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**The Impact of Social Networks on Science Students' Academic Performance in Ondo State Senior Secondary Schools, Nigeria**Jethro Oludare OLOJO (Ph.D)<sup>1</sup>, Odunayo Emmanuel POPOOLA<sup>2</sup>, Olufunke O. BORIS (Ph.D)<sup>3</sup><sup>1,3</sup>Department of Science Education, Bamidele Olumilua University of Education, Science and Technology, Ikere Ekiti, Nigeria.<sup>2</sup>Department of Mathematical Sciences, Bamidele Olumilua University of Education, Science and Technology, Ikere- Ekiti, Nigeria.**Corresponding Author\***

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**Abstract:** The objective of this study was to examine the impact of social network usage on science students' academic achievements in Ondo State's senior secondary schools. The study was also to find the extent to which students under investigation used the social network platforms and the frequencies of their visits. In order to achieve this, a structured questionnaire was designed and administered to students from the three senatorial districts that made up the state. A multistage; which involved simple random and purposive sampling approaches was used to select the sample for the study. 150 copies of the questionnaire were distributed; out of which, 148 (98.78%) copies were returned. For the study, four research questions and two research hypotheses were developed. The hypotheses were assessed using the student's - t statistic at 0.05 significant level; using SPSS version 20 while the research questions formulated were evaluated using frequency counts and percentages. The study revealed that Ondo State senior secondary school

science students can efficiently use the social network platforms for academic activities with male students being more proficient than their female counterparts. The study also revealed that the usage of social networks has assisted students to improve their academic performance; irrespective of their classes. Besides, the study showed that Facebook was the most popular of all the social network platforms. To this end, the researcher recommended that teachers, parents, and guidance should monitor the activities of their wards on the social network sites so that they can use the platforms to benefit their lots. Teachers should also use the advantage of students' exposure to social networking to change their teaching methods from traditional one to online teaching.

**Keywords:** Social Network Sites, Academic Performance, Senior Secondary Schools

**Introduction**

Education is one of the most important aspects of development in every way. Without significant investments in human capital, no country can achieve long-term economic progress. People's perceptions of themselves and the world around them are broadened by education. Individuals and society benefit from education because it enhances their quality of life. It improves people's productivity and creativity, as well as their overall well-being. The foregoing emphasized the indispensable roles of Education in

effecting positive changes in the society in order to build and facilitate all-round development of any nation and her citizen. Among many other functions, Education is meant to enhance creativity and objectivity in the child. It develops a child all-round; be it physically, mentally, emotionally, socially, morally, psychologically, and intellectually. Education has widely been seen as an engine of growth and development of any nation and that students form the fulcrum of every educational process and that without a sound academic performance, all innovation in education will be a colossal failure (Achombo, 2010). As a result, every effort should be geared towards maintaining high school standards at all times.

Traditionally, science is seen as the systematic inquiry into the workings of nature with a view to understanding and directing these for human benefits. It is a means of getting facts, principles, and theories. Pember & Humbe (2009) opined that science education is an approach to teaching or training, usually in schools, in order to better one's knowledge of the environment and also to help one becomes more environmentally conscious; so as to develop one's skill of systematic inquiry as well as attitudinal one's characteristics. Science education deals with sharing of science contents and processes with individuals who are not considered traditionally to be a member of the scientific community; students, farmers, market women, or an entire community could be among the individuals (Aina, 2013). Science education in Nigeria focuses on the teaching of science topics, instructional methods, and resolving learner misconceptions about science topics (Olojo & Alake, 2020). Science education is critical to every nation's development, which is why every nation must take teaching and learning in all educational institutions very seriously. Many of the developed world's were able to achieve so much in science and technology because of the attention they give to science education.

Science as a subject in Nigeria secondary schools is categorized into three basic subjects; which are Biology, Chemistry, and Physics. These subjects are very vital to the actualization of Nigeria as a nation and the emancipation of her great potential.

Biology is the study of animals and plants, with an emphasis on structure, function, growth, evolution, and distribution. Biology is the plant and animal life of a specific area. Biology is referred to be the science of life, and it plays a critical part in the lives of all humans. It is extremely diverse, with divisions such as zoology, botany, ecology, genetics, evolution, and more advanced cell biology and molecular biology. Biology is essential in a student's life since it enables him to comprehend the diversity of life forms and their conversation and exploitation through various biological disciplines, people obtain knowledge about life and living organisms and non-living organisms.

Chemistry is a branch of science that investigates the structure and properties of matter and substances, as well as their interactions with humans. The study of protons and neutrons is an example of chemistry. The sensation of affection and attraction between a pair is an example of chemistry. Physics is a discipline of study which concerns with the structure of matter and the interactions among the universe's essential components. It examines everything from the tiniest particles to the entire universe utilizing quantum mechanics and general relativity.

Information and Communication Technology (ICT) has become an important source of innovation and improvement of efficiency for every sector; education inclusive; across the globe. In the Education sector, the application of ICT has become a critical aspect of the teaching and learning process. Without

a question, the entire globe is currently celebrating advancements in communication technology that have broadened the reach of communication through information and communication technology (ICT). ICTs, according to Ufuophu & Ayobami (2012), comprise internet, satellite, cable, and data, as well as computer equipment. The internet revolution has changed the information world with respect to the sharing, storage, and retrieval of information as well as the speed of operation, irrespective of one's location. A number of web technologies have emerged as a result of the internet, including social networks, which are making waves in terms of information sharing and communication.

The use of Internet-based social media platforms to stay in touch with friends, teachers, family, coworkers, customers, or clients is known as social networking. Through sites like Facebook, Twitter, LinkedIn, and Instagram, social networking can serve a social, business, or both purposes ([www.investopedia.com](http://www.investopedia.com)). According to the definition, social networking sites are "websites that promote the establishment of a network of connections in order to exchange various forms of material online." These computer-mediated interactions can help preserve and build new social and professional relationships by connecting members of diverse networks. (Mlaiki, Alya; Walsh, Isabelle; Kalika, Michel, 2017)

Users can use social networking sites to share ideas, digital photographs and videos, postings, and information about online and real-world activities and events with people in their network. While in-person social networking has existed since the beginning of civilization, the internet allows people to connect with individuals who reside in other places, from across a city to across the globe (Obar, Jonathan A.; Wildman, Steve, 2015). Members may be able to contact any other member, depending on the social media platform. They can use a variety of modern information and communication tools on desktops and laptops, as well as mobile devices like tablets and smartphones. They could include online photo/video/sharing and diary entries (blogging).

In recent years, social media has surpassed email as the most popular mode of communication. It provides communication among members, regardless of the distance, so as to share information, files, pictures, videos, as well as create blogs, send messages and conduct conversations in real-time. Interestingly, this evolution has cut across all facets of society with its positive and negative impacts being felt. Social media has had an impact on communication, learning, and research in education. Among the many online communication tools accessible, Social Networking Sites (SNSs) have emerged as the most current and appealing platforms for meeting individuals all over the world (Aghazamani, 2010). As a vital communication route and a source of social support, social networks are critical in learning contexts.

In the learning environment, social networks play vital roles; as an important communication channel as well as a source of social support. Many social networking sites cater particularly to students (Manca & Ranieri, 2017). Social networks enable broad access to knowledge and information resources, eliminate obstacles to group engagement and communication, enhance collaborative learning activities, encourage learners to learn more about self-learning, increase engagement and learners' motivation, enhance engagement of learners with each other and their teachers, and support active and social learning (Keles & Demirel, 2011). Unfortunately, its emergence has created a lot of threats (Avc, Celikden, Eren & Aydenizoz, 2015). If not well managed, they can have negative consequences, both at the individual and

societal levels. According to Schou & Pallesen, (2014), one major drawback of social network usage is social networking addiction

The emergence of social networks as a result of advancement in technology and expansion in internet software is likely to rise amongst scholars and its attendant effects on teaching, learning, and academic performance may be on the increase. It is very common nowadays to see school children insensitive and highly organized places like churches, mosques, and classrooms chatting using their mobile devices. Some are so addicted to its usage to the extent that they even chat when walking on the highways. The manufacturing and availability of sophisticated android phones may likely worsen the situation, as they can now do a lot of transactions on their android phones, in the comfort of their rooms, without visiting cybercafé. Students now spend much of their valuable time on the social network. Often time, they are seen using their mobile phones to communicate and carry out social activities; even during classroom activities; when they are expected to be engaging in things that are both meaningful and beneficial. Nowadays, the attention of students has been shifted from physical/ visible friends to invisible/ online friends while important academic values like reading, studying, learning, and writing have been totally lost. This situation has been a source of worry to stakeholders in education. Students, particularly scientific students, appear to be rapidly diverging, distracted and divided in their focus between academic work and social activities. Consequently, this study aimed at looking at the influence of social networks on the academic achievements of science students at the senior secondary school level of Ondo State, Nigeria.

### **Purpose of the study**

The study's main aim is to examine the effects of social networks on science students' academic performance in Ondo state's senior secondary schools.

The study specifically intended to find out:

1. If Ondo State senior secondary school science students were exposed to social networks.
2. Examined the frequency of exposure of Ondo State senior secondary school science students to social networks.
3. Determine the impact of social media on Ondo State senior secondary school science students' academic performance.
4. Assess the social network that Ondo State senior secondary school science students were mostly exposed to.

### **Research Questions**

The following questions were raised and answered in the research:

1. To what extent were senior secondary school science students in Ondo State exposed to the social network?
2. What were the frequencies of the usage among Ondo State senior secondary school science students who were exposed to the social network?
3. What effect did social media activities have on the academic achievement of scientific students in Ondo State senior secondary schools?
4. What were the common social network sites that Ondo State senior secondary school science students often visit?

## Hypotheses

The following null hypotheses were tested in the study:

HO<sub>1</sub>: There is no significant difference in the mean rating of science students in Ondo state senior secondary schools on the use of social networks with respect to gender.

HO<sub>2</sub>: There is no significant influence of the social network on the academic performance of Ondo State senior secondary school science students with respect to their class.

## Literature Review

The advent of social network platforms such as Twitter, Facebook, and Instagram represents a new phase of revolution and development in the globalized world Ngonso (2019). A social network is a form of electronic communication which facilitate interaction based on certain interest characteristics. Kaplan & Haenlein (2010) defined social networking as an assembly of web-based applications that are developed on the ideological and technological foundations of Web 2.0 which permits users to produce and allocate content. It relies on mobile and web-based technology to provide highly interactive platforms that allow individuals, communities, and groups to share, discuss, co-create, and alter user-generated content.

Social network usage cuts across all age groups. Studies have shown that its usage is more rampant among teenagers and youths (Onuoha & Saheed, 2011). Supporting this claim, Rosen (2011) found (out in his study that children born between 1965 – 1979 (i.e. Generation ‘X’) on approximation spend about 13 hours per day on social network platforms; while those born between 1990 – 1999 (i.e. I Generation) spend not less than 20 hours per day on social network platforms. It is not uncommon nowadays to see teenagers and youths in organized places like churches, mosques, classrooms, market places, and the like, spending hours surfing the net, engaging themselves in chatting and socializing on different social network platforms. It is also very common to find secondary students spending their quality time on social network platforms chatting with their friends and loved ones instead of engaging themselves in reading and research. The resultant effect of this attitude of students is an incessant failure in West African School Certificate and related Examinations. According to David (2014), the use of social media like Facebook, YouTube, and WhatsApp by business education students is resulting to their poor performance in their academic performance. The study of Nwazor & Godwin - Maduiké (2015) revealed that students of Business Education studies in South-East Nigeria used social networking only for socializing; as they mainly used them to get connected to family and friends. They also found that the most common social network site was Facebook. Similarly, Ngonso (2019) found that Facebook was the most popular social network among teenagers and youths who lived in rural areas in Nigeria. The study also showed that teenagers and youths were addicted to social network usage.

Many secondary school students in Nigeria have become so addicted to online interactions to the extent that they cannot do without using social network platforms in a day. Many of them were of the opinion that while on social networks platforms, they are able to stay connected with friends, find jobs, find business opportunities and solutions to health-related issues as well as wellbeing. If the time spent on social networks platforms are well regulated and managed, they can be efficient ways for Education. This is because social networks can be veritable instruments for online teaching and a sure way to develop communication skills and raise students’ learning skills. It can also be a source of encouragement to students for greater social interaction via the electronic medium, provide greater access to information

and information sources, create a sense of belonging among users, reduce barriers to group interaction and communication and increase the technological competency levels of frequent customers (Connolly,2011; Zwart, Lindsay, Henderson& Philips, 2011).

If, however, school children are not properly monitored, they may misuse social networks platforms; the consequence of which could be grievous. For example, social networks' abuse could lead to a great distraction which may negatively affect students' learning and comprehension of students in class; which may eventually result in academic dishonesty. For example, Ali et al (2017) opined that high exposure of teenagers and youths to social networks is associated with a lot of risks. Ali et al (2017) also found that two-thirds of the population of the students have a lower grade in their examinations because of the use of social media during class hours. Other negative impacts of social network abuse by teenagers and youths include hacking, identity theft, phishing scams, and exposure to pornographic materials (Ngonso, 2019). In a study carried out by Amadi & Ewa (2018), it was found that the use of social network Platforms did not have any positive effects on students of Rivers State University; instead, it only distracts and displaces them from their academic studies.

This study, therefore, is set to ascertain the extent of exposure and the effects of social network platforms on the academic performance of senior secondary science students in Ondo State, Nigeria.

### **Methodology**

The research design for this study is the descriptive research of survey type which seeks to find out the influence of social networks on the academic accomplishments of senior secondary school science students in Ondo state of Nigeria.

This method is appropriate for the study because a descriptive survey seeks to find out certain facts concerning an existing phenomenon. According to Azuka et al (2013), the descriptive survey is a study which reports things exactly the way they are in any systematic manner; to describe and explain what is in existence or non-existence on the present status of a phenomenon being investigated. This method is used because the study intends to elicit the opinions of the respondents on the use of social networking platforms among senior secondary schools in Ondo State, Nigeria. The study was also to find the influence of social networks on the academic performance of science students. Besides, an inferential statistic that allows comparison of means was used to test the research hypotheses that were formulated.

The population of the study was made up of all the SS2 and SS3 students in all the public schools in Ondo State, Nigeria. A multistage sampling approach was used. Firstly, a random sampling technique was used to select three schools used for the research (one school was selected from each senatorial district). Thereafter, a purposive sampling approach was used to select science students in SS2 and SS3 from each of the selected schools. Finally, a random sampling method was used to select One Hundred and Forty-five (150) students used was for the research.

### **Research Instrument**

The instrument for the research was a structured questionnaire designed by the researcher; based on some perceived social networks usage attributes such as students' exposure to social network sites, frequencies of usage by students, influence of social networks usage on students, and popularity of social networking

sites. The questionnaire was made up of two sections A and B. Section A consists of items aimed at eliciting information on respondents' personal information; such as the name of the school, Class, and age – range. Section B consists of items arranged in a five-point Likert scale format of Strongly Agree (SA), Agree(A), Disagree(D), Strongly Disagree(SD), and Undecided (UD).

### Validity of the Instrument

Both the face and content validity approaches were used to establish the instrument's validity. These were ascertained by test and measurement experts from the Department of Science Education of the University of Education, Science, and Technology, Ikere; Ekiti State; Nigeria. The construct validity and reliability was determined by the researcher using Cronbach Alpha formula. The result of the estimate was 0.72; an index considered to be high and significant enough for this type of study.

### Data Analysis

The data collected were analyzed both descriptively and inferentially. The data was analyzed descriptively using frequency counts and percentages to answer the research questions raised, while students' – t statistic was used to test the hypotheses formulated at 0.05 significant level; using SPSS version 20.

### Results

**Table 1: To What Extent Were Senior Secondary School Science Students in Ondo State Exposed to Social Network?**

A	Students' Exposure to Social Network Platforms	SA (%)	A (%)	D (%)	SD (%)	UD (%)	MEAN	D
1	I use Social Network Platforms	84(56.8)	55 (37.2)	07(4.7)	0(0.00)	02(1.4)	3.48	.714
2	I use Social Network platforms for academic purpose	65 (43.9)	74 (50.0)	07(4.7)	0(0.00)	02(1.4)	3.35	.699
3	I use Social Network platforms for social activities only	15 (10.1)	29 (19.6)	92(62.2)	10(6.8)	02(1.4)	2.30	.797
4	I met most of my friends on Social Network platforms.	60 (40.5)	63(42.6)	13(8.8)	9(6.1)	03(2.0)	3.14	.952
5	I am an active participant on Social Network platforms and I use most of their features	42 (28.4)	65 (43.9)	30 (20.3)	02(1.4)	09(6.1)	2.87	.034

Table 1 showed the responses to students' exposure to social network platforms. The table has a mean range of (2.87 – 3.48) and a standard deviation of (0.699 – 1.034). The analysis of the item revealed that (94.0%) of the respondents indicated that they used social network platforms while (4.7%) of the respondents indicated their non – usage of the social network. (1.4%) of the respondents, however, indicated their indifference to the usage of social network platforms. The analysis equally showed that (93.9%) of the respondents indicated that they used social network platforms for academic purposes only; while (4.7%) indicated that they did not use the platforms for academic purposes. However, (1.4%)

showed indifference about the usage for academic purpose. Item number 3 in the table revealed that (29.7%) of the total respondents indicated that they used social network platforms for social activities only; while (69.0%) of the respondents indicated their non – usage of social networks for social activities. (1.4%) however, were undecided on the usage of social network platforms for social activities only. The table also revealed that (83.1%) of the respondents claimed they met most of their friends on social media sites, (14.9%) indicated that they did not meet most of their friends on social network platforms while (3.2%) were neutral. The table also showed that (72.3%) of the respondents agreed that they were active participants on the social network platforms and that they used most of the features. Whereas (21.7%) of the respondents said that they were neither active participants on social network platforms nor used their features; (6.1%) showed indifference to the claim.

From the foregoing, one could conclude that a larger percentage of the senior secondary school science students in Ondo State were users of social network platforms, who used available features for both academic and social activities.

**TABLE 2: What Were the Frequencies of the Usage among Ondo State Senior Secondary School Science Students Who Were Exposed to Social Network?**

B	Frequencies of the Usage of Social Networks	SA (%)	A (%)	D (%)	SD (%)	UD (%)	MEAN	D
1.	I can't do without using the Social Network platforms in a day	17(11.5)	51(34.5)	61(41.2)	25(9.5)	05(3.4)	2.42	993
2.	I spend a minimum of six (6) hours on Social Network platforms daily	06(4.1)	30(20.3)	84(56.8)	25(16.9)	03(2.0)	2.07	.783
3.	My first activity each day is to visit the Social Network platforms	03(2.0)	43(29.1)	72(48.6)	25(16.9)	05(3.4)	2.09	819
4.	I feel very comfortable if only I have visited a Social Network platform in a day.	34(23.0)	54(36.5)	40(27.0)	18(12.2)	02(1.4)	2.68	.005
5.	I make sure I visit at least one social network site in a day	38(25.7)	59(39.9)	42(28.4)	05(3.30)	04(2.7)	2.82	946
6.	I visit Social Network platforms anytime of the day(including nights).	23(15.5)	75(50.7)	35(23.6)	04(2.7)	11(7.4)	2.64	.024

Table 2 showed the responses of students to their frequencies to the usage of social network platforms. The table has a mean range of (2.07 – 2.82) and a standard deviation of (0.783 – 1.024). From the analysis of the items, it could be seen that (46.0%) of the respondents indicated that they cannot do without using the social network in a day; (50.7%) indicated that they can do without using a social network platform in a day; while (3.4%) show indifference to the daily usage of social network platforms. The analysis in the table also showed that (24.4%) of the total respondents agreed that they spent a minimum of six hours (one-quarter of a day) on social network platforms in a day; (73.7%) indicated that they did not spend as much as six hours daily on social network platforms while (2.0%) were neutral to this attitude. The table also showed that (31.1%) of the respondents claimed that their first activity each day was to visit social



network platforms; (65.5%) indicated they had other activities as their first assignment each day while (3.4%) did not indicate their position. The analysis of items also revealed that (59.5%) said that they became comfortable only if they have used a social network in a day; (39.2%) said that they were comfortable even if they have not used a platform in a day while (1.4%) were neutral to this claim. The analysis also revealed that (65.6%) indicated that they must visit at least a social network site in a day; (31.7%) said they can do without visiting any social network platform in a day while (2.7%) of the respondents showed indifference. The analysis on the table equally revealed that (66.2%) of the respondents claimed they can visit social network platforms anytime any day while (26.3%) were conscious of the time of their visit. However, (7.4%) were neutral to this statement. The summary of the analysis showed that Ondo State students' frequencies of usage of social network platforms was moderately high. It also showed they are becoming addicted to the usage.

**Table 3: What Was the Influence of Social Network Activities on The Academic Performance of Ondo State Senior Secondary School Science Students?**

C	Influence of Social Network Networks on Students	SA (%)	A (%)	D (%)	SD(%)	UD(%)	MEAN	SD
1.	The usage of social networks has influenced me to be more interested in studying science subjects	64 (43.2)	57 (38.5)	15(10.1)	03(2.00)	09(6.1)	3.11	1.076
2.	I used Social networks web pages to be in touch with teachers and students for academic purposes	60 (40.5)	53 (35.8)	31(20.9)	03(2.00)	01(0.7)	3.14	0.862
3.	Social media networks has contributed to improving my direct communication with other students and teachers	64 (43.2)	71 (48.0)	09(6.1)	03(2.00)	01(0.7)	3.31	0.736
4.	Social networks have equipped me with versatile tools of knowledge of exchange and collaboration	48 (32.4)	80 (54.1)	15(10.1)	00(0.00)	05(3.4)	3.12	0.848
5.	Social networks increase my self – direct learning skills	50 (33.8)	81 (54.7)	11(7.4)	02(1.4)	04(2.7)	3.16	0.831
6.	The usage of social network platforms have assisted me to improve academically	70 (47.34)	46 (31.1)	03(2.00)	01(0.7)	28(18.9)	2.87	1.490

Table 3 showed the responses of students to how social network usage has influenced them. The table has a mean range of (2.87 – 3.31) and a standard deviation of (0.736 – 1.470). The analysis of the item revealed that (81.7%) of the respondents indicated that their usage of social networks has aided them to be more interested in studying science subjects while (12.1%) of them indicated that their usage of the platforms has not influenced them to studying science subjects. However, (9.1%) were neutral. Also, the study indicated that (76.3%) of the respondents claimed that they used social network sites to keep in touch with their teachers and other students for academic purposes, (22.9%) of them indicated that were not using the platforms to keep in touch with their teachers and peers for academic purposes while (0.7%) remained neutral. The result of the analysis item further revealed that (91.2%) of the participants claimed that their usage of social networks has positively improved the way they communicated with their teachers and other students; (8.1%) disagreed with the claim while (0.7%) remained indifference. The analysis of the item

also revealed that (86.5%) of respondents agreed that their social network usage had equipped them with necessary tools of knowledge of exchange and working in collaboration with others, (10.1%) of the participants disagreed with this claim while (3.4%) remained neutral. The analysis of item further showed that (88.5%) of the respondents claimed that their social network usage has increased their self-direct learning skills; (8.8%) of them indicated that social network usage has not improved their self-direct learning skills while (2.7%) of them were neutral. The table also showed that (78.4%) of the participants indicated that their usage of social networks has improved them academically; (2.7%) indicated that its usage has not improved them academically while (18.9%) failed to take a definite position. From the foregoing, one could submit that Ondo State senior secondary students use social network platforms for profitable activities.

**Table 4: What Were the Common Social Network Sites that Ondo State Senior Secondary School**

D	Popular Social Network Sites	SA(%)	A(%)	D(%)	SD(%)	UD(%)	MEAN	SD
1.	I use Facebook	80(54.1)	67(45.3)	00(0.0)	01(0.7)	00(0.0)	3.53	0.540
2.	I use WhatsApp	60(40.5)	66(44.6)	16(10.8)	04(2.7)	02(1.4)	3.20	0.841
3.	I use Instagram	40(27.0)	46(31.1)	51(34.5)	06(4.1)	05(3.4)	2.74	1.011
4.	I use Twitter	23(15.5)	27(18.2)	71(48.0)	19(12.8)	08(5.4)	2.26	1.044
5.	I use YouTube	43(29.1)	78(52.7)	20(13.5)	04(2.7)	03(2.0)	3.04	0.848
6.	I use instant Messenger	63(42.6)	66(44.6)	14(9.5)	04(2.7)	01(0.7)	3.26	0.792
7.	I use other social Network sites not mentioned here.	37(25.0)	36(24.3)	47(31.8)	20(13.5)	08(5.4)	2.50	1.164

Table 4 showed the responses of respondents to their favorite social network sites. The table has a mean range of (2.26 – 3.53) and a standard deviation of (0.540 – 1.164). The analysis of the items revealed that (99.4%) of the respondents claimed that they used Facebook, while only (0.7%) indicated that Facebook was not their favorite. The table equally revealed that of the total respondents, (85.1%) indicated that they used WhatsApp, while (13.5%) indicated their non-usage of the WhatsApp platform. However, (1.4%) indicated indifference to the usage. Also, from the table, one could see that (58.1%) of all the respondents indicated that they used Instagram; (38.6%) indicated that they were not its users while (3.4%) were neutral. The analysis of items in the table also showed that (33.7%) of the entire respondents indicated that they used Twitter, (60.8%) indicated they have never used it, whereas (5.4%) did not take a definite position. The table also revealed that (81.1%) of the respondents said they were users of YouTube, (16.2%) said that YouTube was not their favourite, whereas (2.0%) were neutral. The analysis equally revealed that (87.2%) of the respondents agreed that they used the instant Messenger, (12.2%) disagreed with this claim; while (0.7%) showed indifference to the claim. The table also revealed that (49.3%) of the respondents claimed they used other social network platforms not mentioned here; (45.3%) said they did not visit other network sites while (5.4%) remained neutral. From the foregoing, one could see that of all the social network sites stated in this study, Facebook was the most popular social network site among senior secondary school science students in Ondo State. This was followed by instant Messenger, then by WhatsApp, YouTube, next was Instagram, followed by other networks, and finally, by Twitter.

**H<sub>01</sub>: There is no significant difference in the mean rating of science students in Ondo State senior secondary school on the use of social networks with respect to gender.**

**Table 5: T-test analysis of mean rating of science students on the use of social networks with respect to gender.**

Gender	N	Mean	SD	df	t <sub>cal</sub>	t <sub>tab</sub>	Remarks
Male	49	3.24	0.879	145	3.46	1.96	S
Female	98	2.67	1.063				

P < 0.05      S= Significant

Table 5 showed that male students' mean score rating (3.25) is higher than female students' mean score rating (2.67) with a mean difference of (0.57) which is marginal. The measure of variability has a difference of (0.184). The table revealed that the calculated value (3.46) at the 0.05 level of significance, is greater than the table value (1.96). This implies that there was a significant difference in the mean rating of science students in Ondo State Senior Secondary School on the use of social networks with respect to gender; in favour of the male students. This implies that Ondo State male science students use social networks than their female counterparts

**H<sub>02</sub>: There is no significant influence of social networks on the academic performance of Ondo State senior secondary school science students with respect to their classes.**

**Table 6: T-test analysis of mean rating of science students on the influence of social networks with respect to classes.**

Classes	N	Mean	SD	df	t <sub>cal</sub>	t <sub>tab</sub>	Remarks
SS2	24	2.71	1.288	144	0.53	1.96	NS
SS3	122	2.89	1.500				

P < 0.05      NS= Not Significant

Table 6 indicated that the mean score rating of SS2 students (2.71) is higher than the mean rating of SS3 students (2.89) with a mean difference of (0.18) which is marginal. The measure of variability has a difference of (0.312). The table further revealed that the t – calculated value (0.53) is less than the table value (1.96) at 0.05 level of significance. This implies that there was no significant difference in the mean rating of science students in Ondo State senior secondary school on the influence of social networks on their academic performance with particular reference to their classes. In order words, the academic performance of students in SS2 was not better influenced than those of their counterparts in SS3 when exposed to social networks usage. This means that both students' performance in SS2 and SS3 were equally influenced by the usage of social networks.

### Discussion of Findings

The findings of this study showed that Ondo State senior secondary school science students were active users of social networking sites. The study also revealed that the students under investigation were used to the main features on the social network platforms. The findings of this study equally revealed that Ondo State students' frequencies of usage of social network platforms was moderately high. This result implied that if these students are not well monitored, they may be addicted to social network usage. Also from the results of this study, it was found that Ondo State senior secondary school science students used social network platforms for profitable social and academic activities. This is because most of the students under investigation claimed they used social network platforms to better their lots in both social

and academics. The findings also showed that Facebook is the most popular social network site among Ondo State senior secondary school science students. This is followed by instant Messenger, then by then WhatsApp, YouTube next is Instagram, followed by other networks, and finally, Twitter. One of the tested hypotheses showed a significant difference in the mean rating of science students in Ondo State Senior Secondary School on the use of social networks with respect to gender; in favour of the male students. This implies that Ondo State male science students used social networks more than their female counterparts. The other hypothesis resulted into a non-significant difference in the mean rating of science students in Ondo State senior secondary school on the influence of social networks on their academic performance with respect to their classes. In order words, the academic performance of students in SS2 was not better influenced than those of their counterparts in SS3 when exposed to social networks usage. This means that both students' performance in SS2 and SS3 were equally influenced by the usage of social networks.

The outcomes of this study is in agreement with the previous findings of Nwozor and Godwin – Manduiké (2015) and Ngonso (2019) who found that teenagers and youths were effective users of social network sites, and many of them spent their profitable time chatting on social network platforms. They also discovered that Facebook was the most widely used social networking site. However, the findings of this study are at variance with those of David (2014), Nwazor & Godwin – Maduiké (2015), Ali et al (2017), and Amadi & Ewa (2018) who found that the usage of social network sites usually resulted in poor academic performance of students because they only used the sites for socialization. The difference in the findings may be as a result of the interest of individual students and the environment where the research was conducted.

### **Conclusion**

The study revealed that Ondo State senior secondary school science students can effectively use social network sites; especially; Facebook. Though many of the students under investigation have improved on their academic performance as a result of their usage of social network platforms, it is worrisome, however, that close to 20% of them still use the sites for activities that are not academically inclined. In view of the fact that the age bracket of students under investigation falls within teenagers and youth, one would have expected that students of this age group take advantage of these platforms for the exchange of academic materials; keep in touch with their teachers and fellow students for academic purposes.

### **Recommendations**

Based on the findings of this study, it is hereby recommended as follows:

- 1) Teachers, parents, and guidance should monitor the activities of their wards on the social network sites they use so as to know what they do on them at a particular time with a view to correcting them where necessary.
- 2) Teachers should take advantage of students' exposure to social networking to change their traditional teaching methods to blended and online learning.
- 3) Students should be encouraged to reduce the time they spend on social network platforms; and use more time for more profitable academic activities; such as reading, writing, doing online academic discussions and assignments, etc.

- 4) Teachers should help students create/advise students to create academic groups on social network platforms; where academic issues could be discussed among group members.

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