THE USE OF SOCIAL MEDIA (ICT) SITES BY SENIOR SECONDARY SCHOOL STUDENTS IN THE TEACHING AND LEARNING OF BIOLOGY IN AKWA IBOM STATE, NIGERIA.

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Abstract

This study was carried out to investigate the use of Social Media (ICT) Sites by Senior Secondary School Students in the teaching and learning of biology in Akwa Ibom State, Nigeria. A descriptive survey design was adopted for the study. The population of the study consisted of all the teachers (222) and students (4,132) in public senior secondary schools in Uyo educational zone, Akwa Ibom State. The sample size comprised of five (5) co-educational public secondary schools purposively selected. One hundred and fifty (150) students and one hundred and twenty (120) teachers were randomly selected for this study. Two research questions and one hypothesis guided the study. Two structured instruments were developed and used by the researchers for data collection. Each of the instruments is made up of a 15-item questionnaire titled "Biology Teachers' Use of Social Media (BTUSM) and Biology Students' Use of Social Media (BSUSM)" on a two-point scale of Agreed and Disagreed respectively. These instruments were validated by three experts, all in University of Uyo, Akwa Ibom State, Nigeria, for both face and content validation and the reliability coefficient was 0.85. The collected data were analysed using descriptive statistics (mean) and Pearson Product Moment Correlation (PPMC)). The result of the study revealed that students visit social media sites regularly for purposes other than the learning of sciences (biology) reflecting teachers' lack of social media usage on students. From the result of the findings, the researchers recommended among others that the federal and state governments should integrate ICT into teachers' training curriculum at both colleges of Education and University levels and there should be a synergy between the policy makers and the policy implementers for compliance and successful implementation of the policy.

Keywords: Biology students and teachers, ICT, Social Media (SM) Sites, Teaching, learning, Science education and Nigeria.

Introduction

Science education means any systematic training and instruction that enables the learner upon completion to achieve or attain knowledge, instrumental skills, scientific process skills, scientific attitudes/open-mindedness, appreciation that is becoming involved in scientific activities and practices. This means that science education involves the learner in all the processes of science like observation, experimenting, among others. Therefore, a competent science teacher has to create conducive condition and climate classroom for students' learning. This involves content knowledge, instructional planning, student motivation, presentation and communication skills, evaluation competencies and classroom management skills (Idah, Egbo, and Okechineke, 2016). Science education is the provision of learning experiences in sciences in formal, non-formal and informal settings. It is the integration of all the experiences obtained by students in science related fields to help them live sustainably.

Science is man's way of exploring and enquiring about his natural habitation and the entire universe. The goal of science is to investigate and gain understanding about the natural world and to explain events in the world to making useful predictions (Bull, Thompson, Searson, Garofalo, Park, Young, and Lee, 2012). This is why all nations of the world are paying much attention to the teaching and learning of science concepts, methods of teaching and addressing misconceptions held by teachers regarding science concepts (Kola, 2013). Science can be studied through some procedures such as observation, hypothesis, experimenting, data analysis, inference drawing and conclusion. All these and more make up what is called scientific methods. These scientific methods can be obtained through science education. Science, as a universal subject, spans the branch of knowledge that examines the structure and behaviour of the physical and natural world through observation and experiment. Science education is most commonly broken down into the following three fields: Biology, Chemistry and Physics.

Biology is one of the core science subjects. It studies life and living organisms, including their physical structure, chemical processes, molecular interactions, physiological mechanisms, development and evolution. According to Chukwuneke (2013), biology is the study of living organisms and is divided into many specialised fields of study. Its scope of study covers morphology, biochemistry, physiology, molecular biology, anatomy, behaviour, origin and distribution of living organisms. Biology is a key in understanding and responding to the most pressing issues of this present time, ranging from challenges of population growth, ecosystem impacts on human beings and services to climate change and sustainability. The knowledge of biology and its practice helps in so many areas of human life, including elimination of poverty and hunger through expansion in the diversity and magnitude of bioscience enterprises which include raw bio-commodities such as rubber, palm oil using seed, materials using hybrids, tissue-culture and bio-fermentation, bio-fertilizers, bio-pesticides, bio-feeds, bio-remediation and biotech seeds. All these enterprises are based on sound knowledge of biology. The enterprises listed above provide job opportunities for students with a sound knowledge of biology in both public and private sectors of the economy.

Despite the importance of the knowledge of biology to everyday life, it has been observed by researchers over the years that students' performance in biology is not encouraging and also not up to the society's expectations (Lawal, 2010; Kalu Uche & Duru, 2018; and Ntukidem, 2016). Students' academic achievement is a measure of the extent to which a student or learner has acquired certain information or instruction as a function of learning. Poor students' achievement in biology over the years has become a great concern to researchers, stakeholders and parents. As stressed by Lawal

(2010), this prevents students from proceeding to universities, polytechnics and colleges of education. Biology has recorded a large students' enrolment as compared to other science subjects, but with low performance in examinations. This large enrolment has been credited to students' persistent poor performance in external examinations, especially in WASCE and NECO. Ntukidem (2016) reported that only 38.52% that wrote WASSCE in 2015 had a pass mark. This report confirmed WASEC Chief Examiner's 2015/ 2016 report that students' performance is very low in Biology 2 (essay questions). This poor achievement is discovered to be caused by so many factors that include complex biology concepts which are difficult to teach, lack of adequate use of instructional materials, laboratory apparatus and lack of qualified biology teachers in Nigeria (Kalu Uche and Duru, 2018), poor students' communication skills and large classes (Dina, 2013; Arum, 2015). Teachers' Registration Council of Nigeria (TRCN) stressed that 'no educational system can rise above the quality of its teachers'. It is a serious cry of the public about the low quality of the outcome of education in Nigeria, especially in the performance of students in public examinations in our secondary schools in recent time. Since no educational system can rise above its teachers, it is the right time to improve biology teachers' quality by training them on the use of ICT. This will enhance the performance of students in examinations and will also produce new generation science (biology) teachers who will confidently use various ICT platforms for meaningful teaching and learning of biology. Akpan, Uwandu and Ekanem (2013); Mumuni, Dike and Uzoma-Nwogu (2017) and many other studies have advocated the use of innovative student-centred instructional strategy and instructional materials for improvement and better performance of students in biology.

According to Kumar (2014), it is quite important to note that information is power and a source of wealth. Information Communication Technology (ICT) is defined as digital processing and utilisation of information by the use of electronic computers or phones for storage, retrieval, conversion and transmission of information rather than pen and paper in teaching and learning. 1CT is, no doubt, making new demands on the educational system as it allows students to learn based on drill-and-practice programme. Federal Government of Nigeria (2004) recognises the important role of ICTs in the modern world and integrated ICTs into education in Nigeria and also ensured that computer education is a vocational elective at senior secondary school and compulsory from primary one to junior secondary education in this country (Abutu and Matthew, 2016). This is because science teaching has gone beyond traditional methods of talk and chalk. It is an effective instructional strategy or method of teaching and learning in science education which is believed to empower both teachers and learners by transforming teaching and learning from teacher-centred to student-centred method of learning. New technologies can lead to new types of media and the ability to use the related technology via the designated sites. Social media are for interaction, using highly accessible and scalable publishing techniques to facilitate interaction based on certain interests and characteristics. The use of ICT gadgets and software (social media) can stimulate, generate and sustain students' interest and also concretise some biology abstract concepts that were difficult (e.g. evolution, genetics, etc.). This makes biology lessons easily understood. According to Asuquo (2018), ICTs devices are indispensable tools for effective teaching and learning in secondary schools. They enhance teaching and learning performance and also improve the educational system in Nigeria. The teaching and learning of ICT involve three stages in the curriculum, namely: learning with ICT, learning through ICT and learning about ICT. Learning with ICT requires the use of the computer and internet as a means of delivering instruction either as a resource or a strategy. Learning through ICT involves the integration of ICT into the curriculum for

successful teaching and learning of a subject. Learning about ICT simply refers to ICT concepts as a subject in the school curriculum as any other subject.

For the purpose of this study, learning with ICT which is the use of computer and internet as a medium to deliver instruction either as a resource or a strategy (social media sites) is considered to be used as an instructional strategy for teaching and learning of biology in senior secondary schools in Uyo educational zone of Akwa Ibom State to develop and improve the attitude, performance and retention of students which could not have been possible during class lessons when chalk and board (traditional method) is used.

In 21st century, ICT is deeply invited to be used in the process of teaching and learning of sciences (biology) which, though proven to be of help, creates fear in students on whether they can ever study the subject with ease or even play it as a game like in mathematics. Dourish (2011) opined that much training be given to teachers, as others suggested that much time be allotted to the periods meant for the study with regular practical sessions. Using ICT - PowerPoint, simulations, projections, etc. are yet to yield the desired result. With the emergence of sophisticated applications and activities on the internet, there exists lots of what preoccupy everyone who opens any window therein as a result of the researches/activities carried out in them. Social media are found to be an easier means of communication on the internet and is mainly for entertainment, though it has many other functions that are informational and educational (Dourish, 2011). Social media sites are web-based services that help an individual to construct a semi-public or public profile in an enclosed system (computer or phone). They articulate with other users that they are connected to, view, send and receive information from others within the system. Social media sites can be used in education in many ways to get connected, and also interact with students as in the case of Facebook to fill the learning gap between students and their teachers through smart and mobile phones. For instance, during COVID-19 pandemic lockdown between the months of March and August, 2020, all the schools were closed down, some private schools diverted to the use of social media sites in teaching and communicating (assignments) to their students while they were at home. This method of teaching revived and regenerated the memories of their students. Unfortunately, students in public secondary schools were idle.

Social media are elements of the new media and have become the highest activity on the internet and have also gained considerable attention from the academic and business world (Shea, 2019). Social media, as opined by Idah, Egbo and Okechineke (2016), have different platforms such as the social Connections Facebook, Twitter, goggle*, Myspace, ctc.); Multimedia sharing (Youtube. flickr, picasa, etc); Professional (Linkedin. Classroom 2.0; Nurse Content); Informational (SuperGrecnMe. HGTV Discussion forums, Do-it-yourself Community; Educational (the Student Room, The Math Forum, c PALs School Blog); Hobbies (oh my Bloom, my place at scrapbook.com, sport sharing); Academic (Academia.cdu. Connotca collaborative research, etc.). They added that a big portion of social media users is made up of youths (most of who are teenage secondary school students). Students use Facebook and about 37% use Twitter (Idah, Egbo, and Okechineke (2016). It is very obvious that a large population of students are using social media as marketing programme, means of interaction with their present classmates and also with the alumni. Much of the time spent can be diverted to teaching and learning of science (biology) concepts as in other means of ICT social interactions. Hence, this study is an attempt to investigate the extent of the use of social media sites in the teaching and learning of biology by teachers and students in senior secondary schools in Akwa Ibom State, Nigeria, though many researches have been carried out outside Akwa Ibom State and in other subjects showing that the research is inconclusive.

Statement of Problem

The use of ICT facilities in recent times has brought more life to society. It also assists in promoting the advancement of many nations of the world. On this note, many countries introduced ICT learning in schools into their nation's educational policy. But this case is different in Nigeria. Science and technological subjects are learnt in environments without laboratories for practical works and instructional materials. This causes the attention of students to be deviated resulting in poor interest level and performance in sciences and technological subjects.

Many researchers have observed poor performance of students and their distancing in learning sciences (biology) but only get attracted to using technologies (Adebisi, 2016). Also, the Chief Examiner's report (2016-2018) indicates poor performance of biology students in the West African Examinations Council (WAEC) and West Africa Senior Secondary Certificate Examination (WASSCE) Ntukidem (2016); Kalu Uche and Duru (2018). It is believed that students could perform diverse types of works while visiting social media sites including teaching, instant messaging, chatting, video conferencing, playing games, searching information online, etc. For an example, a good number of Facebook users (about 45%) update their statuses more than four times a day. These activities are acceptable but do not add value nor promote the performance and interest of students in sciences. The attention and interest technologies create to all can be adorned in our educational sectors with the belief of catching the minds of students back to science and technological subjects in our senior secondary schools. On this note, this study seeks to promote the use of social media (ICT) in the teaching and learning of biology in Nigerian senior secondary schools for better performance of students and high interest and skill enhancement of teachers. This study is, therefore, carried out to examine the extent of the use of social media in the teaching and learning of biology in senior secondary schools in Akwa Ibom State, Nigeria.

Purpose of the Study

The purpose of this study is to investigate the extent of the use of social media in teaching and learning of biology in senior secondary schools. Specifically, the objectives of this study are:

1. To examine the extent of the use of social media (ICT) among biology teachers in senior secondary schools in Akwa Ibom State.
2. To investigate the extent of the use of social media (ICT) among biology students in senior secondary schools in Akwa Ibom State.

Research Questions

The following research questions were formulated to guide the study:

1. What is the extent of the use of social media (ICT) among biology teachers in senior secondary schools?
2. What is the extent of the use of social media (ICT) among biology students in senior secondary schools?

Research Hypothesis

This hypothesis guided the study:

Ho1: There is no significant relationship between biology teachers and biology students in senior secondary schools that use social media for teaching and learning of biology.

Scope of the Study

The study was delimited to biology teachers and students in senior secondary schools two and three in Uyo Educational Zone of Akwa Ibom State, Nigeria.

Significance of the Study

This study is expected to provide information on the present trends of the use of social media among teachers and students in the teaching and learning of biology. It will also create awareness among teachers on the importance of social media as a teaching method that can change their attitudes and

practices by improving their teaching profession. Also teachers will be able to guide students on the importance of ICT beyond pleasure and recreation usage. The results of this study will help educational policy-makers bridge the gap that exists between Nigeria and the developed countries that are using social media (ICT) for appropriate and urgent measures to be put in place for improved teaching and learning of sciences. The study will act as a reference point for future researches.

Methodology

Research Design

This study adopted descriptive survey research design.

Population of the Study

The population of the study consisted of all the senior secondary schools (SS2 & SS3) biology teachers (222) and biology students (4,132) in the thirteen public secondary schools in Uyo Educational Zone, Akwa Ibom State, Nigeria, during 2019/2020 academic session (Akwa Ibom State Secondary Education Board, Uyo, class by class students' enrolment for 2019/2020 session).

Sampling Technique and Sample

Multi-stage sampling technique was used. Five co-educational schools were purposively selected in Uyo Educational Zone. One hundred and twenty biology teachers that taught senior secondary school students (SS2 and SS3) and one hundred and fifty (150) SS2 and SS3 Biology students for 2019/2020 session in Uyo Educational Zone were randomly selected to make up the sample. Intact classes were used for this study. The schools were selected based on the following criteria:

- Public secondary schools that are co-educational;
- Schools with well-equipped and functional biology and computer laboratory;
- Schools that have qualified biology teachers with at least 5 years teaching experience;
- Schools where the students have not been taught the use of social media sites already;
- Schools that are currently presenting candidates for senior secondary certificate examination;
- Schools with low number of candidates that passed biology above credit level in West African Examinations Council/National Examinations Council.

Research Instrument

Two structured instruments were developed for data collection, personally-administered and collected on the spot by the researchers. Each of the instruments was made up of a 15-item questionnaire titled: "Biology Teachers' Use of Social Media (BTUSM) and Biology Students' Use of Social Media (BSUSM)" on a two point scale of Agreed and Disagreed respectively, which were adapted from journals and periodicals.

Validation of Instruments

The two research instruments were validated by three experts, one each from the Department of Computer Science, Department of Biology Education and Department of Measurement and Evaluation, all from the University of Uyo, Akwa Ibom State, Nigeria, for both face and content validation and the reliability coefficient was 0.85.

Procedure for Data Collection

The following procedure was followed during data collection:

- Following the sampling of the school for the study, the researchers visited the schools in Uyo Educational Zone with letters from their heads of department in their respective places of work to obtain permission from the principals of the schools to use their schools for the study and also solicit the subject teachers of the selected classes to assist as research assistants.
- The researchers purposively assigned SS2 and SS3 classes for the study.

- The research assistants were trained for one week on how to teach their respective groups using the validated instructional plan developed by the researchers on the use of social media sites.
- After the training, the research assistants arranged the students into groups and trained them on how to use some social media sites.
- At the end of the two weeks of teaching on the use of social media sites, each of the validated instruments that made up the 15-item questionnaire titled ''Biology Teachers' Use of Social Media (BTUSM) and Biology Students' Use of Social Media (BSUSM)" on a two-point scale of Agreed and Disagreed respectively adapted from journals and periodicals were administered to selected sample intact classes to collect the bio-data and demographic characteristics of the respondents to identify students attitudes and responses in each group.
- Collation of all the instruments were done strictly by the research assistants under the supervision of the researchers at the spot and a hundred percent retrieval of the instruments was made.

Method of Data Analysis

The data collected were analysed using descriptive statistics (mean) to answer the two research questions while inferential statistics (Pearson Product Moment Correlation (PPMC) was used to test the null hypothesis at 0.05 level of significance.

Results

Research Question One

What is the extent of the use of social media (ICT) among biology teachers in senior secondary schools?

Table 1: The computation of the mean rating scores of biology teachers' responses on the use of Social Media Sites in Senior Secondary Schools.

S/N	ITEMS	EFX	N	X	DECISION
1.	Biology teachers use Social Media sites in teaching always	210	120	1.75	Disagreed
2.	Teachers browse the internet to collect resources used during lesson	318	120	2.65	Agreed
3.	They communicate students' outcome with parents through Social Media sites.	228	120	1.90	Disagreed
4.	Teachers use social media (ICT) to provide feedback and also assess students' learning.	198	120	1.65	Disagreed
5.	Teachers are always motivated and sponsored to attend ICT conferences, seminars, etc.	174	120	1.45	Disagreed
6.	There is insufficient ICT materials for the teaching of biology.	318	120	2.65	Agreed
7.	Most teachers lack ICT skills	306	120	2.55	Agreed
8.	Most teachers use applications to prepare presentations for lessons	146	120	1.21	Disagreed
9.	Teaching of biology is easier using Social Media sites.	194	120	1.61	Disagreed

10.	Teachers attend to pop-up biology questions on social media	150	120	1.25	Disagreed
11.	Teachers always use chat room to interact with their students to impart biological knowledge	142	120	1.18	Disagreed
12.	Teachers exposed their students on how to respond to social media alerts anytime and anywhere	328	120	2.73	Agreed
13.	Most teachers access the social media platforms (sites)	318	120	2.65	Agreed
14.	Teachers give their students assignments on Social Media sites regularly	186	120	1.55	Disagreed
15.	Social Media is a new method of teaching biology; hence, it is difficult.	326	120	2.71	Agreed

The data in Table 1 above indicate that the items 1, 3, 4, 5, 6, 8, 9, 10, 11 and 14 have the mean ratings below the mean criterion of 2.50. This implies that biology teachers do not agree with those items, that they do not have enough facilities, skills, etc. to access the educational social media sites. While items 2, 6, 7, 12, 13 and 15 have the mean rating above the criterion means of 2.50. This shows that some teachers agreed with the extent of non-effective use of educational social media for teaching biology.

Research Question Two

What is the extent of the use of social media (ICT) among biology students in senior secondary schools?

Table 2: The computation of the mean rating scores of biology students' responses on the use of social media sites in senior secondary schools

S/N	ITEM	EFX	N	X	DECISION
1.	Most students access the social media sites not for learning biology	471	150	3.14	Agreed
2.	Students visit more than one social media sites at each log on.	*465*	150	3.10	Agreed
3.	Biology students visit the social media more than five times a day.	429	150	2.86	Agreed
4.	Biology students spend more than one hour on social media sites each day	462	150	3.08	Agreed
5.	Most students prefer visiting the social media at night.	463	150	3.08	Agreed
6.	Science students visit the social media sites only with their mobile phones	471	150	3.14	Agreed
7.	They respond to social media while reading their books	340	150	2.27	Disagreed
8.	They respond to social media alerts anytime and anywhere	360	150	2.40	Disagreed

9.	Not all the students can access the social media easily	459	150	3.06	Agreed
10.	Students have discovered the social media sites for solving educational problems	411	150	2.74	Agreed
11.	They use the social media sites for learning biology always	350	150	2.33	Disagreed
12.	Students do their assignments on social media sites regularly	257	150	1.71	Disagreed
13.	Students always use chat room to interact with their colleagues to share biological ideas	305	150	2.03	Disagreed
14.	Learning biology is easier using social media sites pop-ups	417	150	2.78	Agreed
15.	Students normally download biology assignments online	261	150	1.74	Disagreed
	Grand mean			**2.63**	

From Table 2, it shows that the items 1, 2, 3, 4, 5, 6, 9, 10 and 14 have the mean ratings above the mean criterion of 2.50. This implies that biology students agree with those items, that they do not have maximum access to educational social media sites, while items 7, 8, 11, 12, 13 and 15 have the mean below the criterion means of 2.50. This shows that some students disagreed with the extent of the use of educational social media for learning of biology.

Ho1: There is no significant relationship between biology teachers and students in senior secondary schools in the use of social media sites for teaching and learning of biology.

Table 3: Computation of Pearson Product Moment Correlation (r) of biology teachers and biology students on the use of social media in teaching and learning of biology using raw score method

S/N	BIO. TEACHERS (X)	BIO. STUDENTS (Y)	X^2	Y^2	XY
1	210	471	44100	221841	98910
2	318	465	101124	216225	147870
3	228	429	51984	184041	97812
4	198	462	39204	213444	91476
5	174	463	30276	214369	80388
6	318	471	101124	221841	149778
7	306	340	93636	115600	104040
8	146	360	21315	129600	52560
9	194	459	37636	210681	89046
10	150	411	22500	168921	61650
11	142	350	20164	122500	49700
12	328	257	107584	66049	84296
13	318	305	101124	93025	101124
14	186	417	34595	173889	77562
15	326	216	106276	46656	70416
TOTAL	3542	5876	912632	2398682	1356628

From Table 3, the result of the correlation between teachers and students using social media sites r is 0.627 and the critical value for r at 0.05 level of significance is 0.56132.

Decision

The computed r (0.627) is greater than the critical r value (0.56132) for two-tailed test at 0.05 level of significance. Hence, the null hypothesis is rejected and it is concluded that there is significant relationship between biology teachers and students. This shows that teachers' and students' usage of social media sites is significantly related.

Discussion of Findings

Data in table one showed that teachers do not use social media sites effectively for teaching. They do not give assignment to their students on social media (sites). This is in support of the findings of Dahlstrom (2011), as well as Smith (2010). The result is also in support of Junco (2012) who found out that it facilitates distance learning to interactive process, serves as a tool of knowledge creation and dissemination. According to that researcher, it also promotes theoretical and practical activities for remedial teaching and learning, provides text, graphics and simulations, and a variety of material and methods for teaching each topic. However, this is against the deductions of Kumar (2014) and Kirschner (2010), that the downside of using social media site is greater than the benefits. The biology teachers' response shows their willingness to use the educational social media sites if their students will be free to communicate with them at all levels since it has been discovered it has distinction over conventional method of teaching (e.g. teacher-active and learner-passive approach).

The data in table two indicated that students make use of social media sites regularly at will without any definite restriction with regards to where and when to use it, especially with their mobile phones. This result is in line with the findings of Dahlstrom (2011), that a bigger proportion (90%) of social media users are teenage students in secondary schools. Shea (2019); Kirschner (2010). Kumar (2014) also found out that secondary school students use various social media sites to the extent that it is now an indispensable part of their everyday life for personal and learning purposes, as they can spend up to two hours per day at each log on. This result differs from Kumar (2014) who discovered that over one third of users have not logged on in the last three months, and about 38% users logged on in the previous three days. Therefore, the finding that students use social media regularly is not misleading because the mean response of 2.63 obtained from the students showed that it is agreed students make use of the social media. This indicates students' willingness to use educational social media sites to enhance teaching and learning of biology if their teachers will feel free to adopt this instructional strategy for active learning of biology.

Finally, the result of the findings in table three shows that social media sites are not used by students in the learning of biology. Biology teachers did not use social media in the teaching of biology. The research hypothesis shows a significant relationship between students and teachers trends of using social media sites in teaching and learning of biology. The reflection of teachers' lack of social media usage is on students. Social media provides new learning environment and, therefore, needs different skills for it to be successful. Teachers are to initiate the skills for students to follow. The initiative can be affected by teachers' skills, values, knowledge and attitude to enhance the use of instructional methods of teaching.

Conclusion

Social media is now an indispensable part of the students' everyday life for personal satisfaction, and none of the social media user is restricted to one site or forced to be on a particular site. Any site accessed is a matter of choice and also for the satisfaction of the user at all times. Hence, educational social media is not yet used by students to the maximum because of lack of deliberate introduction of factors that will propel their visiting the educational sites, especially by their teachers who do not have interest in using educational social media sites (platforms).

Recommendations

The following recommendations are made:

1 The Federal and State Governments should integrate, train and motivate trainees on the use of social media sites for functional instructional delivery at college and university levels of education.

2 All senior secondary school biology teachers and students should own either mobile or smart phones customised at government subsidised cost to enhance performance and activity method of teaching and learning.

3 I.C.T. policymakers and implementers should synergise for compliance and encourage free tariff for all educational social media users while entertainment and others attract high tariff.

Suggestion for Further Studies

Further studies should be carried out on different categories and variations of social media sites for skills and more enlightenment for teaching and learning purposes.

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