INVESTIGATION INTO THE SENIOR SECONDARY SCHOOL PHYSICS STUDENTS ACCESSIBILITY TO SOCIAL MEDIA NETWORKS IN FEDERAL CAPITAL TERRITORY- ABUJA

By

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Abstract

The study seeks evidence from physics students to investigate the extent student have access,use, purpose of use , and challenges the use pose. A structured questionnaire was use to collect data from a sample of 120 respondents. The instrument had a reliability of 0.83 using Cronbach Alpha technique. Findings show physics students' access to social media is consistent with similar studies in other countries. The study further reveals the need for students to be conscious of the risks of the social media. Findings also show that WhatsApp is the most frequently social media among the respondents. Recommendation made include : Seminars should be organized in various schools to enlighten students more about the possible implications of social media usage on their academic performance, students should make sure that they use these social networking sites judiciously to ensure that they do not become detrimental to their academic work, Physics teachers can adopt new strategies by channeling assignments or discussions on social media platforms to help inculcate the habit of using these sites for academic work, Students must minimize the time they spend on social media to avoid being obsessed by these sites for unnecessary chatting

Keywords: Accessibility, Physics, Social Networking Sites,

Introduction

Physics is a science subject offered at senior secondary school level probably for its utility value. It provides a platform for basic understanding of the complexities of modern technology, and essential for technological advancement of any nation. This aspect of science is making significant contribution to many inventions that are shaping modern day, and has helped to explain many events being encountered in everyday life. Despite its importance, physics remains the least favored science subject among students generally (Akanbi,2003) .Compared to other science subjects, only a few students choose to study physics at O-level and, subsequently, institutions of higher learning.

Students' difficulty in physics has been attributed to various factors. This according to Odekunle ranges from. (nature of the subject , list others) The author further stressed that the social media is not helping matters either. Supporting the view, Akyildiz, & Argan (2011) lamented that social media is wrecking havoc on academic achievement of students.

Social media as a concept has been variously defined. One of such definitions describes it as a multi-purpose platform and a web-based technology which has the ability to allow the sharing of videos, text, sound and images in a more collaborative and interactive manner (Rifkin, Longnecker, Leach, & Ortia, 2009). Indeed, the introduction of social media in this digital era has really enhanced interactions and communication globally. The dependence and reliance on social media sites by people across the globe in their day-to-day activities make it necessary for researchers to always find out more about the

effects of these sites on users. Although people across all ages depend or rely on social media sites, it is well understood and captured in literature that students over rely on this tool in their social engagements. For instance, literature indicates that students spend several hours on social media sites everyday as part of their daily activities (Refuel, Yazdanfar & Aghili, 2012) Unarguably, it is also known that the advent of handheld devices especially smartphones have contributed immensely towards the frequent and rapid usage of these social media sites by students. This, however could be attributed to the convenience nature the devices have presented to users especially students in their visit to social media sites (Waechter & Espinoza,2008). It is believed that the emergence of social networking sites like Facebook has received a lot of attention and patronage by all ages across the world but significantly people around college or university going age are mostly found on this social network.

Salvation& Adzharuddin's (2014), study attest to this claim as it was found that students between the ages of 18-29 years have accounts on facebook and use the online network daily. On the hand, the emergence of instant messaging sites like WhatsApp, snapchat, twitter, Instagram and the rest have all contributed and still play a key role either positively or negatively on students' academic and social lives (Roblyer, McDanielb, Webbc, Hermand, and Wittye, 2010), As much as these sites have effects on students, they also pose some challenges. However, preliminary investigations conducted by the researcher in both Universities disclosed that notwithstanding the effects that social media poses on the students social and academic lives, they still can't desist from visiting these social media platforms. This illuminating information necessitates the need to probe further and find out more the students' level of accessibility to social media with a view to determining it impact on their academic performance.

Statement of the Problem

Social media offers young people several benefits and opportunities, including access to information, extended social networks, social skills practice, identity expression, informal learning opportunities, interest-based groups, development and maintenance of friendships, and fun.(Preibusch, Hoser, Gurses, & Berendt, 2007) Social media has been described as an important part of a young person's life and a platform for experimentation, creative self-expression, and identity formation.(Oye, (2012)

The increased use of social media, or social network sites (SNS), by youth across the world has several risks and consequences. They include privacy concerns such as sharing too much information, posting of false information about themselves or others, exposure to fraudsters and marketers, and addictions to Internet or social media use that might impact negatively on their social, psychological, and emotional well-being.(Bicen and Cavus, 2010), Other possible negative outcomes are exposure to cyber-bullying; allowing others access to personal information; exposure to inappropriate content, and outside influences of third-party advertising groups; and sleep deprivation, which can lead to low academic output.(Shana,2012)

Several research studies have linked social media to students academic achievement, yet no consistent result had emerged. Bicen, and Cavus, (2010) and Shana (2012) reported negative impacts of facebook and co ; Anderson (2010) describes a positive influence while Wiley & Sisson (2013) do not find any relationship at all. To address this knowledge gap, this situation therefore sustains the researcher's curiosity and thus makes it necessary to understand how accessibility to social networking sites affect students' academic performance in physics.

Purpose of the study

The study seeks to :

1. determine of social media networks accessible for the use of senior secondary school Physics students in Abuja;

2. ascertain daily average time students spend on social networking;
3. Find out reasons the senior secondary school physics use social media networks and,
4. Establish the challenges that militate against students' efforts in accessing social network.

Research Questions

1. To what extent are the following types of social media networks accessible for the use of senior secondary school Physics students in Abuja?
2. What is the frequency of social media usage among the senior secondary school physics students?
3. For what purposes do the senior secondary school physics students use social media networks?
4. What challenges militate against students' efforts in accessing social media network?

Hypothesis

H_{01}: There is no significant difference between the opinions of male and female senior secondary school physics students' on accessibility to social network.

H_{02}: There is no significant difference between the opinions of male and female senior secondary school physics students' on frequency of social network usage.

H_{03}: There is no significant difference between the opinions of male and female senior secondary school physics students' on purposes for use of social media.

H_{04}: There is no significant difference between the opinions of male and female senior secondary school physics students' on challenges that militate against efforts at accessing social media.

Method

This study adopted a survey research in descriptive setting. The population for the study consisted of all Senior Secondary School II students offering physics in Federal Capital Territory (F.C.T).Senior secondary school student from public and private schools in Abuja formed the population of the study, while one hundred and twenty (120) students from three Area Councils in Federal Capital Territory (F.C.T) formed the sample of the study. Ten (10) students each were sampled from public and private schools. A stratified random sampling technique was used for equitable representation of variables such gender and locations.

The instrument for data collection was entitled 'Accessibility of Social Networking Sites to Senior Secondary School Physics Students Questionnaire (ASNSSSSPSQ)'. ASNSSSSPSQ has two main sections A and B. Section A solicited information on students' bio-data while section B elicited information on such variables as amount of time on spent on Social Media Networking, the type of social networks visited, their opinions on the role of social network on the academic achievement, perceived challenges that militate against their efforts in accessing social media network .The instrument was validated by three (3) University lecturers from sub department of Science Education in Faculty of Education of the University of Abuja.. The reliability of the instrument was obtained by pilot testing it on equivalent samples but not the same used for the study. Cronbach Alpha estimation was used for estimation and a 0.83 co-coefficient was obtained. The responses were measured on 4-point Likert scale of Very High Extent (4-points), High Extent (3-points) ,Moderate Extent (2-points) and Low Extent (1-point).Four research questions and two hypotheses were answered using mean and standard deviations such that a mean of 2.50 indicated a favourable disposition while less than 2.50 indicated negative disposition. The

same applies to the cluster means. The hypothesis was tested at 0.05 level of significance using independent t-test statistical technique involving difference of means.

Results

The results are presented as follows:

Research Question 1: To what extent are the following types of social media networks accessible for use of senior secondary school Physics students in Abuja?

Table 1 : Responses on the types of social media accessible to students

N=120

S/N	Available Social Network	VHE	HE	ME	LE	Mean	SD	Remark
1	WhatsApp	36	20	58	6	2.72	.95	Agreed
2	Twitter	29	30	44	20	2.62	1.04	Agreed
3	e-mail	20	47	37	16	2.59	.94	Agreed
4	Linkdin	25	33	30	32	2.43	1.01	Disagreed
5	Myspace	24	28	32	36	2.33	1.11	Disagreed
6	Google plus	28	36	24	32	2.50	1.12	Agreed
7	Deviant Art	24	28	32	36	2.33	1.11	Disagreed
8	Live Journal	21	49	32	18	2.61	.94	Agreed
9	Piecassa	21	26	62	11	2.48	.88	Disagreed
10	Flicker	2	28	67	23	2.08	.70	Disagreed
11	Youtube	29	30	44	20	2.62	1.04	Agreed
12	Blogger	27	36	24	33	2.48	1.12	Disagreed
13	Library Thing	12	4	32	72	1.63	.95	Disagreed
14	notebook	25	33	30	32	2.43	1.01	Disagreed
15	facebook	24	47	33	16	2.66	.94	Agreed
16	Multiple	21	26	62	11	2.48	.88	Disagreed
17	Orkut	22	4	32	62	1.88	.95	Disagreed
18	Ning	21	40	41	18	2.53	.94	Agreed
19	Meetup	30	20	58	12	2.57	.95	Agreed
	Cluster mean/SD					2.42	0.98	

From table 1, it can be seen that the most favourably disposed item is tem 1 namely, WhatsApp with a mean score of 2.72, followed by item 15 namely, facebook with a mean score of 2.66 and then items 2 and 11 namely, Twitter and Youtube with mean score of 2.62 each.While the least item is item 13, namely Library Thing with a mean score disposition of 1.63,followed by item 17 namely, Multiple with a mean score of 1.88.

Research Question 2: To what is the frequency social media usage among senior secondary school physics students in Abuja?

Table 2: Responses on Frequency Social Media Usage.

N=120

S/N	Item Statement	VHE	HE	ME	LE	Mean	SD	Remark
20	Students use Social Media all day (6 am -6 pm)	36	20	58	6	2.72	.95	Agreed
21	Students use Social Media all night (6pm-6am)	29	30	44	20	2.62	1.04	Agreed

22	Students use Social Media thrice a week	20	47	37	16	2.59	.94	Agreed
23	Students use Social Media monthly	18	30	40	32	2.28	1.01	Disagreed
24	Students spend more than 5 hours daily on social media	42	27	13	38	2.61	1.11	Disagreed
	Cluster mean/SD					2.56	1.01	

Table 2 shows the mean ratings of the respondents on the frequency of social media usage.Five (5) items constitute this subscale. Of the 5 items, the students were positively disposed to four (4) item constituting 80npercent of items in this subscale, with a mean disposition greater than 2.5 while they were less favourably disposed to 1 item which represents 20 percent of items in the subscale.Of the positively disposed items, the most favourably disposed item ,is item 20 namely, Students use Social Media all day (6 am -6pm) followed by item 21 namely, Students use Social Media all night (6pm-6pm) with a mean rating of 2.72 and 2.62. the least favourably disposed item is item 23 which specifies monthly usage of social media with a mean rating score of 2.61.Therefore based on the grand mean score of 2.56 there is a positive use of social media amongst the respondents

Research Question 3: For what purposes do senior secondary school physics students use social media networks?

Table 3: Response on purpose for use of social media by physics students

		N=120						
S/N	Item Statement	VHE	HE	ME	LE	Mean	SD	Remark
25	Finding communities of my interest	36	20	58	6	2.72	.95	Agreed
26	Finding social contacts	29	30	44	20	2.62	1.04	Agreed
27	Finding Jobs online	20	47	37	16	2.59	.94	Agreed
28	Participating in video conferencing	21	26	62	11	2.48	.88	Disagreed
29	Sharing my homework and project with my classmates	2	28	67	23	2.08	.70	Disagreed
30	Online learning	12	4	32	72	1.63	.95	Disagreed
31	Communicating peer groups	27	36	24	33	2.48	1.12	Disagreed
32	Plotting graphs/Problem Solving	20	14	60	29	2.26	1.04	Agreed
33	Joining academic group (class, school)	25	33	30	32	2.43	1.01	Disagreed
34	Leisure/fun/entertainment	24	47	33	16	2.66	.94	Agreed
35	Supporting my academic work	21	26	62	11	2.48	.88	Disagreed
36	Passing away time	62	16	20	22	2.67	.95	Agreed
37	Finding family members	21	40	41	18	2.53	.94	Disagreed
	Cluster mean /SD					2.43	.95	

From table 3, the subscale mean rating of the respondents for the use of social media networks was 2.43 and consisted of thirteen(13). Of the thirteen (13) items, the respondents were favourably disposed to item six(6) items with mean score greater than 2.5 and and less favourably disposed to 5 item with a mean score less than 2.50. Of the positively disposed items, the most favourably disposed item was item 25 namely, finding communities of interest with a mean disposition of 3.47, followed by item 34 namely, leisure/fun/entertainment with a mean score of 2.66.The least favourably disposed item was item 30 which stipulated online learning with a mean score of 1.63 followed by item 29 namely, sharing my homework and project with classmates with a mean disposition score of 2.08.In addition to this, the finding revealed that study participant used social media less on academic pursuits.

Research Question 4: What challenges militate against students' efforts in accessing social media network?

Table 4: Responses on Challenges Militating Efforts in Accessing Social Media

		N=120						
S/N	Item Statement	VHE	HE	ME	LE	Mean	SD	Remark
38	Insufficiency of Computers	28	36	24	32	2.50	.67	Agreed
39	Unreliable power supply	29	30	44	20	2.62	.54	Agreed
40	Time wastage	24	47	33	16	2.66	.87	Agreed
41	Cyber crimes	21	49	32	18	2.61	.92	Agreed
42	Network Failures	29	30	44	20	2.62	.76	Agreed
43	Misinformation	20	47	37	16	2.59	.94	Agreed
44	Unwanted friendship requests	59	36	19	6	3.23	.73	Agreed
45	Lack of Internet access	49	51	12	8	2.68	.76	Agreed
46	Sleep deprivation	72	24	19	5	3.35	.76	Agreed
47	Lack of concentration at school	69	37	9	5	3.42	.80	Agreed
	Cluster mean/SD					2.56	.78	

Source : Field work

Table 4 shows the mean ratings of the respondents on challenges that militate against students' efforts in accessing social media network .Ten (10) items formed this cohort, of which the respondents were favourably disposed all. Item 47, namely lack of concentration at school tops the cohort with a mean rating of 3.42,followed by item 46.that specifies sleep deprivation and then item 44 namely, unwanted friendship requests with a score rating of 3.35 and 2.68 respectively while item 38 namely, insufficiency of computer with a marginal mean score of 2.50 enjoyed the least positive disposition. The cluster mean score of 2.56 indicates that respondents grapple with some challenges.

Hypotheses

H_{01}: There is no significant difference between the opinions of male and female senior secondary school physics students' on accessibility to social network.

H_{02}: There is no significant difference between the opinions of male and female senior secondary school physics students' on frequency of social network usage.

H_{03}: There is no significant difference between the opinions of male and female senior secondary school physics students' on purposes for use of social media.

H_{04}: There is no significant difference between the opinions of male and female senior secondary school physics students' on challenges that militate against efforts at accessing social media.

Table 5: t-Test of the Response of Male And Female Respondents' on the Variables of Subscales listed below

			N=120						
S/N	Variable	Gender	Number	Mean (x)	SD	Df	t-cal	t-cri	Decision
H_{o1}	Accessibility to social media	Male	67	1.68	.78	118	2.00	1.98	Reject H_{01}
		Female	53	.74	.54				

H_{02}	Frequency of social media usage	Male	67	1.89	.46	118	3.30	1.98	Reject H_{02}
		Female	53	.67	.33				
H_{03}	Purposes for use of social media	Male	67	1.62	.33	118	2.23	1.98	Reject H_{03}
		Female	53	.81	.56				
H_{04}	Challenges that militate against efforts at accessing social media	Male	67	.98	.34	118	1.67	1.98	Accept H_{04}
		Female	53	1.58	.44				

From table 5, the calculated t value(t-cal) for the null hypothese1,2,3 with values ranging from 2.00 to 3.30 lies outside the critical region of -1.96 to 1.96.That is the null hypotheses are rejected. This means there are significant differences between the responses of male and female students in respect to accessibility to social media; frequency of social media usage and purposes for use of social media . However for null hypothesis 4, the t-cal value of 1.67 lies within the critical region of -1.98 to 1.98 .This implies that null hypothesis 4 is accepted , indicating that there was no significant difference between the male and female respondents on the challenges met in accessing social media.

Discussion of findings

The study investigated senior secondary school physics students' accessibility to social media network.

Findings from the study revealed that whatsApp and Facebook are the most easily accessible social media among the respondents. This is in support of Ojo (2013) findings that revealed WhatAsapp as most popular among teenagers .He ascribed this to the fact that whatsApp is readily accessible from phones without any log-on information. In addition, WhatsApps has call and messaging features, which are useful in communicating with friends and family members. Youths no longer need to visit a cybercafé before they send and receive messages (Ogbobia,2012)

Findings of this study on the frequency of social media usage among senior secondary school physics students that revealed the respondents agree to frequent patronage of social media with a marginal mean score of 2.56. Analysis of items in this cohort shows that 80 percent of the items have their mean score above 2.50. For instance, item 20 namely, students use social media all day(6 am -6 pm) has mean score of 2.72.This implies that the rate respondents surf internet is very high. This is in support of Raedand Huda (2013) findings that revealed 90 percent of students from Ghana spend more than 8 hours on social media daily. Students that spend this much time on SNS will have less available time for schoolwork, which adversely affect their academic performance., therefore the poor learning outcomes published by examining bodies is no longer in doubt.

On the purpose of social media utilization among physics students, findings from the study revealed the chief purposes of social media utilization among the respondents as meeting friends, getting news, communication and online learning. This is in support of [Akanni,2013] findings which reported social interaction, communication motives and companionship as major purposes for students' use of social media networks. Furthermore, Item 30 namely online learning with a mean score of 1.63 is noteworthy. This indicates that the respondents do not devote much of their time to online learning. This finding corroborates the arguments made by some scholars such as Khan(2010),and Englander, Terregrossa and Wang(2010), whose findings suggested that social media is a nuisance to students' academic life because most of their usage are not geared towards academics but rather to useless things as far as enhancing students' academic life is concerned. .

Findings on the challenges that militate against efforts at accessing social media leaves much to be desired with a mean score of 2.56. This is in support of [18] study which revealed unreliable power supply and lack of internet access as problem encountered in using social media. Lack of internet access may also be attributed to the low economic status of most the respondents. The findings also show that the learners in the study had encounter some cyber bulling in their use of social media, including mean, offensive or hurtful messages, name-calling in a chat room, fake profiles and spreading of rumors on SNS. This finding is similar to those of other studies. For instance, Ojo (2016) study on Internet Project Report stated that one in every three online teens have experienced online harassment . Corroborating this assertion, Kayode (2013) reported that about 32 percent of all teenagers who use internet reported that they have been targets of a range of annoying and potentially menacing online activities, such as receiving threatening messages and having embarrassing pictures posted without their permission. On this note, Dressel (2016) warns that cyber bulling must be taken seriously since it can be detrimental to its victims and may lead to feelings of depression, guilt and shame, as well as self-harm.

Finally, On the test of hypotheses, there were significant gender differences with respect to null hypotheses 1,2,3 however null hypothesis 4 showed no gender

Conclusion

The findings of this study have shown that social media is popular among the study participants with many of them having profiles on social networking sites, especially Facebook and WhatsApp. Even though there is high usage of Social Media by the respondents, it did not reflect that they are using it for academic pursuit. The students believed that social media are a cardinal component of school work that helps them to interact, communicate and equally expose themselves to cyberbullying. This has tendency to negatively influence them to engage in bad attitude. On frequency, although the study affirms high frequency of usage, there is another threat in hours they spent surfing the net which will definitely affect their academic output. However, the facts remain that Social Media is an indispensable internet platform among students .

Though there are some negative impacts, students can mitigate them with improved awareness. Students should utilize social networking sites more creatively and should not let them control their lives.

Recommendation

In the light of the findings, the following recommendations are made:

1. Seminars should be organized in various schools to enlighten students more about the possible implications of social media usage on their academic performance.
2. Students should make sure that they use these social networking sites judiciously to ensure that they do not become detrimental to their academic work.
3. Physics teachers can adopt new strategies by channeling assignments or discussions on social media platforms to help inculcate the habit of using these sites for academic work.
4. Students must minimize the time they spend on social media to avoid being obsessed by these sites for unnecessary chatting.
5. The school authority should also restrict access to certain social media sites that may be prone to distracting students' attention during school hours as a means of minimizing their use.
6. The use of social media networks for collaborative learning among the students should be encouraged

7. The management of every school should ensure the adequate provision of regular power supply and social media networks for students' usage. However, the use of the available social media should be monitored by

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