

THE IMPACT OF SOCIAL MEDIA ON SENIOR SECONDARY SCHOOL STUDENTS' ACADEMIC PERFORMANCE IN CHEMISTRY

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Abstract

This research examines the effect of social media on students' academic performance in chemistry. Descriptive research design was employed for this study. The population of this study comprises one hundred and fifty SSS2 chemistry students drawn from five public secondary schools within educational district V of Lagos State. Chemistry Achievement Test (CAT) and Social Media Usage Questionnaire (SMUQ) were the instruments used for the study. Analysis of the data collected was carried out using frequency count, simple percentages, Pearson Product Moment Correlation (PPMCC), Chi Square (X^2) and t-test at 0.05 level of significance. Three research questions were raised and answered. Findings revealed a strong negative relationship between social media usage and students' academic performance ($r = -0.63$). There was no significant difference between the usage of social media by male (Mean=12.37, Standard deviation = 2.03) and female (Mean =12.50, Standard deviation = 1.34). The magnitude of the difference in means is 0.13 which is very small $t(116.85) = -0.45$ $p = 0.65$, two-tailed. Use of Facebook was the most preferred social media by students, 64% of them preferred Facebook. Based on these findings the study recommends that parents and teachers should monitor and supervise the activities of their children most especially in the areas of internet and social media.

Keywords: Academic Performance, Social Media, Senior Secondary School Student

Introduction

Modern technology in communication no doubt has turned the entire world into Global village. But as it is, technology like two sides of a coin, bring with it both the negative and positive sides. It helps to be better informed, enlightened, and keeping abreast with world developments. The world is now a global village where the whole world is now compressed into a single electronic chat room. There is a tremendous body of growing literature on the effect of social media on the academic performance of students across the world [1]. While some of these studies like [2] have only examined the subject within the context of specific social media like Facebook, other studies [3], [4] have however studied the subject holistically. Recently, there has been considerable discussion regarding the frequent

use of social media tools (e.g. Facebook, Myspace, Twitter, WhatsApp, Eskimi, 2go, YouTube, Friendster, etc.) by students, most especially the secondary school students, and the possible effect of those tools on students' academic performance [5]. At the core of this debate is whether the growing use of social media by secondary school students actually improves or worsens a student's academic performance.

The involvement of youths in social networking has attracted many researchers that focused on young people's social network activities in relation to their academic performance and other forms of developments [6]. The WAEC registrar, according to punch newspaper of 25th august 2015 linked poor performance of students in senior secondary certificate examination to distraction caused by social media.

[7] noted the following positive impacts of social media on the academics of students: Web Engagement; Informal Knowledge and Skill; Education; Individual Identity and Self-expression; Strengthening Interpersonal Relationships. The negative effects on students' academics includes: Psychological Disorders and Health Problems; Displacement Effect on Academic Activities. These negative impacts of social media on students' academic performance have been noted to be related to addictive use of social media. This appears to be the reason why [8] found that internet usage is negatively associated with academic performance of student users which is in tandem with [9] proposal that addicted internet users prefer using the internet to set back their personal and professional responsibilities and this ultimately leads to poor academic performance. These said positive or negative effects may not be automatic, but could largely depend on the individual user and how well students can manage their academic responsibilities despite making use of social media. Hence, studies have observed that students who fulfill their study requirements effectively does not face any drop of grades. With this attitude, social media usage may not affect their academic performance adversely.

Academic success is paramount issue to any student, with the pressure to belong to social networks [10]. According to [11], there seems to be a significant relationship between the time spent by students on social media and their level of academic performance. Their findings revealed that the usage of Facebook raised the level of anxiety among students such that they are apprehensive about being without their cell phones for a few hours.

[12] examined the influence of social media on the academic performance of the undergraduate students of Kogi State University, Nigeria. The study found that social media has a negative effect on the academic performance of Nigerian students in that students: spend more time on social media than reading their books; rely on social media to do their assignments without consulting other sources; who spend more time on social media are likely to perform poorly in their academic activities than those who do not.

According to [13] chemistry performance can be enhanced if teachers can guide learning by facilitating students' conversation about scientific ideas on social networking sites. He also opined that some students failed chemistry because of the boring and abstract nature of chemistry class. He suggested that student's performance can be improved if social learning is introduced in the teaching and learning of chemistry. [14] demonstrated that student's social networking with teachers and peers boosts their knowledge acquisition and improve their academic performance. Since students also learn in different ways, there is need for the students learning styles to align with the instructors teaching style for good performance. The way students learn or study chemistry could also affect their learning outcomes in chemistry. The understanding of the use of social media by secondary school student is an important factor in achieving better performance among students and recovering the glory of secondary school education in Nigeria. While there may be other factors responsible for the less-than-optimal performance of secondary school students, it is believed that social media usage is a major factor of concern over their falling academic performance. Therefore, there is need to investigate the relationship between social media usage and students' academic performance in Nigeria, in order to determine students' attitude to social networking and how it impact on their academics.

The time displacement theory assumes that people have a limited amount of time to do a particular thing [15]. Increased amounts of time on a particular activity will displace other activities. According to [16], when people increase the time they spend online engaging in social and/or recreational activities, time sacrifices will have to be made in other areas, such as time spent on studying, reading, and doing homework.

Hence, the focus of this study is to find out the impact of social media on secondary school students' academic performance in chemistry. This is because of the growing trends in the use of social media and the decline in the academic performance of students' in chemistry.

Statement of the Problem

Chemistry as a subject has contributed in great deal to national development, despite this; the rate of failure among secondary school students is alarming. Many factors have been highlighted in many studies to have caused poor performance of students in chemistry, and the inability to meet the required 60 percent intakes in higher institutions of learning for science and technology related discipline as required by the Federal Government [17]. Little attention has been paid to the use of social media as they affect secondary students' performance in chemistry, most especially in Nigeria. The use of social media by students has ways of playing significant roles in the performance of students in chemistry. It is not an over statement that social media has now become part of students' lives which they cannot do without logging on to the internet on a daily basis. Hence this research is worthwhile.

Purpose of the Study

The purpose of the study is to investigate the relationship between social media usage and students' academic performance in Nigeria. Specifically:

1. To find out the relationship between the use of social media and students' academic performance in chemistry.
2. To find out the difference in the use of social media by male and female chemistry students.
3. To find out the most preferred social media among chemistry students.

Research Questions

This study sought to answer the following questions:

1. What is the significant relationship between the use of social media and students' academic performance in chemistry?
2. What is the significant difference between the use of social media by male and female chemistry students?

3. Which is the most preferred social media among chemistry students?

Methodology

Descriptive design was employed in this study. The target population involved all Senior Secondary School II Science students' in Lagos state Education District V. The sample consisted of one hundred and fifty (150) SSS II students in Lagos state Education District V. They were drawn from five randomly selected schools. i.e. 30 students were drawn from each school. The sample was selected through simple random sampling.

Data was collected with the use of two self-developed instruments:

i. Chemistry Achievement Test (CAT)

The Chemistry Achievement Test was made up of 20 validated multiple choice test covering topics that the students have covered in SSS1 and some topics they have covered in first term SSS2. The 20 items for the purpose of this study were administered to another set of senior secondary one students outside the sample to determine the reliability of the instrument. Using Kuder Richardson formula 21 (K-R 21) statistics, a reliability index of 0.73 was obtained.

ii. Social Media Usage Questionnaire (SMUQ).

The Social Media Questionnaire administered was divided into two sections: Section A and Section B. Section A comprised of the class, school, and sex of the respondent while Section B comprised the questions which were related to the questions developed for the study. This was administered to a sample of students, different from the schools selected for the study; a Cronbach's alpha of 0.78 was obtained. This index showed an evidence of internal consistency.

Results

Research Question 1

What is the significant relationship between the use of social media and students' academic performance in chemistry?

Table 1: Correlation Matrix of Students' Achievement Score and Social Media

		Social Media Usage	Achievement Scores
	Pearson correlation	1	-.063
Social Media Usage	Sig. (2-Tailed)		.0444
	N	150	150
	Pearson correlation	-.063	1
Achievement Scores	Sig. (2-Tailed)	.0444	
	N	150	150

Source: Field work (2017)

Table 1 shows that students' academic performance is inversely proportional to the usage of social media by the students

Research Question 2

What is the significant difference between the use of social media by male and female chemistry students?

Table 2: Group Statistics

Social Media Usage	Gender	N	Mean	SD	Std Error Mean
	Male	70	12.3714	2.03000	.24263
	Female	80	12.5000	1.34070	.14989

Table 3: Independent Samples Test

	F	Sig	T	Df	Sig (2-tailed)	Mean Diff
Equal Variances Assumed	7.036	.009	-.463	148	.644	-.12857
Equal Variances not Assumed			-.451	116.853	.653	-.12857

An independent-sample t test was conducted between the usage of social media by male and female students. The result from table 3 shows that there was no significant difference

between the usage of social media by male (Mean=12.37, Standard deviation = 2.03) and female (Mean =12.50, Standard deviation = 1.34). The magnitude of the difference in means is 0.13 which is very small (116.85) = -.45 p= .65, two-tailed.

Research Question 3

Which is the most preferred social media among chemistry students?

Table 4: Most Preferred Social Media

	Frequency	%	Valid %	Cumulative %
Facebook	96	64.0	64.0	64.0
WhatsApp	33	22.0	22.0	86.0
2go	2	1.3	1.3	87.3
Instagram	11	7.3	7.3	94.7
Others	8	5.3	5.3	100.0
Total	150	100.0	100.0	

Discussion of Findings

From the analysis of Social Media Usage Questionnaire (SMUQ), 94 (62.7%) of the respondents do have social media account and 105 (69.3%) of the respondent have access to internet, meaning that more than half of the respondents have social media account and at the same time have access to internet. 64.7% of the respondents responded that social media can affect their performance in chemistry positively. Hence social media can have a positive impact on their academic performance if properly utilized. 82 (54.7%) of the respondents believe that social media can distract them from their studies. 113 (75.3%) of the respondents spend between 1 and 3 hours daily on social media. This is a pointer that social media can have a negative impact on their academic performance if not properly utilized. 19.3% of the respondents have computer, 44% have smart phone, 4.7% have both and 32% have none. This bring to the fore that majority of the students have smart phone. 96 (64%) of the respondents preferred Facebook, making Facebook their most preferred social media network. 103 (68.7%) of respondents agree that students can use Facebook for academic discussions. Therefore Facebook can be a viable tool that can be used to enhance effective teaching and learning. 142 (94.7%) of the respondents agree that students' use social media for finding and interacting with friends, 141(94%) agree that some

students use it for dating, 80 (53.3%) use it for watching movies and 130 (86.7%) agree that some students watch pornography on social media. Only 54 (36%) of the respondents belong to WhatsApp group that share idea about chemistry and only 20 (13.3%) of the respondent indicates that they use social media for their studies. This trend reveals that majority of the students use social media negatively, rather than academic purposes.

The relationship between social media and students' performance gave $r = -.063$. This shows that there is a strong negative correlation between social media usage and students' performance in chemistry. In a similar study by [18] and [19] it was noted that internet addiction is significantly and negatively related to students' academic performance, as well as emotional attributes. [20] in the study he conducted on "the impact of Facebook on undergraduate academic performance", also finds that social media has a negative effect on students' academic performance. [12] conducted a research on the impact of social media on the academic performance of high school students; their result showed that the more students use social media, the more it negatively affects their academic performance. The study carried out by [21] also showed negative relationship between Facebook and the academic performance of students.

The finding however disagrees with [22], [23], [24] which have found on the other hand that social media improve students' academic performance. Hence it can be concluded that social media can have both positive and negative impacts on students' academic performance. The significant levene's test of equality in table 3 is .009, this is smaller than .05. Therefore the lower set of figure is used. It is observed that the p-value in the lower set of value is .65; since this value is above .05 we therefore conclude that there is no significant difference between the usage of social media by male and female students.

Table 4 revealed that 96 (64%) of the respondents prefer Facebook, 32 (22%) prefer WhatsApp, 2 (1.3%) prefers 2go, 11(7.2%) prefer Instagram and 8(5.5%) prefer other social media platform. This result indicates that the most preferred social media is Facebook. The result agrees with the study

carried out by [17] in Abeokuta, Ogun state, it was revealed that Facebook was the most preferred social media among chemistry students in senior secondary school. This also agrees with the observation of [25] in which 750 million young adults worldwide admit they use Facebook, the highest among other social platforms. [26] also supported by declaring that 1000 (90.2% of the respondents) of the first year undergraduates from University of Ibadan use Facebook more than other social media outlets. The opportunities provided by Facebook to the users might have accounted for the prevalence of the site among secondary school students. These opportunities are; ability of the users to create personalized profiles that includes general information such as education background, favorite interests, date of birth, and city. It also provides opportunity to post messages on friends' page, easy to find old friends, post and tag pictures and video among other things.

Since the advent of social media in the mid-1990s many scholars and educationists assert that students' academic performance is drastically reducing due to the neglect, distraction and divided attention between social media and the students' academic activities. It is observed that students give more attention to social media than their studies [27]. Hence, social media is an educational distraction avenue which offers more educational harm to students than benefit. Senior secondary school students nowadays often waste their time chatting in the social media at the detriment of their academic work ([18], [19], [28]). Due to their less activities and commitment in day to day activities of life, female students get more time to participate in the social media chatting than the male students there by making them more vulnerable to social media activities [12]. As such, there are many incidences of murders and gang rapping of girls by guys whom they meet through social media. For instance a young lady of 16 years called Cynthia Okojie was gang raped and murdered by her Facebook friends in Lagos when she visited them, and her nude pictures were displayed on the net by the perpetrators [27]

Conclusion

The study revealed that social media can have negative effect on students' academic

performance if not properly utilized. Also majority of the students do not use social media for academic purpose. This is a wake on call for all stake holders in the educational sector. All hands must be on deck to ensure proper utilization of social media. Parents as major stake holders must monitor what their wards use the social media for. Teachers should also encourage students on proper utilization.

Recommendations

Based on the findings, the following recommendations were made:

- Since majority of the students' use Facebook most, chemistry teachers can create a group on Facebook, that will be for academic discussions, assignment can be posted there, even teachers can upload their lesson notes, they can also upload useful videos on various topics.
- Parents and teachers should monitor and supervise the activities of their children most especially in the areas of internet and social media activities; they should also prevent them from using sophisticated handsets with internet connectivity until after graduation from secondary school.

References

1. M. Salvation, & N. A. Adzharuddin (2014). The Influence of Social Network Sites (SNS) upon Academic Performance of Malaysian Students. *International Journal of Humanities and Social Science*, 4(10[1]), 131-137.
2. P. A. Kirschner., & A. C. Karpinski, (2010). Facebook and Academic Performance. *Computers in Human Behavior*. 26, 1237-1245.
3. J. N. Anjugu. (2013). *Impact of Social Media on Students' Academic Performance (A Study of Students of University of Abuja)*. Unpublished Research Project submitted to the Department of Mass Communication, Faculty of Management and Social Sciences, Caritas University, Amorji – Nike, Enugu, Nigeria.
4. C. E. Okereke, & L. U. Oghenetega, (2014). The Impact of Social Media on the Academic Performance of University Students in Nigeria. *Journal of Education and Practice*. 5(33), 21-24.
5. E. Hargittai, & Y. P. Hsieh. (2010). Predictors and Consequences of Differential Practices on Social Network Sites. *Information, Communication & Society*. 13(4), 515-536.
6. T. Pempek, Y. Yermolayeva, & S. L. Calvert. (2009). College Students Social Networking Experiences on Facebook. *Journal of Applied Developmental Psychology*. 30(3), 227-238.
7. H. N. Eke., C. S. Omekwu, & J. N. Odoh. (2014). The Use of Social Networking Sites among the Undergraduate Students of University of Nigeria, Nsukka. *Library Philosophy and Practice (e-Journal)*, paper 1195
8. F. Englander, R. A. Terregrossa, & Z. Wang, (2010). *Educational Review*, 62(1), 85-96.
9. K. Nalwa, & A. P. Anand. (2003). Internet addiction in students: A cause of concern. *Cyber Psychology & Behavior*. 6 (12), 56-65.
10. P. M Ogedebe, J. A. Emmanuel. & Y. Musa. (2012). A Survey on Facebook and Academic Performance in Nigeria Universities. *International Journal of Engineering Research and Applications (IJERA)*. 2(4), 788-797.
11. D. Fodeman, & M. Monroe. (2009). The Impact of Facebook on our Students. *Teacher Librarian*. 36(5): 36.
12. G. Asemah. & B. Edego. (2012). Social Media and Insecurity in Nigeria: A Critical Appraisal. *Journal of Research and Contemporary Issues*. Vol.7 (1 and 2), 154-167.
13. E. Maloney. (2007). What Web 2.0 can teach us about Learning? *The Chronicle of Higher Education*. 53 (18), Retrieved August, 2012 from: <http://chronicle.com/article/What-Web-20-Can-Teach-Us/8332>.

14. A. Hwang, E. H. Kessler, & A. M. Francesco. (2004): Student Networking Behaviour, Culture and Grade Performance: An Empirical Study and Pedagogical Recommendations. *Academy of Management Learning and Education*.
15. D. Mutz., D. F. Roberts., & D. P. van Vuuren. (1993). Reconsidering the Displacement Hypothesis: Television's Influence on Children's Time use. *Communication Research*, 20
16. S. Neuman. (1991). *Literacy in the television age*. Norwood: Ablex Publishing.
17. M. O. Modupe, (2016). Social Media and Learning Styles as Correlates of Senior Secondary Students' Chemistry Achievement in Abeokuta, Ogun State, Nigeria, *Journal of Sociological Research* Vol. 7, No. 2
18. T. Jeong,. (2005). The Effect of Internet Addiction and Self Control on Achievement of Elementary School Children. *Korean Journal of Yeolin Education*, 76.
19. W. Seo. (2004). Internet Usage and Life Satisfaction of Youths. *Information Policy*, 11.
20. A. Moon. (2011). Impact of Facebook on Undergraduates Academic Performance: Implication for Educational Leaders. (*Unpublished Ph.D Thesis*), Central Michican University.
21. C. Madge, J. Meek, & J. Wellens. (2009). *Facebook*, Social Integration and Informal Learning at University: 'It is more for socializing and talking to friends about work than for actually doing work'. *Learning, Media and Technology*, 34(2), 141-155.
22. J. Pasek, E. More. & H. Eszter, (2009). Facebook and Academic Performance: Reconciling a Media Sensation with data. *First Monday*, 14(5),
23. S. Mehmood, & T. Taswir, (2013). The Effects of Social Networking Sites on the Academic Performance of Students in College of Applied Sciences, Nizwa, Oman. *International Journal of Arts and Commerce*, 2(1), 111-125.
24. A. M. Helou, & N. Z. Ab.Rahim. (2014). The influence of Social Networking Sites on Students' Academic Performance in Malaysia. *International Journal of Electronic Commerce Studies*, 5 (2), 247-254.
25. T. Bryer, & S. Zavattaro. (2011). Social Media and Public Administration: Theoretical Dimensions and Introduction to Symposium. *Administrative Theory & Praxis*, 33(3), 327- 334.
26. A. Titilope, J. M. Olukayode, & O. Olukunle, (2014). Social Media Addiction and Undergraduate Students Self-Perception in University of Ibadan. *African Journal Online*. 13 (1).
27. A. Ndaku. (2013). *Impact of Social Media on the Students' academic performance of University of Abuja Students*. Abuja: University of Abuja.
28. N. Oye, (2012). Students Perception of Social Networking Sites influence on academic performance. *International Journal of Social Networking and Virtual Communication*.

