SOCIAL MEDIA AND LEARNING IN BIOLOGY: STUDENTS' PERSPECTIVE

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Abstract
The main purpose of this study was to explore students' perspective on the use of social media as a tool in enhancing learning of biology concepts. A descriptive survey strategy was used for this study. Two hundred Senior Secondary School II science students randomly selected from ten senior secondary schools in Shomolu Local Government Area of Lagos State were sampled in this study. A self-designed questionnaire (r = 0.75) was used for data collection. Data collected were analyzed using descriptive statistics. Result of the study revealed that students have access to social networking sites such as, YouTube on a regular basis. The findings also revealed that students use social media for both non-academic and academic activities such as online discussion which help in learning biology concepts better. However, it was revealed that teachers are not involved in the use of social media in teaching biology concepts. Also, students do not have personal phones to access the social media facilities. Based on the findings, it is therefore recommended that biology teachers should include the utilization of social media in teaching biology concepts, and the school authority should also allow the use of phones which can access social media by biology students.
Keywords: social media, Biology, students, teachers, perspective

Introduction

One of the observable features of development in the present 21st century, is the rate of technological development. The world is moving from analog to digital technology on a faster train of development. Almost everything, most especially communication, information are being done technologically. Generations today are experiencing a new wave of interpersonal communication with the advent and continuous development of technology. Currently with the rise in technology, communication has shifted away from the traditional modes of interpersonal communication which have long been based on face-toface models of interaction, to a more technological approach of establishing and maintaining relationships. According to Oluwatoyinbo, (2011), the structured technology is now mediating how communication occurs between people and has demonstrated that interaction online is significantly different from physical interaction in a collection of ways.

A most significant part of technology is Information and Communication (ICT). In our society today, the most interesting aspect of ICT that communicates, connect, and build social relationships among people who share common interest and/or activities is social media. Social media are computer – mediated technologies that facilitate the creation and sharing of all forms of information, ideas, career interests and other forms of expression via virtual communities and networks. Social media can create highly interactive platforms through which individuals, communities and organizations can share, co-create, discuss and modify user generated or pre-made content posted online. Boyd & Ellison (2007) and Kaplan & Haenlein (2011) describe social media as a group of internet-based application that builds on the technological foundation and allows the creation and exchange of users – generated content. Abdulkadir (2016) describes social media as online technology platforms that helps to connect people together far and near.

Social media gives opportunities to have access to all types of information in the palm of our hands through different devices such as cell phones, iPad, and other handheld devices. Most social networks allow users to maintain profiles of themselves and list of friends and relatives. These networks encourage people to share their personal experience with others through music, videos, and other media. Examples of social media include Facebook, Twitter, Instagram, 2go, WhatsApp, Blogs, etc. Gonzales, (2019) explains that the use of social media helps to have access to basic information as quick as possible and it has a wider and faster means of communication.

Biology is a subject which contains information on knowledge of living things, including their physical and chemical structures, functions, development, and evolution. Information in biology also includes

knowledge on various interactions between living organisms and environment. Therefore, it contains knowledge which makes an individual to be conversant with oneself as a living being and the environment where one lives. Biology has different subdivisions such as zoology, which is knowledge about animals, botany – knowledge about plants, morphology – knowledge of structure of organisms, physiology – functioning of structures of organism, micro-organisms – knowledge about minute organism, etc. Acquisition of these, will make an individual to apply such to everyday life on matters of personal and community health and agriculture (FGN, 2013). This is one of the reasons why biology is taught as a science subject in secondary school where students will be well informed with this important information about themselves and the natural. As quick as social media is in getting access to information, wider and faster in circulating such information, studies have showed that it has negative influence on students' learning. Abdulkadir, (2016), Ahn, (2011), found that the use of social media has negative impact on secondary school students' academic performance. In the like, Junco, (2012) also submits that the use of social media has negative impact on overall performance of students. In tertiary institutions, Kirschner & Karpinski (2010) reported negative relationship between use of social media and students' academic performance. Those who use social media were found to have lower average grade point. Apeanti & Danso (2014), Amofah-Serwah & Dadzie (2015) have also show that interacting with social media has negative influence on tertiary students' academic performance. In Nwanbueze & Aduba (2014) study, the findings showed that the use social media by secondary school students have negative influence on their overall attitude, social life, academic, emotions and health – wise. This may be the reason for ban of use or interacting with social media by secondary school students.

Since most studies on social media and students have focused on the effects of social media on academic performance of students generally. The few available influence of use of social media on biology have also concentrated on academic achievement of students. The researcher feel it is necessary to conduct the study on perceptions of biology students on interaction with social media and learning.

Statement of the Problem

The use of social media to contact families, friends, classmates, etc. have become popular in the society. It has been the fastest technological way to access and communicate information in the recent time. However, studies have recorded its negative impact on students' learning and consequently the academic achievement as well as other attributes such as attitudes, emotions, etc. This may be the reason for the restriction and total ban of the use of social media network among secondary school students. The students irrespective of their class level or subject combination are not allowed to interact with social media especially while in school. But, studies on student's perspective on their essence of social media usage is very limited, especially narrow down to biology as a subject. Therefore, this study is out to find out secondary school biology students' perception on the use of social media especially with learning of biology, a subject which is relevant to their everyday life on matters of personal, community, health and agriculture.

Purpose of the Study

This study specifically sought to:

1. Determine whether biology students participate in social media and the most frequently used.
2. Determine the frequency of participation of biology students in social media.
3. Identify what biology students use social network sites for.

Research Questions

The following research questions were set for the study.

1. Which social media are biology students exposed to?
2. To what extent do biology students access social media?
3. What are perceived uses of social media by biology students?

Methodology

The study employed descriptive survey design. All Senior Secondary School Two (SSS II) biology students in public secondary schools in Shomolu Local Government Area for 2018/19 session made up the population of the study. Ten senior secondary schools and twenty SSS II biology students from each school were randomly selected for the study. In all, a total of two hundred students made up the sample. The instrument was divided into three sections – Section A contains personal data of the respondents, Section B is made up of extent of participation in social media network and Section C composed of perceived reasons of access or participation on social media by biology students. The responses from section B was composed of five items using a four-point Likert type scale for answering while Section C is made up of ten items. The instrument, Biology Students' Learning and Social Media Questionnaire (BSSML) was validated by experts, with reliability (r) = 0.75 using Cronbach was used to collect data for the study. The instrument was administered to the selected sample by the researcher together with two research assistant and retrieved back immediately to avoid loss any of copy of the instrument. The data collected were analyzed using descriptive statistics.

Results

Research Question One: Which social media are biology students exposed to?

Table 1:

Frequency of social media accessed by biology students.

Social Media	Frequency	Percentage (%)
Twitter	103	51.5
Facebook	171	85.5
Instagram	119	59.5
YouTube	137	68.5
2go	65	32.5
Google+	11	5.5
Snapchat	43	21.5
Pinterest	56	28
WhatsApp	107	53.5

Table 1 above showed the responses of biology students on the various social media they accessed and exposed themselves to. The table revealed that 103 (51.5%) of the students indicated that access twitter, 171(85.5%) responded the students access Facebook, 119(59.9%) said they are exposed to Instagram, 137(68.5%) are exposed to YouTube, 65(32.5%) students visit 2go, Google+ is reported to be visited by 11(5.5%), biology students who visit Snapchat are 43(21.5%), students exposed to Pinterest are 56(28%) while 107(53.5%) students are exposed to WhatsApp. This table has showed that biology students are exposed to various social media and a student is exposed to more than one social media. The data in the Table 1 is further represented in figure 1 below.

Figure 1: Chat showing rate of access of social media by biology students.

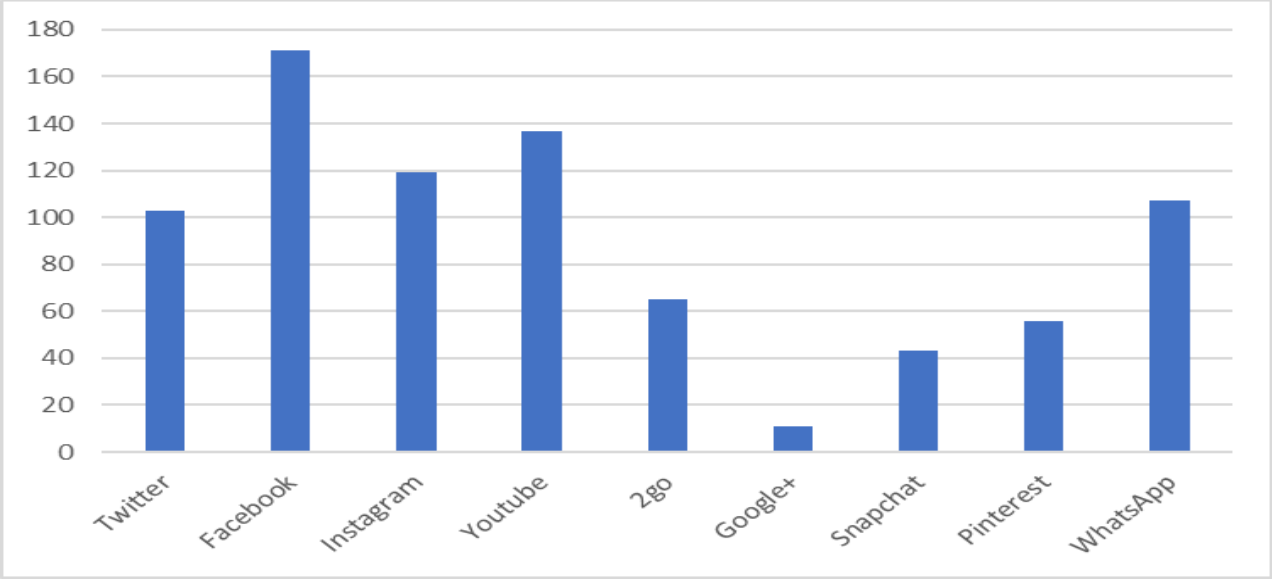


Figure 1 above showed Facebook as the social media which biology students are most exposed to. This is followed by YouTube, Instagram, WhatsApp, Twitter, 2go, Pinterest, Snapchat and google+ respectively.

Research Question Two: To what extent do biology students access social media?

Table 2:

Biology Students Access social media

S/N	Statement	SA	A	D	SD	$\bar{X}$	Std Dev
1	Biology students participate on social media at home.	81	101	2	16	3.38	.62
2	Social media are access by biology students during break and free periods while in school	101	93	-	6	3.42	.52
3	Biology students access social media immediately after school hours	86	105	4	5	3.35	.59
4	Biology students access social media at any desirable time though always in possession of mobile phone.	120	77	2	1	3.58	.56
5	Biology students participate on social media during study hour.	78	99	16	7	3.31	.57

From Table 2 above, the analysis of data collected and presented examines the time biology students accessed social media. The five items in the table which indicated times biology students access social media were accepted because they have mean scores which are above 2.5 which is the benchmark for making decision. This implies that they access social media at home, during free periods in school, after school hours, study time and any other time they desire to do so. To show the extent of the students' participation on social media daily, Table 3 is presented.

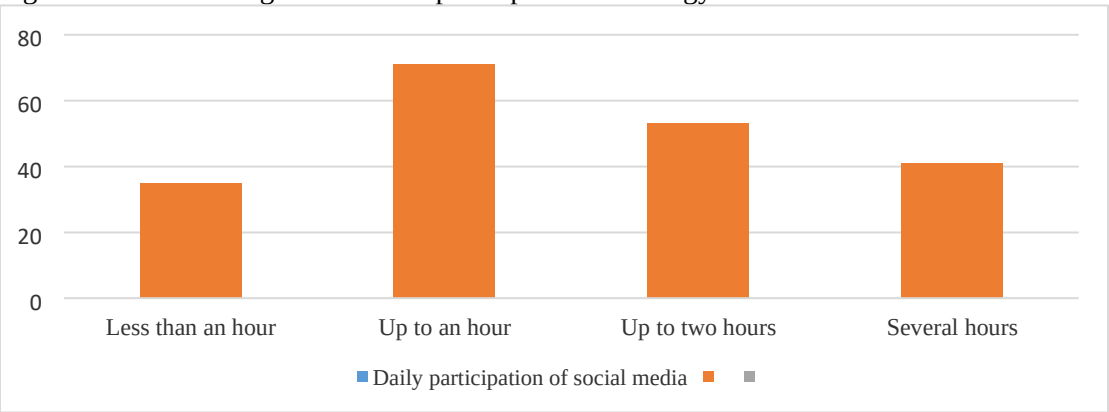
Table 3:

Daily participation of biology students on social media

Variable	Frequency	Percentage (%)
Less than an hour	35	17.5
Up to an hour	71	35.5
Up to two hours	53	26.5
Several hours	41	20.5
Total	200	100

Table 3 showed the extent to which biology students participate on social media on daily basis. 35(17.5%) students spend less than an hour, 71(35.5%) spend up to an hour, 53(26.5%) spend up to two hours while 41(20.5%) spend several hours on social media daily. This is further represented graphically in figure 2.

Figure 2: Chat showing the extent of participation of biology students on social media



Research Question Three: What are perceived uses of social media by biology students?
Table 4: Social media usage by biology students

S/N		SA	A	D	SD	$\bar{X}$	Std Dev
1	Biology students use social media to chat friends, relatives, classmates, etc.	86	112	-	2	3.43	.55
2	Social media are used to download home videos and music by biology students	100	93	2	5	3.46	.60
3	Biology students use social media to get updated information and news.	79	114	2	5	3.35	.58
4	Social media are used for gisting only among biology students	55	136	5	4	3.20	.59
5	Biology students use social media to play games and watch football match.	83	111	1	5	3.38	.56
6	Social media are used for online discussions of biology concepts by students.	72	123	2	3	3.32	.56
7	Students visit social media to download on biology concepts.	84	107	2	7	3.36	.60
8	Students clarify difficult biology concepts by reading them on social media.	80	109	10	1	3.34	.59
9	Biology students use social media to do assignments in biology.	100	93	2	5	3.46	.60
10.	social media are used to study and take notes on biology concepts.	90	106	3	2	3.42	.59

Table 4 above presented analysis of data collected on perceived usage of social media by biology students. Ten items in this section were on various activities of social media usage by biology students. Five of the items were on non-academic activities, while the other five items were on academic activities on biology. Each of the ten items have mean score greater than 2.5. Therefore, the ten items were accepted as they were above the benchmark of 2.5, and were interpreted to be the most glaring purposes of which biology students' access and participate in social media. The implication is that biology students use social media to chat their love ones, download home videos and music, get latest information, play games and watch football. The students also use social media to participate in online discussion on biology concepts, download video clips on concepts in biology, clarify concepts which appear difficult, do assignments in biology as well as taking notes during their study hours. **Discussion**

The findings of this study revealed that biology students access different types of social media with Facebook being the most visited, followed by YouTube, Instagram, Whatsapp, Twitter respectively. Google plus was the least visited. This finding of Facebook as the most visited social media is consistent with previous studies such as Kirschner & Karpinski (2010), Seba & Tarang (2013), Ogbaeja & Nwafor (2017), Katcha, et al (2018), etc. The reason for the popularity of Facebook among the students may be because it is cheaper and its ability to use it to chat with multiple friends at the same time. However, twitter was the least visited social media network sites that biology students are exposed to according Katcha, et al (2018) while Abdulkadrir (2016) found WhatsApp as the least used social media.

This is the era of technology. Social networking site is one of the aspects of technology which connects people together without restriction of time and location. It is an aspect of technology which individual

participates freely, hence students can participate on all these social media without restriction. The study revealed that biology students use reasonable portion of their daily time to participate on social media (i.e those who spend up to an hour -71 (35.5%)), and those who use up to two hours – 53 (26,5%) daily). This is in line with Abdulkadir (2016) finding that students used considerable portion of their daily life interacting through social media.

The findings of this study also revealed that biology students use social media for various purposes. These include chatting with friends, downloading music and home videos, updates on information and news, gisting, playing games and ball, online discussions, downloading video on biology concepts, clarification on difficult biology concepts, doing assignments and taking notes while reading biology online. These is in line with previous studies of Katcha et al (2018), who submitted that students use social media to chat friends, etc, download home videos and for online discussion. Mingle & Adams, Ogbaeja & Nwafor (2017) also found that students participate on social media for updates on news and any other information while Abdulkadir (2016) submitted that students used social media for assignments and taking notes. It would be observed from this study that students use social media for both non- academic and academic purposes. This supports the findings of Waleed & Mohd (2014) and Katcha et al (2018) that apart from being a communication tool and chatting platform, students also used social media for education purpose. This is against the submission of Nwanbueze & Aduba (2014) that social media has no positive influence on students, but rather have overall negative influence.

Mingle & Adams (2015) is of the opinion that the time spent on social network sites by students is the same time that is normally being used for extracurricular activities. Therefore, it implies that participating on social network sites do not take away their productive time. No significant relationship was found between times spent on social media and with students' academic performance. In view of this and other findings from this study, it is good biology students are allowed the use of social media in schools with proper monitoring instead of being ban in schools.

Conclusion

In spite of the general views of negative effects of social media on students' academic pursuit due to freeways entrance to the social network sites, and consequently on their academic performance and attitudes as revealed by studies, the findings of this study show that biology students also access social media for information on their learning of biology. Since it is evident from this study that biology students access various social network sites for different purposes, secondary schools can create possibilities and opportunities of making a responsible use of social media. This could be through creation of platforms for online discussion of biology concepts with biology teachers. There is need for biology teachers and schools at large to stay abreast of the technology to infuse social media into teaching and learning of biology since we are in the technology era and students use social media every day. **Recommendation**

Based on the findings of this study, here are recommendations:

1. The use of social media by teachers for teaching and learning of biology concepts should be introduced and encouraged by the school authority.
2. The use of social media by biology students should be allowed in schools but with guiding rules and principles by the school.
3. Secondary school management should also consult appropriate Information Communication and Technology (ICT) bodies and authorities to assist in creation of social media for learning with appropriate legal backing.

References

Ahmed, I. & Qazi T. F. (2011). A Look Out for Academic Impacts of Social Networking Sites: A Student Based Perspective. *African Journal of Business Management*, 5(12).

Ahn, J. (2011). The effect of social network sites on adolescents' social and academic development: current theories and controversies. *Journal of the American society for information science and technology,* 8(62).

Apeanti, W. O. & Danso, E. D. (2014). Students' use of social media in higher education in Ghana. *Innovative Journal,* 3 (1).

Boyd, D. M. and Elisson, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication,* 1(13), 11. Retrieved July 1, 2019, from http://jcmc.indiana.edu/vol13/issue1/boyd.ellison.html

Davis, C. H. F., Canche, M. S. G., Deil-Amen, R. & Rios-Aguilar, C. (2012). *Social Media in* for the Study of Higher Education at the University of Arizona and Claremont Graduate University.

Katcha, M. A. Babagana, M., Ndagi, M., Jubril, M. N & Danjuma, A., M. (2018). Survey on social media network participation, impact on biology students' performance in Senior Secondary Schools in Minna Metropolis, Niger State, Nigeria. *Journal of Information Engineering and Application,* 8(2)

Kirschner, P. A. & Karpinski, A. C. (2010). Facebook and academic performance. *Computers in Human Behavior,* 26(6), 1237-1245.

Mehmood, S. and Taswir, T. (2013). The Effects of Social Networking Sites on the Academic Performance of Students in College of Applied Sciences. *International Journal of Arts and Commerce, 2(1)*. Retrieved March 13, 2019, from http://www.ijac.org.uk/images/frontImages/gallery/2:1,10.

Nwanbueze, A. U & Aduba, D. (2014). Influence of social networking on secondary school students in Enugu State, Nigeria. *Journal of Applied Information Science and Technology*, 7(1), 1 -21 performance of students in College of Applied Sciences. *International Journal of Arts*

Rithika, M. & Selvaraj, S. (2013). Impact of social media on students' academic performance. *International Journal of Logistics and Supply Chain Management Perspective,* 2(4)

Roberts, D. & Foehr, U. G. (2008). Trends in media use. *The Future of Children,* 18(1), 1137 University.

Waleed, M. A and Mohd, S.O. (2014). The Impact of social media use on academic performance among university students. *Journal of Information Systems Research and Innovation*, Faculty of Computing, Universiti Teknologi Malaysia, 81310 Skudai, Johor, Malaysia, 18-28.

Yeboah, J. & Ewur, G. D. (2014). The impact of Whatsapp messenger usage on students' performance in tertiary institutions in Ghana. *Journal of Education and Practice*, 5 (6), 157- 165