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Impact of Information Technology on Teaching and Learning: A Focus on Hybrid Teaching Mode

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Abstract

Information technology (IT) has been impacting positively on all spheres of life in the 21st century, including bringing to place new methods of teaching and learning. The aim of this study is to appraise the impact of IT on education in the form of hybrid teaching (HT henceforth). Telephone interviews and observation, and library and the internet are the respective primary and secondary sources of data relied on. Qualitative method, systematic review, and thematic and content analyses along with suitable descriptive and interpretive techniques are employed. The analysis shows that teaching and learning have been changed, innovated, transformed, rebranded and simplified by IT, as in HT mode, even though the extent of the positive impact of IT in teaching and learning is most often reduced by the factors constraining the integration of IT into education. The study concludes that the findings have practical implications for systematized and personalized seamless pattern of teaching and learning. It recommends more research into HT, more specifically in developing nations, to unveil and rouse deserving attention to the challenges of integrating IT into the education sector, particularly in HT. It also charges all concerned political and educational authorities to provide schools and learners with the needed technologies and logistics for effective HT and online teaching and learning, towards harnessing the huge prospects of digitalization.

Keywords: Information Technology, Hybrid, Teaching, Learning, Impact.

Introduction

Teaching in contemporary time has become digitalised through the use as well as integration of information technology (IT), also regarded as information and communication technology (ICT) or new media. IT has a lot to it. The focus on it herein is in the education sector, where it is deployed for hybrid teaching (HT). Erstwhile, the traditional teaching method involving physical or face-to-face teaching (FTFT) classroom and learning was the only one in vogue. The FTF teaching method involves a designated setting or place. The teaching pattern involving the use of digital means alone is known as online teaching (OT). This mode of education is also known as electronic teaching and learning (e-teaching and e-learning). The teaching-learning situation in which FTF and OT modes are combined is the mode known as hybrid teaching (HT). The HT mode is relatively new.

The implication of the foregoing is that there are different modes and styles of teaching, which as Mbah (2023) rightly notes depend on 'the curriculum and the specific objectives of the teacher' (p. 9). This study is concerned with the HT mode. In other words, the aim of this study is to dissect the impact of IT on teaching and learning, as evident in Hybrid Teaching (HT). In dissecting the impact, scholarly evidence to back the thesis of the study shall be drawn from extant studies on themes of ICT and HT.

Statement of the Problem

Despite the negative impact of information technologies on education, the positive impact can be affirmed. Regrettably, many people tend to see the negative side of the impact alone, leaving out or disregarding the positive impact. More so, institutional and technological challenges are over considered and stressed by many, such that the prospects of hybrid education are neglected. This study focuses on the prospects of hybrid education, with a view to determining its impact and nexus with ICT, and contextualizing it in education.

Objectives

This study is engaged with exploring the impact of IT on education in the form of HT. The specific objectives of the study, which form the questions to be answered, are to:

i. Explore the impact of HT as well as ICT from a bi-directional angle of considering the impact of HT as well as ICT;
ii. Determine the nexus between IT and HT;
iii. Contextualise ICT in the education sector.

Conceptual Review

The recently introduced method combines face-to-face teaching and learning with online or distance teaching and learning. In all cases, the concept of pedagogy is essential and runs through the three teaching and learning methods noted above. For this study, pedagogy simply refers to the art of teaching and evaluation, and assessing performance. To Mbah (2023), 'pedagogy is the method, which lies behind the craft of teaching' (p. 9). The Caduceus International Publishing (2023) describes it as the teacher's application of the knowledge of how students learn to design, deliver and use the acquired knowledge to form beliefs, methods and techniques of teaching in the classroom. The foregoing definitions are made here to highlight the meaning of pedagogy, a factor in all the teaching modes and styles.

The importance of pedagogy in learning process is emphasised by Mbah (2023), who notes that a good pedagogy makes the acquisition of the anticipated knowledge to be easy and enjoyable. He adds that conversely, a bad pedagogy or methodology makes a subject matter difficult and confusing. It follows that pedagogy and methodology are essential determinants of students' performance and the different teaching modes and styles.

Among other crucial factors, these two are essentials of HT and other teaching modes–traditional teaching (TT) and online teaching (OT) modes.

Information and Communication Technology (ICT) is described by Ghavifekr and Rosdy (2015) as an umbrella term for computers, software, networks, satellite links and related systems that allow people to access and share information and knowledge in a variety of forms. For Adebisi (2009), ICT refers to the application of technical, advanced, computerised and scientific technologies to various processes of producing, transmitting, consuming, storing and providing information. Technology includes blogs, picture sharing, music sharing, crowd sourcing, e-mail, instant messaging and voice record, which obtain on social networking sites (SNSs), with those called social media taking precedence (Anjugu, 2013).The technologies of the new media include internet, multi-media, portals, mobile phones, gaming, animations, multi-media, portals, etc. (Ravi, 2012).

New media combine different forms of media content. They comprise a combination of text, audio, images, animation, video, and interactivity forms. The term multimedia refers to electronic media devices used for storing and experiencing content. Terms associated with the multimedia include rich media, interactive media and hypermedia, whereby hypermedia is one of the applications of the multimedia (Ravi, 2012). Multimedia technologies include those technology-based devices that combine texts, symbols, graphics, videos, animations and audio (Keengwe et al., 2008).

HT involves face-to-face (physical or offline) and online modes of teaching, which is both synchronous and asynchronous in participation. It also involves pedagogy, curriculum, assessment and the teacher. It combines in-person, distance and online interactions and teaching-learning contexts (Bubacz et al., 2021; Nava, 2015; Mossberger et al., 2003). Again, HT involves teaching and learning that combines the face-to-face mode with the virtual (online) mode (Nava, 2015). It is a case of technological integration and innovation. Studies confirm that hybrid teaching has caused the migration from traditional classroom teaching and learning to thepattern that combines online mode with the traditional classroom mode (Bubacz et al., 2021; Nava, 2015; Ekwunife-Orakwue & Teng, 2014; Garrison & Akyol, 2009; Garrison & Kanuka, 2004). During the Covid-19 difficult situation, HT made rotational teaching and learning possible, as some students met and had classes online using videoconferencing software, while the remaining others met and learnt face-to-face in the traditional classroom (Awaludin et al., 2023; Bubacz et al., 2021). The essence was to maintain social distance, and avoid crowd in the classroom.

Empirical Review

Nwode (2022), Eze and Ogbaga (2019), Osuchukwu and Ugoji (2019), Nwode et al. (2019), Owolabi et al. (2013), and Osuchukwu (2012) are of the view that the internet has the potentials to bring about a profound change in education and other professions.The internet makes it possible for people to live, communicate, transact, relate, hook-up, learn, relearn and unlearn, relax and get information widely. Owolabi et al. (2013) state that with the use of internet services, traditional methods of disseminating information in tertiary

institutions courses through leaflets and other print formats are becoming archaic. To catch up with other nations in the positive trends of IT, teachers, who are nation builders, should be kept abreast of all new trends around the globalised world, which include being exposed to ICT as well as technological innovations. Educational policies have to reviewed from time to time and made to be in ways that target the realisation of economic and cultural needs of each country of the globe.

ICT has been continuously impacting on various spheres in no little ways (Osuchukwu & Ugoji, 2019; Nwode et al., 2019; Okafor, 2010). ICT offers huge benefits of different kinds. With the ICT, access to a wide range of information has become possible. The transition from analogue teaching and learning to the digital forms has given learners and teachers the ability to access information in more than one way without time and place constraints. Users of new technologies easily gain access to information at any time. All events are easily publicised online, especially on social media. These media promote interactions among teachers and students. They serve as teaching and learning aids and supplements (Ugoala, 2021; Osuchukwu & Ugoji, 2019; Iloene et al., 2013). Group membership and sense of belongingness are some other benefits of these media. They have made away with barriers to intergroup and interpersonal relations and communication (Nwode, 2022; Ugoala, 2021). Temur (2020) notes that the opportunities offered by ICT include "transformation of societies; offering and expanding self-education opportunities at any space; changing students' knowledge; provision of wide range of pedagogic oral, visual and practical materials; paving ways for searching, processing and using data on different themes" (p. 155). Obviously, ICT is important in and outside the classroom for theoretical, conceptual and empirical knowledge, themes and matters. It is of educational values to both teachers and students, which include research, interaction, self-teaching and learning avenues and other teaching and learning benefits.As Coleman et al. (2016) rightly observe, appropriate use of ICT in teaching transforms the learning environment from teacher-centred to learner-centred. This makes it possible for students to make contributions to what is taught rather than depending solely on teachers, without even verifying what they are taught by the teachers.

In addition, ICT makes it possible for teachers and students to interact more and exchange knowledge and information much more than what obtains in the traditional (analogue) classroom teaching-learning context. Distance no longer serves as a strong barrier to any relationship or transaction between and among persons and groups. New media save costs. Costs that would have been incurred by users of mass media are reduced by new media. There are teaching and learning opportunities offered by ICT (Osuchukwu & Ugoji, 2019; Iloene et al., 2013), which are made manifest in HT. These include research opportunities, which have made teaching, learning, research and even school administration and management very easy (Nwode, 2022; Osuchukwu & Danjuma, 2022; Omeje, 2018; Robert, 2017). There is no doubt that the technical-know-how of many users is usually increased, as they continue to use these media. For Asogwa and Asogwa (2014), ICT reduces abstract concepts and provides concrete realistic learning experiences.

Also, Aktaruzzaman et al. (2011) note that when used appropriately, ICT helps in expanding access to education through information distribution, learning management systems and managing of educational services. These are made readily available and affordable to users at all times. Ravi (2012) observes that new technologies have millions of users in over 200 countries, and have greatly impacted on communication, creativity, cognition, education and culture. The internet, which is also regarded as world-wide-web (www) or cyberspace, is one of the new media that have brought revolution to the concept and practice of the new media (Ravi, 2012, p. 480). With ICT, e-learning now saves a lot of people the stress and inconveniences of traditional classroom learning (Aktaruzzaman et al., 2011). Workers and other categories of persons who learn and acquire knowledge and qualifications online these days would not have been doing so if ICT had not come into existence. Similarly, Keengwe et al. (2008) state that the application of multimedia technologies in teaching and learning guarantees a very productive, interesting, motivating, interactive and quality delivery of classroom instructions, while at the same time addressing learners' diverse needs.

Methodology

The descriptive survey design is adopted. The sourcing of primary data for the study involved telephone interviews with sixty (60) participants, drawn from the fields (departments) of IT and Education. The participants were chosen at random from across US, UK and Nigeria, using simple random technique. Of the 60 participants, 5 professionals and learners each (5 + 5 = 10 × 2 × 3 = 60) in the two fields across the three countries were involved in the interview exercise. The two sets of learners (those in IT and Education courses) are those who have had or are having hybrid learning experience at tertiary level of education. The interview was structured and unstructured. It was structured by being tied specifically to the research objectives.

On the other hand, it was unstructured in that in the course of the interview, certain answers to the spelt-out questions led to several other impromptu questions and answers on the theme of the study. The demographics of the participants are not considered for the sake of the terms of engagement in the research exercise as regards research ethics, which assured them of and got them participating in the exercise without any harm. They were even informed to avoid mentioning their names and other personal details. They were to state whether or not they were students or professionals of IT or Education. Their knowledge of hybrid education and the impact of HT cum ICT on teaching and learning was considered. The data collected from the participants are subjected to thematicand content analyses, while the secondary data are subjected to systematic review.

Thematic Analysis of Interview Data

Here, the synthesised data obtained from the interviews are presented qualitatively and descriptively. The presentation involves a summation of the gathered answers.

Research Objective 1: To explore the impact of HT as well as ICT from a bi-directional angle of considering the impact of HT as well as ICT

Majority (90%) of the interviewees hailed ICT (also regarded as IT) for its huge positive impact on education, with those in IT disciplines expressing joy over being in the field that is impacting heavily on the field of education. The other 10% of the participants stressed the negative impact of ICT on education. The implication of the foregoing is that ICT is confirmed to be exerting positive impact on teaching and learning in different regards. The same ratio of participants confirmed the impact of hybrid teaching (HT) in the same vein, as the majority held that HT, made possible by ICT, has had significant positive impact on teaching and learning. They were unanimous on the view that HT simplifies academic activities for both teachers and learners, and saves them of inconveniences and the challenges faced in the traditional (face-to-face) setting. The majority also held that with ICT, made manifest in HT, teaching and learning have been changed, innovated, transformed, rebranded and simplified.

Conversely, the minority (10%) of the participants expressed their dissatisfaction with HT, stressing that it falls short of the essentials of the FTF method, such as being characterised by unchecked truancy, irregularities, contempt, unpunctuality, failure to carry out or late performance of given tasks or exercises, non-specific setting or variations in setting, technical issues like network, and having to spend on data and technologies (e.g. purchasing and on maintaining the needed technological resources), to mention but a few. Indeed, the foregoing findings answer the research question1. It follows that by ascertaining and considering both the negative and positive impacts of HT as well as ICT, the study is able to show the bi-directional considerations of the impact of HT as well as the ICT on teaching and learning.

Research Objective 2: Determine the nexus between IT and HT

The nexus between IT and HT is proven by the data gathered to be a strong one. The nexus was determined by 43 (71.67%) of the respondents, who held that IT and HT are intertwined, because the relationship between the two is cumbersome, such that one cannot talk about HT without making reference to IT. That is, one can liken the nexus to that between the egg and the chicken, in which it is difficult to determine which is older than the other. However, the fact remains that the existence of IT (ICT) made that of online teaching (OT) and hybrid teaching (HT) modes possible. If IT (ICT) never existed, OT and HT would not have existed or emerged. Therefore, HT is one of the feats of ICT in the field of education.

For 8of 13.3% interviewees, the nexus is indeterminable. These respondents just said they could not determine or decide on the nexus between IT and HT. It implies that they were not really sure of the nexus between the two. The rest others, 9 of 15%, held that HT is traceable to and dependent on IT, but IT does not depend on or cannot be traced to HT. Thus, the nexus is just one-sided, not bi-directional. While their position is logical, it tends to dismiss the nexus between IT and HT on the basis of the one-side angle of the relationship. The dismissal is not apt in that since there is a connection at all between the

two, from IT to HT, it is logical to argue or submit that there is a nexus between the IT and HT.

Research Objective 3: Contextualise ICT in the education sector

Again, majority (51 of 5%) of the participants held the view that HT is the contextualisation of IT in the education sector. Their shared view justifies the thesis of this study as regards the third research objective. These participants also noted that it was from the OT mode that the school system or education sector got to the HT mode. These two modes, which are relatively recent, rose from ICT (IT). As noted earlier, the presence of IT in the education sector brought the presence of the HT and OT too in the today art of teaching and learning in the formal setting.

For the other (9 of 15%) informants, since ICT obtains in different contexts and in different areas of the education sector, they would not agree to the idea of contextualising IT in the education sector on the basis of HT. Well, it appears that these respondents either misunderstood the idea or over generalised their conception of the contextualisation of IT (ICT) in the education sector. What the contextualisation of IT in the education sector is intended in this study is to determine or ascertain the presence of IT in the sector. Meanwhile, its presence in the sector is the determinant of the presence of the HT mode in contemporary teaching and learning. Again, contextualising IT in the education sector herein means that HT is a phase of ICT (IT) in the education sector, whereby the technological innovations offered by ICT are made manifest in the course of practising HT.

Discussion

There is no doubt that the pedagogic experiences of teachers and students and teachers are changed and reduced from those obtained in the FTF mode. The use of technology makes hybrid advantageous. Prospects and problems of HT have been examined along with how courses are administered to students and their access to them (Gamage et al., 2023; Biddex et al., 2014; Ocak, 2011). The Canvas learning management system (LMS), which links up with a Zoom platform, characterises hybrid teaching and learning, with which a robotic tracking system is used with an iPad attached. Lectures, tests, assignments, examinations, discussions, forums and surveys are provided as well as carried out through the Canvas LMS. The use of technology in the classroom expands instructional options for teachers in administering learning objectives through pictures (e.g., video, animation, graphics or illustrations) and words (e.g., printed or spoken words). Also, one feature of distance teaching is flexibility with examination management, which can be either synchronous or asynchronous, and has a varied amount of instructor's assistance (Bubacz et al., 2021; Yang, 2019; Dong & Yu, 2017; Nava, 2015).

HT, a new mode of teaching and learning, is more or particularly present in tertiary institutions (Baker & Spencely, 2023; Romaniuk & Łukasiewicz-Wieleba, 2022; Bubacz et al., 2021; Nava, 2015; Campaign for the Future of Higher Education, 2013). The course setting of HT combines or mixes up the traditional lectures held physically in the classroom

with online setting (Yang, 2019; Güçyetmez & Çam, 2016; Klimova & Kacetl, 2015; Nava, 2015; Wichadee, 2015; Ekwunife-Orakwue & Teng, 2014). As Bubacz et al. (2021) and Yang (2019) note, HT has both advantages and disadvantages, with some being similar to and others different from those of the tradition teaching method. Scholars, such as Bubacz et al. (2021), Yang (2019), Dong and Yu (2017), Nava (2015), Ekwunife-Orakwue and Teng (2014), and Mackey and Freyberg (2010), are unanimous on the following advantages of HT:

i. Time convenience
ii. High level of flexibility
iii. Opportunity to switch to remote delivery
iv. Accessing and utilising Zoom recorded contents much later
v. Taking examinations either in the classroom or at any location of choice, among others.

The advantages of HT mode, particularly those bordering on convenience, make students to have change of attitude towards and tend to prefer it more at some point. Flexibility and the breach of time and space are two most noted advantages of HT (Safar & AlKhezzi, 2013). That is, students who had erstwhile expressed their preference to be the traditional mode likely change their preference later to the hybrid mode (Bubacz et al., 2021). Nevertheless, it should be noted that everything that has advantages also has disadvantages. The disadvantages of HT mostly stem from the challenges of ICT in general. As Bubacz et al. (2021), O'Byrne and Pytash (2015), Ekwunife-Orakwue and Teng (2014) and Mackey and Freyberg (2010), among others indicate, the disadvantages of HT include:

i. Issues of internet network failure and access
ii. Audio and video difficulties and signal interruption
iii. Visual difficulties
iv. Staying engaged, getting and keeping to a quiet space
v. Being unable ask or find answers to intended questions
vi. Not getting immediate responses to such questions when communicated to an instructor via email or thereabout
vii. Decreases affective and cognitive learning and full student participation in the process, which make it different from the traditional (analogue) mode
viii. Full participation by many students decreases because of the absence or virtual presence of the teacher.

Further, Bubacz et al. (2021) reveal that the performance of both undergraduate and postgraduate students is better in face-to-face traditional teaching mode than in hybrid and online modes. In their words:

This study shows that although the face-to-face mode of teaching was the most popular and the most efficient mode, there is a potential for the hybrid mode of teaching to be a more successful method of instruction, provided technological issues are resolved and better engagement strategies are implemented (Bubacz et al., 2021, p. 9).

The challenges of ICT, which apply to or manifest in HT, include exorbitant price of ICT facilities amidst low salary, lack of infrastructure, epileptic electricity power supply, lack of

technical-know-how, and the unwillingness of government and its allied authorities to develop ICT, not providing digital teaching aids for teachers and digital learning aids for learners (Mansell, 2014; Owolabi et al., 2013; Osuchukwu, 2012; Haruna, 2005). Other challenges include lack of adequately trained personnel, shortage of manpower for the development, maintenance and operation of ICT facilities, inadequate funding of internet connectivity, and lukewarm attitude of many teachers towards digital literacy (Osuchukwu, 2012 & 2011).

Most Nigerian teachers have poor or no literacy in ICT and cannot use most of the technologies and the avenues on which they are used (Omeje, 201; Mbah, 2017; Bonsuet al., 2013; Owolabi et al., 2013; Osuchukwu, 2012& 2011). Many of them have poor digital skills. These problems confront the students too. This study argues that many of the problems confronting HT are largely ICT based, as the others are not as much as those bordering on ICT. The others include political interference and unwillingness, attitudinal factors, and institution-based, educational management, socio-economic and cultural issues.

Conclusion

So far, the study has evidently affirmed and made an exposition of the impact of IT on teaching and learning in the context of Hybrid Teaching (HT). It shows from both primary and secondary data that HT is one way through which IT has made its impact known and significant in the education sector or field. That is additional to the online teaching (OT) mode that rose before the emergence of the HT mode. HT, like IT (ICT) as a whole, has been making huge positive impact on the education sector, as ways of teaching and learning and various educational practices have got digitalised, seamless, innovated and transformed significantly. The study argues that the extent of the positive impact of IT in teaching and learning is most often reduced by the factors constraining the integration of IT into education. Therefore, the study concludes that the results of the analysis of both primary and secondary data have practical implications for systematised and personalised seamless pattern of teaching and learning.

Recommendations

The following recommendations are made:

- Scholars, students and researchers in general should carry out more studies on HT, more specifically in developing nations, so as to unveil and rouse deserving attention to the challenges of integrating IT into the education sector and those to adopting HT in particular.
- The study also charges all concerned political and educational authorities to provide schools and learners with the needed technologies and logistics for effective HT and online teaching and learning, towards harnessing the huge prospects of digitalisation.

References

Adebisi, O. L. (2009). Application of information and communication technologies (ICTs) to library services, fountain of knowledge. *Journal of Library and Information Science, vol.1, no.1*.

Aktaruzzaman, M., Shamim, M. R. H. & Clement, C. K. (2011). Trends and issues to integrate ICT in teaching and learning for the future world of education. *International Journal of Engineering and Technology, 11,3*, 114–199.

Anagbogu, P.N., Mbah, M. B. &Eme, C.A. (2001). *Introduction to linguistics*. J.F.C. Ltd.

Anjugu, J. N. (2013). Impact of social media on student's academic performance (a study of students of University of Abuja). Project submitted to the Department of Mass Communication, Faculty of Management and Social Sciences, Caritas University, Amorji– Nike, Enugu, Nigeria.

Asogwa, B. E. &Asogwa, M. N. (2014). Information and communication technologies and Igbo studies in tertiary institutions in Nigeria: Issues and challenges. *Library Philosophy and Practice (e-journal), 1189*.

Awaludin, F. A., Junid, R. A., Karim, R. A., Azurawati Zaidi, N. N. R. &Shuhaimi, F. L. (2023). Exploring university students' perspectives on hybrid learning within the context of post Covid-19 in ESL classrooms. *International Journal of Academic Research in Business and Social Sciences, 13(1)*, 1787–1799.

Baker, L. A. &Spencely, C. (2023). Is hybrid teaching delivering equivalent learning for students in higher education? *Journal of Further and Higher Education, 47, 5*, 674-686. DOI: 10.1080/0309877X.2023.2183357

Biddex, P. J., Chung, J. C. & Park, H. W. (2014). The hybrid shift: Evidencing a student driven restructuring of the college classroom. *Computers & Education, 80,* 162- 175.

Bubacz, M., Niksiar, P., Elamin, G., Ragan, D. & Bass, P. (2021). Potentials and limitations of face to face and hybrid teaching modes. *ASEE Southeastern Section Conference, American Society for Engineering Education*.

Coleman, L.O., Gibson, P., Cotten, S.R., Howell-Moroney, M. &Stringer, K. (2016). Integrating computing across the curriculum: The impact of internal barriers and training intensity on computer integration in the elementary school classroom. *Journal of Educational Computing Research, 54(2)*, 275-294. doi: 10.1177/0735633115616645.

De la Vega, T. K. (2008). "Taxonomyfor the development ofan assessment model of learners in a hybrid learning environment. 90 http://www.swdsi.org/SWDSI08/paper/SWDSI%20Proceedings%20Paper%20S763.pdf

Dong, X.P. & Yu, B.(2017). Research and practice of hybrid teaching model of trinity. *Eurasia Journal of Mathematics, Science and Technology Education, 13(8)*, 5589-5596.

Ekwunife-Orakwue, C. V. K. &Teng. T. (2014). The impact of transactional distance dialogic interactions on student learning outcomes in online and blended environments. *Computers and Education, 78,* 414-427.

Eze, P.I. &Ogbaga, E. (2019). Influence of social media on academic activities of educational technology students in higher institutions. *World Applied Sciences Journal 37 (9)*, 792-797. DOI: 10.5829/idosi.wasj.2019.792.797.

Gamage, K.A.A., Jeyachandran, K.,Dehideniya, S.C. P., Lambert, C. G. & Rennie, A. E. W. (2023). Online and hybrid teaching effects ongraduate attributes: Opportunity or cause for concern? *Educ. Sci.,13*, 221. https://doi.org/10.3390/educsci13020221.

Garrison, D. R. &Aykol. Z. (2009). Role of instructional technologies in the transition of higher education. *Springer, 21,* 19-30.

Garrison, D. R. &Kanuka, H. (2004). Blended learning: Uncovering its transformative potential in higher education. *Internet and Higher Education, 7*, 95-105.

Ghavifekr, S. &Rosdy, W.A.W. (2015). Teaching and learning with technology: Effectiveness of ICT integration in schools. *International Journal of Research in Education and Science, 1(2*), 175-191.

Güçyetmez, M. &Çam, E. (2016). A new hybrid algorithm with genetic-teaching learning optimization (G-TLBO) technique for optimizing of power flow in wind-thermal power systems. Electrical Engineering, *98(2*), 145-157.

Haruna, M. D. (2005). Information technology and sustainable development in Nigeria. *Nigerian Journal of Science and Environmental Education 1*(1), 178- 183.

Iloene, M.I., Iloene, G.O., Mbah, E.E. &Mbah, B.M. (2013). The use of new technologies for the teaching of the Igbo language in schools: Challenges and prospects. In L. Bradley & S. Thouësny (eds.), *20 years of EUROCALL: Learning from the past, looking to the future*. *Proceedings of the 2013 EUROCALL Conference, Évora,*

Keengwe, S., Onchwari, G. and Wachira, P. (2008). The use of computer tools to support meaningful learning. AACE Journal, 16(1), 77-92.

Klimova, B. &Pikhart, M. (2020). Cognitive and applied linguistics aspects of using social media: The impact of the use of Facebook on developing writing skills in learning English as a foreign language. *Eur. J. Investig. Health Psychol. Educ., 10*, 110–118; doi:10.3390/ejihpe10010010.

Mackey, K. & Freyberg, D. L. (2010). The effect of social presence on affective and cognitive learning in an international engineering course taught via distance learning. *Journal of Engineering Education, ASEE, January,* 23-34.

Mansell, R. (2004). ICTs for development: What prospects and problems? *The Southern African Journal of Information and Communication* (5), 1-22.

Mbah, B. M. (2017, October 13). The conditions of the teacher as determinants of the learning of the students. Paper delivered during the one-day workshop of the teachers of the Obollo Zone, Udenu Local Government Secretariat.

Mbah, B. M. O. (2023). Absolute extremum in the teaching of English studies in Nigeria. Keynote paper presented at the *12th Annual National Workshop/Conference of The English Language Teachers Association of Nigeria (ELTAN*) in conjunction with the Department of English, Chukwuemeka Odumegwu Ojukwu University, Igbariam, Anambra, Nigeria, 5th–9th September.

Mossberger, K., Tolbert, J. C. &Stansbury, M. (2003). *Virtual inequality: Beyond the digital ivide*. Georgetown University Press.

Nava, S. (2015). The hybrid model and student learning experiences. M.A. thesis presented to the Faculty of Graduate and Professional Studies in Education, California State University, Sacramento.

Nwode, G. C. (2022). Impact of new media on students' performance in written composition in selected tertiary institutions in Ebonyi State, Nigeria. PhD thesis, Department of Languages and Linguistics, Post-Graduate School, Ebonyi State University, Abakaliki.

Nwode,G. C.,Osuchukwu, C. N. &Ogayi, M. C. (2019, December). Youth language, social media identity, and their implication to the cultural norms of youth speakers of the Igbo language. *IOSR Journal of Humanities and Social Science (IOSR-JHSS), vol.24, iss.12, ser.3,* 84-89.

O'Byrne, W. I. & Kristine, E. P. (2015). Hybrid and blended learning; modifying pedagogy across path, pace, time, and place. *Journal of Adolescent & Adult, 59(2)*, 137–140), a product of Literacy International Literacy Association, doi:10.1002/jaal.463.

Ocak, A. M. (2010). Why are f1lctdty members not teaching blended courses? Insight from faculty members. *Computers and Education, 56,* 689-699.

Okafor, S. O. (2010, September). Application of information and communication technology (ICT) in teaching and learning of Igbo language in Nigerian schools. *Multidisciplinary Journal of Research Development, vol.15, no.2*.

Omeje, C.O. (2018). Influence of social media in the performance of secondary school students in English Language in Nsukka education zone of Enugu state. Unpublished B.A. project submitted to

Department of Arts and Social Sciences Education (English and Literary Studies Education), Faculty of Education, Godfrey Okoye University Ugwuomu-Nike, Enugu State, Nigeria.

Osuchukwu, C. N. & Danjuma, C. (2022). Research ethics and pragmatic context: An exposition. *Bangladesh Journal of Bioethics,* vol.13, no.3, 28-34.

Osuchukwu, C.N. & Ugoji, S.C. (2019). Digital methods in the teaching of phonics: Current trend in the development of reading. *EBSU Journal of Social Sciences and Humanities, v*ol.9, no.1, 100-107.

Osuchukwu, C. N. (2011). Basic methods of using resources for teaching: An innovationalapproach for language teaching and learning. *Journal of School of Languages (JOSOL)*, *vol.1, no.2*, 177-186.

Osuchukwu, C. N. (2012). Acquisition of literacy skills and the concept of Indigenous knowledge. K*nowledge Builders*: *A Multidisciplinary Journal for Advancement of Scholarship*, 130-138.

Owolabi, T. O., Oyewole, B. K. &Oke, J. O. (2013). Teacher education, information and communication technology: Prospects and challenges of e-teaching profession in Nigeria. *American Journal of Humanities and Social Sciences, vo1.1, no. 2*, 87-91.

Ravi, B. K. (2012, March). New media, culture and society. *Academic Research International*, vol.2, no.2.

Robert, O.S. (2017). *The imperative of projecting, promoting and developing Bekwarra through ICT*. GRIN Verlag. Catalog number v356513 (http://www.grin.com/en/e-book/356513/the-imperative-of-projecting-promoting-and-developing-bekwarra-through. ISBN: 9783668437982) 22-03-2022.

Romaniuk, M. W. & Łukasiewicz-Wieleba, J. (2022). Hybrid education in higher education on the example of students' experiences in post-pandemic reality. *Intl Journal of Electronics and Telecommunications, vol.6, no.3*, pp. 497-504. DOI: 10.24425/ijet.2022.141266

Safar, H. A. &AlKhezzi, A. F. (2013). Beyond computer literacy: Technology integration and curriculum transformation. *College Student Journal, 4* 7, 614-625.

Temur, T. (2020). Integration of ICT culture as important element of teaching of foreign language. *European Journal of Research and Reflection in Educational Sciences, vol.8, no.12, part II*.

Ugoala, B. (2021, July). Assessing WhatsApp for communication in a youth organisation: A dual method approach. *JurnalSosialisasi, JurnalHasilPemikiran, Penelitian, dan PengembanganKeilmuanSosiologiPendidikan, vol.8, normor 2*. https://ojs.unm.ac.id/sosialisasi/issue/view/1403

Wichadee, S. (2015). Factors related to students' performance of hybrid learning in an English language course. *Curriculum design and classroom management: Concepts, methodologies, tools, and applications* (225-241). IGI Global.

Yang, X. (2019). Application of hybrid teaching method in English teaching. *2nd Symposium on Health and Education (SOHE*); *Advances in Social Science, Education and Humanities Research, vol.268.*