

Influence of Students' Engagement with Social Networks on their Study Habits and Cognitive Skills in Science Classrooms

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Abstract

Social networks are becoming an integral part of our lives. They have revolutionized the way we communicate, interact and socialize. Students are considered the largest categories that use these applications as millions of them are spending many hours on social networking sites like Facebook, Twitter, Youtube, Whats App, Tango and so on. This study examines the influence of students' engagement with social networks on their study habits and cognitive skills in science classrooms in secondary schools in Education District VI, Lagos State, Nigeria using a survey questionnaire to collect information from a sample of one hundred (100) senior secondary school students. Chi square using Statistical Packages for Social Sciences (SPSS) at .05 significance alpha level was adopted to analyze the stated hypotheses. The study findings revealed that the use of social networks have significant impact on students' attitudes, their study habits and cognitive skills in science classrooms. The study recommended that students should be enlightened on the benefits and limitations of using social networks for both academic and leisure.

1. Introduction

Social networks are the main application under the umbrella of social media, which come with the Web 2.0 era. They cover all about engagement creating relationship, communicating with one's readers, building his following and connecting with his online audiences. Social networking started in the 90s, where Chat Rooms and Bulletin Board System (BBS) were forms of connecting with one another and to share interest. The first recognizable social network site which was launched in 1997, "sixegrees.com" allows users to create profile, list their friends and beginning in 1998, surf the friend list. Between this period and 2004, many social network sites came into existence such as Friendster, Myspace, Facebook and so on but Facebook emerge and grew rapidly in 2007, [1]. At first Facebook was solely for college and high school students but in recent time we have witnessed the development of more social media platforms for online social networking like twitter, Google+, Instagram, Whats app, Messenger, Tango and others and this has expanded the level of networking and increased the use of social media for both private and corporate purposes [2].

Recent trends have shown that social network services provide opportunities within professional

education, curriculum education and learning [3]. Today teenagers show very much interest in using all these social networks for different purposes such as access to information, group discussion, resource sharing and entertainment. As several studies demonstrate, social media interaction could have both positive and negative effects on students.

In spite of the opportunities social networking has for mankind; it is observed that the total attention and concentration of students have been diverted towards non education, unethical and inappropriate actions such as useless chatting through the use of mobile phones and devices within the school premises. The negative impact of social networking on the students is also being traced to the fact that students make use of these devices when teaching is going on. Also at their respective homes, they spend great deal of time on social networking activities leaving their studies to a deterring state which may have adverse effect on their academic performances. Studies from literatures show that social networking media has gained considerable attention as a factor affecting students' academic performance [4-7].

Browsing the net, playing games online and passing non-stop SMSs seem to be their daily routine, making reading books or any other written materials an outdated idea for most school children. In fact, students see social network sites as platforms to make friends who can always take them out of boredom. So instead of using social network sites to source for relevant information that will help them in their studies, they just pay attention to their chats and while away their time [8]. Most importantly, the provision virtual life to students by social networks helps those who do not have the confidence to speak in front of anyone now feel free to interact confidently in their virtual life. When they use these social networks, they feel like in heaven but this addition kills their inner self confidence forever. Becoming addicted to social networks make them feel like they have so many friends but in real, all of the contacts they communicate with are virtual contacts. The frequent use of these social networks could cause addiction toward the site and influence students' daily life at large [9].

Al-Shargi, Hashim and Kutbi [10] assert that Liu [11] studied students' use, attitudes and perceptions of 16 different social media tools through an online questionnaire involving 221 students. The top four reasons that prompted students' use of social media tools were found to be social engagement (85%), direct communications (56%), speed of

feedback/results (48%), and relationship building (47%).

Al-Tarawneh [12] emphasizes that in education, two streams are prevailing for social networks: the use of social networks as a tool supporting activities deemed important for the purpose of educational institutions, instructors, and students. The second stream is the bad influence social network inflicts on students behaviours and time management. According to Wang, Chen and Liang [13] students use social network sites for many purposes such as access to information, group discussion, resource sharing and entertainment.

Social networking has only one goal. It is to encourage new ways to communicate and share information. Observations showed, however, that many students have been blaming various social networking for their negative effects on the students study habits and steady decrease in their grade point averages [14].

It is against this background that the study investigates the influence of students' engagement with social networks on the study habits and cognitive skills of secondary school science students in Education District VI, Lagos State, Nigeria.

2. Research Questions

Therefore, the study sought to answer the following questions.

- What is the level of students' attitude towards using social networks in science classrooms?
- How has the use of social networks imparted on students' study habit in science?
- Do social networks affect students' learning outcome in science classrooms?

3. Hypotheses

The following hypotheses were formulated to guide the study.

- Social networks have no significant impact on students' attitude in science classrooms.
- Social networks will not significantly affect students' study habits in science classrooms.
- The uses of social networks have no significant impact on students' cognitive skills in science classrooms.

4. Methodology

The study adopted a descriptive survey research design. The population consisted of all science students in senior secondary schools in Lagos State Education District VI, Nigeria. Using simple random sampling technique, a total of one hundred

(100) science students were selected from five senior secondary schools in the District. Meanwhile, twenty (20) students were selected from each of the sampled schools.

The instrument used for data collection was a self-developed questionnaire by the researchers and validated by five science and computer educators. The questionnaire contained fifteen (15) items whose responses were structured on a Four Likert Scale System of Strongly Agreed (SA), Agreed (A), Disagree (D), and Strongly Disagree (SD). In developing the questionnaire instrument, questions were adapted from the existing instrument of similar research carried out by the researchers to suit the study.

The reliability of the questionnaire was determined by using split-half reliability method and Pearson Product Moment (PPM) correlation formula was used to determine the reliability index which yielded a coefficient of 0.87. This is adjudged as been reliable.

5. Findings and Results Analysis

As presented in the methodology section, the questionnaire has been subjected to quantitative analysis using simple percentage and Chi Square processed through Statistical Package for the Social Sciences (SPSS) software. This forms the basis for testing the hypotheses formulated to guide the study. Meanwhile, the data were arranged in figures and tabulated based on each of the hypotheses as indicated below.

Hypothesis 1: Social networks have no significant impact on students' attitude in science classrooms.

Table 1. Social networks influence on students' attitudes in science classrooms (n=100)

Class		Social networks influence on students' attitudes in science classrooms				Total
		SA	A	D	SD	
SS2	Count	1	23	24	2	50
	Expected Count	2.0	23.0	23.5	1.5	50.0
SS3	Count	3	26	20	1	50
	Expected Count	2.0	26.0	20.5	1.5	50.0
Total	Count	4	49	44	3	100
	Expected Count	4.0	49.0	44.0	3.0	100.0

Table 1 shows the responses of the students to the influence of social networks on students' attitudes in science classrooms. As seen here, it is clear that 53% of the students agreed that social networks affect students' attitudes towards learning in science classrooms. This can be in form of causing lots distraction to students in the classroom while lessons are ongoing. Thus, 47% of the students disagreed.

Table 2. Chi-square Test

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.355a	3	.003
Likelihood Ratio	1.408	3	.704
Linear-by-Linear Association	.635	1	.426

In line with Table 1, a Pearson Chi-square Test was conducted to find the influence of social networks on students' attitude in science classrooms. Table 2 shows that there is significant impact of social networks on students' attitude in science classrooms. [Chi-square = 6.355, df = 3, p < .05]. This implies that social networks fosters negative attitude among students in science classrooms.

Hypothesis 2: Social networks will not significantly affect on students' study habits in science classrooms.

Table 3. Influence of social networks on students' study habits in science classrooms (n=100)

Class		Social network and students' study habits in science classrooms				Total
		SA	A	D	SD	
SS2	Count	1	28	20	1	50
	Expected Count	2.0	28.0	29.5	1.0	50.0
SS3	Count	2	28	20	1	50
	Expected Count	1.5	28.0	29.5	1.0	50.0
Total	Count	3	56	39	2	100
	Expected Count	3.0	56.0	39.0	2.0	100.0

Table 3 illustrates the effects of social networks on students' study habits in science classrooms. It depicts that 59% of the respondents agreed that social networks have effects on students' study habits in science classrooms. Their responses showed that majority of the students often spend most of their useful time on social networks rather reading. Meanwhile 41% of the respondents believed that social networks have nothing to do with the study habits of students in science.

Table 4. Chi-square Test

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.399	3	.007
Likelihood Ratio	.365	3	.947
Linear-by-Linear Association	.116	1	.733

A Pearson Chi-square Test was conducted on Table 3 to find the influence of social networks on students' study habits in science classrooms. The analysis on Table 4 reveals that there is significant impact of social network on students' study habits in science classrooms (Chi-square = 8.359, df = 3, p < .05).

Hypothesis 3: The uses of social networks have no significant impact on students' cognitive skills in science classrooms.

Table 5. Social network and students' cognitive skills in science classrooms

Class		Social network on students learning outcome in science classrooms				Total
		SA	A	D	SD	
SSS 2	Count	0	26	22	2	50
	Expected Count	1.0	25.0	22.5	1.5	50.0
SSS 3	Count	2	24	23	1	50
	Expected Count	1.0	25.0	22.5	1.5	50.0
Total	Count	2	50	45	3	100
	Expected Count	2.0	50.0	45.0	3.0	100.0

Data analysis in Table 5 shows that 52% of the respondents agreed that social networks affect students' cognitive skills in science classrooms. They believed that students do not use social networks to get additional information on topics learnt in science lessons and also social networks prevent students from revising the lessons taught in science classes. Meanwhile 48% of the respondents disagreed that social networks could lead to poor learning outcome of students in science classrooms.

Table 6. Chi-square Test

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.436a	3	.001
Likelihood Ratio	3.215	3	.360
Linear-by-Linear Association	.225	1	.614

A chi-square Test was conducted to find the impact of social networks on student learning outcome in science classrooms. The analysis in Table 6 depicts that the use of social network has significant impact on students' learning outcomes in science classrooms (Chi-square = 7.436, df = 3, p < .05).

6. Discussion of Results

The three hypotheses formulated for the study were rejected. These show that social networks that are supposed to have positive influence on students' attitude, their study habits and cognitive skills have brought great setback to most of the students. In a study exploring how students use social media, Wang, Chen and Liang [13] report that most college students spent vast number of hours accessing social media sites. Ninety percent of students surveyed spent their time on entertainment. While eighty percent of the sample admitted that they posted or responded while completing homework, not too many college students preferred using social media to do their homework. Considering the overall results of collected data analysis, there was a negative attitude towards social media when college students used them. The analysis also indicates that an approach is needed to better balance the relationship between social media and academic study. This finding is also congruent to that of Korzney [15] and Oginni et al. [16] who assert that social networking

grabs the total attention and concentration of the students, and diverts them towards non education, unethical and inappropriate actions such as useless chatting.

More so, the habit of studying is decreasing day by day among the students resulting to poor academic performance. Students prefer to spend hours browsing on the net for unnecessary sites, playing games and passing non-stop SMSs through 2go, Instagram, Facebook, tango and so on. They no longer use social network sites to source for relevant information that will help them in their studies but pay more attention to chatting and while away their precious time [8]. According to Hay [17], the more time spent on social networking sites, the less they may be good for students' social lives, in the way that it may cause them to be more illiterate; short forms, and even the limited amount of characters one is allowed to type on certain statuses, don't help expand the writing portion of a student's mind resulting in lower grade averages and less time spent on studies.

Studies by Ibrahim [18] and Oginni et al. [16] show that the academic performances of students are facing a lot of neglect and challenges because of different networks students are exposed to. These different networks have taken a firm power over human's lives in this modern world. Social networks today have not greatly contributed to the learning outcome of students because technology has made things easy for everybody and the students seem not to understand this and how purposefully they can use these network sites for their academic excellence, hence they have poor performance in their learning outcome. In contrast, Social networking sites have the potential to make learning more student centered [19].

7. Conclusion

The primary purpose of the study was to examine the influence of students' engagement with social networks on their study habits and cognitive skills in science classrooms. The findings indicated that students are influenced to a great extent by the social networks negatively because their attention is focused on chatting and music while their academic activities are neglected and left to suffer. Students are supposed to use the social networking sites as a supplementary to the curriculum but the prevalence and continuous engagement of students in online social networks continued to be on increase, thereby imparting negatively on their academic excellence.

In view of this, students should be trained and enlightened on how to make full use of social networks and other technological devices in their learning activities in order to ensure accountability in and outside the class. Schools, teachers and educational manager should integrate teaching and

learning of science subjects into social network sites by creating academic groups where students will be mandated to join for the purpose of distributing and circulating course materials, projects, exercises etc. This will go a long way in keeping the students busy and making them spend their time judiciously well on positive events and academic activities.

8. References

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