

Digital Technology Application Issues in Classroom Instruction among Secondary School Economics Teachers in Delta State

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Abstract

The study focused on digital technology (DT) application issues in classroom instruction among secondary school economics teachers at Delta State. Specifically, it determined: extent to which the secondary school Economics teachers use DTs in teaching; attitudes of Economics teachers towards use of DT in their teaching; and challenges Economics teachers encounter in their use of DT in teaching. Survey design was used for this study. Population of this study consisted of all Economics teachers in Delta state government owned secondary schools. Questionnaire was used to collect data. Data were analysed using mean, standard deviation, and t-test to test null hypotheses at 0.05 level of significance. Findings reveal six DTs were highly used by Economics teachers. These include smart board (\bar{X} = 3.12), computers (\bar{X} = 3.05), internet technologies (\bar{X} = 3.05) and Google Docs (\bar{X} =3.10) among others. Other findings are 12 teacher attitude indicators which include, that use of DT improve classroom instruction (\bar{X} = 3.34), and other. Also, seven challenges were identified, including lack of training and support for teachers (\bar{X} =3.17), no accessibility to technology for teachers (\bar{X} =3.10). Based on the findings, four recommendations for improving the teachers' DT application in classroom instruction were made.

Keywords: Digital, Technology, Attitudes, Teaching, Economics, Challenges, Pedagogy, Learning.

Introduction

Digital technology (DT) is a supportive technology device that enhances teaching and learning. It is expected to improve learning process. There is no doubt that DT is all-inclusive and equitable for quality education at all levels (Haleem et al., 2022). DT is seen as an information technology that is used to combine methods and tools in a complex technological process to ensure the interest of the user (Olofeson, 2019). Johnstone et al. (2024) identified

digital technology as devices that utilize digital tools, systems, and processes for communicating information. Thus, DT serves as a knowledge provider, co-creator of information, mentor, and assessor (Parveen & Ramzan, 2024). Digital technologies (DTs) include hardware such as personal computers and tablets, and software such as systems and apps for virtual reality using the internet. Aldama et al (2021) classified DTs into non-web-based and web-based; non-web-based are

tools that do not rely on the internet or web browser to function, while web- based are technology tools that operate with the use of browser or online. Operationally, digital technology is technology tools and systems that aid easy and effective teaching in the classroom. Studies identified different uses of digital technologies for teaching. Liao (2007) reported moderate positive effects in computer application instruction (CAI, computer simulation and web-based) over traditional instruction. Similarly, Tamim et al. (2015) opined small to moderate positive effect between the use of computer technology (CAI, computer, simulations, computer-based instruction, digital and hypermedia) when compared with a classroom that does not use technology. However, DTs requires teachers' use of interactive methods using video, audio, or audio-video technologies and other technology devices (Culler, 2023).

The effective use of technology in teaching and learning creates an opportunity for teachers to integrate technology into classroom instruction while the learners become interested and involved in their learning. Nwocha (2017) identified ways DT could improve education by collaborating to share their ideas and online resource packages for teaching, students developing value research, expanding material resources for both teachers and learners, and also improving students' outcomes. Osmani & Tartari (2024) opined that the use of digital technology greatly improved student engagement and academic achievement when integrated into the teaching curriculum. Sharma & Singh (2023) also

opined that DT had a profound impact on educational institutions as a whole.

Globally, DT adoption has tremendously impacted all aspects of life from communication to education. Its fast move has led to economic development and innovation, particularly in the education sector. United Nations Educational, Scientific and Cultural Organisation (UNESCO) (2023) recorded that the percentage of users rose from 16 percent in 2005 to 66 percent in 2022, of which secondary schools had above 50 percent adoption to DT, which shows progressive development. Nigeria was ranked 11th in Africa in terms of usage, and Onyia (2021) identified that most schools in Nigeria use DT, shifting from the traditional method. Adeyemo & Adeyemo (2019) opined that in Nigeria, despite the obstacles faced in the use of DT, it has had a generally good effect on the country's education. Ubogu & Ogbedo (2023) identified that integrating DT into the educational environment in Delta state has drastically revolutionized teaching and learning in the state. Based on these, Arther & Kaku (2020) found out that digital technological tools such as computers, presentation software, and projectors can be employed in teaching Economics. Thus, there is a need for all-inclusive technology to affect teaching, particularly in economics classroom instruction.

Classroom instruction is a deliberate experience organized by the teacher in the classroom to ensure that the learner acquires relevant needed knowledge. It is that sequence of activities engaged for learners in a classroom setting. This classroom setting can be in the form of interactive or teacher-based instruction. In

the 21st century, an interactive instruction teaching process makes students active and resourceful, such that the learning becomes meaningful in the education process (Mbia, 2006). The activities at the instructional stage must be well navigated to ensure appropriate instructional techniques/ methods and instructional materials are in line with what is obtainable in 21st-century education. Education should be such that the use of DT in the classroom will deepen learners' understanding of the content. The learning environment should be flexible to accommodate DT. It is expected that an ideal secondary school will be remedied and redefined in several ways to fit the evolving needs of modern digital learners. Okocha, Nimat & Agaku (2022) opined that DT should be used to disseminate knowledge and issue assignments that male and female teachers must intensify efforts towards achieving.

Male and female teachers play front-line roles in tailoring the method of instruction through student-centred teaching. Studies have addressed gender disparities in the use of DT in teaching. Gomez-Trigueros & Albleca (2021) showed that female teachers have a very poor perception of DT competencies when compared to male teachers. Adeoye (2023) opined that a higher percentage of male teachers possess more DT skills than their female counterparts. Also, Mouraz & Nobre (2024) identified that male teachers hold a more favourable attitude toward DT use than female teachers. Attitude has a strong link with teachers towards DT use in the classroom. It's imperative to foster an attitude on the integration of DT in classroom instruction. Studies have shown that there exists a strong, positive

correlation between teachers' attitudes towards DT and their accessibility. Kilinc et al. (2016) and Ikwuta et al (2024) revealed that teachers have a positive attitude towards the use of DT in teaching and capturing students' data. Alieto et al. (2024) revealed that teachers are eager to embrace DT in their pedagogy approach in the classroom. Mahajan (2015) and Alieto et al. (2024) identified that attitudes of teachers towards the use of technology have no significant difference between genders.

Objectives of the study

This study investigated digital technology (DT) application issues in classroom instruction among secondary school Economics teachers in Delta State. Specifically, the study determined:

1. extent to which Economics teachers (male and female) use DT in teaching in secondary schools in Delta state
2. attitude of Economics teachers (male and female) towards their use of DT in secondary schools in Delta state
3. challenges that teachers encounter in their use of DT in secondary schools in Delta State.

Hypotheses

There is no significant difference in the mean responses of male and female Economics teachers on:

HO₁: extent of use of digital technology in secondary schools

HO₂: attitude towards the use of Digital technology in secondary schools

HO₃: challenges encountered in the use of digital technology

Methodology

Design of the Study: This study adopted a descriptive survey research design.

Area of the Study: The study was conducted in Delta State. Delta State is one of the oil-producing states in Nigeria, located in the southeast region. This region could account for 30 percent of crude oil production (Ite et al, 2013). This oil production allows the state to have significant revenue earnings for sustainable development in education. There are 493 state owned secondary schools in the area of the study.

Population of the Study: Population of the study was made up of all the 469 Economics teachers of the 25 LGAs in Delta State government schools. The teachers were used in this study because they implement the curriculum, effectively deliver teaching and learning using instructional packages in the classroom.

Sample for the Study: The sample of this study was 50 Economics teachers, which comprises 16 male and 34 female teachers of Economics in the four LGAs (Oshimili North, Oshimili South, Aniocha North, and Aniocha South Local Government Areas (LGAs)) in Delta State.

Instrument for Data Collection: Questionnaire was used for data collection. It was made up of two sections. Section one sought information on the gender of respondents, and section two generated items based on three specific purposes of the study. The three specific purposes were in clusters; cluster one has four-point rating scale of Highly Used (HU), Moderately Used (MU), Used (U), Not Use (NU); Cluster two and three have

four-point rating scale of Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD) respectively. The instrument was face-validated by three university experts, two in Compture education and one in Economics education. To establish reliability of the instrument, it was trial-test on 15 Economics teachers outside the area of the study. Overall reliability coefficient of the instrument was determined using Cronbach alpha technique. It yielded coefficient of 0.81.

Data Collection Method: A total of 50 copies of the instrument were administered to Economics teachers with the help of research assistants by hand. All the 50 copies were properly filled and retrieved (16 and 34 copies from males and females respectively). This represent 100 per cent return of the questionnaire was obtained.

Data Analysis Techniques: Data were analysed using mean, standard deviation and t-test at 0.05 level of significance. A mean score of 3.00- 4.00 indicates Highly Used (HU), 2.95-2.50 indicates Moderately Used (MU); and 2.49-0.50, Not Used (NU) for specific objective No 1. While, for specific objectives Nos 2 and 3 mean value greater or equal to 2.50 ($\bar{X} \geq 2.50$) was regarded as agreed and any values less than 2.50 ($\bar{X} \leq 2.50$) was regarded as not agreed. Null hypothesis was accepted when the p-value (t-calculated) was greater than the 0.05 level of significance, but the null hypothesis was rejected when p-value (t-calculated) is less than 0.05 level value of the t-critical.

Results

Table 1: Mean Responses on the Extent of use of Digital Technologies (DTs) in Teaching Economics in Secondary Schools in Delta State

S/N	Digital Technologies	\bar{X}_1	SD_1	\bar{X}_2	SD_2	\bar{X}_g	SD_g	t	R
1.	Smartboard	3.11	0.71	3.13	0.83	3.12	0.77	0.18	HU/N
2.	Google Jamboard	2.49	0.81	2.13	0.91	2.31	0.86	0.30	HU/N
3.	Android tablets	2.51	0.81	2.49	0.82	2.75	0.82	0.17	MU/N
4.	Mobile learning platforms	2.59	0.83	2.42	0.81	2.50	0.82	1.39	MU/N
5.	iPad	3.09	0.91	2.96	0.83	3.02	0.87	1.08	HU/N
6.	Projectors	2.97	0.81	2.68	0.91	2.82	0.86	1.98	MU/N
7.	Computers	3.11	0.71	2.99	0.71	3.05	0.71	1.20	HU/N
8.	Class audio system	2.76	0.72	2.59	0.77	2.67	0.75	1.81	MU/N
9.	Document camera	3.02	0.81	2.89	0.91	2.95	0.86	1.08	MU/N
10.	Digital notebooks	2.87	0.92	2.88	0.71	2.88	0.82	0.09	MU/N
11.	Wireless microphone	2.59	1.09	2.67	0.98	2.63	1.04	0.53	MU/N
12.	Internet technologies	3.11	0.67	2.99	1.10	3.05	0.89	0.82	HU/N
13.	Exam Soft	2.49	0.89	2.44	0.89	2.47	0.89	0.39	NU/N
14.	Google Doc	3.08	1.06	3.11	0.90	3.10	0.98	0.21	HU/N
15.	Canvas	3.13	1.07	2.90	1.00	3.06	1.04	1.53	HU/N

Number of Teachers= 50; number of male teachers= 16; number of female teachers = 34; \bar{X}_1 = Mean of male teachers; \bar{X}_2 = Mean of female teachers; SD_1 = Standard Deviation of Male Teachers; SD_2 = Standard Deviation of Female Teachers; \bar{X}_g = Grand Mean; t =t-test results; R-Remark (HU- Highly Used, MU- Moderately Used, NU- Not Used); Degree of Freedom = 48; $P=0.05$, S= Significant, N= Not Significant

Table 1 reveals 13 (6 items had MU and 7 items had HU) digital technologies used by the teachers, ($\bar{X} \geq 2.50$). The Table shows that only two technologies had mean scores below 2.50 ($\bar{X} \leq 2.50$), which were Google Jam board and Exam Soft. The standard deviation of all the 14 items in

Table 1 range from 0.77-1.04, showed that the respondents were not far from each other's responses. The Table shows that at 0.05 level of significance there is a significant difference in the mean responses of male and female Economics teachers on the extent of use of DT in secondary schools in Delta state.

Table 2: Mean Responses on the Attitude of Male and Female Economics Teachers towards the Use of Digital Technology (DT) in Teaching Secondary Schools in Delta State

S/N	Attitude Indicators	\bar{X}_1	SD_1	\bar{X}_2	SD_2	\bar{X}_g	SD_g	t	R
1.	Use of digital technology (DT) improves classroom instruction	3.59	0.89	3.08	0.87	3.34	0.88	0.41	N/A
2.	Using DT to assess students is stressful.	2.10	0.90	2.45	0.95	2.28	0.93	0.26	N/A
3.	Using DT demands more time in recording students' assessment	3.07	0.60	2.61	0.84	2.84	0.72	0.46	N/A

Table 2 continues

4.	Constant use of DT increases proficiency in technology	3.76	0.78	2.49	0.67	3.13	0.73	0.12	N/A
5.	DT enhances students' engagement in teaching and learning	3.01	0.89	2.96	0.91	2.99	0.90	0.39	N/A
6.	It is comfortable using DT to conduct student assessment	2.07	0.92	2.39	0.78	2.23	0.85	0.26	N/A
7.	Using DT to gather information relating to economies is not stressful	3.49	0.79	3.06	0.88	3.28	0.84	0.35	N/A
8.	Using DT for grading results is a waste of time	3.08	0.65	2.96	0.90	3.02	0.78	1.09	N/A
9.	When integrated into teaching, DT improves learning	3.79	0.75	3.12	0.76	3.46	0.76	0.67	N/A
10.	Workload increases as DT is used for classroom teaching.	3.06	0.96	2.56	0.89	2.81	0.93	0.38	N/A
11.	Teachers may lack the ability to effectively use DT in teaching	3.19	0.89	2.78	0.69	2.99	0.79	0.37	N/A
12.	Teachers lack interest in using DT in teaching	2.99	0.78	2.86	0.76	2.92	0.77	0.13	N/A
13.	It is joyful to integrate DT into teaching practice	3.19	1.04	2.96	0.96	3.08	1.00	1.64	N/A
14.	Teachers are willing to explore new DT usage in in-class instruction	3.08	0.89	2.96	1.05	3.02	0.97	0.85	N/A

\bar{X}_1 = Mean of male teachers; \bar{X}_2 = Mean of female teachers, SD_1 = Standard Deviation of Male Teachers; SD_2 = Standard Deviation of Female Teachers; \bar{X}_g = Grand Mean; t =t-test results R=Remark; Degree of Freedom = 48; $P=0.05$, S= Significant, N= Not Significant; A-Agree, D-Disagree

Table 2 reveals 12 attitude indicators ($\bar{X} \geq 2.50$) of the teachers towards the use of DT in teaching secondary schools. The standard deviation of the 14 items in Table 2 ranges from 0.72 to 1.00, which shows that the respondents were not far from each other's responses. Table 2 also shows that there are no significant differences in the mean responses of male and female Economics teachers on attitude towards the use of DT in secondary schools.

Table 3: Mean Responses on Challenges Economics Teachers Encounter in Their Use of Digital Technology in Teaching in Secondary Schools in Delta State.

S/N	Attitude Indicators	\bar{X}_1	SD_1	\bar{X}_2	SD_2	\bar{X}_g	SD_g	t	R
1.	Lack of training and support for teachers	3.09	1.19	3.10	1.13	3.10	1.16	0.32	N/A
2.	No accessibility to technology for teachers	3.18	0.89	3.16	1.02	3.17	0.96	1.08	N/A
3.	High cost of purchasing digital facilities	2.87	0.85	2.86	0.89	2.85	0.87	0.06	N/A

Table 3 continues

4.	Lack of time to use digital technology among teachers	3.70	1.16	3.68	1.25	3.69	1.21	0.14	N/A
5.	Digital technology (DT) distracts students from learning	3.24	1.03	3.29	0.92	3.27	0.97	0.07	N/A
6.	Inability to adapt to new technology	2.12	0.98	2.15	1.14	2.14	1.06	0.04	N/D
7.	Students over dependence on DT causes misuse	2.51	1.10	2.48	1.14	2.49	1.12	0.16	N/D
8.	Digital technology limits teachers' support in virtual learning	2.81	0.98	2.86	1.16	2.85	1.07	0.36	N/A
9.	Time constraints in the use of DT for teachers	2.28	0.81	2.30	0.76	2.29	0.78	0.14	N/D
10.	Overreliance on DT makes teachers lazy	3.85	0.96	3.88	1.18	3.87	1.08	0.07	N/A

Number of Teachers= 50; number of male teachers= 16; number of female teachers = 34; \bar{X}_1 = Mean of male teachers; \bar{X}_2 = Mean of female teachers, SD_1 = Standard Deviation of Male Teachers; SD_2 = Standard Deviation of Female Teachers; \bar{X}_g = Grand Mean; $t=t$ -test results R=Remark; Degree of Freedom = 48; $P=0.05$, S= Significant, N= Not Significant; A-Agree, D-Disagree

Table 3 reveals seven challenges ($\bar{X} \geq 2.50$) that Economics teachers encounter in the use of DT in their teaching. The standard deviation of the items in Table 3 range from 0.78 to 1.21, which shows that the respondents were not far from each other in their responses. Table 3 also shows that there is no significant difference in the mean responses of male and female Economics teachers on the items suggested as challenges that are encountered in the use of DT at 0.05 level of significance.

Discussion of finding

The finding of the study in Table 1 reveal that 13 items pointed out the extent to which digital technologies are used by Economics teachers as high to moderately used in teaching; these items were agreed upon by male and female teachers as used in classroom instruction. This finding implies that the majority of the teachers moderately and highly used digital technologies when teaching in the

classroom. This is in line with Liao (2007), who emphasised moderately positive effective use of computer application instruction such as CAI, computer simulation, and web-based over traditional instruction. Also, Tamim et al. (2015) reported small to moderate effect between the use of computer technology (CAI, ICT, Simulation, digital and hypermedia) when compared to classrooms that did not use technology. However, with the rise of digital technology in the world, particularly in education, the shift from a traditional teacher-centred to a student-centred interactive approach (Mela, 2024) has made technology necessary for development. Jewitt et al. (2025) noted that the use of learning platforms (LPs), virtual learning environments, management information systems, communication teaching technologies, and information resources in secondary schools allows accessibility to quality teaching and

learning in schools. The studies carried out by Adeoye (2023) and Mouraz & Nore (2024) were of the view that male teachers possessed DT skills and study by Gomez-Trigueros & Albleca (2021) indicating female teachers have some level of competencies on the use DT, in line with the findings all indications show that teachers have some level of use of these DTs.

The finding of the study in Table 2 reveal that 13 items pointed out were attitude indicators of Economics teachers; these indicators were agreed on by both male and female economics teachers as their attitude towards the use of digital technology in the classroom. This finding implies that teachers have a good attitude towards the use of DT in teaching, which helps to increase, motivate, and improve their classroom instruction. The finding is in line with Alieto et al. (2024), who pointed out teachers' eagerness to embrace the DT pedagogy approach in the classroom. Kilinc (2016) and Ikwuta et al. (2024) also observed that teachers have a positive attitude toward the use of DT for teaching and for capturing students' data. Supporting this, Wijnen, Molen & Voogt (2022) indicated that teachers base their attitude towards using new technology and simulating higher-order thinking among students. Also, Abuya (2021) and Mahajan (2015) asserted that gender has no difference in teachers' attitude towards DT, in line with the findings, this implies that no matter the gender of the teacher, both have positive attitude towards DT. Therefore, teachers embrace innovations in the teaching and learning process through the use of DT in the teaching process to improve instructional packages and pedagogies.

The finding of the study in Table 3 reveal that seven items listed were suggested challenges Economics teachers encounter in their use of DT in teaching in secondary schools in Delta state. The finding implies that despite the use of DT and their attitude towards its use, the teachers also encountered challenges in its implementation. This is in line with Salam et al. (2013), who identified some challenges, such as a lack of competence, a deficiency in teaching materials, and inadequate digital teaching skills. Also, Stuberg (2018) identified application issues of using DT ranging from cognitive limitations of teachers to technology downsides to issues concerning the support over to constraints. In the same vein, Johnson, Jacovina, Russell, and Soto (2016) identified that access constraints, training related to technology, and support constraints are application issues encountered in the use of Digital technology in a focus case in Chile. However, it could be noted that when teachers are well-trained on the application and availability of DT, using different technology devices will become interesting, encouraging, and beneficial to both teachers and students. The provision of an enabling environment for the teachers will promote the effect of the application of the use of DT in classroom instruction.

Conclusion

This study has shown that Economics teachers use DTs for classroom instruction. This would, no doubt, result in teachers showing good attitude towards the use of DT to improve teaching in the classroom. Again, it could be linked to teachers' proactive trend toward changes to digital

technology globally. Despite the driving force to embrace DT in teaching, there were challenges encountered in their use, which include lack of training and support for teachers, no accessibility to DT, high cost of purchasing digital facilities, and lack of time to use DT, among others. Therefore, it was established that teachers embraced DT so as to enhance productivity and increase efficiency in teaching.

Recommendations

Based on the findings of the study, the study recommended that:

1. The government should provide regular internet data for teachers by establishing an avenue where it could be collected.
2. School administrators should provide DT facilities for teachers.
3. Teachers should be involved in peer-to-peer learning among colleagues for self-development.
4. Curriculum planners should make provisions to accommodate digital teaching and learning in schools through the use of blended learning.

References

Abuya, I.O. (2021). Toward re-humanising projects and project management. *PM world journal*, X (II); 1-8.

Adeoye, M..A. (2023). Gender differences in teacher attitudes toward digital literacy programme in Kissi country primary schools. *International Journal of Research*, 10 (4); 1-12 Doi: <https://doi.org/10.20525/ijrbs.v/oi4.1183>

Adeyemo, S.A., & Adeyemo, A.O. (2019). Digitalisation and the Nigerian education system: Opportunities and challenges. *International Journal of education and*

development using information and communication technology. 15; (1), 1-14.

Aldama, C., Garcia-Perez, D. & Camacho, A.A. (2021). How do we do with digital technology? A study on the use of technology and the search for different types of content. DOI: 10.21125/inted.2021.1075

Alieto, E. Abequibel-Encarnacion, B., Esbgogy, E., Balasa, K., Eijansantos, A., & Torres-Ioukoumidis, A. (2024). Teaching inside a digital classroom: A quantitative analysis of attitude, technological competence and access among teachers across the subject discipline. *Heliyon*; 10 (2), 12-18. <https://doi.org/10.1016/j.heliyon.2024.e24282>

Arthur, F., & Kaku, A. (2020). The use of technology in teaching Economics: perceptive of economics students. *Global scientific journal* 8(8), 2906-2919.

Cullen, E. (2023). How does digital technology enhance the teaching-learning process? <https://windyknoweprimary...>

Gomez, -Trigueros, I.M.& Aldecoa, C.Y. (2021). The digital gender gap in teaching education: the TPACK framework for the 21st century. *European Journal of investigation in health, psychology and education*; 11(4), 1333-1349.

Haleem, A. Javaid, M. Quadri, M.A., & Suman, R (2022). Understanding the role of digital education in education: a review. *Sustainable operations and computer*; 3(1), 275-285.

Ikwuka, O.I., Eleje, L.J., Iheanacho, E.C.,& Onyebuchi, A.C. (2024). Teachers' attitudes towards the use of digital technology for capturing students' data in secondary schools in Imo state, Nigeria. *Futurity of social sciences*; 2(4), 39-59.

Ite, A.E. Ibok, U.J., Ite, M.U., & Petters, S.N. (2013). Petroleum exploration and production; Past and Present environmental issues in Nigeria's Niger Delta. *American Journal of Environmental Protection*; 1(4), 78-90.

Johnstone, K., Kervin, L. & Wyeth, P. (2023). Defining digital technology. www.digitalchild.org.au...

- Jewitt, C. Bezemer, J.C., Halbran, K. (2025). *Introducing multimedia*. UK: Routledge.
- Johnson, A.M. Jovcovina, M.E., Russell, D.E, & Soto, C.M. (2016). Challenges and solutions using technologies in the classroom. In S.A. Crossley, D.S. McNamara (Eds) *Adaptive educational technology for literacy instruction*; (pp13-29) Taylor & Francis.
- Kilinc, E., Kilinc, S., Kaya, M.M., Baser, E. Turkuresin, H.E., Kesten, A. (2016). Teacher attitude towards the use of technology in social studies. *Teaching Research in Social Sciences and Technology*; 1(1), 59-76.
- Liao, Y.C. (2007). Effects of computer-assisted instruction on students' achievements in Taiwan: A meta-analysis. *Computer and Education*; 48 (1), 216-233.
- Mahajan, R. (2015). Impact of on-line teaching during COVID19 pandemic. *The Research Probe*; 1 (1), 45-49.
- Mbia, N. (2006). Recurrent issues and problems of classroom instruction. *Journal of Research in National Development*; 4(2), 140-143.
- Mela, N. (2024). Revolutionizing pedagogy: The role of digital media in modern teaching practices. <https://elearningindustry.com>.
- Mouraz, A. & Nore, A. (2024). Digital Skills and Gender Equity: Perceptions and practices of Portuguese primary education teachers. *Multimedia based digital*; 4(3), 710-725.
- Nijnen, F. Molen, J.W., Voogt. T. (2022). Primary teachers' attitudes towards using new technology and stimulating higher-order thinking in students: A profile analysis. *Open Access, Education Information Technology*; 28(1), 6347-6372.
- Nwocha, S.E. (2017). Teaching with technology in the classroom. In Akwaronye, J. Obasi, V.A., Nwani, A. Ijoma, B.C. *Instructional design for effective teaching*. (pp 160-168). Enugu: clear concept.
- Okocha, D.O, Nimat, J., & Agaku, T. (2022). Effect of digital technologies on academic performance of Nigerian adolescents. DOI:10.4018/978-1-6684-5732
- Olofeson, A.D, Fransson, G. Lindberg, J.O. (2019). A study of the use of Digital technology and its conditions with a view to understanding what adequate digital competence may mean in national policy initiative. *Educational studies*; 46(2), 1-17.
- Onyia, M.N. (2021). *Digitalisation of education in Nigeria: A path to technological advancement*. 2021 association for digital education and communication technology conference proceedings.
- Osmai, S & Tartari, D. (2024). The impact of digital technology on learning and teaching: A case study of schools in Durrres, Albania. *Journal of educational and social research*; 14 (6), 193-209.
- Parveen S. & Ramzan, S.I. (2024). The role of digital technologies in education: Benefits and challenges. *International research journal on advanced engineering and management*; 2(6), 2029-2037.
- Salam, U. (2013). The students' use of Google classroom in learning English. *Journal Pendelikon Indonesia*; 9(4), 628-638.
- Stuberg, J.C. (2018). Application issues using digital technology. *International journal of innovation science*; 11(2), 177-195.
- Sharma, R., Singh, A. (2023). Use of digital technology in improving quality education: A global perspectives and trend. DOI: 10.4018/976-8-3693-2065-25.ch002
- Tamim, M.R., Bokhovski, E., Pickuo, D., Bemand, M., Saadi, L. (2015). Tablets for teaching and learning: Asystematic review and meta-analaysis. <https://oasis.co/.org>
- Ugoba, R. & Ogbedo, L.O. (2023). The availability and utilisation of information communication technology equipment on the teaching and learning of students in public secondary schools in Delta state central senatorial district, Delta state, Nigeria. *Advance research and review*; 19 (1), 174-180.
- UNESCO (2023). Technology in education. GEM Report 2023. [Gem-report-2023-UNESCO.org...](https://gem-report-2023-unesco.org...)