



ASSESSMENT OF THE USE OF EMERGING EDUCATIONAL TECHNOLOGIES IN THE TEACHING AND LEARNING OF SOCIAL STUDIES IN SECONDARY SCHOOLS IN OGOJA EDUCATION ZONE OF CROSS RIVER STATE, NIGERIA.

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ABSTRACT: *This paper examined the level of usage of emerging technologies in the teaching and learning of Social Studies in secondary schools in Ogoja Education Zone of Cross River State, Nigeria. The paper maintained that teaching and learning are crucial in any educational endeavour, and Social Studies is an indispensable component of the school curriculum that requires the best, modern technological approach in its pedagogical process. The study was anchored on Bruner's theory of instruction and survey research design. The population comprised all Social Studies teachers in public secondary schools in Ogoja Education Zone of Cross River State. This amounted to 234 teachers and 1855 students in five local government education authorities (LGEA). Using stratified and simple random sampling technique, three LGEAs were selected from which 72 teachers and 282 students were chosen for the study. A structured and validated questionnaire was the major instrument for data collection. Data was analysed using simple percentages, mean and standard deviation. Result showed that only very few teachers and students were aware emerging technologies and the utilisation in the study area. The major challenge in the use of emerging technologies is unavailability and inaccessibility of resources to procure and operate the technologies. It was recommended that faculties and colleges of education should provide adequate teacher-education training to enhance teachers' capacity to use emerging technologies in schools.*

KEYWORDS: Emerging technologies, teaching, learning, social studies, secondary schools.



INTRODUCTION

Teaching and learning are two sides of the coin. Effectiveness on one is effectiveness of the other. Learning may not be effective if teaching is not and vice versa. The aim of teaching is to achieve learning. Learning reinforces teaching. Therefore, learning is a product of teaching. So, to produce good learning, or effective learning, teachers and educational technologies are in constant search of the best and most efficient approach to impart on learners at all levels and categories. The latter part of the 20th century and the 21st century have witnessed an accelerated surge in technological innovations. This transcends different segments of human endeavours including education. Technology has been described as “one of the most powerful influences in today’s educational scene” (Gopo, 2022). By this, the means of creating, sharing and imparting knowledge have continued to witness rapid transformation.

A lot of modern technologies have been employed in school system to meet up with the 21st century learner – the digital native – who was born and have grown in the information era. The 21st century learner is in many ways different from their predecessors. According to Alvin Toffler, “The illiterate of the twenty-first century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn” (Amdur, 2022). This position places a huge responsibility on the teacher and student of the 21st century to adopt diverse methodological approach to enrich learning. It also implies that both the teacher and the learner must development the capacity to acquire new knowledge, assimilate it and quickly determine its currency, usefulness and applicability. Unfortunately, the teacher of this time is a digital immigrant, who must consciously acquire digital skills to be able to produce effective learning in his teaching activities. Palmer (2015) reminds us that the 21st century is so different from the previous ones because of technological advancements. According to the author, there is no such term as “20th century teacher” but technological innovations have given rise to “21st century teacher.” The characteristics of the 21st century teacher as identified by Palmer (2015) include being: learner-centred and provides personalised instructions, learner of new technologies, global, smart and uses smart phones, collaborative with fellow teachers and students, confident in providing project-based learning, innovative, and everyday learner.

In order to keep in touch with the frenzy and trends of the century, Jensen (2022) noted that “schools are incorporating emerging technologies, such as Artificial Intelligence, Virtual Reality, and Augmented Reality, into the classroom. The aim is to enable more innovative and engaging teaching methods and learning experiences.” There are a lot more emerging technologies in use in the educational system today. The main thrust of this paper was to examine the level of usage of these modern technologies for effective teaching and learning process in the secondary school system in Ogoja Education Zone of Cross River State, Nigeria. To achieve this objective, a careful consideration of the meaning of teaching and learning as well as emerging technology would be necessarily done.

The concept of teaching has different meanings to different schools of taught. There are basically two schools of taught in education: idealism and realism. The idealist school believes that knowledge is shaped by ideas. To them ideas are the true realities. They hold that the fundamental source of knowledge is reasoning (Ceciliod, 2006). Therefore, teaching in the view of the idealist must concentrates on the mental development of the learner and their curriculum emphasizes the study of the humanities. Teaching has therefore been defined



as “to instruct.” Smith (2022) described this further by stating that “to instruct someone... is not a matter of getting him to commit results to mind. Rather, it is to teach him to participate in the process that makes possible the establishment of knowledge. We teach a subject not to produce little living libraries on that subject, but rather to get a student to think mathematically for himself, to consider matters as an historian does, to take part in the process of knowledge-getting. Knowing is a process not a product.”

The realist school, on the other hand, are educational philosophers who believe that knowledge can be acquired through practice or experiment. They believe in empirical approach to knowledge. The realists conceptualise education viz a viz teaching as a means of building or training the senses of the learners to observe the material world. This school of thought holds that the mind of a child at birth is *tabula rasa*, an empty slate on which experience writes on. Teaching is the process of attending to people’s needs, experiences and feelings, and intervening so that they learn particular things, and go beyond the given.

In the context of this research, we define teaching as the process through which one, in the form of a teacher or resource person, by means of environmental resources leads another, in the form of a learner, to acquire new or reformed ideas, knowledge, skills and behavioural traits or attitudes towards a given concept.

Learning has to do with change in behaviour. Educational researchers agree that learning is much deeper than memorization and information recall. Deep and long-lasting learning involves understanding, relating ideas and making connections between prior and new knowledge, independent and critical thinking and ability to transfer knowledge to new and different contexts. Ambrose et al, (2010, p.3) defined learning as “a *process* that leads to *change*, which occurs as a result of *experience* and increases the potential for improved performance and future learning”. The change in the learner may happen at the level of knowledge, attitude or behaviour. As a result of learning, learners come to see concepts, ideas, and/or the world differently.

In essence, learning can be defined as the change in behaviour as a result of interaction with environment or experiences. This implies that learning is a behavioural modification occasioned by active interaction with the environment. When the teacher and the learner interact, the end product is learning.

In modern times, teaching and learning are made easier with the use of certain educational technologies. Technology broadly refers to the application of scientific knowledge. The goal technology is to make life easier and better. Scientific method applied in education is termed educational technology. Loyola University School of Education (2021, p.1) defined educational technology as “the field of study that investigates the process of analyzing, designing, developing, implementing, and evaluating the instructional environment, learning materials, learners, and the learning process in order to improve teaching and learning.” Educational technology, or Edutech, “is the combined use of computer hardware, software, and educational theory and practice to facilitate learning (Robinson, 2015). The Association for Educational Communications and Technology (AECT) in Richey (2008) views the concept as “the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources”. It denotes instructional technology as “the theory and practice of design, development, utilization, management, and evaluation of processes and



resources for learning" (Lowenthal & Wilson, 2010, p.4). Furthermore, let it be stressed that any physical, mental, innovative and practical skill applied to make teaching and learning process effective is educational technology. Apart from the usual instructional facilities employed by teachers in the classroom setting, certain technologies are emerging that have entirely changed the act of teaching and learning in the 21st century. However, a wrong way of doing a right thing could give rise to a wrong result. There must be a proper way of using these emergent technologies to achieve the desired results. The emerging technologies largely use online teaching and learning (computer-based) approach.

Because it enables modern instructors to incorporate new technologies and tools into their classrooms, educational technology in education is crucial. Teachers may update and enhance their classroom's learner-centeredness. It enables educators to interact with pupils in distinctive, original, and fairways. Teachers can also connect with other teachers and educators locally, nationally, and internationally to broaden their students' networks. More so, it has been revealed that the transformation and upgrading of web-based teaching technology "has innovatively ensured the radical redesigning of many life-based processes including instructional processes in schools" (Imoke, Nkanu & Bissong, 2021, p. 374). The authors further held that the use of emerging technologies like the social media enhances students' active participation in the learning process thereby fostering the acquisition of 21st century skills.

The use of emerging educational technology in the classroom entails the use of modern technologies that are largely internet based. There are different ways to use these technologies for learning purpose. Edmonger (2021) identified three of them to include synchronous and asynchronous, linear learning and collaborative learning. These are briefly explained next:

i. Synchronous and asynchronous learning: Synchronous learning is just another way of saying that learning is done concurrently. It entails conversing concurrently with others about facts and ideas pertaining to specific themes. Face-to-face meetings, chat rooms, online courses, in-person teaching and feedback sessions, Skype talks, and other online collaboration scenarios are a few examples of how people work together. Because they are working in groups, the students may hear other people's perspectives on related topics, which helps them to broaden their own thinking. They will also get more knowledge as a result of researching more and gathering more data. Asynchronous, on the other hand, is defined as "not in real-time." Because of this, asynchronous learning mostly occurs through blogs, emails, online textbooks, audio/video courses, hypertext texts, wikis, etc. rather than simultaneous direct engagement. Students are able to learn at their own pace with this kind of instructional technology. They can read the lesson again if they don't immediately comprehend it to avoid falling behind in class. Asynchronous learning is used in the majority of online courses.

ii. Linear Learning: The material on the Program is supplied to students' computers, tablets, or smartphones through computer-based training (CBT), which is the topic at hand. It is similar to reading a manual or book on the internet. Static operations like utilising software or figuring out maths equations are frequently taught using this approach. The instruction is delivered online via a web browser, much like web-based training. CBT is not like traditional learning because it doesn't require manuals, books, or classrooms. As an alternative, CBT may make use of animation and videos to help pupils understand the subject matter more



fully. Furthermore, computer-based training enables the simultaneous provision of user feedback and results and the recording and saving of assessments such as multiple-choice, drag-and-drop, and others. Lastly, users can get the result online in the form of a certificate.

iii. Collaborative Learning: This requires collaboration with others when learning in groups. Groups of two or more people can collaborate to find solutions, generate new concepts, or finish tasks. By acquiring knowledge and listening to people, as opposed to only reading the provided stuff, people may learn. They become reliant on their professors, who are their main source of information and abilities, in this way. This does not necessarily imply that they do not work on their assignments collectively outside of their teacher's guidance.

THEORETICAL FRAMEWORK

This study is anchored on the constructivism theory. Constructivism is an educational theory that holds that learning takes place through the active (and not passive) participation of the learner in the learning process. Key proponents of the theory include John Dewey, Jean Piaget, Lev Vygotsky and Jerome Bruner. Learners incorporate news knowledge with the previous experiences they have. They contend that a learner develops schemas organise acquired knowledge. According to Kurt (2021), learners build new knowledge on the already existing knowledge they have. They build new experiences on the current foundation of understanding already laid down. Kurt (2021), citing Woolfork who conceptualise that "learning is active mental work, not passive reception of teaching", noted that the cardinal concept of constructivism is active mental work on the part of the learner.

In line with this theory, the teacher is made to understand that s/he is a facilitator or learning and not a dispenser of knowledge because the process of learning and teaching my means of modern educational technology implies the involvement of learners in the process. The use of emerging technology in teaching and learning of social studies in schools entails students reconstructing their already acquired experiences by building the new knowledge acquired using these new technologies. For constructivist learning to take place, there must be effective use of modern educational technologies. This is vital knowing that social studies is an affective domain-based subject. Therefore, examining the use of emerging technology in the teaching and learning of social studies is anchored on basis of learners constructing their knowledge based on the influence of the new technologies.

Research questions

1. What is the level of awareness about emerging technologies in the teaching and learning of social studies in Ogoja Education Zone of Cross River State?
2. What are the emerging technologies in use in the teaching and learning of social studies in Ogoja Education Zone of Cross River State?
3. What is the knowledge difference between teachers and students regarding emerging technologies in school?
4. What is the level of utilisation of emerging technologies in the teaching and learning of social studies in secondary schools in Ogoja Education Zone of Cross River State?



5. What is social studies teachers' perception of usage of emerging technologies in secondary schools in Ogoja Education Zone of Cross River State?

METHOD

This study adopted the ex-post facto research design. The population of the study comprised all the teachers of social studies and students offering social studies in upper basic education level in Ogoja Education Zone of Cross River State, Nigeria. Ogoja Education Zone, located on the northern part of Cross River State (South-eastern fringe of Nigeria), comprises five Local Government Education Authorities (LGEAs) which include: Yala, Ogoja, Bekwarra, Obudu and Obanliku. The area is host to major secondary educational institutions such as the popular Mary Knoll College, Okuku-Yala. According to the Cross River State Universal Basic Education Board (2022), there are a total of 234 teachers and 1855 students. The breakdown is presented on Table 1. The research employed the stratified and simple random sampling technique. The Education Zone was stratified into five based on the LGEA. Simple random sampling technique was used to select the LGEA and respondents. Names of the LGEAs were written in pieces of papers which were folded and dropped in a container. Three were picked after thorough shaking. Yala, Obanliku and Ogoja were picked. Here names of schools passed through the same process. 8 schools from Yala, 5 from Obanliku and 7 from Ogoja were picked. All the 74 social studies teachers in the selected school were chosen. For the students, the researchers used the class attendance record to select respondents. Only names on even numbers on the class register were selected and used for the study. A total of 282 students were therefore chosen for the study. The main instrument for data collection was a well validated questionnaire designed by the researchers. On collation, only 350 were fit for use for data analysis as four from the students were bad. Data were analysed using simple percentages, mean and standard deviation.

TABLE 1: Population of social studies teachers and students in Ogoja Education Zone of Cross River State

S/N	LGEA	Number of teachers	Number of students
1	Yala	61	428
2	Ogoja	48	382
3	Bekwarra	24	337
4	Obudu	59	370
5	Obanliku	42	338
	Total	234	1855

Source: Cross River State Universal Basic Education Board (2022)



RESULTS

Table 2: Level of awareness about emerging technologies, teachers-students awareness differentials and usage of emerging educational technologies in the teaching and learning of social studies in Ogoja Education Zone of Cross River State (N = 72 teachers, = 278 students)

S/N	Emerging educational technologies	Level of awareness		Usage	
		Teachers (%)	Students (%)	Teachers (%)	Students (%)
1	Artificial intelligence (eg. ChatGPT, Bard)	10 (14)	97 (35)	1 (1)	54 (19)
2	Plagiarism tools (eg. Turnitin)	27 (37)	44 (16)	0 (0)	0 (0)
3	Grammar and paraphrasing tools (eg. Grammarly, Spinbot)	15 (21)	62 (22)	0 (0)	0 (0)
4	Digital fieldtrip (Google Streetview, Google maps)	2 (3)	44 (16)	0 (0)	0 (0)
5	Online classes (Google Meet/Google Classroom)	25 (35)	112 (40)	7 (1)	75 (27)
6	Digital resources (Encarta, Wikipedia)	69 (96)	251 (90)	59 (82)	196 (70)
7	Virtual conference/symposium (Zoom)	60 (83)	212 (76)	15 (21)	101 (36)
8	Social media (WhatsApp, Facebook, Twitter, etc.)	72 (100)	278 (100)	48 (67)	266 (96)
9	Use of resource persons (Skype, Google Hangouts, and Facetime)	45 (62)	177 (64)	0 (0)	0 (0)
10	Gamified learning tools	21 (21)	169 (60)	3 (1)	78 (28)

Table 2 shows the level of awareness about emerging technologies in education among teachers and students in Ogoja Education Zone of Cross River State. The table also indicates teachers-students awareness differentials as well as the level of usage of the identified teaching and learning technologies. The table conveniently provides the data for the first four research questions. The usage of these technologies was measured as a joint task between teachers and students in teaching/learning process and not separately. According to the table, of the 72 teachers, only 10 (14%) and 97 (35%) of the 278 students said they were aware of the AI learning tools. Of this number only 1(1%) of teachers and 54 (19%) of students have used AI in the teaching and learning of social studies in the area. Similarly, the table shows that only three emerging educational technologies are known to 50% of the teachers as well as students. These include digital resources, virtual conferences and social media, which have 96%, 83% and 100% respectively for teachers and 90%, 76% and 100% respectively for students. As for usage, the response pattern indicated that only 1 (1%) teacher used AI with his/her 54 (19%) students. The most used are digital resources (82% of teachers and 70% of



students) and social media (67% of teachers and 96% of students). However, some of these modern technologies have not been used for educational purpose in the study area.

Table 3: Social studies teachers' perception of usage of emerging technologies in secondary schools in Ogoja Education Zone of Cross River State (N = 72)

S/N	Items	SA	%	A	%	D	%	SD	%	X	SD
1	The use of emerging technologies can make the teaching of social studies easy and interesting	35	49	30	42	5	7	2	1	3.36	1.15
2	It enables students grasp social studies concepts very fast	34	47	38	53	0	0	0	0	3.47	1.27
3	It encourages students to develop positive attitude and interest in learning	23	32	40	55	4	6	5	7	3.26	1.22
4	Emerging technologies are too difficult to operate	28	39	14	19	12	17	18	25	3.05	1.03
5	I am more comfortable with the traditional way of teaching my students	16	22	21	29	30	42	5	7	3.14	1.16
6	Usage of these technologies for teaching is meant for young teachers and not for the "old schools"	0	0	10	14	41	57	21	29	3.55	1.32
7	I do not have the financial resources at my disposal to operate with these technologies	33	46	38	53	1	1	0	0	3.18	1.12
8	These technologies should be used in higher institutions only	5	7	12	17	37	51	25	3	3.44	1.21
9	Government should make these educational technologies compulsory for use in all secondary schools	23	32	26	36	18	25	5	7	3.32	1.09
10	All teachers and students in the 21 st century should be trained on how to use these emerging educational technologies beginning from teacher training schools, faculties and colleges.	40	55	32	44	0	0	0	0	3.36	1.4

Table 3 shows an aggregate of teachers' views about the use of emerging technologies in the teaching of social studies in Ogoja Education Zone of Cross River State. From the table, most of the response pattern shows an aggregate mean response above the mean of 3.00. This implies that social studies teachers have a positive view of the use of emerging technologies in the teaching and learning of the subject in Ogoja. Majority of them maintained that the technologies enhance learning and increase interest. A vast majority believe that the knowledge should be included in teacher training programmes.



DISCUSSION

The findings of this study corroborate extant literature on the use of emerging educational technologies. Virtual technology is making a fast inroad into the world of education. New technologies are emerging on regular basis and very frequently. Heick (2023) identified 10 specific examples of emerging education technologies in practical use in different parts of the world. These range from artificial intelligence, social learning, live streaming, robots, 3D printing, augmented reality, virtual reality, adaptive learning algorithms, asynchronous learning, and micro learning. All of these technologies and many are being developed and explored by educationist at different level across the world. It is, however, alarming the rate at which teachers are not aware of the availability of such technologies and worse so their usability. The study of Sharma and Chaudhary (2020) reveals that the level of lack of awareness of the use of educational technology is quite significant among teachers in rural areas of India as 29% of both male and female teachers indicated “No” to the question of awareness. Their study further revealed that this apparent lack of awareness of the use of educational technology does not affect the importance of the technology. It is instructive to note that the advantages the use of emerging technologies confers on teaching and learning process may become a fiasco except they are appropriately utilised. Based the finding of the current research, all though teachers in Ogoja acknowledged their lack of awareness of the major emerging technologies, they still opined that these emerging educational technologies very important and impactful in the teaching and learning in social studies. This corroborates the study of Idogho and Kasumu (2022), who maintained that student engagement increased by 55% after the introduction of smart technology into classrooms.

Some of the ways emerging educational technologies can be incorporated into school curriculum in the teaching and learning of subjects including social studies are:

1. Gamified learning: Utilizing technology for gamified learning in your classroom can help you achieve the objective of making learning enjoyable. Even though instructional software can be a very powerful teaching tool, gamifying learning can also be as simple as setting up an online scavenger hunt with questions that students must research and find the answers to. You can even pair or group students to encourage collaboration and teamwork!

2. Digital field trips: Digital field excursions are a popular, useful, and affordable tool for educators searching for fresh approaches to using technology in the classroom. With Google Streetview and similar programmes, you may virtually tour parks, woodlands, and even renowned sites from the comfort of your classroom. Give pupils a virtual tour of the Statue of Liberty's viewpoint or the Grand Canyon to spark their interest in a subject or place and extend their learning beyond the page. Given how much time kids currently spend on social media, incorporating it into your lesson plans is one of the most creative ways to use technology to link students to the curriculum, classroom resources, and one another. Make a Facebook page only for your class where you can post discussion questions, or come up with creative classroom-specific Twitter hashtags that students may use to discuss courses or pose questions!

3. Gather student feedback: Receiving input from students is essential to evaluating this, figuring out what is and isn't working, and fixing issues and misunderstandings as they develop. The fundamental measure of any classroom organization and/or curriculum is how well it helps students learn. To do daily or weekly check-ins with students and gather their



feedback on classes and address any unanswered issues or concerns, use online surveys and polls. By asking students to tweet their comments and inquiries with a classroom hashtag, you may increase the use of Twitter hashtags.

4. Creating digital content: By creating digital content that is related to their coursework, students may showcase both their own creative ability and their learning. When students are able to speak in ways that highlight and take into consideration their unique abilities and communication/learning preferences, generating material, like any other endeavour, is most effective. Allow students to express themselves through blogs, movies, podcasts, eBooks, flyers, and other digital art, or through any other media that suits them best. When students' individuality and needs for creative expression are valued, they grow as learners.

5. Using classroom calendar: Use Google Calendar or a similar programme to create a shared online calendar that the entire class may use to add important updates. Post the dates of assignments and class events (such as guest lectures and field trips) in a location that is easy for students and teachers to locate. To go one step further, provide the parents access to the calendar so they may stay informed and involved in their children's education.

6. Review and critique webpage: We are aware that practically anything can be found online, but we are also aware that a lot of the material you may obtain is not from credible sources. When I was writing research papers, I remember hearing this advice repeatedly from teachers and professors, but I can't think of a single instructor who provided an explanation. By going through them together, creating, and distributing guidelines for what constitutes a good source, you may equip your students with the digital literacy to assess and distinguish trustworthy web sites and sources from untrustworthy ones.

7. Video/multimedia lessons and presentations: To increase the level of student engagement in presentations, use visual effects, photos, videos, and music. By making slideshows and digital presentations, using music or video as background or context during presentations, or inviting virtual guest speakers to interact with your class via conference call programmes (like Skype, Google Hangouts, and Facetime), you can boost student engagement with lessons while teaching the benefits of technology and multimedia use.

8. Online activities for students who finish work early: To encourage and support pupils working at their own speed, set up learning stations. Students can extend and enhance their learning by visiting a learning station and watching videos, playing learning-based games, or exploring other online activities related to their needs if they finish an assignment ahead of schedule, instead of waiting for other students to catch up or for class to end.



CONCLUSION

On the strength of the findings made in the research, it is hereby concluded that the level of awareness about emerging technologies in the teaching and learning of social studies in Ogoja Education Zone of Cross River State is inadequate. Many teachers and students are not aware of the availability of most of the emerging educational technologies in use in schools. Furthermore, only Facebook, WhatsApp and Telegram are the only apps used in the teaching and learning of social studies in Ogoja Education Zone of Cross River State. Therefore, not many emerging technologies are being used in schools in the study area.

Again, the knowledge difference between teachers and students regarding emerging technologies in school is quite significant. Secondary school students in Ogoja have more awareness of emerging educational technologies than their teachers. The students not only know about the existence of these educational technologies, they also know how to use some of them. Nonetheless, the level of utilisation of emerging technologies in the teaching and learning of social studies in secondary schools in Ogoja Education Zone of Cross River State is very poor. Yet, Social studies teachers' perception of usage of emerging technologies in secondary schools in Ogoja Education Zone of Cross River State is positive. They noted that the use of emerging technologies makes teaching and learning easy and interesting. Still, the teachers believe that they do not have the financial resources to procure and operate emerging technologies in classroom settings.

RECOMMENDATIONS

1. This paper recommends that all teacher-education programmes in faculties and colleges of education should incorporate the use of emerging technologies in their curriculum to adequately equip teachers with the knowledge and skills to utilise these technologies in the classroom settings. Additionally, in-service training for teachers should include this knowledge and skill. This is to help keep the current social studies teachers abreast with this development.
2. The Cross River State Ministry of Education and the Federal Ministry of Education, the proprietors of top secondary schools in Ogoja Education Zone should make provisions of resources (ICT facilities and resource centres) available in schools to facilitate the use of emerging technologies.



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