# The Influence of Social Media on Academic Achievement of Higher Education Students in Science and Technology Education

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**ABSTRACT**
The influence of social media on academic achievement of students was investigated. Survey research design was employed. The study was carried out in Anambra State of Nigeria. The population of the study comprised of all the tertiary institutions in Anambra State offering Science Education. A simple random sampling with replacement was used to draw the sample. 300 students and 30 lecturers were sampled. 330 subjects were therefore used for the study. Three research questions were answered and one hypothesis was tasted. The instrument used for the data collection was questionnaire prepared by the researcher, which utilized 4-point likert rating scale. Data generated was analyzed using mean, and t- test. The result of the study showed that students often engage on social media during lecture periods, social media exerts negative influence on academic achievement of Science Education students. Social media has positive influence on the acquisition of entrepreneurial skills in Science Education. It was then concluded that the use of camera phones should be abolished during lecture periods.

**INTRODUCTION**
Social media are computer- mediated tools that allow people to create, share or exchange information, career interest, ideas and pictures/videos in virtual communities and networks. Social media is a modern means of communication that arises as the need of man keeps increasing. Social media has become an integral part of students' social life, because in a changing world of today basic knowledge of information and communication technology (ICT) is essential for an individual to be able to access and apply information, (park, 2007). These networks have become important as they serve as platforms for user to interact and relate with their peers. Social networks are now seen as learning platforms

or communities that could be utilized to enhance student's engagement and performance. Most students tend to learn more effectively when they interact with the other learners through e-technological or computer aided gadgets, (Noah, 2002).

Some of the social media sites include: face book, twitter, whatsapp, snapchat, weibo, myspace, instagram, netlog, palmchat, BBM etc. Electronic learning or some of these multimedia packages can be used for collecting, storing, editing and the use of computers, salollites, online self-learning packages, tele-presence system, interactive while boards, data projectors, video cassette recorder, internet optical fiber technologies and all types of information technologies (IT) hardware and software, (Adebayo, 2002) .

These ICT will help create more access to information and experience through global network and pool of knowledge, (Esu, 2010). The world is moving through the information super high way with network of computers that enable one to obtain relevant information technology (IT), required for learning in this computer age, (Onuigbo and Onuigbo, 2006).

Young people are motivated to join these social networks to keep strong ties with friends, to strengthen ties with new people and to meet new people online (Acquisition and Gross, 2006). Sited like facebook allow them to exchange new ideas and issues both public and private. About 65% of facebook users login their account daily in several times to see if they have new messages. Students spend a lot of time on these media at the detriment of their academic work. Some students chat even during lectures, at night, in fact they spend most of their quality time chatting on social media.  Science and technology Education students needs quality time and devotion. Science and Technology have proved significantly useful in man's daily struggle to control his environment and build a virile world. Specifically, Jejede and Brown (1998) opined that sound national development emanate mainly from areas of science and technology. Okeke (2007) states that science and technology are like two inseparable twins.

Some people think that science and technology mean one and the same thing. Science is a way of knowing that involves the pursuit of the understanding of natural and physical world. It results in a body of knowledge obtained through

inquiring which is aligned with observation, experimentation and prediction. Science is also a way of thinking that promotes an attitude of objectivity, self examination and a search for evidence. It is an activity culminating into a testable, falsifiable and verifiable body of knowledge. Technology on the other hand is an applied science, not science. It was derived from the Greek word. "Techne" and "Logos". The former means the art, craft or skill, while the later means knowledge. Therefore technology can be defined as a systematic knowledge of industrial arts. It translates scientific knowledge to benefit mankind; they are inseparables, yet unidentical twins and interdependence. (Chukwuneke 2010). Most developing nations now make frantic efforts to improve on the study of science and technology as a result of the role it plays in national development. 9-3-4 system of education in Nigeria focused on self reliance and sustainable national development and is built around science and technology. Without sound knowledge and wholesome attitude towards science and technology the much needed and vouched technological breakthrough may not be achieved. ( Nwagbo, and Okoro 2012). In fact to be a scientist, one needs to develop mind of inquiring. This is because science is inquiry, for fact finding, there are sets of process skills which a scientist needs. Some of the skills are ability to: Observe, measure, compute numbers, classify, communicate, predict, infer, use space-time relationship, make operational definitions, formulate models, collect data, interpret data, manipulate variables, formulate hypothesis, set up experiments, make recordings, make drawings, label drawings, annotate drawings etc. Apart from the above skills, (competencies) of science, there are different kinds of attitudes which a person needs to have in order to be a scientist, and a successful one. The attitudes are called scientific attitude and they include the followings: Objectivity, Curiosity, open- mindedness, desirous and respectful of theoretical models, skepticism, so as to withhold judgment until sufficient data are obtained, accuracy and hence willing to cross- check result, liberal and hence ready to help other scientist with their investigations where and when punch help is required, honestly and hence ready to record exactly what was observed, critical mindedness so as to be ready to welcome and also give constructive criticism, humility, and rationality; (Chikobi, Chukwuneke B.U, Okoye 2004).

These attitudes and skills are very vital for the realization of the full potential of an individual that has passed through science Education programmed so as to

produce graduates who will be able to apply knowledge to transform the society using science and technology as a tool. These scientific skills and attitudes are very necessary in order to make a career in science in general and science education in particular and also to achieve maximally in the discipline. The over use of social media may be a factor in the present under achievement and examination malpractice in tertiary institutions. According to Okoli, (2009) that tertiary education, the ivory tower, custodian of academic standards has become the surveyors of examination malpractice, which invariably leads to student's poor performance in their course of study, (Ukoh, 2008).

The questions now is whether this social media which takes most of the students time can improve achievement or can it lead to under achievement of science and technology education students. At the instance of these, the present study therefore goes to study the influence of social media on academic achievement of science education students.

## STATEMENT OF THE PROBLEM

There have been repeated reports of student's underachievement in both secondary and tertiary institutions, (Ukoh, 2008). Students are no longer interested in reading books, but cheat to pass examinations. Examinations Malpractice has become the order of the day. The Nigerian Educational System is in a dilemma because many parents have failed, to pass on cherished values of hard work and honestly to their children. Many students having witnessed the high level of corruption and dishonestly in Nigeria especially through social media have developed very strong apathy towards school education. Examination malpractice has reached unprecedented level and may be as a result of over engagement in social media, (Osasebor and Oribhabor, 2013, Adesulu, 2010 and Orude, 2012). Reading culture has drastically reduced among our students in tertiary institutions may be because most of the quality hours are spent on social media. It is possible that banning of camera phones at all levels of education, may help, to reverse the ugly trend. At this instance, the present study goes to find out the influence of social media on academic achievement of students.

## Purpose of the Study

The study aims at investigating the influence of social media on academic achievement of science and technology education students. Specifically the study goes to investigate the following:

1. Whether students engage on social media regularly.
2. Whether social media influence academic achievement of science and technology education students.
3. Implications of social media on the acquisition of entrepreneurial skills among science and technology education students.

## Research Questions

The following research questions were answered.

1. How often do students engage on social media during lecture period.
2. How has social media contributed to academic achievement of Science and Technology Education students in tertiary institution.
3. What are the implications of social media on the acquisition of entrepreneurial skills in science technology education.

## Hypothesis

Ho: There is no significant difference in the mean response of students and lecturers on the influence of social media on academic achievement.

## METHODOLOGY

Survey research design was used. The study comprised of all the tertiary institutions in Anambra State offering science education. A simple random sampling technique (balloting by replacement) was used. Fifty (50) students and five (5) lecturers were selected from each of the six (6) institutions. A total sample size of 330 subjects was therefore used.

Questionnaire for data collection constructed by the researcher utilized the modified 4 point likert- type scale of strongly agree (SA) 4 points, Agree (A) 3points, Disagree (D) 2points and strongly Disagree (SD) 1point. The instrument was validated by three experts in educational Measurement and Evaluation. For obtaining the reliability of the instrument, Cronback Alpha was used and a reliability coefficient of 0.82 was obtained. The researcher considered that a good reliability characteristic. The instrument was personally

administered to the respondents in their schools with the help of two research assistants. All the 330 copies of the instrument were completed and returned. Data generated were analyzed using mean for the research questions and t-test for the hypothesis at 0.05 level of significant. In the analysis of data, while a mean score of 3.50 and above was accepted as "always" for question I and "Strongly Agree" for questions 2 and 3. A mean score of more than 2.50 but less than 3.50 was accepted as "Often for question 1 and Agree for questions 2and 3. Mean values of 1.50-2.50 was accepted as Rarely" for question 1 and "Disagree" for question 2and 3. Mean values of less than 1.50 was accepted as "Never" for question 1 and Strongly Disagree for question 2 and 3.

## DATA ANALYSIS AND RESULTS

**Research question 1**: to what extent do students engage on social media during lecture periods?

**Table 1: Mean Rating of the Extent to which Students Engage on Social Media During Lecture Periods**
N=330

| Question item | | | | | | | | | Summary of respondent rating. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| To what extent do students engage on social media during lecture period. | Always | point | often | point | rarely | Point | never | point | **TR** | **AMR** | **Remark** |
| | 49 | 196 | 252 | 756 | 19 | 38 | 10 | 10 | **1000** | **3.03** | often |

**Key**
N=Number of respondents
TR=Total rating of subjects
AMR= Arithmetic mean rating for subjects.
In table 1, the arithmetic mean rating is 3.03 and is accepted as often. This shows that students often engage on social media during lecture periods.

**Research Question 2:** What are the influences of social media on academic achievements of Science and technology education students in tertiary institutions?

## Table 2: Mean Rating of the Influence of Social Media on Academic Achievements of Science Education Students in Tertiary Institutions

| S/N | | SA | A | D | SD | X | Decision |
|---|---|---|---|---|---|---|---|
| 1. | Students who engage often in social media has reduced focus on learning and retaining. | 420 | 627 | 18 | 06 | 3.24 | Agree |
| 2. | Students who attempts to multi-task, checking social media sites while studying show reduced academic performance. | 404 | 606 | 50 | 02 | 3.21 | Agree |
| 3. | Students ability to concentrate on academic work is significantly reduced by the distractions that are brought about by YouTube, stumble upon, Facebook, Twitter, Whatsapp etc. | 800 | 318 | 42 | 03 | 3.52 | SA |
| 4. | The more time students spend on social sites the less time they spend on academic work. | 416 | 678 | 00 | 00 | 3.31 | Agree |
| 5. | Students who spend a great deal of time on social networking are less able to effectively communicate in class. | 384 | 300 | 182 | 43 | 2.75 | Agree |
| 6. | The popularity of social media and the speed at which information is published has created a lax attitude towards proper spelling and grammar. | 384 | 372 | 198 | 21 | 2.95 | Agree |
| 7. | It reduces a student ability to effectively write without relying on a computer's spell check features. | 396 | 426 | 168 | 05 | 3.01 | Agree |
| 8. | Most students don't constantly evaluate the content they are publishing online which can bring about negative consequences months or years down the road. | 224 | 273 | 284 | 41 | 2.49 | Agree |
| 9. | Social media engagement support a culture of avoidance which operates in direct opposite to the idea that students need to take risks and fail in their academic endeavors to become successful innovators. | 424 | 606 | 42 | 01 | 3.25 | Agree |
| 10. | Social media tools focus on brief, quick, shallow interaction that do not encourage deep intellectual exploration. | 396 | 567 | 84 | 00 | 3.17 | Agree |
| 11. | Students who engage on social media so often can subvert higher-order reasoning processes concentration and persistence necessary for critical thinking and intellectual development. | 392 | 600 | 64 | 00 | 3.20 | Agree |

| 12. | Heavy internet users are less patient, less in tenacity and weak in critical thinking skill. | 804 | 297 | 48 | 06 | 3.50 | SA |
|---|---|---|---|---|---|---|---|
| 13. | Prolonged use of social media exposes students to interactive, repetitive and addictive stimuli that produce permanent changes in brain structure and functioning damaging their learning skill. | 324 | 450 | 172 | 13 | 2.90 | Agree |
| 14. | The more one uses the social media, the better the brain can skim and scan, and these gains degrade the capacity for concentration. | 808 | 306 | 48 | 02 | 3.52 | SA |
| 15 | Some students may tend to use these social media sites till midnight or even more which can obviously lead to health related problems leading to academic failure. | 396 | 567 | 81 | 03 | 3.17 | A |
| 16. | Excessive use of social media can affect both mental and physical health of an individual. | 804 | 294 | 56 | 02 | 3.50 | SA |
| 17 | Social media affects the students written English by shortening the words they intend to type which leads to forgetting the actual spelling of the word in question. | 192 | 372 | 08 | 04 | 1.74 | DA |
| 18 | Students spent 12 hours on the average daily on social media and this can cause sleeping problems psychological disorders. All these depletes their academic performance. | 796 | 360 | 16 | 03 | 3.56 | SA |
| 19. | Most times students are exposed to illicit acts through social media, like watching pornographic movie, pictures, drugs abuse, internet fraud etc. all these acts destroys the academic performance of the students. | 712 | 450 | 04 | 00 | 3.53 | SA |

Table 2 above shows that all the respondents agree on all the points presented above with mean scores of above 2.50, except item 17 with mean score of 1.74 which they disagree with the item.

The cluster mean is 3.13 which show that social media exerts negative influence on academic achievement of science education students in tertiary institutions. Research question 3: what are the implications of social media on acquisition of entrepreneurial skills among Science and Technology Education students?.

## Table 3: Implications of Social Media on the Acquisition of Entrepreneurial Skills in Science Education

| | Question items | SA | A | D | SD | X | Design |
|---|---|---|---|---|---|---|---|
| 1. | Social media can facilitate learning skill development outside formal learning environment by supporting per-to-peer learning of knowledge and skills. | 712 | 450 | 04 | 00 | 3.53 | SA |
| 2. | Social media has increased the rate and quality of collaboration among students. | 792 | 496 | 08 | 04 | 3.93 | SA |
| 3. | Students can communicate meeting times and share information quickly on social media which can increase productivity and help them learn how to work well in groups. | 808 | 408 | 48 | 02 | 3.83 | SA |
| 4. | Social media networking teaches skills they will need to survive in the business world. | 796 | 480 | 10 | 03 | 3.90 | SA |
| 5. | Being able to create and maintain connections to many people in many industries is an integral part of developing or building a business. | 80 | 100 | 400 | 105 | 2.07 | D |
| 6. | By spending so much time working with new technologies students develop more familiarity with computers and other electronic devices. | 804 | 392 | 56 | 02 | 3.80 | SA |
| 7. | The increased focused on the technology in social media will help students build skill that will aid them throughout their lives. | 220 | 180 | 372 | 45 | 2.47 | D |
| 8. | The case with which students can customize their profile makes them more aware of the basic aspects of design and layout that are not often taught in schools. | 324 | 450 | 172 | 13 | 2.90 | A |
| 9. | Building resume and personal websites which are increasingly used as online portfolios benefits greatly from the skills obtained by customizing the layout and designs of social networking profiles. | 324 | 496 | 198 | 21 | 3.14 | A |
| 10 | The case and speed with which students can upload pictures, videos and stories has resulted in greater amount of sharing creative works. | 224 | 273 | 284 | 41 | 2.49 | D |
| 11. | Social media supports technologies literacy needed to develop all sorts of rich 21$^{st}$ century skills such as information evaluation, troubleshooting, mediated communication etc that will enable connected learners to become valuable contributors to a connected global economy. | 08 | 72 | 404 | 102 | 1.77 | D |
| | Cluster mean | | | | | 3.07 | |

From table 3: the cluster mean rating is 3.07, which shows that the respondents agreed in the items presented above.

The table also reveals that social media positive implications on the acquisition of entrepreneurial skills in science education.

## Hypothesis

**Ho:** There is no significant difference in the mean response of students and lecturers on the influence of social media on academic achievement.

**Table 4: T-test Summary of the Influence of Social Media on Academic Achievement Based on Students and Lecturers Mean Responses**

| Group | N | X | SD | DF | t-cal | t-critical | Lev. of sig. | Decision |
|-------|-----|------|------|-----|-------|-----------|--------------|-----------|
| Students | 300 | 3.30 | 1.74 | 328 | 0.27 | 1.96 | 0.05 | Ho. Accepted. |
| Lecturers | 30 | 3.45 | 0.63 | | | | | |

From table 4, it was observed that the probability (P) of the difference being due to error is greater than 0.05. at 0.05 level of significance the calculated t value is 0.27, which is less than the critical t value of 1.96. Following the above therefore no significance difference exists in the mean response of students and lecturers. The null hypothesis (Ho) is thereby accepted. Accordingly, there is a significant difference in the mean response of lecturers and students on the influence of social media on academic achievement of students.

## DISCUSSION OF RESULTS

Results from table 1 shows that students often engage on social media during lecturer periods. This leads to poor performance observed among students in tertiary institutions. This is in agreement with a research work carried out by Morah 2016 where it was reported that social media threatens the dignity of man as an interaction media. Ukor (2008) reported on this poor performance in tertiary institutions and high rate of examination fraud. This situation may be due to engagement in social media because most students now spent their quality time on social media leading to poor academic achievement.

Result in table 2 shows that social media exerts negative influence on academic achievement of science and technology education students. Also Mora (2016), Ukoh (2008), Okole (2009) also reported on this negative influence of social media and poor academic achievement of students in tertiary institutions.

Kirschner and Kapinski (2010), and Malaray (2005) reported that there is significant negative relationship between facebook users and academic performance. Fecabook users reportedly have lower mean CGPA and that students grades had suffered as a result of two much time spent on the internet as well as on social media.

Table 3 reveals that social media has positive implications on the acquisition of entrepreneurial skills in science and technology education. This is in agreement with Morah(2016) that social media serve developmental purposes and apt for sustainable human dignity development.

Table 4 shows that there is no significant difference in the mean response of lecturers and students on the influence of social media on academic achievement of students. In other words the opinions of both lecturers and students do not significantly differ on the influence of social media on academic achievement.

Haq and Chaud (2012) reported that students spent more time in facebook and other social media resulting in lower performance.

**CONCLUSION**

The result of the study have shown that students often engage on social media and that social media exerts negative influence on the academic achievement of students in tertiary institution, even though it was observed that social media exerts positive influence on the acquisition entrepreneurial skills. Therefore in order to improve the academic achievement of students, camera phones should be abolished during lecture periods so that students will concentrate on their academic work and benefit maximally. This is because science and technology have proved significantly useful in man's daily struggle to control his environment and build a virile world and again a sound national development emanated mainly from areas of science and technology, therefore the use of

social media by students should be controlled to avoid damaging the gains of science and technology in this modern world.

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