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PUBLIC SECONDARY SCHOOL TEACHERS' ACCESSIBILITY OF VARIOUS ONLINE EMERGING TECHNOLOGIES FOR MANAGING TEACHING-LEARNING EFFECTIVENESS IN ANAMBRA STATE

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ABSTRACT

This study examined public secondary school teachers' accessibility of various online emerging technologies for managing teaching-learning effectiveness in Anambra State. Three research questions guided the study. The study adopted descriptive survey research design. Population of the study constituted 5,674 teachers from the 259 public secondary schools in the 6 education zones in Anambra State. Sample size for the study comprised 567 teachers selected out of the entire teachers' population at 10% (percent) and 50% respectively using the stratified random sampling technique. Instrument for data collection was questionnaire. The research instrument was validated by experts. A pilot-test was conducted, the scores obtained after the pilot-test were computed using the Cronbach Alpha method which gave internal consistency overall reliability value of 0.75 showing that the instrument was reliable and dependable for conducting the study. Data collated were analyzed using mean scores and standard deviation. The findings of the study indicated that the public secondary school teachers did not have access to the various online emerging technologies for managing teaching-learning in Anambra State. From the findings of this study revealed that; education stakeholders should provide internet access for teachers' accessibility of technologies in the teaching-learning processes. They should equally avail teachers' opportunities to have adequate access to the various online emerging technologies through adequate funding, facilities provision, encouragement of private sector support and organization of in-service retraining programmes which will highly promote teachers' accessibility of these online emerging technologies for managing teaching-learning effectiveness in Anambra State.

Keywords: Secondary, Teachers, Accessibility, Online, Technologies, and Teaching-Learning,

Introduction

Teachers are one of the most important human resources in the education sector. They are the ones who implement the educational policy at the classroom level. Teachers always stand at the forefront of students' learning. Therefore, every well-structured, organized and meaningful teaching and learning engagement or interaction must involve the presence and services of a teacher. According to Kapur (2018), the teacher is regarded as the most important element within the educational programme. It is the teacher, who is responsible for putting into practice the educational programmes at any stage. He or she is an expert who is capable of imparting knowledge that will help learners to build, identify and to acquire skills that will be used to face the challenges in life. A person with the accurate and specific ability, intuition, education, experience, skills, knowledge, and qualifications to teach a specific subject or

number of subjects (Definitions.net. STANDS4 LLC, 2021). The teacher also provides to the learners' knowledge, skills and values that enhance development. Thanks to the teachers that an educated person is capable of utilizing the available opportunities in both private and public sectors. The educated person can easily secure employment as well as having life skills that will enable him/her to interact well in the society. The teacher is the person who is capable of creating behavioural change in terms of cognitive, psychomotor as well as affective domain through the effectiveness of teaching and learning situation. Hence, it is vital to make an investment in leading to both the preparation of teachers including teaching-learning effectiveness, in an appropriate manner, so that the educational system together with individuals, community as well as the entire nation can move forward towards progression (Kapur, 2018). Besides, the educational system cannot survive without the teachers. It is part of the responsibility of a teacher to ensure that students study in order to acquire the necessary knowledge and skills which will enable them to become functional in the society. One important thing is to make the education system (which includes the school environment like the secondary school) functional, conducive and well-organized/structured to enable teachers discharge their duties diligently, efficiently and effectively. According to Cookey cited in Asaju and Adagba (2014), functional education is the education in which the ability to perform productive tasks is more emphasized than the education that aims at producing ideological conformity. It is the type of education that equips the recipient with the knowledge and skills needed for that performance of productive task, it is one that helps the society meet their developmental needs. It is a kind of education that emphasizes on practice more than theory. Cookey as cited in Asaju and Adagba (2014) went further to posit that the Nigerian education system at various the levels of early childhood care education, basic/primary education, post-basic/secondary education and higher education have not been functional and effective because too much emphasize has been placed on theoretical and academic knowledge without incorporating much 'practice', that is, practical. There is undue emphasis on the possession of certificates instead of on what one can do. The question then is how can we make the Nigerian education system including those in Anambra State, functional? As part of the answer to the above question, there seem to be the need to promote teaching-learning effectiveness. A functional education system incorporates healthy school environments and climates which highly promotes teaching-learning effectiveness.

Teaching-learning entails a transformation process of knowledge from teachers to students. It is a process that includes many variables. These variables interact as learners work toward their goals and incorporate new knowledge, behaviours, and skills that add to their range of learning experiences. It is a transformation process of knowledge from teachers to students (India Development Gateway – In DG, 2021). Teaching involves teachers' roles in the classroom which has to do with a set of activities or events outside the learners designed for imparting knowledge, ideas, information and skills; while learning is about a change: the change brought about by developing a new skill, understanding a scientific law, changing an attitude. The change is not merely incidental or natural in the way that our appearance changes as we get older. Learning is a relatively permanent change, usually brought about intentionally (Sequeira, 2012). Teaching-learning effectiveness can be viewed as the degree to which a school sets standards in the teaching and learning process in order to achieve educational goals. It is a process that measures (the quality of instructional

delivery) the achievement of a specific educational goal or the degree to which a secondary education institution can be expected to achieve its set goals and objectives. According to the Learning Forward (2011), teaching and learning effectiveness is a journey rather than a destination which emerges from a vision for teaching and learning, an instructional framework, standards for student learning, and performance expectations for educators coupled with a convergence of policy, planning, and goals at the state, school system, and school levels. Educators, policymakers, community members, and decision makers work collaboratively to develop and implement these components that serve as the backbone of effective teaching and learning. Effectiveness of teaching and learning therefore, incorporates teacher behaviour (warmth, civility, clarity), teacher knowledge (of subject matter, of students), teacher beliefs, and so forth. This includes a reflection using data, engaging in professional learning, and adapting practice to meet the learning needs of students. Factors, elements or such characteristics that determines teaching and learning effectiveness as observed by Kentucky Department of Education (2020) and the Learning Forward (2011) includes that it creates an environment where student work is valued, appreciated and used as a learning tool; provides students equitable access to technology, space, tools and time and also allows teachers select and utilize a variety of emerging technology that support student learning; active learning is highly promoted; lessons are designed in such manner which allow students to participate in empowering activities in which they understand that learning is a process and mistakes are a natural part of learning; provides meaningful learning opportunities for students; enables the teacher scaffold instruction to help students reason and develop problem-solving strategies; aids the integration a variety of learning resources with classroom instruction to increase learning options; creates learning environments where students are active participants as individuals and as members of collaborative groups, among others.

From the foregoing discussions, there is no way one would talk about teaching and learning effectiveness without including the use of technology. As part of frameworks of managing teaching-learning effectiveness in school, the Federal Republic of Nigeria (FRN, 2013) stated that the education coupled with the teaching-learning experiences must be made practical, activity-based, experiential and IT supported (technologically based).The Federal Republic of Nigeria went further to give their approval and directives on integration of ICT in educational programmes for improvement in instructional delivery reinstating under section 2, p.15 of the NPE that in "recognition of the prominent role of Information Technology (IT) in advancing knowledge and skills necessary for effective functioning in a knowledge driven world, government shall provide adequate infrastructure and develop capacity for effective accessibility and utilization of (IT) to enhance the delivery of education in Nigeria. Significantly, the use of emerging technologies have substantially been approved by the government for educational developments in the country. In essence, to promote the effectiveness of teaching and learning in secondary schools in Anambra State, accessibility of emerging technologies must play a fundamental role in producing the methodological change required in order to improve educational quality. Emerging technologies however, as described by the IGI Global Partnership (2021) are new technologies, or new uses of existing technologies, that will add value and impact positively on the school environment in regards to teaching, learning, research, or student creativity. They are equally tools, concepts and

advancements utilized in diverse educational settings to serve a variety of education related purposes. In an online video recording, Miller (2021) described online technology as new to someone or being familiar with but used in a different way. This age is popularly known as technological age in which computer technology is most widely used. Computer technology has been found useful in many areas of knowledge like communication, banking, engineering, commerce, space exploration and even education is not left out of the revolution. Through the emerging computer assisted instruction, problem situations can be presented to students to guide their thinking, respond to their questions and also manage their performances in the teaching and learning processes, i.e. emerging computer technologies in essence can be highly utilized during instructs so as to achieve the desired level of proficiency. Emerging technologies therefore, depending on context, being new or not so new but whose application leads to qualitatively different educational results for the stakeholders concerned. Depending on context of application and regions, these may include online emerging technologies such as social media technologies, cloud-based or computing technologies, virtual worlds and mobile technologies, among many others (Techopedia 2021). Online emerging technologies which is the main focus of this present study as described by the IGI Global Partnership (2021) refers to new computer devices and services connected to the internet that afford flexible communication and connectivity for the user. Online technology is used to make reference to new devices or experiences that do afford or imply a connection to the internet. They are simply new technologies in form of hardware, software, apps, social networking, among others used to conduct online activities via the Internet.

Techopedia Inc. (2021) opined that online emerging technology is an adjective to describe activity performed while on the Internet, such as online shopping, online education or learning. Online, in a generic sense, refers to when an electronic device is on and connected to other devices, such as another computer, a network or a device such as a printer. More recently, the term online has come to mean connected to the Internet. In this case, either a person may be online when he or she is using the Internet, or the computer itself may be said to online when it has established an Internet connection. Devices such as printers and scanners are considered to be online when they are running and connected to a computer system. In regards to connection to the Internet or other network, computers would technically be considered to be online when they are connected to a network (such an intranet), but most people use the term to refer to Internet connection only. When a computer or device is not online, it is said to be offline. Miller (2021) gave few examples of these online emerging technologies grouping them into different categories of video messaging technology and video discussion boards, screen casting, among others. Others as identified by Neira, Salinas and Crosetti (2017) include Web 2.0 technologies (blogs, podcasts, social networks or networking such as Skype, YouTube, Instagram, chats, forums, platforms, text messages, Zoom, WhatsApp, among others), technologies that offer a direct or indirect real-world view to users (virtual worlds, Virtual reality), application programs (mobile applications, java script, html5, etc.), educational platforms (LMS as Moodle), games (Games on Facebook, etc.), educational resources (tutorials, open resources), online Google docs such as google classroom, google meet, google hangouts, etc. and finally, software that uses 3D technology (3D animations). Online emerging technologies also include texts shared through google docs; Images

as photo journal; audio through podcasts; video and shares via YouTube; multimedia like the construction of wikis in a collaborative way and finally, blogs to generate and transmit knowledge on behalf of students or teachers; among others. However, the present study focused on the emerging social networking technologies which includes online google classroom, WhatsApp and zoom emerging technologies. These online emerging technologies which requires Internet connections or connectivity to function have their own benefits to users in education. Google classroom according to (Kerr, 2014; Google Groups, 2018), is a free blended learning platform developed by Google for schools that aims to simplify creating, distributing, and grading assignments. The primary purpose of Google Classroom is to streamline the process of sharing files between teachers and students. As of 2021, approximately 150 million users use Google Classroom. Google Classroom integrates Google Docs, Google Sheets, Google Slides, Gmail, and Google Calendar into a cohesive platform to manage student and teacher communication. Students can be invited to join a class through a private code, or automatically imported from a school domain. Teachers can create, distribute and mark assignments all within the Google ecosystem. Each class creates a separate folder in the respective user's Google Drive, where the student can submit work to be graded by a teacher. Assignments and due dates are added to Google calendar, where each assignment can belong to a category or topic. Teachers can monitor each student's progress by reviewing revision history of a document, and after being graded, teachers can return work along with comments and grades (Kerr, 2014; Google Groups, 2018).

Google Classroom was announced on May 6, 2014, with a preview available for some members of Google's G Suite for Education program. It was released publicly on August 12, 2014. In 2015 Google announced a Classroom API and a share button for websites, allowing school administrators and developers to further engage with Google Classroom. Also in 2015, Google integrated Google Calendar into Classroom for assignment due dates, field trips, and class speakers. In 2017, Google opened Classroom to allow any personal Google users to join classes without the requirement of having a G Suite for Education account, and in April of the same year, it became possible for any personal Google user to create and teach a class. In 2018, Google introduced a major redesign to Classroom. This included adding a new classwork section, improving the grading interface, allowing reuse of classwork from other classes, and adding features for teachers to organize content by topic. In 2019, Google introduced 78 new illustrated themes and the option to drag and drop topics and assignments in the classwork section. In 2020, Google added better integration with Google Meet so that teachers can have a unique meet link within each class. Google Classroom integrates Google Drive, Google Docs, Google Sheets, Google Slides, Google Forms, Google Sites, Gmail, among others, to help educational institutions transition to a paperless system (Kerr, 2014; Google Groups, 2018).

WhatsApp is equally an online emerging technology which has grown to become popular in Nigeria, although it is used mostly used by a lot of people for social interactions but WhatsApp can make real positive impact in promoting teaching and learning effectiveness in education. According to Dove, Beaton and Udavant (2017), Goodwin (2020) and Steele (2014), WhatsApp was launched in 2009 and it is a free, multi-platform messaging app that lets users make video and voice calls, send text messages, share their status, and more with just a Wi-Fi connection. WhatsApp says it serves more than 2 billion people in over 180 countries, with

over 1 billion daily active users. WhatsApp Messenger is now the leading mobile messaging app in 169 countries. Part of what makes this app appealing is that it works on various phone and computer operating systems, so one can continue his or her conversation anytime, anywhere. It can also take advantage of Wi-Fi and cellular data to make one-on-one or group calls, reducing the need for expensive calling charges. WhatsApp uses phone's cellular or Wi-Fi connection to facilitate messaging and voice calling to nearly anyone on the planet, alone or in a group and is especially nice for families and small collaborative workgroups. The app lets users make calls, send and receive messages, and share documents, photos, and videos. Features of WhatsApp which makes it one of the online emerging technologies useful for managing teaching and learning effectiveness in secondary schools as indicated by (Dove, Beaton & Udavant, 2017; Goodwin, 2020; Steele, 2014) includes Voice and video calls: In addition to voice calls, WhatsApp also offers video calls, including a group function, which allows up to eight participants on one call. Voice messaging: users can record and send voice messages to individual chats or group chats. Secure messaging: WhatsApp uses end-to-end encryption, a secure communication standard where only the people who are messaging can read the messages. Photos and video sharing: users can send videos, photos, and GIFs without worrying that their images will be pixelated or not downloadable, which can sometimes happen across SMS messages between different mobile platforms and wireless carriers. Document sharing: WhatsApp lets you send all kinds of documents, such as PDFs, spreadsheets, and slideshows without the hassle of email or separate document-sharing apps. Desktop access: WhatsApp offers a desktop version for Mac and for PC. WhatsApp Business: WhatsApp's dedicated business account is designed so entrepreneurs can showcase their products and connect with their customers on a platform that's convenient and familiar. Also, WhatsApp has proven to be of great significance especially during this Covid-19 pandemic era. It was to boost communications and most schools keyed into using WhatsApp to strengthen teaching since there was restrictions and embargo on physical contact and crowded places. WhatsApp is completely free — with no fees or subscriptions — because it uses your phone's 5G, 4G, 3G, 2G, EDGE, or Wi-Fi connection instead of your cell plan's voice minutes or text plan (Dove, Beaton & Udavant, 2017; Goodwin, 2020; Steele, 2014).

Zoom as observed by Tillman (2020) in 2020 has become one of the leading video conferencing software apps. It enables users to virtually interact with co-workers when in-person meetings are not possible, and it has been hugely successful for social events, too. At the peak of the Covid-19 pandemic which initiated a lot of lookdowns, restriction of movements, social distancing, avoidance of crowded places like the school; organizations, schools and organizers of conferences, seminars, workshops, etc, resulted into using zoom for their meetings. Zoom is an essential tool for small-, medium-, and large-sized teams who want to keep in touch and continue their daily workflows with minimal disruption - as well as becoming a firm favourite with individuals, especially around holidays like Thanksgiving in the US and Christmas around the world (Tillman, 2020). Zoom is a cloud-based video conferencing service you can use to virtually meet with others - either by video or audio-only or both, all while conducting live chats - and it lets you record those sessions to view later. Over half of Fortune 500 companies reportedly used Zoom in 2019 and during 2020 it hit even greater heights, racking up 227 per cent growth over the year. Zoom allows one-to-one chat sessions that can grow into group

calls, training sessions and webinars for internal and external audiences, and global video meetings with up to 1,000 participants and as many as 49 on-screen videos. The free tier allows unlimited one-on-one meetings but limits group sessions to 40 minutes and 100 participants (Tillman, 2020). The main features of zoom include; One-on-one meetings: Host unlimited one-on-one meetings even with the free plan. Group video conferences: Host up to 500 participants (if you purchase the "large meeting" add-on). The free plan, however, allows user to host video conferences of up to 40 minutes and up to 100 participants. Screen sharing: Meet one-on-one or with large groups and share your screen with them so they can see what you see. Recording: the user can record your meetings or events too. Zoom can be utilized to run quiz for students, play games, among others. Generally, all these online emerging technologies perform so many functions and create classroom activities which are enormous for both teachers and students in the classroom. All the school administrator needs to do is to ensure teachers accessibility of these emerging online technologies for managing teaching and learning effectiveness in the school.

Accessibility of online emerging technologies according to Okolije (2015) refers to the teachers' ability to possess or hire new emerging technology materials/tools and willingness and capacity to take advantage of the available technology services. Within the context and confine of this present study, teachers' accessibility of online emerging technologies embraces the magnitude to which these new technologies are available, applied, mobilized, provided and utilized to aid managing teaching and learning effectiveness in the secondary schools. Lipowsky cited in König, Jäger-Biela and Glutsch (2020) reported that the COVID-19 pandemic situation has posed unprecedented challenges requiring teachers to adapt to teaching online. Until March 2020, the typical teaching situation at school was characterized by students who convened in classrooms according to their timetables and teachers who covered their subjects' standard content, frequently through formal lecturing. Students were required to listen to their teachers, work individually or in groups, and predominantly reproduce knowledge in assessments. The school lockdown confronted teachers, students, and parents with an entirely new situation. Continued teaching and learning was only possible through alternative means of schooling. Teachers had to change to online teaching, requiring them to use various digital tools and resources to solve problems and implement new approaches to teaching and learning (Eickelmann & Gerick cited in König, Jäger-Biela &Glutsch, 2020). Beyond instructional goals, teachers were also required to maintain contact with their students to account for the social integration of their learning groups. Evidence suggests that emerging technologies may enable new opportunities for teaching and learning (for a meta-analysis), and the use of ICT has become increasingly popular in elementary and secondary schools in recent decades. However, in spite of its potential influence on teaching and learning effectiveness, the mere presence of computer technology hardware does not necessarily lead to student progress. Although technical infrastructure is required to implement online emerging technologies in instructional contexts, teachers and students must also be encouraged and supported in using technology tools. Therefore, far-reaching added value, for example, in terms of increased access to online emerging technologies among teachers, may not yet be guaranteed. This position has necessitated the present study. Several empirical studies by Soetan, Ogunlade, Fakomogbon and Bolaji (2014) and Yarhere, Obuzor and Fomsi (2020) have been conducted in

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different aspects and areas of ICT and emerging technologies. Each of these studies had their findings, differences and mix which makes them different from the present study. To some of these studies, technology was accessible, available and utilized by their respondents; while most of them reported that the technologies were neither accessible, available nor utilized. It is upon this entire background that the present study investigated public secondary school teachers' accessibility of various online emerging technologies for managing teaching-learning effectiveness in Anambra State.

Statement of the Problem

There are difficult situations and challenges towards the attainment of teaching and learning effectiveness in the country and Anambra State inclusive. Teachers' have unlimited and adequate access to various online collaborative emerging technologies in order to promote teaching-learning effectiveness for achievement of both instructional and educational goals and objectives. It is rather disappointing to see that notwithstanding the ear of Covid-19 pandemic, yet many secondary schools including those in Anambra State have failed to continuously support their teaching-learning processes with most of these online emerging technologies which incorporates such technologies as Google classroom, WhatsApp and Zoom.The devastating situation and inability of most of the secondary schools in Anambra State as regards to the challenge of managing teaching-learning effectiveness has created gap which needs to be filled by this present study. The need therefore, to examine public secondary school teachers' accessibility of various online emerging technologies for managing teaching-learning effectiveness in Anambra State becomes the problem of this present study.

Research Questions

Three research questions guided this study, and they include:

1. What are the secondary school teachers' accessibility of the online google classroom technology for managing teaching-learning effectiveness in Anambra State?
2. What are the secondary school teachers' accessibility of the online WhatsApp technology for managing teaching-learning effectiveness in Anambra State?
3. What are the secondary school teachers' accessibility of the online zoom technology for managing teaching-learning effectiveness in Anambra State?

Methods

The study adopted the descriptive survey research design. Data gathered from these respondents were analyzed using a statistical tool Population of the study constituted 5,674 teachers from the 259 public secondary schools in the 6 education zones in Anambra State. Sample size of the study comprised 567 teachers from 130 public secondary schools selected out of the entire teachers' population and public secondary schools at 10% and 50% respectively using the stratified random sampling technique. The sample was selected at 10% of the teachers' population and 50% of the public secondary schools' population within the 6 education zones in Anambra. Questionnaire was instrument for data collection. The research instrument was validated by experts. A pilot-test was conducted. The result obtained after the pilot-test were computed using the Cronbach Alpha method which yielded an overall reliability value of 0.75 showing that the questionnaire was reliable and dependable for conducting the study. Data collated were analyzed using mean scores and standard deviation.

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Results

Research Question 1: What are the secondary school teachers' accessibility of the online google classroom technology for managing teaching-learning effectiveness in Anambra State?

Table 1: Mean Scores Ratings and STD of Teachers concerning their Accessibility of the Online Google Classroom Technology for Managing Teaching-Learning Effectiveness in Anambra State; N = 567 Teachers

S/N	Kindly rate your accessibility in using google classroom which allows teachers to:	HA	A	LA	NA	X	STD	Decision
1.	streamline how to manage the classes for managing teaching-learning effectiveness	118	132	157	160	2.37	1.10	**Not Accessible**
2.	distribute lesson note or other course materials to students for managing teaching-learning effectiveness	133	127	140	167	2.40	1.14	**Not Accessible**
3.	post assignment to multiple classes or modify and reuse assignments from year to year for managing teaching-learning effectiveness	105	104	182	176	2.24	1.08	**Not Accessible**
4.	communicate with students about their class work for managing teaching-learning effectiveness	122	115	150	180	2.32	1.13	**Not Accessible**
5.	post announcements and reminders about assignments for managing teaching-learning effectiveness	130	124	171	142	2.43	1.10	**Not Accessible**
6.	answer students questions privately or publicly for managing teaching-learning effectiveness	128	123	139	177	2.36	1.14	**Not Accessible**
7.	organize summative and formative assessments for managing teaching-learning effectiveness	92	114	174	187	2.20	1.07	**Not Accessible**
8.	collect and grade students' assignments which will aid managing teaching-learning effectiveness	126	131	144	166	2.38	1.13	**Not Accessible**
9.	integrate with Google's other tools like Docs, Drive, Forms, Meet, Sheets and Calendar, etc for managing teaching-learning effectiveness	97	101	190	179	2.20	1.07	**Not Accessible**
10.	avoid trips to photocopier in order to cut down on some of the paper shuffling that comes with physical teaching and learning for managing teaching-learning effectiveness	111	119	184	153	2.33	1.07	**Not Accessible**
11.	give students timely feedback on their assignments including assessments for managing teaching-learning effectiveness	121	145	155	146	2.43	1.09	**Not Accessible**
12.	set up video meetings for live or synchronous instruction for managing teaching-learning effectiveness	106	138	165	158	2.34	1.07	**Not Accessible**
13.	customize assignments for individual students or small groups for managing teaching-learning effectiveness	100	105	194	168	2.24	1.06	**Not Accessible**
14.	share other types of media, including images, links to websites, YouTube videos, video clips and screen casts to aid managing teaching-learning effectiveness	112	137	188	130	2.41	1.05	**Not Accessible**
15.	use the Stream to set up class discussion boards, where students can interact online by asking questions or commenting on each other's posts to enhance managing teaching-learning effectiveness	88	102	186	191	2.15	1.06	**Not Accessible**
	Overall Mean Score & STD =					**2.32**	**1.09**	**Not Accessible**

Analysis from Table 1 shows that none of the items were rated above the acceptable mean scores of 2.50 by the teachers in order to show that they agreed with these statements. All the other items

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from 1 to 15 were rated below the acceptable mean scores of 2.50 by the teachers in order to show that they disagreed with these statements. The grand mean of 2.32 and standard deviation (SD) of 1.09 indicates closeness in the teachers' responses showing that the online google classroom technology for managing teaching-learning effectiveness in Anambra State was not readily accessible by the public secondary school teachers.

Research Question 2: What are the secondary school teachers' accessibility of the online WhatsApp technology for managing teaching-learning effectiveness in Anambra State?

Table 2: Mean Scores Ratings and STD of Teachers concerning their Accessibility of the Online WhatsApp Technology for Managing Teaching-Learning Effectiveness in Anambra State; N = 567 Teachers

S/N	Kindly rate your accessibility in using WhatsApp which allows teachers to:	HA	A	LA	NA	X	STD	Decision
16.	share course materials including lesson note for students to enhance managing teaching-learning effectiveness	104	146	166	151	2.36	1.06	**Not Accessible**
17.	teach or present lessons to students just as in the normal conventional classroom for managing teaching-learning effectiveness	109	130	150	178	2.30	1.11	**Not Accessible**
18.	facilitate one-on-one text exchanges in order to address individual students' expectations and needs for managing teaching-learning effectiveness	82	117	179	189	2.16	1.04	**Not Accessible**
19.	facilitate the lesson (topic) content discussions and classes updates for managing teaching-learning effectiveness	107	135	185	140	2.37	1.05	**Not Accessible**
20.	announce assignment instructions including submission deadlines for managing teaching-learning effectiveness	100	113	202	152	2.28	1.05	**Not Accessible**
21.	communicate to students on the group information about the changes in mid-term continuous assessment tests for managing teaching-learning effectiveness	106	128	164	169	2.30	1.09	**Not Accessible**
22.	content in jpeg and pdf formats to be shared within the group which will aid in managing teaching-learning effectiveness	109	114	165	179	2.27	1.10	**Not Accessible**
23.	Split video files of 20 megabytes into smaller multiple videos and shared to students for managing teaching-learning effectiveness	108	132	156	171	2.31	1.09	**Not Accessible**
24.	contact students via WhatsApp regardless of time differences, physical distance or office working hours for managing teaching-learning effectiveness	80	119	180	188	2.16	1.04	**Not Accessible**
25.	provide feedback to students on instructional practices which will aid managing teaching-learning effectiveness	101	139	154	173	2.30	1.08	**Not Accessible**
26.	send pictures, audio-visual files attachment and websites links for managing teaching-learning effectiveness	103	121	169	174	2.27	1.08	**Not Accessible**
27.	turn in live audio lesson prepared for students to enhance managing teaching-learning effectiveness	107	122	190	148	2.33	1.06	**Not Accessible**
	Overall Mean Score & STD =					**2.28**	**1.07**	**Not Accessible**

Analysis from Table 2 shows that none of the items were rated above the acceptable mean scores of 2.50 by the teachers in order to show that they agreed with these statements. All the other items from 16 to 27 were rated below the acceptable mean scores of 2.50 by the teachers in order to show that

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they disagreed with these statements. The grand mean of 2.28 and standard deviation (SD) of 1.07 indicates closeness in the teachers' responses showing that the online WhatsApp technology for managing teaching-learning effectiveness in Anambra State was not readily accessible by the public secondary school teachers.

Research Question 3: What are the secondary school teachers' accessibility of the online zoom technology for managing teaching-learning effectiveness in Anambra State?

Table 3: Mean Scores Ratings and STD of Teachers concerning their Accessibility of the Online zoom Technology for Managing Teaching-Learning Effectiveness in Anambra State; N = 567Teachers

S/N	Kindly rate your accessibility in using Zoom which enables teachers initiate teaching-learning effectiveness as to:	HA	A	LA	NA	X	STD	Decision
28.	use zoom to teach or synchronous online class sessions	111	114	182	160	2.31	1.08	**Not Accessible**
29.	use a web conferencing tool which is equally an essential skill for today's instructor	106	130	190	141	2.35	1.05	**Not Accessible**
30.	invite outside guests to speak to the students online	100	140	140	187	2.27	1.10	**Not Accessible**
31.	connect with students through video clips, text chat, among others in an online group	105	111	170	181	2.25	1.09	**Not Accessible**
32.	support the ability for students to work in groups, either when you enable breakout rooms for them, or when they use their personal meeting rooms to meet with peers	117	117	149	184	2.29	1.13	**Not Accessible**
33.	use written annotations on a whiteboard or directly onto documents on the screen when sharing	98	100	180	189	2.19	1.08	**Not Accessible**
34.	boost interact and discussions with students in order to determine and find solutions their problems, areas of needs coupled with interest	110	126	154	177	2.30	1.11	**Not Accessible**
35.	share lesson notes including other necessary documents	114	110	175	168	2.30	1.10	**Not Accessible**
36.	announce information to students about their assignment including other assessment test	92	139	179	157	2.29	1.04	**Not Accessible**
37.	set up virtual video and audio conferencing, webinars, live chats, screen-sharing, and other collaborative capabilities	125	132	164	146	2.42	1.09	**Not Accessible**
	Overall Mean Score & STD=					**2.30**	**1.09**	**Not Accessible**

Analysis from Table 3 also shows that none of the items were rated above the acceptable mean scores of 2.50 by the teachers in order to show that they agreed with these statements. All the other items from 28to 37 were rated below the acceptable mean scores of 2.50 by the teachers in order to show that they disagreed with these statements. The grand mean of 2.30 and standard deviation (SD) of 1.09 indicates closeness in the teachers' responses showing that the online Zoom technology for managing teaching-learning effectiveness in era in Anambra State was not readily accessible by the public secondary school teachers.

Discussions

Findings of this study generally indicated that the public secondary school teachers did not have access to the various online emerging

technologies for managing teaching-learning effectiveness in Anambra State. The finding of this study indicated that online google classroom technology for managing teaching-learning effectiveness in Anambra State was not readily accessible by the public secondary school teachers. The finding further showed among others that public secondary school teachers did not access the online google classroom technology which enables them to; streamline how to manage the classes for managing teaching-learning effectiveness, distribute lesson note or other course materials to students, post assignment to multiple classes or modify and reuse assignments from year to year for managing teaching-learning. This finding corroborates and agrees with the finding of Yarhere, Obuzor and Fomsi (2020) study on online learning using google classroom: undergraduate medical students and pediatric residents' perspectives in the University of Port Harcourt, Nigeria which indicated that the respondents had high familiarity, but low access and use of Google classroom, and preferred mobile devices to laptops. The study finding also negates and deviates with Okolije (2015) study which found out that majority of the respondents indicated that mostly "internet", "e-mail" and "computer" are accessible in their institution. This finding disagrees with that of (Adeyinka, Adedeji, Majekodunmi, Adika & Adeyinka, 2011) in their study on an assessment of secondary school teacher's use of ICT, which found out that it was only internet and email services that teachers did not have access to. This result indicates that technologies are available for access and that respondents have skills to access them. Whereby the public secondary school teachers do not have access to online google classroom emerging technology, this would create difficulties in managing teaching and learning effectiveness especially in Anambra State

The finding on the online WhatsApp technology for managing teaching-learning effectiveness in Anambra State indicated that public secondary school teachers did not access the online WhatsApp technology which enables them to; share course materials including lesson note for students to enhance managing teaching-learning effectiveness, teach or present lessons to students just as in the normal conventional classroom, facilitate one-on-one text exchanges in order to address individual students' expectations and needs for managing teaching-learning effectiveness among others. This finding agrees and is in line with Okolije (2015) study which found out that it was only Microsoft word that the respondents had reasonable access to and used. It is also in line with the findings of (Adeosum, 2011 cited in Okolije, 2015) that technology tools and equipment are grossly lacking in almost all the sampled schools. Whereby the public secondary school teachers do not have access to online WhatsApp technology, this affected their efficiency in utilizing these technologies for managing teaching-learning effectiveness in public secondary schools in Anambra State.

The finding of this study revealed that online Zoom technology for managing teaching-learning effectiveness in Anambra State was not readily accessible by the public secondary school teachers. This finding further showed that public secondary school teachers did not access the online Zoom technology which enables them to; use zoom to teach or synchronous online class sessions for managing teaching-learning effectiveness, among others. The present study finding in in supports of Olokoba, Abdullahi and Omosidi (2014) which revealed that many schools in Kwara State did not have enough access to technology tools and teachers did not use the ICT tools in their instructional activities. This finding is in support of Okorie (2019) who investigated the secondary

school teachers' perception of the utilization of electronic media for teaching basic technology in the Ilorin Metropolis and deduced that the unavailability of the electronic media affects its utilization thereby affecting performance. Furthermore, the findings align with Kunda, Chember and Mukupa (2018) who assessed the factors that influence Zambian higher education lecturers' attitude towards integrating ICTs in teaching and research, as inadequate Internet bandwidth, insufficient number of available computers, the expense associated with procurement of hardware and software in the secondary school in developing countries. Whereby the public secondary school teachers do not have access to online Zoom technology, it therefore, become difficult for them to manage teaching-learning effectiveness in public secondary schools in Anambra State.

Conclusion

Public secondary school teachers must be prepared and ready to access online emerging technologies owing to the fact that the present era of digital inclusion not only presented challenges to human life and continuous development in the society, but to also to educational development which places more emphasis on online education. Therefore, for teaching and learning effectiveness in the public secondary school teachers must have access to many of the online emerging technologies. Rather, the present study submits that the online google classroom, WhatsApp and Zoom emerging technologies for managing teaching-learning effectiveness in Anambra State were not readily accessible by the public secondary school teachers. The finding further indicates that public secondary school teachers did not access these emerging technologies for managing teaching-learning effectiveness in Anambra State. By implication, these discoveries have negative consequences on quality teaching and learning to triumph in Anambra State; hence the recommendations proffered below.

Recommendations

From the findings of the study, the following recommendations were made:

1 Anambra State Government and Post Primary Schools Service Commission (PPSSC) should curb all the problems inhibiting teachers' accessibility of the emerging online google classroom, WhatsApp and Zoom technologies in the teaching-learning processes. They should equally avail teachers' opportunities to have adequate access to the various online emerging technologies through adequate funding, facilities provision, and encouragement of private sector support which will highly promote teachers' accessibility of these online emerging technologies for managing teaching-learning effectiveness in Anambra State.

2. The Post Primary School Service Commission (PPSSC) should provide adequate support for the public secondary school teachers by providing sufficient data that will boost their access to online WhatsApp technology using their handsets, for managing teaching-learning effectiveness.

3. The Post Primary School Service Commission (PPSSC) in collaboration with the private sector should provide adequate support for the public secondary school teachers to have access to online Zoom technology through effective and constant organization of in-service retraining programmes, which is necessary for managing teaching-learning effectiveness.

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