social networking. Students neglect their studies by investing too much time on social networks sites rather than studying or interacting with people in person. Actively and frequently participating in social networks can negatively affect their biology and overall academic performance therefore hampering their journeys to their future careers. Some of the studies have found drastic drop in students' grades and academic performances, and lack of time for studies as consequences of social media network participation (Banquil, 2009 and Ndaku, 2013). But this research laid emphasis on the effects it has on biology students' performance.

### **Purpose of the study**

The study sought to address the following specific objectives:

1. To determine the most used social media networks use by biology students in senior secondary school in Minna metropolis.
2. To ascertain uses and disuses of social media networks by biology students in Minna metropolis.
3. To examine the perceived effect social networks participation on the performance of biology students in

Minna metropolis.

### Research Questions

The following research questions were formulated to guide the study.

1. What social media networks are most used by senior secondary school biology students' in Minna?
2. What are the identified uses of social media networks by senior secondary school biology students?
3. What are the perceived effects of social media networks on performance of senior secondary school biology students in Minna metropolis?

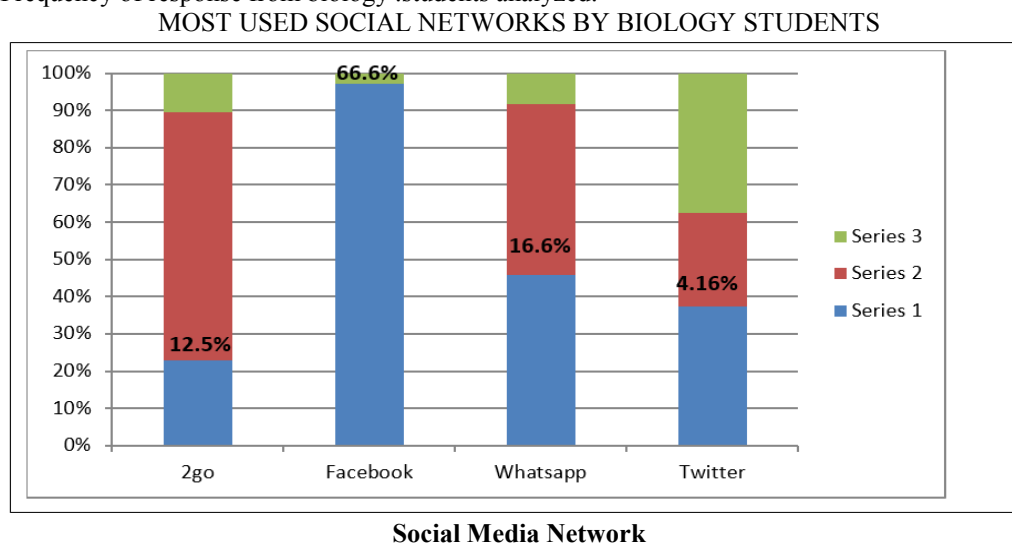
### Method

The design of the study was descriptive survey, (Paddock, 2012). The population for the study was made up of all senior secondary schools biology students in Minna Metropolis. The target population was twenty-three public and privates schools with the total population of seven thousand and fifty (7050) for the year 2015/2016 academic session. Four (4) schools were randomly selected, two private schools and two public schools. Simple random sampling technique was adopted for this study. The sample used one hundred and twenty (120) biology students, thirty (30) from each school comprising both male and female drawn from selected secondary schools sampled. Only SSI and SS 2 biology students were picked due to the fact that SS3 students have completed SSCE Examination and were at home at the time of the survey. The instrument was divided into three major sections. A contains the personal data, section B contains 2 multiple choice questions on the most used sites and purpose of uses, section C the perceived effect of social network usage. The responses from section C" was composed of fifteen (15) questions using a point Likert-type scale for answering. Data collected from the interview with school heads were also analyzed and organized under the objectives of the study. These were merged with related responses from the questionnaire during data analysis. The questionnaire was validated by the experts. The collective assessment of the instrument indicated that it is valid and approved before it was taken by the researcher for administration to the students in the selected schools. One hundred and twenty questionnaires were distributed among the selected samples. The researcher used descriptive statistical method of analysis. Thus, the researcher used frequency and percentage to analyze data for research questions 1 and 2. Question 3 was analyzed by computed mean and standard deviation of the responses on each questionnaire item using the mean formula. Hence, the cut off mean 2.50 implies that every mean score, that is exactly or above 2.50 agrees with the decision; while any other score below 2.50 agree with any score below 2.50, disagree with the decision.

### Results

**Research question 1:** What social media networks are most used by senior secondary school biology students in Minna?

Chart1: Frequency of response from biology .students analyzed.



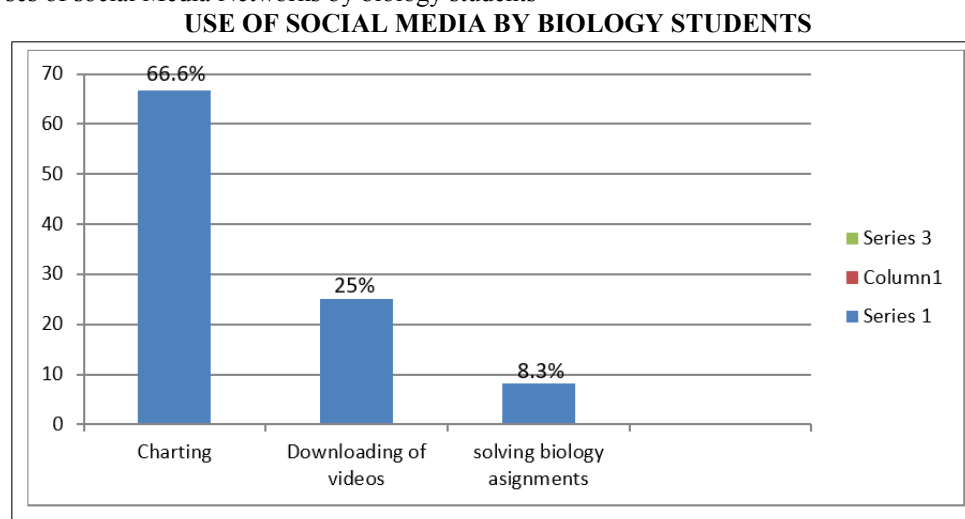
**Source: Survey data 2016**

From chart 1 above it is clearly illustrated from the bar chart that Facebook recorded the highest and widely used social media networks 80(66.6% Respondents, next most used is whatsapp with 2016.( 16,6% ), 2go 15 ( 12.5% ) and 5 ( 4.16% ) twitter respectively.

**Research Question 2:** What are the identified uses of social media networks by senior secondary school biology

students?

Chart 2: Uses of social Media Networks by biology students



Source: Survey Data 2016

From chart 1 above it clearly shows the various uses and gratification derived by students on their social media networks. The analysis shows a highest percentage of students agreed to using their social media for chatting 80(66.6%), social media networks are used for downloading of videos and music was next with 30(23%). A very few number of respondents indicated their social media for biology assignments with 10 (8.3%).

**Research Question 3:** What are the perceived effects of social media networks on performance of senior secondary school biology students in Minna metropolis?

Table 1: The frequency of responses from the biology students as perceived effect of social media networks were analyzed using mean and standard deviation. Each item was analyzed and Decisions made.

Perceived effect of social media on biology students

S/N		SA	A	D	SD	TOTAL	X	DECISION
1.	Forgetting to submit biology assignments due to use of social media.	75	25	10	10	405	3.38	Accepted
2	Little time is spent studying my biology because of on any social network.	110	2	2	162	3.85	Accepted	
3	Students miss biology practical When die get carried away downloading from my social media networks.	20	10	50	10	280	2.33	Not accepted
4	I end up submitting any biology assignments late and end up with low grade because I spent time on my social network.	80	10	20	10	400	3.33	Accepted
5	Students rush biology assignments and without clearly understanding the concept when am using my social network.	70	10	20	20	370	3.01	Accepted
6	My social media network helps mc in with my biology assignments	20	10	50	10	280	2.33	Not accepted
7	I sleep in class after late chatting and downloading with my social network	70	10	20	20	370	3.08	Accepted
8	Female students biology performance is more affected negatively with use of social networks	-	20	80	10	230	1.91	Not accepted
9	Male biology students' performance arc less affected by social networks.	-	10	90	10	220	1.83	Not accepted
10	Comparing my biology performar.ec before use of social networks any performance was better.	70	10	10	30	360	3.0	Accepted
11	Many biology-students are addicted to social networks. "	70	20	20	10	390	3.25	Accepted
12	Students procrastinate and rush their biology Assignments while using social networks.	60	30	10	10	360	3.0	Accepted
13	Social network has improved many biology performances	10	10	60	30	220	1.83	Not Accepted
14	My concentration level in biology class have dropped due to use of mv social networks	60	30	in	10	360	3 0	Accepted
15	My biology performance improve if they slop participating in social networks	70	20	10	20	380	3.1	Accepted

From Table 1 the analysis of data collected and presented examines the perceived effects of social media networks on the performance of senior secondary school biology students in Minna Metropolis. Ten (10) items of the questionnaire which were the perceived effect of social networks usage on biology students, were accepted because they were above the criterion mean of 2.5.

Ten (10) items were accepted as the met and were above the criterion mean of 2.5 they are interpreted to be the most glaring effect of social media on students. They are:

Items 1: forgetting to submit biology assignments due to use of social media.

Items 2: little time is spent studying my biology because of on my social network.

Items 3: Late submission of biology assignments and end up with low-grade because to spent time on social network

Items 5: Students rush biology assignments and without clearly understanding the concept when am using any social network.

Items 7: I doze off in class after late chatting and downloading laic with my social networks.

Items 8: comparing my biology performance before use of social networks my performance was better.

Item 9: many students are addicted to social media networks

It was very glaring that majority of the respondents were addicted to their social media networks as seen from the analysis were ii hit a criterion mean of 3.23 and was Accepted.

SA	A	I)	SD	TOTAL.	X	Decision
70	20	20	10	390	3.25	Accepted

Items 10: my concentration level in biology class have dropped due to use of my social networks.

Items 11: my biology performance improve if they stop participating in social networks.

Three are (5) items of the questionnaire were not Accepted Items: 3. items: 6. Items 8: and items 9 and items 13 because their ratings were found below the criterion mean of 2.5

Items 3: Students miss biology practical when the get carried away downloading from my social media networks.

Items 6: My social media network helps me in with my biology assignments

Items 8: Female student's biology performance is more affected negatively with use of social networks.

Items 9: Male biology students' performances arc less affected by social networks.

The assertion of item 8 and item 9 were not accepted. The student's respondents therefore implied mere was no significant negative relationship of Social media oil gender.

Items 13: Social network has improved many biology performances

## Discussion

The discussion of findings are were organized under three headings based on the research questions answered

1. Most used social media networks by senior secondary school biology students in Minna metropolis.
2. Uses of social media networks by biology students in Minna metropolis.
3. Perceived effects of social media networks on performance of senior secondary school biology students in Minna Metropolis.

### Most used Social Media Networks by Biology students.

From the first research question! the researcher found out from the Chart 1 analysis that most students used Facebook as a social media network as it ranked highest from the bar chat with 80 (66.6%) respondents choosing it as most used .next ranked was Whatsapp with 20 (12.5%) choosing it as most used social networks. 2go 15 (12.5%) l respondents. The list used social media was Twitter with only Four 4(4.16%) of the sampled students using it. This is in line with Saba and Tarang (2013) in their findings Facebook was ranked most used social media network.

### Uses of social Media networks by Biology students in senior secondary schools Minna Metropolis.

The researcher found from the analysis in chart 2 that student.is use their social media networks mast for chatting as it ranked highest on the chart with 80 ( % ) respondents next was use of social media for Downloading of videos with 30 ( % ) and the least use of social media was for solving biology assignments with 10 ( % ) of the respondents. This means students rarely vise their social media academic work bin for entertainment.

This is also backed up by Katz's Uses and Gratification theory which explain that individuals are responsible for choosing a particular media to meet their needs gratification (Katz, 1974).

### Perceived effects of social media networks on biology students in senior secondary schools in Minna Metropolis.

The researcher found out from the Fifteen (15) items or the questionnaire

Ten (10) items were accepted as the met and wore above the criterion mean of 2.5, they are interpreted to be the most glaring effect of social media or students. They are:

Items 1: forgetting to submit biology assignments due to use of social media

Items 2: little time is spent studying my biology because of on my social network.

Items 4: Late submission of biology assignments and end up with low-grade because to spent time on social network.

Items 5: Students rush biology assignments" and without clearly understanding the concept when am using my social network.

Items 7: I doze off in class after late chatting and downloading late with my social networks.

Items 10: comparing my biology performance before use of social networks my performance was better.

Item 11: many students are addicted to their social media networks.

Oye, Mahamat and Rahim (2012), revealed that most students unconsciously get addicted to the use of social media networks and get gripped with them. The participants indicated that they always intended to spend few minutes but always ends up spending hours surfing and updating profiles as well as viewing photos. This was also confirmed in this study. It was revealed that there was a high rate of addiction to social media networks (3.25) criterion significance.

Items 14: my concentration level in biology class have dropped due to use of my social networks.

Items: 15 my biology performance improve if they stop participating in social networks

This was backed by Kubey, Lavin and Harrows (2001), who found a number of issues\* such as psychological dependence, and academic impairment as some of the resultant effects with the use of the Internet and social media. They also indicated that students who use the Internet and participate on social networks more often reported that their school work has been injured. This was also confirmed by Yeboah and Ewur (2014), who indicated that social networks take away the time of students and tend to lead to procrastination of school academic works. They showed that social media networks such as Whatsapp distracts students' academic life and affects their concentration during classes.

Also in the analysis of Table 1, Five (5) items were not accepted based on the response of the students as the items did not meet the criterion mean rank of 2.5 and so were rejected.

The following items were rejected

Items 3: Students miss biology practical when they get carried away downloading from their social media networks.

Items 6: My social media network helps me in with my biology assignments.

Items 8: Female student's biology performance is more affected negatively with use of social networks.

Items 9: Male biology students' performances are less affected by social networks

The assertion of item 8 and item 9 were not accepted. The student's respondent's therefore implied there was no significant negative relationship of Social media networks on gender.

Items 13: Social network has improved many biology performances

Despite the glaring effect of social media use there were also few instances where students indicated an improvement in their grades and performances. Showing no negative effects of social media networks.

### Summary of findings

Based on the findings of the study it is revealed that biology students in senior secondary schools Minna Metropolitan participate immensely in social media networks and mostly use Facebook and Whatsapp.

It is also very glaring that senior secondary students use their social media networks mainly for chatting and downloading it also shows that few students use social media networks for academic works. The negative effects of social media participation in the biology performance of senior secondary school in Minna Town metropolitan are;

- i. Late submission of assignments
- ii. Rushing assignments without clearly understanding the concepts,
- iii. Forgetting to do assignments.
- iv. Reduction in level of concentration of students in class.
- v. Addiction problems.

### Conclusion

Findings from the study reveal among other problems the effect of social media networks on biology performance of students in senior secondary schools are lack of concentration of students in class, late submission of Assignments due to time spent on social media networks.

### Recommendations

The following recommendations were generated from the research studies

- i. Students should reduce their exposure to social media and pay more attention to their studies.
- ii. Students, especially those willing to record huge academic success should guard themselves against the

- use of social media.
- iii. The government, schools and other well to do individuals .should encourage hard work by rewarding successful students through Scholarship schemes and other incentives.
  - iv. Considering all of the above pros and eons, it is necessary to develop certain regulations over the use of such social networking sites, especially for secondary .school and university students. But still, students should get the choice to spend time socializing in an effective way. It should not hamper their school or college performance, and it should be kept in mind that social networking sites create virtual worlds that drastically differ from reality.

## REFERENCES

- Aghazamani, A. (2010). How do University Students Spend Their Time on Face book? An Exploratory Study. *Journal of American Science*. 6.730-735.
- Ahmed. I. and- Qazi T. F. (2011). A Look Out for Academic Imparts of Social Networking Sites:
- Ahn. J. (2031), The Effect of Social Network Sites on Adolescents' Social and Academic
- Ainin, S., Naqshbandi. N. M, Moghavverni, S., Jaafar. N. I. (2015). Facebook Usage, and Higher Education, 15. 15-23.
- Anderson, R (jreencal, arulLoewen. P. (1980): Relationship among teachers and student
- Apcatui. W. O. one'. Danso. E. D. (2014). Students' Use of Social Media in Higher Education in
- Asad, S., Abdullah-Al Mamum M D. and Clement. C. (2012) the effect of Social Networking
- Avian. M. £. &Kumah, C. II. (2011). Social Networking: a Tool to Use for Effective Service Delivery to Clients by African Libraries. 77th [FLA Conference (pp. ! 14). Puerto Rico:
- Bandura. A. (1997). *Self-efficacy: The exercise of control*. New York. NY: Freeman.
- Bnnquil, K,, Chuna, N. A.. Leano. G. A.. Rivero, M. A.. Bruce. C A.. Dianalan. S. N.. Mattenzo, Boyd. D. M. and Elisson. N R- (2007). Social network sites: Definition, history, and
- Chon, H. T. G., & Edge. N. (2012). "They are happier and having better lives than I am": the impact of using Facebook on perceptions of others' lives. *Cyberpsychology. Behavior, and Social Networking*, 15(2). 117-121.
- Climcr A. (2012) what makes biology learning difficult and .students view, educational research and reviews 7(3) 61 -71.
- Coyle. C. and Vaughn, H. (2008). *Social networking: Communication revolution or* Davis, C H. F.. Canche. M S G.. Deil-Amen. R. and Rios-Aguilar. C 12012) *Social Media in DeAndrea. D.. Ellison. N. 15.. LaRosc. R., Steinfeld. C., & Fiore. A.*
- Tirnog, N. I". (2009). social networking sites affect one's academics.