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The Influence of Information and Communication Technology (ICT) on Academic Performance of Students in Higher Institutions in Nigeria

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ABSTRACT

The study examined influence of information and communication technology (ICT) on the academic performance of students in higher institution located in Kogi State, Nigeria. To facilitate this investigation, three research questions and corresponding hypotheses were formulated. A descriptive survey research design was employed. The study's population comprised 31,996 second-year students from various higher institutions in Kogi State. A sample size of 395 was determined using Taro Yamene's formula, and a multistage sampling technique was applied. Data collection was conducted using a structured questionnaire developed by the researchers, which consisted of three sections (A, B, and C), each featuring items rated on a four-point Likert scale. The questionnaire underwent face and content validation by experts in ICT related discipline. To assess the reliability of the instrument, the SPSS Version 23 was utilized, employing the Cronbach Alpha method to determine internal consistency reliability coefficients of 0.72 for section A, 0.74 for section B, 0.70 for section C, and 0.72 for the overall instrument. Mean and standard deviation analyses were conducted to address the research questions, also z-test statistics were employed to evaluate the hypotheses at a significance level of 0.05. The findings indicated that students in Nigeria institutions in utilize ICT infrastructure for learning to a significant level, and that ICT positively affects their academic performance. Suggestions were made that schools should enhance their ICT infrastructure to improve students' access to quality study materials, and that students should leverage e-learning platforms via their hand-held devices to acquire knowledge that would bolster their academic performance.

Keywords: Influence, information and communication technology, infrastructure, computer, e- learning and academic performance

Introduction

In educational settings, teacher-made assessments are typically employed to evaluate students' academic performance during internal examinations, characterized by their brevity. In contrast, standardized tests are utilized for external examinations and tend to be of medium to long duration. Ahmodu *et al.* (2018). The topic of academic performance is a critical concern within educational institutions, as it serves as a primary metric for assessing students' cognitive capabilities. Academic performance encompasses the extent to which an individual student can successfully complete assigned academic tasks within the school environment. To improve access to learning materials, facilitate knowledge transfer, and enhance academic performance among students, it is essential to fully integrate and adopt information and communication technology (ICT) within the educational system. Similarly, ICT can be seen as an engine for growth and a tool for empowerment with profound implications for education, change, and socioeconomic development. Therefore, any educational activities that involve the use of technology capture the interest of students, which facilitates their understanding of the content and provides a different way of expressing knowledge. (Iwundu, 2020).

Kashif *et al.,* (2020) further defines ICT as a comprehensive term encompassing the use of "any specialized gadget or application, including radio, TV, phones, PCs, and organizational equipment and software, satellite systems, etc., as well as the various services and applications associated with them, such as videoconferencing and distance learning." Additional forms of ICT infrastructure, such as wireless communication devices, audio conferencing, video tapes, DVDs, and CD-ROMs, can also be employed to enhance teaching and learning, even across borders, without compromising the quality of instruction, learning outcomes, or the validity of certificates earned. ICT has emerged as a fundamental component in enhancing human capabilities and mobilizing resources for effective educational delivery. It facilitates global access to education, promotes educational equity, supports the dissemination of high-quality teaching and learning programs, fosters professional development for educators, and contributes to more efficient educational management (Alharbi and Drew, 2021).

The impact of ICT on the performance of secondary school students in Kogi State can also be identified as a correlation between computer usage in schools and academic achievement. As noted by Ikwuka and Adigwe (2017), traditional educational methodologies are increasingly inadequate in equipping students with the essential skills required for economic survival in the contemporary learning landscape. UNESCO (2002) further emphasizes that numerous nations now consider the comprehension of information and communication technology (ICT) and the mastery of its fundamental principles as integral components of the educational teaching and learning framework. The emergence of ICT has brought about significant innovations that have

transformed not only the teaching and learning processes but also the broader educational sector. Iwundu and Andah (2018) argued that the integration of ICT in education is closely linked to the application of learning technologies within educational institutions. ICT serves as a crucial tool that can enhance the academic performance of students across all educational levels. found that both science teachers and students utilized ICT tools for the instruction and learning of mathematics.

The perception of students regarding the efficacy of Information and Communication Technology (ICT) as a facilitator of productive learning significantly influences the successful integration of technology in educational setting. In a study conducted by Kashif *et al.,* (2020), it was found that the school environment plays a crucial role in shaping students' attitudes towards the use of computers. Furthermore, research by Iwundu (2020) indicated that the incorporation of ICT not only fosters changes in attitudes, behaviors, and values but also impacts cognitive and perceptual processes. Their findings suggest that the use of ICT tools, such as computers and the internet, positively alters students' learning attitudes and behaviors. When ICT is integrated into the learning process, students tend to exhibit more self-directed and self-managed learning behaviors. This highlights the necessity for the current study, which aims to address this gap by evaluating the impact of Information and Communication Technology on the academic performance of students in selected institutions within Kogi State.

Literature Review

Importance of ICT in Education

The introduction of Information and Communication Technology (ICT) and its integration into the educational sector has significantly transformed various aspects of school operations, including record keeping, admission procedures, and the dynamics of teaching and learning globally. It is anticipated that the establishment of ICT infrastructure in both educational institutions and home environments will lead to enhanced learning outcomes for students. This enhancement is attributed to ICT's ability to foster interactive learning and broaden students' capabilities in active engagement in ICT, Adegbite (2017) has utilized the dissemination of data of inadequate instructive assets for broad accessibility or reach. Teachers depended on innovation to make the class fascinating, this permits them to give a few reasonable experiences on one hand and the others, students use it to acquire a top to bottom information regarding the matter where they have interest. Gone are the days when teachers should address through chalkboards in an auditorium.

Ameen *et al.* (2019) found out that educators who have gone through ICT courses are more compelling in teaching by utilizing innovation devices rather than those that have no involvement with such preparation. Studies uncover that the imaginative utilization of ICT Innovation in schooling has the ability to expand the nature of individuals' lives by upgrading teaching and learning. With ICT teaching and learning is not just occurring in the school premises yet can likewise happen when students are in other locations. It is also prevalent approach to assessing students' academic performance in schools is through the outcomes of public examinations, which serve as a basis for evaluating both schools and educators. The academic performance of secondary school students significantly influences their future educational and vocational aspirations and choices (Hashemi *et al*., 2022).

According to the findings of Iwundu and Andah (2018), as referenced in the work of Kashif *et al.,* (2020), the integration of Information and Communication Technology (ICT) into the educational process is perceived as a platform for the application of various methodologies and pedagogical theories. Nonetheless, the utilization of ICT as a teaching resource presents complexities and challenges, necessitating a favorable disposition from educators. It is also important to highlight that students' engagement with ICT tools has broadened to include activities such as internet browsing, email communication, online chatting, programming, graphic design, spreadsheet management, online shopping, literature searches, and access to other educational resources (Adegbite, 2017).

The impact of ICT has saturated each part of human existence and endeavor, so as the teaching and learning experience have been emphatically changed by the combination of different technological, educational and academic advancements as of late (Ameen *et al*., 2019). The approaching of advancements has in tremendous measure, tested the traditional approach to teaching and learning (Iwundu and Andah, 2018). ICT is an interdisciplinary science essentially concerned about the assortment, grouping, control, capacity, recovery and transmission of data. This improvement has its starting point in the normal load of human skills (. The innovation of ICT, particularly in its present-day structure, has achieved viable and productive data age, utilization and communication, storage and recovery (Andah, 2018).

Moreover, ICT is recognized for its potential to revolutionize instructional processes by introducing robust elements into learning environments that utilize virtual platforms (Ikwuka & Adigwe, 2017). The introduction of Information and Communication Technology has made teaching and learning more accessible and effective, as a plethora of educational resources, including improvised materials, are readily available online. The integration of ICT in education is essential to complement traditional teaching methods, particularly since, as noted by Ikwuka and Adigwe (2017), conventional educational practices often fail to equip students with the requisite skills for economic survival in the contemporary job market. According to (Hashemi *et al*., 2022) the goals of implementing ICT in educational institutions include: implement the principles of life-long learning and education, increase a variety of Educational services and methods/media, promote equal opportunities to obtain education and information, develop a system of collecting and disseminating Educational information, promote technology literacy of all citizens, especially for students, developing Distance Education with national contents, promote the culture of learning at school, Support schools in sharing experience and information with others.

Problem Statement

The utilization of ICT for influencing teaching and learning, especially in secondary school Kogi State, Nigeria is currently at its early stages. Most of Nigerian secondary teachers are neither recognizable, nor talented in utilizing these devices for guidance in classroom. It is of high significance that the conventional teaching technique ought to be enhanced with ICT which can animate and stimulate students' interest to advance successfully, which will

significantly impact their scholastic exhibition positively and consequently work with conveyance of guidelines in the classroom (Ameen *et at.,* 2019). Most Nigerian secondary teachers and students with possession of these ICT tools utilize them for diversion purposes (paying attention to music, talking via virtual entertainment sites) which might not positively affect both the instructor and the student.

However, in Nigerian institutions today, not much has been explored with ICT in the educational field particularly in utilizing ICT tools for teaching and learning, Ikwuka and Adigwe (2017) investigated web-based networking and the scholastic accomplishment of colleges students in a chosen Nigerian college. Iwundu (2020) examined ICT tools as a device for conveying instructional materials among Nigerian students. It was stated for that by and large; students found the innovation simple to utilize and appreciated getting to know arising advancements of technologies while completing class works.

It is clear from the preceding discussion that the infrastructure of Information and Communication Technologies (ICTs) can significantly influence not only the engagement and academic outcomes of students but also the proficiency and teaching methodologies of educators. Therefore, it is essential to ensure the adequate provision and effective use of ICT infrastructure in secondary education to improve students' academic performance. Nevertheless, a review of the existing literature on ICT in education indicates a lack of substantial empirical research regarding its effects on students' academic performance in Kogi State.

Purpose of the Study

The study sought to determine the impact of ICT on academic performance of students in higher institutions in Kogi State. Specifically, the study objectives are to determine the following:

1. Level to which ICTs facilities are available for improving students' learning in higher institutions in Kogi State.
2. Level to which students' gender influence utilization of ICTs tools for learning in institutions in Kogi State.
3. Gender influence on the positive impact of ICT on students' academic performance in Kogi State institutions.

Research Questions

The following research questions were answered:

1. To what level are ICTs facilities available for improving students' learning in higher institutions in Kogi State?
2. What is the level of influence of students' gender on the utilization of ICTs facilities for learning in the institutions in Kogi State?
3. What is the influence of students' gender on the positive impact of ICT facilities on students' academic performance in senior in Kogi State institutions?

Hypotheses.

The following null hypotheses were formulated as a guide to the study, tested at 0.05 level of significance:

Ho_1: There is no significant difference in the mean ratings of students on the level ICTs facilities are available for improving students' learning in higher institutions in Kogi State.

Ho_2: There is no significant difference in the mean ratings of level of influence of male and female students on the utilization of ICTs facilities for learning in the institutions in Kogi State?

Ho_3: There is no significant difference in the mean ratings of male and female students on the positive impact of ICT facilities on students' academic performance in Kogi State institutions.

Research Method

The research employed a descriptive survey design to examine the influence of Information and Communication Technology (ICT) on the academic performance of students in higher institutions Kogi State, Nigeria. The following institutions, two Federal, two State and two private higher institutions in Kogi state which comprised of Federal University, Lokoja, Kogi State, Federal College of Education Okene, Prince Abubakar Audu university, Kogi State Polytechnic, Prime Polytechnic and Salem University a private university were selected for the study. The study's population consisted of 31,996 students, comprising 15,217 males and 16,779 females. From this population, a sample of 395 students (190 males and 205 females) was selected using a multistage sampling technique.

Data collection was facilitated through a questionnaire developed by the researchers as instrument, which included three sections labeled A, B, and C. Each section utilized a four-point Likert scale, ranging from Very High Level (VHL) at 4 points, High Level (HL) at 3 points, Low Level (LL) at 2 points and Very Low Level (VLL) at 1 point. Prior to administration, the questionnaire underwent validation by experts in the fields of ICT and Statistics. The internal consistency reliability coefficients were calculated using the Cronbach Alpha method via SPSS version 23, yielding values of 0.72 for section A, 0.74 for section B, 0.70 for section C, and an overall reliability of 0.72 for the entire questionnaire.

The research questions were addressed through the application of the mean and standard deviation, while the hypotheses underwent testing at a significance level of 0.05 utilizing z-test statistics. A mean benchmark score of 2.50 was established to determine the acceptance or rejection of the results.

Consequently, items that achieved mean scores of 2.50 or higher were deemed to reflect a High Level, whereas those with mean scores falling below 2.50 were classified as Low Level.

Results and Discussions

Research Question 1: To what level are ICTs facilities available for improving students' learning in higher institutions in Kogi State?Table 1: Mean Ratings on the Level to which ICTs facilities are available for improving students' learning in higher institutions in Kogi State.

S/N	Items	Male Students (189)			Female Students (200)		
		Mean	StD	Rem	Mean	StD	Rem
1	Computers installed with Microsoft is offices is available in my school	2.60	0.70	HL	2.74	0.75	HL
2	There is internet facility in my school for students use	2.46	0.63	LL	2.47	0.67	LL
3	Various Students possess android phone for browsing	2.76	0.86	HL	2.70	0.80	HL
4	My school has Google Meet app for e-learning	2.72	0.82	HL	2.67	076	HL
5	Most students in my school have e-mail address	2.88	0.94	HL	2.79	0.82	HL
6	There are availability of educational software packages in my school for students teaching and learning	2.64	0.70	HL	2.70	0.75	HL
7	There are TV and radio educational programmes by the state government to improve students' learning	2.71	0.74	HL	2.66	0.69	HL
8	Several students have WhatsApp and YouTube app in their mobile phone that aid students learning	2.76	0.80	HL	2.60	0.68	HL
9	Many students have software educational apps in their smart phones	2.71	0.72	HL	2.67	0.68	HL
10	Educational games available for students to use	2.66	0.70	HL	2.71	0.75	HL
	Grand Total Mean	2.69	0.76	HL	2.67	0.74	HL

Source: Field Data, 2024

Table 1 illustrates the availability of ICT facilities aimed at improving student learning in institutions within Kogi State, Nigeria. The findings presented in Table 1 indicate that, among the ten items assessed, the mean ratings for male and female students on item 2 are 2.46 and 2.47, respectively, both of which fall below the mean benchmark value of 2.50, categorizing this as a low level. Conversely, the mean ratings for items 1, 3, 4, 5, 6, 7, 8, 9, and 10 exceed the mean benchmark of 2.50, thus being classified as a high level. Consequently, it can be concluded that ICT facilities is significantly available to improve student learning in the institutions in Kogi State.

Research Question 2: What is the level of influence of students' gender on the utilization of ICTs facilities for learning in the institutions in Kogi State?

Table 2: Mean Ratings on the Level students' gender influence utilization of ICTs tools for learning in the institutions in Kogi State.

S/N	Items	Male Students (189)			Female Students (200)		
		Mean	StD	Rem	Mean	StD	Rem
11	Students use ICT facilities to download materials	2.86	0.92	HL	2.78	0.87	HL
12	Most students learn their lessons via educational software in our school	2.70	0.74	HL	2.62	0.68	HL
13	Several students utilize internet tools to do their assignments and projects	2.72	0.76	HL	2.67	0.70	HL

14	Several students utilize ICT facilities such as Google Meet online study	2.73	0.71	HL	2.64	0.65	HL
15	Most students utilize ICT facilities to acquire skills and knowledge for solving questions	2.88	0.90	HL	2.93	0.94	HL
16	Several students utilize their smart phones to browse question and answer in various subjects	2.80	0.86	HL	2.73	0.80	HL
17	Students use software educational games to enhance their digital skills	2.52	0.54	HL	2.77	0.79	HL
18	Students utilize ICTs facilities to enhance their communication skills	2.76	0.80	HL	2.71	0.76	HL
19	Most students acquire knowledge by watching and listening to TV and radio education programmes	2.72	0.76	HL	2.65	0.70	HL
20	Many students gain access to computer laboratory school to develop their school projects	2.79	0.81	HL	2.62	0.67	HL
	Grand Total Mean	2.75	0.78	HL	2.72	0.77	HL

Source: Field Data, 2024

Table 2 illustrates the level to which students engage with ICT facilities for educational purposes in the institutions within Kogi State. The data indicates that the mean ratings for both male and female students across all assessed items 11 to 20 are more than the the established benchmark mean of 2.50, suggesting a high significant level of utilization. Consequently, it shows that students engage and use ICT facilities at high level to improve learning in the institutions in Kogi State.

Research Question 3: What is the influence of students' gender on the positive impact of ICT facilities on students' academic performance in in Kogi State institutions?

Table 3: Mean Ratings on Gender influence on the positive impact of ICT on students' academic performance in Kogi State institutions.

S/N	**Items**	**Male Students (189)**			**Female Students (200)**		
		Mean	**StD**	**Rem**	**Mean**	**StD**	**Rem**
21	Some subjects were taught through ICT facilities, it allows students to gain more skills and knowledge	2.80	0.72	HL	2.74	0.67	HL
22	ICT aid students to perform well in their assignment	2.87	0.84	HL	2.82	0.80	HL
23	ICT improves students' participation in class activities	2.89	0.86	HL	2.83	0.81	HL
24	ICT enhances students' involvement while in class	2.89	0.83	HL	2.82	0.79	HL
25	ICT facilities improve students' learning for improvement of academic performances	2.88	0.66	HL	2.83	0.61	HL
26	ICT improve students' involvement in learning activities for better performance	2.79	0.75	HL	2.85	0.81	HL
27	TV and Radio educational software has contributed to students' academic performance	2.70	0.73	HL	2.77	0.80	HL
28	ICT facilities aid to improve students' learning motivation	2.86	0.84	HL	2.82	0.80	HL
29	ICTs facilities increase students' learning abilities skills for improved academics performance	2.80	0.84	HL	2.75	0.77	HL
30	Software educational games aid to improve students' computing skills	2.77	0.81	HL	2.70	0.74	HL
	Grand Total Mean	2.83	0.79	HL	2.79	0.76	HL

Source: Field Data, 2024

Table 3 illustrates the level to which Information and Communication Technology (ICT) has favorably influenced the academic performance of students in within Kogi State institutions. The findings displayed in Table 3 indicated that the mean ratings provided by both male and female students across all items greater the mean benchmark score of 2.50. This suggests that ICT has high level of significant contribution to enhancing the academic performance of students in Kogi State institutions.

Hypotheses Testing

Ho_1: There is no significant difference in the mean ratings of students on the level ICTs facilities are available for improving students' learning in higher institutions in Kogi State.

Table 4: Z-Test Analysis of Difference in Mean Ratings on the Level to which ICTs facilities are available for improving students' learning in higher institutions in Kogi State.

Respondents	N	Mean	StD	Df	z-cal	z-crit	Sig.	REM
Male students	189	2.69	0.79	387	0.250	1.960	0.05	Not Sig
Female students	200	2.67	0.74					

Table 4 indicates that at a significance level of 0.05 and with 387 degrees of freedom, the calculated z-value is 0.250, while the critical z-value is 1.960. Having noted that the calculated z-value of 0.250 is less than the critical z-value of 1.960, the null hypothesis, which stated that there is no significant difference in the mean ratings of male and female students regarding the availability of ICT facilities for improving learning and teaching in higher institutions in Kogi State is therefore accepted. This finding suggests that both male and female senior secondary school students Kogi State concur that ICT facilities is significantly available to support their learning.

Ho_2: There is no significant difference in the mean ratings of level of influence of male and female students on the utilization of ICTs facilities for learning in the intuitions in Kogi State?

Table 5: Z-Test Analysis of Difference in Mean Ratings on the Level students' gender influence utilization of ICTs tools for learning in the instituions in Kogi State.

Respondents	N	Mean	StD	Df	z-cal	z-crit	Sig.	REM
Male students	189	2.75	0.78	387	0.375	1.960	0.05	Not Sig
Female students	200	2.72	0.77					

Table 5 indicates that at a significance level of 0.05 and with 387 degrees of freedom, the calculated z-value is 0.375, while the critical z-value is 1.960. Having noted that the calculated z-value of 0.3750 is less than the critical z-value of 1.960, the null hypothesis, which stated there is no significant difference in the mean ratings of level of influence of male and female students on the utilization of ICTs facilities for learning in the instituions in Kogi State is therefore accepted. This finding suggests that both male and female senior secondary school students Kogi State concur that ICT facility is significantly available to support their learning.

Ho_3: There is no significant difference in the mean ratings of male and female students on the positive impact of ICT facilities on students' academic performance in the institutions in Kogi State.

Table 6: Z-Test Analysis of Difference in Mean Ratings on male and female students influence on the positive impact of ICT on students' academic performance in Kogi State institutions.

Respondents	N	Mean	StD	Df	z-cal	z-crit	Sig.	REM
Male students	189	2.89	0.79	387	0.550	1.960	0.05	Not Sig
Female students	200	2.79	0.76					

Table 6 indicated that, at 0.05 level of significance and 387 degree of freedom, z-calculated value of 0.500 is less than z-critical value of 1.960, the null hypothesis which state that there is no significant difference in the mean ratings of male and female students on the Mean Ratings on male and female influence on the positive impact of ICT on students' academic performance in Kogi State institutions is therefore accepted. This implies that male and female senior secondary school students in Kogi State are in agreement that ICT facilities have, to a high level, positively impacted on students' academic performance in Kogi State, Nigeria higher intuitions.

Discussion of Findings

The study showed that the facilities for Information and Communication Technologies (ICTs) is largely accessible for the purpose of improving student learning in Nigeria higher instituions within Kogi State. Furthermore, it was found that there is no significant different in the mean ratings between male and female students regarding the availability of ICT facilitates for educational enhancement in these schools. This underscores the critical importance of adopting and integrating ICT in educational settings, as effective teaching and learning in the contemporary digital era necessitates a blend of traditional pedagogical methods and computer-mediated environments. The rationale behind the availability and integration of ICT resources in educational institutions is well-articulated by Ikwuka and Adigwe (2017), who noted that conventional educational methodologies no longer equip students with the essential skills required to thrive in today's job market.

The findings indicated that students in higher instituions in Kogi State extensively utilize ICT facility for their learning. Furthermore, there is no notable difference in the mean ratings between male and female students regarding their use of ICT facility for educational purposes. This trend can be attributed to the technology-driven nature of the 21st century, where students are increasingly adept at using technology, thereby enhancing their learning capabilities and outcomes. According to Kashif *et al.,* (2020), the integration of ICT in education, which encompasses technology-based teaching and learning processes, is closely linked to the application of learning technologies within educational institutions. Ameen *et al.,* (2019) found that both mathematics teachers and students effectively employed ICT tools in the teaching and learning of mathematics. Additionally, it was determined that ICT positively influences students' academic performance in higher institutions in Kogi State, with no significant difference in the mean ratings of male and female students regarding this impact. This observation is supported by Hashemi *et al*., (2022) who noted that the incorporation of technology in education significantly enhances pedagogical practices, leading to more effective learning outcomes. Kashif et al. (2020) reported that many students leverage ICT to enhance their essential skills and engage more actively in their learning, resulting in a considerable positive impact on their educational experiences. Similarly, Adegbite (2017) found that ICT significantly improves student performance in secondary schools in Oyo State, while Kashif *et al.,* (2020), established in their study, the correlation between computer usage in schools and academic achievement in some selected secondary school.

Conclusion

Information and Communication Technology (ICT) facilities are crucial to academic performance among public and private senior secondary school students in Kogi State. The ICT facilities is essential for students to enhance teaching and learning. The availability of ICT facilities and its utilization influence the positive impact of ICT on students' academic performance in higher institutions in Kogi State. The results of the research suggested that students engage with a range of ICT facilities to enhance their learning processes. Consequently, it can be inferred that the integration of ICT facilities positively influences the academic achievements of students in higher institutions within Kogo State.

Recommendations

Government and stakeholders should try to supply sufficient ICT facilities to secondary schools in Kogi state and other part of the nation. This will empower the schools' administration to give satisfactory ICT facilities to viable teaching and learning purposes

Capacity building for staff on the utilization of currently accessible ICT facilities ought to be maintained regularly. This will assist them with being viable while in class

Students' classes are to endeavor to utilize e-learning stages in their android phones and acquire information that would further develop their academic achievement.

References

Adegbite, A.F. (2017). Analysis of the impact of ict on the performance of students in secondary school, Oyo State. *International Journal of Research in Business Studies and Management, (8):23-29.*

Alharbi, S. and Drew, S. (2021). Mobile learning-system usage: Scale development and empirical tests. International Journal of Advanced Research in Artificial Intelligence (IJARAI), 3(11),31–47.

Ameen, S.K., Adeniji, M.S., Abdullahi, K. (2019). Teachers' and students' level of utilization of ICT tools for teaching and learning mathematics in Ilorin, Nigeria. *African Journal of Educational Studies in Mathematics and Sciences,* 15(16), 51-59.

Elmahdi, I., Al-Hattami, A & Fawzi, H. (2018). Using Technology for Formative Assessment to Improve Students' Learning. The Turkish Online Journal of Educational Technology, TOJET 17(2) 182-188

Hashemi, A., Na, S., & Qawi, A. (2022). ICT use in English language learning: Students' perspectives. Cogent Arts & Humanities, 9(1), 1-8.

Ikwuka, O.I., Adigwe, J.E., (2017). Effect of ICT on secondary school students' academic xacademic performance in public private sector universities of Pakistan. *International Journal of Innovative Technology and Exploring Engineering (IJITEE*), 9(3), 19-25.

Iwundu C.O., & Andah, N.W. (2018). Logotherapy and allied psychotherapies: Psychological medicine for despair in human crises. *Minson Publishers.*

Iwundu, C.O. (2020). Psychology of human relations an ecological approach to effective management of psychology of knowing me and knowing you. Emmanest Global Ventures.

Kashif, I., Nor, A., Fadhilah, R., Adnan A., Mustansar, I. (2020). The impact of ICT on students' academic performance in public private sector universities of Pakistan. *International Journal of Innovative Technology and Exploring Engineering (IJITEE*), 9(3), 117-121.

Oluwalola, F. K. (2021). Evaluation of ICT tools accessibility to business education lecturers and students. Journal of Education and Learning (Edu Learn). 15(1), 64-69.