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INFORMATION AND COMMUNICATION TECHNOLOGY AS CORRELATE OF SECONDARY SCHOOL EFFECTIVENESS IN IKPOBA-OKHA LOCAL GOVERNMENT AREA IN EDO STATE

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ABSTRACT

This study titled: Information Communication Technology as Correlate of Secondary School Effectiveness in Ikpoba-Okha Local Government Area in Edo State was guided by research questions. The study is a descriptive research that adopted the correlative research design. The population of the study and sample of the study was all the 31 public secondary schools. The questionnaire was used to collected data for the study. The questionnaire was validated with a reliability carried out. The result of the reliability was 0.68 which show that the instrument was reliable. The instrument was administered and thereafter mean and standard deviation statistics were used to answer the research questions. Pearson r statistics was utilized to test the hypothesis at an alpha level of 0.05. The findings are: The extent of Information Communication Technology usage among secondary school students in Edo state is high, the level of secondary school effectiveness in Edo state is high, there is no significant relationship between ICT usage and secondary school effectiveness in Edo state, there is no significant difference in the relationship between ICT usage and secondary school effectiveness based on school location (rural and urban) and there is no significant difference in the relationship between ICT usage and secondary school effectiveness based on school size (large and small). the study concluded that Government should provide more ICT gadgets in schools to aid teaching and learning, the usage of ICT among secondary school students in Edo state should be encouraged, laws should be made to encourage the use of ICT as it increases efficiency., Government should provide generating set in secondary schools in order to forestall the intermittent disruption of power supply and teachers should be trained on the use of ICT in teaching.

Keywords: ICT, School effectiveness, Secondary School, digital tools, teaching and learning, Social Media, Screen-cast, WhatsApp, Google, Classroom, and Zoom

Introduction

The integration of Information and Communication Technology (ICT) in schools has evolved as a dynamic and transformation study area within the sphere of education. ICT refers to the inclusion of digital tools, technology, and resources into the teaching and learning processes. ICT is a continuously expanding sector, and new technologies are being produced all the time. This has the potential to further revolutionize the way we live and work. From interactive digital platforms to online learning management systems, academicians investigate into the numerous ways in which ICT might disrupt conventional classroom methods, adapting to the requirements of a digitally aware youth (WASET. 2023). Information and communication technology (ICT) refers to the hardware, software, network, and media components that enable the collection, transport, and processing of data (Hu et al., 2018). Information processing, manipulation, and communication are often referred to as ICT. Using these technologies means using social networking sites like Facebook and WhatsApp as well as video-sharing services like YouTube. Projectors, desktops, and printers are also used in communication in addition to computers (Hu et al., 2018).

Scholars have investigated how ICT might support customized and adaptable learning experiences, enabling educators to accommodate to specific student requirements and learning patterns. They assess the utility of multimedia materials, virtual simulations, and online collaboration technologies in engaging students and developing deeper knowledge of challenging subjects. The combination of ICT in tuition and learning organizations includes all of these technologies and their application in the handling of Information for educational purposes. Without a doubt, student academic performance is heavily influenced by access to Information. Students now have more information sources. According to Mathivanan et al. (2021), ICT expands communication opportunities within and beyond educational institutions, allowing students, including those undeserved by the formal education system, to access new learning opportunities. Being a part of the information society, according to Alderete and Formichella (2016), entails having access to new technologies as well as learning how to use these technologies. ICT has been introduced in schools in advanced states and has improved academic achievement strategies as well as transformed teaching and learning processes (Clark, 2015). Another essential element of study in this topic is the investigation of issues connected with ICT integration in institutions. Concerns such as digital divide, disparate access to technology, and the possibility for increased screen time are explored exhaustively. Researchers explore into solutions to resolve the technology divide, ensuring that all learners

have equitable access to ICT resource (Wei et al., 2021). Additionally, they investigate efficient methods of educating teachers to successfully utilize ICT resources in their classroom, taking into mind pedagogical changes and the prerequisite for continuing professional growth. By addressing these problems, academics aid to developing a more inclusive and sustainable framework for using ICT in educational settings. ICT in schools is a vivacious and expanding discipline that studies the transformation potential of technology in education. By investigating its impact on teaching and learning, addressing challenges related to access and implementation, and promoting effective pedagogical practices, researchers contribute to shaping a modern educational landscape that harnesses the power of digital tools to enhance student engagement, knowledge acquisition, and overall educational outcomes (Ngqondi and Mauwa, 2019). Others have also concentrated on schools' attitudes toward effective ICT integration (Ghavifekr and Rosdy, 2015). Several studies have been carried out on the influence of these technologies on academic routine (Lau, 2017). Using ICT in education, according to research, improves academic performance and students' attitudes toward academic work (Alderete and Formichella, 2016). ICTs have been recognized as critical tools in the delivery of high-quality education. Many countries, including Ghana, have taken significant steps to support the potential of ICTs in the development of a workforce capable of fully participating in a knowledge and information society. As a result, the Ghanaian state, through the Ministry of Education (MoE), implemented ICT in educational policies, ensuring that ICT is taught and studied at all stages of education in Ghana. School effectiveness is an important research topic in the realm of education, focusing on knowing the aspects and strategies that contribute to the overall success and performance of educational institutions. School effectiveness looked at many aspects of school administration, instructional methodologies, curriculum design, leadership, and community participation to find how schools may best fulfill their purpose of offering great education to students. Researchers examine into the effect of diverse teaching styles, the integration of technology in the classroom, and the design of personalized therapies to satisfy the individual needs of pupils. By examining these elements, researchers want to equip educators, policymakers, and school administrators with evidence-based insights to better teaching techniques and school management practices (Ghavifekr & Rosdy, 2015).

Statement of the Problem

Despite ongoing efforts to enhance education through

Information and Communication Technology (ICT), significant challenges persist. While digital learning platforms, interactive whiteboards, and eBooks have improved instruction and access to resources, infrastructure and access issues remain, particularly in impoverished or isolated areas. These challenges include inadequate ICT infrastructure, budget constraints, and privacy and security concerns. The lack of comprehensive ICT systems hinders the realization of technology's intended benefits in education. Inadequate funding limits access to current ICT tools, while concerns about data privacy and security undermine confidence in the school system. This study aims to investigate the relationship between ICT and secondary school effectiveness in Edo state, exploring whether the perceived poor school effectiveness can be attributed to ICT-related factors.

Significance of the Study

This study will be of benefit to school teachers, students, school administrators, ministry of education and researchers. It will enable teachers to diversify their teaching approaches. They may employ multimedia tools, interactive presentations, videos, and simulations to make intricate concepts more accessible and entertaining for students. This variation may accommodate to numerous learning styles and enhance overall understanding.

Scope and Delimitation of the Study

This study is focused on ICT usage such as screen-cast, Google classroom, zoom, telegram and the Indices of school effectiveness mainly school administration, instructional methodologies curriculum design, leadership and community participation for in-depth analysis. The study used descriptive survey research design. The population of the study is made up of 31 Public secondary schools in Ikpoba okha local Government in Edo state. (Edo state Ministry of Education, 2023). The study is limited to all the public secondary schools in Ikpoba-okha local Government Areas in Edo state. The questionnaire was administered to 31 teachers in the 5 public secondary schools by the researcher and two research assistances

Purpose of the Study

The aim of this investigation is to explore the correlation between ICT and secondary school effectiveness in Edo state. The specific objectives are to:

1. Determine what extent ICT is used in secondary schools in Edo state.

2. Decide if there is a relationship between ICT usage and secondary school effectiveness in Edo state.
3. Find out if there is difference in the relationship between ICT usage and secondary school effectiveness based on school location (rural and urban).
4. Know if there is difference in the relationship between ICT usage and secondary school effectiveness based on school size (large and small).

Literature Review

Concept of ICT in Education

ICT stands for Information and Communication Technology. The utilization of Information and Communication Technologies in educational instruction and acquisition has increased substantially over the last few years. Most educational now uses ICT to enhance their teaching and learning practices (Sokku & Anwar, 2019). It includes a wide range of communication devices and applications. Some categories of I.T are: operational, network, enterprise, accounting etc. A systematic literature review of ICT integration in secondary education: what works, what does not, and what next? A rigorous peer-reviewed literature on the integration of information and communication technology (ICT) tools in secondary schools. It analyzed the impact of ICT integration on the teaching and learning process based on 51 sampled studies. The findings are thematically presented under the benefits of improving teaching and learning processes regarding curriculum coverage, equitable access, shared learning resources, and personalized learning (Msafiri et al., 2023).

In the study of the impact of information and communications technology on school administration in Nigeria secondary education, it was found that the majority of students use mobile phones, computers, the internet/modem, social media, digital cameras, or printers outside of school. The findings again indicated that, ICT usage has improved students' academic performance. The findings further revealed that students face challenges when using ICT facilities in their learning processes due to limited access to internet connections and the attitude of some teachers when integrating ICT in class. The availability of ICT resources at SCSs and sometimes homes are critical to the success of ICT in SCS education. The study then recommends that parents should make an effort to provide ICT resources for their children (Udofot et al., 2020). In the age of technology, ICT offers numerous resources to improve teaching methods and enhance learning capabilities. With the support of ICT, it has become easier to deliver audio-visual education Singh (2020). The availability of learning resources continues to expand. This comprehensive

approach integrated into the ICT curriculum motivates students to consider computers as essential tools across all areas of their studies. In particular, they are urged to utilize new multimedia technologies for expressing ideas, presenting projects, and organizing information in their assignments Karamti (2016). The accessibility of information has been greatly enhanced by IT. In today's age of computers and internet connectivity, the speed at which knowledge is disseminated has increased significantly, allowing people to be educated regardless of their location or the time Ntorukiri et al. (2022).

The integration of new IT into existing work and lifestyle patterns has typically occurred without bringing about drastic changes. For instance, while personal computers have replaced typewriters, the traditional office setup with secretaries using keyboards and handwritten notes remains largely unchanged. In this age of computers and internet networks, education is rapidly accessible. One advancement of ICT has made it possible to study from any location around the globe, at any hour of the day or night and it has revolutionized learning by providing opportunities for continuous skill development and knowledge acquisition without constraints of time or location. These are some of the advantages of ICT in education Tamo (2014).

Collaborative Learning

Collaborative learning has become more accessible with the advancement of ICT, allowing for group study and teaching. Online collaboration technology brings people together to work on tasks effectively regardless of their physical location, fostering teamwork and cooperation among students and educators (Zhao et al., 2019). The use of efficient postal systems, telephones (both fixed and mobile), and computer-based recording and playback systems has contributed to educational broadcasting in the new millennium. While the online world and its webpages are well-known among children in developed countries and educational elites elsewhere, it still holds little significance for many others who struggle to meet their basic needs.

Education Using Multimedia

Utilizing visual and audio aids for educational purposes involves planning, preparation, and the utilization of various devices such as still and moving images, slides, TV, feasible films, audio recordings, teaching resources', personal computers', and video discs. The expansion of multimedia education has evolved alongside advancements in technology and learning theory Prasad and Gupta (2020). Research in the field of learning psychology indicates that incorporating audio-visual

elements into education offers numerous benefits. All learning is rooted in perception, which involves the senses gathering data from the environment Ghavifekr and Rosdy (2015). Additionally, higher cognitive processes like memory and concept formation rely on previous perceptions. Individuals can only focus on a limited amount of information at one time; their selection and perception of information is shaped by past experiences.

Studies have shown that more information is absorbed when it is presented simultaneously through two sensory modalities (such as vision and hearing) rather than just one modality alone under similar circumstances. Moreover, organizing course material in a clear manner enhances learning for students Tamo (2014). These results indicate the importance of using audio-visual aids in education. They can help students better understand key concepts, be structured effectively, and engage multiple senses for learning. The information and data found online is completely accurate and current. The internet, which consists of computer networks operating to shared standards, allows computers and their programs to communicate directly, ensuring the authenticity of the information provided.

Online Library

An online library is among the many operational and experimental services supported by ICT. Abundant data can be accessed through this platform. As an integral part of the ICT curriculum, students are urged to consider computers as essential tools for all facets of their studies. Specifically, they should utilize new multimedia technologies to articulate ideas, present projects, and organize information in their assignments. This involves choosing the most appropriate medium for communication, organizing information in a structured way, and connecting different pieces of information to create comprehensive documents (First principles of motivation to learn and e3-learning, 2008).

Distance Learning

Distance learning is a learning from a remote location rather than in a traditional classroom setting Arshad and Saeed (2014). Modern communication technologies have opened up new opportunities for home-based and part-time learning, including multimedia and interactive options. The term "distance learning" has replaced various other terms such as home study, independent study, external study, and correspondence study within the context of an evolving communications revolution. This shift has been driven by increased demand for educational access and the utilization of innovative

technology to reduce costs per student while also offering flexibility for students studying from home. For whatever reason, remote learning allows students who are unable to study alongside others due to reasons such as course availability, geographical distance, family circumstances or individual disability. It also attracts students who prefer studying at home and professional and business education event planners by encouraging a reevaluation of the most efficient method for sharing important information and acquiring knowledge (Sari & Mahmutoglu, 2013).

ICT and School Effectiveness

Information Communication technologies have greatly impacted teaching, learning, research, and school administration. They involve electronic technologies that enable the access, processing, collection, manipulation, presentation, or communication of information. This includes software, hardware as well as connectivity (Tikam, 2013), ICTs facilitate connections between academic content and current work practices. Network technologies in particular promote active learning, aid innovative teaching methods, decrease teacher isolation, and encourage both teachers and students to engage as active researchers or learners. Furthermore, they also bolster teaching by equipping educators with effective tools (Ntorukiri et al., 2022).

ICTs can support the professional growth of teachers, such as leveraging the Internet. In the realm of educator development, e-learning offers opportunities for both initial training and ongoing skill enhancement through formal and informal courses, workshops, and other activities (Ntorukiri et al., 2022). These platforms enable students and practicing educators to gain insights into integrating ICTs across various subjects to facilitate learning. There are numerous online resources available globally to aid in teachers' professional enrichment. Some examples include ICTs in Education by UNESCO in Education Network of Australia in Paris by Education Institute located in Adelaide; Education Technology Institute established by UNESCO based in Moscow; among others. These portals grant users with chances to inquire about topics, share resources, and complete assignments. Currently, ICT offers knowledge-based systems encompassing acquisition, incubation amplification and dissemination of knowledge. Information is evidently a crucial resource that permeates teaching, learning, research and publishing.

In order to achieve this goal, new information technology can fulfill three primary roles in the development of national education. These include:

a. Providing learning experiences either entirely or partially to students.

b. Supplementing and expanding content offered in various formats aside from printed materials (hard copies).

c. Establishing a two-way communication channel for interaction between instructors and students as well as their peers, facilitating feedback, problem-solving, advice, debate and reporting.

ICT and School Effectiveness based on School location (Rural and Urban)

The geographical location of a school can have either positive or negative effects on students. However, advancements in information and communication technology have reduced the impact of geographic barriers (Wei et al., 2012). In rural areas, students now used ICT gadgets in receiving classes. Schools now experience some of the benefits that urban schools do. For example, in Edo state, government school teachers use iPads and other devices for teaching, which is also seen in urban schools. As a result, the technological disparity between rural and urban schools has been considerably reduced. Even with limited access to ICT resources, schools in rural areas can still benefit from the use of technology to improve communication and collaboration among teachers and students, enhance access to educational materials through online platforms or digital libraries and provide opportunities for distance learning or remote teaching (Setiawan et al., 2019).

Active learning empowers students to determine when they need specific information and assess their comprehension independently. It promotes independent learning, as students with internet access at school are not entirely reliant on teachers. They can search the internet for necessary information, gather it, and continue seeking out additional knowledge. This approach also fosters self-orientation in students' learning endeavor (Pholotho & Mtsweni, 2016). E-learning enables students to access information quickly from anywhere and at any time. It also facilitates the overcoming of demographic barriers, as rural students can now obtain knowledge from urban areas, and share information with peers and educators in their own region or even in other countries. In addition to fostering dynamic learning, ICT supports the engagement of all members of educational institutions – including principals, administrators, teachers, IT coordinators, and students – in collaborative learning endeavors while forming educational communities (Pholotho & Mtsweni, 2016).

Collaborative learning enables us to accomplish tasks that would be challenging for individuals working alone. The key objective of integrating ICT into collaborative learning is to promote interactivity and communication. Student engagement in interactive learning activities

significantly enhances the effectiveness of the educational process. Incorporating ICT in education goes beyond rote memorization, as it encourages learners to actively participate in their own learning experiences, making use of technology enjoyable and engaging (Morris, 2009). Technology can facilitate collaborative learning by enabling both interaction between humans and machines, as well as interaction among students themselves. For example, in a web-based learning environment, students from rural or urban areas can engage with teachers and peers through digital platforms. The proficient utilization of ICT has the potential to enhance students' literacy and numeracy skills. For example, Microsoft Word can serve as a source of motivation for children to develop their writing abilities (Xie, 2014).

Engaging in typing on a computer allows rural and urban students to explore new words, fostering enjoyment and enthusiasm for learning (Saputri et al., 2020). Additionally, it contributes to the improvement of their speaking and listening competencies through collaborative engagement with peers, teachers, and adults. This collaboration enhances their receptive (listening) skill as they listen to others and expressive (speaking) skills as they articulate their queries. Furthermore, accessing online stories facilitates the enhancement of children's reading proficiency. The utilization of information and communication technology in both rural and urban educational institutions is crucial for providing scaffolding to enhance children's literacy. ICT not only aids in the cognitive development of students, but also boosts their motivation to learn and their engagement with the learning process.

ICT and School Effectiveness based on School Size (Large and Small)

Research indicates that the size of a school can significantly influence a child's academic experience. Studies show that students in smaller schools tend to outperform their counterparts in larger institutions. In these smaller settings, there are fewer teachers and students, fostering a more intimate learning environment. This enables teachers to give more focused attention to students and provide stronger academic support (Giambona & Porcu, 2018).

Small schools may also have the advantage of smaller class sizes, allowing for more focused ICT instruction and support. This can contribute to a more interactive and collaborative learning environment where students' have greater access to technology. (Sokku & Anwar, 2019). On the other hand, larger schools have access to a greater range of educational resources. The implementation of ICT in both larger and smaller schools presents

advantages and challenges. But small schools may have the advantage of smaller class sizes, allowing for more focused ICT instruction and support. There are various benefits experienced in both large and small school settings when integrating ICT (Sokku & Anwar, 2019).

Barriers to Integrating ICT in Educational Institutions in Nigeria

The process of incorporating ICT into education is intricate and has faced various challenges and obstacles, commonly referred to as 'barriers'. Barriers are described as any factors that hinder progress or the achievement of a goal. Research indicates that many organizations and businesses are benefiting from integrating ICT, but this is not universally true for the educational sector due to these obstacles Duze (2011). Despite government efforts to establish ICT centers, there has been limited integration of ICT into teaching and learning, leading to under utilization of these facilities. Both students and lecturers have yet to fully grasp the significance of these centers, which can be attributed to various forms and dimensions of barriers. Studies have indicated that there are two main categories of obstacles to integrating ICT into science classrooms: extrinsic and intrinsic barriers. Extrinsic barriers involve factors such as access, scheduling, assistance resources, and education, while intrinsic barriers at a second-order level may encompass attitude, beliefs, practices, and resistance Al-Ansi et al. (2021). It is worth noting that while extrinsic barriers are linked to organizational aspects, intrinsic barriers stem from teachers' attitudes and beliefs along with administrators' and individuals' contributions.

Additionally, barriers includes;

Insufficient Skills and Qualifications – The integration of ICT in education is hindered by the lack of professional development for teachers and lecturers to meet the specific demands of the education system. **Accessibility Challenges** – The integration of ICT into education faces significant accessibility issues. Both educators and students often encounter limitations in accessing ICT technologies freely. Many Nigerian universities have restrictions that prevent lecturers from fully utilizing ICT resources. Very few individuals aware of the necessity would be willing to pay high prices to private firms for access to internet connections. Moreover, a large number of these ICT centers are non-operational, resulting in staff and students being unable to utilize the systems due to technical malfunctions across the entire network.

Technical Support Issues – The challenge of inadequate technical support and maintenance for computer hardware and internet infrastructure leads to prolonged downtime when these ICT components fail. Repairs can sometimes take days or weeks to complete..

Table 1: Extent of Information Communication Technology Usage among Secondary School Students in Edo State

Social Media	VHE (F/ %)	HE (F/ %)	LE (F/ %)	VLE (F/ %)	Mean	Std. Deviation
Screen-cast	8 (25)	14 (45)	6 (20)	3 (10)	3.75	.507
WhatsApp	6(20)	16 (45)	8(25)	3(10)	3.64	.509
Google Classroom	8(25)	16(55)	6(10)	2(10)	3.69	.504
Zoom	9(30)	17(55)	5(15)	2(5)	3.77	.420
TOTAL					3.73	.447

n=31 and Criterion Mean= 2.50

Table 2: Relationship between ICT usage and School Effectiveness in Edo State.

Variables	n	Pearson r	Sig.	Remark
ICT Usage	31	.141	.085	H0 ₁ : Retained
school effectiveness			@=0.05	

Lack of time – This presents a significant obstacle in the university environment when it comes to integrating ICT into the academic and teaching processes. Faculty members face challenges in dedicating time towards enhancing their expertise in Information and Communication Technologies (Vajargah et al., 2009).

RESULTS AND DISCUSSION

Research Question 1 seeks to determine the extent of Information Communication Technology (ICT) usage among secondary school students in Edo state.

Table 1 presents the results, showing the mean and standard deviation of ICT usage among students. The criterion mean is set at 2.50, indicating that any mean value above this threshold suggests high ICT usage. All ICT tools listed (Screen-cast, WhatsApp, Google Classroom, and Zoom) have mean values above 3.50, indicating high usage among students. The total mean value (3.73) also suggests high ICT usage overall. The standard deviation values are relatively low, indicating a consistent pattern of high ICT usage among students. Based on the analysis, it can be concluded that ICT is extensively used among secondary school students in Edo state, with all tools listed showing high mean values. This suggests that students are actively engaging with ICT tools for learning and communication purposes.

H0₁ states that there is no significant relationship between ICT usage and secondary school effectiveness in Edo state.

Table 2 presents the results of the Pearson correlation analysis, which measures the strength and direction of the linear relationship between ICT usage and school

effectiveness. Pearson r value: .141 (positive correlation, but weak), p-value: .085 (greater than the alpha value of .05, indicating non-significance). Result: **H0₁** is retained, suggesting no significant relationship between ICT usage and school effectiveness.

Although the Pearson r value indicates a positive correlation between ICT usage and school effectiveness, the relationship is weak (.141) and not statistically significant (p-value > .05).

This implies that while there may be a slight tendency for increased ICT usage to correspond with increased school effectiveness, the relationship is not strong enough to be considered significant. The retention of **H0₁** suggests that other factors may have a more substantial impact on school effectiveness in Edo state, and that ICT usage alone may not be a determining factor.

Note: The result does not imply that ICT usage has no impact on school effectiveness, but rather that the relationship is not statistically significant in this particular study. Further research may be needed to explore this relationship in more depth.

H0₂ states that there is no significant difference in the relationship between ICT usage and secondary school effectiveness based on school location (rural and urban).

Table 3 presents the results of the Fisher's z-test, which compares the correlation coefficients between ICT usage and school effectiveness for urban and rural schools.

Key findings: Urban schools: Pearson r = -0.24 (negative correlation), Rural schools: Pearson r = 0.13 (negative correlation), Fisher's z calculated: -0.41, Fisher's z critical: -1.96 (at α = 0.05).

Table 3: Relationship between ICT usage and Secondary school Effectiveness based on School Location.

Variables	N	Pearson r	Fishers' z calculated	Fishers' z _{critical}	Remark
Urban	21	-0.24	-0.41	-1.96	Ho ₂ : Accepted
Rural	10	-0.13			

@=.05

Table 4: Relationship between ICT usage and Secondary School Effectiveness based on School Size.

Variables	N	Pearson r	Fishers' z calculated	Fishers' z _{critical}	Remark
Large	23	-0.24	-0.41	-1.96	Ho ₂ : Accepted
Small	8	-0.13			

@=.05

Result: **HO₂** is accepted, indicating no significant difference in the relationship between ICT usage and school effectiveness based on school location.

Interpretation: The negative correlation coefficients suggest that ICT usage may have a slightly negative relationship with school effectiveness in both urban and rural schools, although the relationships are weak.

The Fisher's z-test result indicates that the difference between the correlation coefficients for urban and rural schools is not statistically significant.

Accepting **HO₂** suggests that school location (rural or urban) does not significantly influence the relationship between ICT usage and school effectiveness. This implies that other factors may be more important in determining the relationship between ICT usage and school effectiveness, and that school location is not a significant moderator of this relationship.

Analysis of **HO₃** and Table 4: **HO₃** states that there is no significant difference in the relationship between ICT usage and secondary school effectiveness based on school size (large and small).

Ho₃: *There is no significant difference in the relationship between ICT usage and secondary school effectiveness based on school size (large and small).*

Table 4 presents the results of the Fisher's z-test, which compares the correlation coefficients between ICT usage and school effectiveness for large and small schools.

Key findings: Large schools: Pearson r = -0.24 (negative correlation), Small schools: Pearson r = -0.13 (negative correlation), Fisher's z calculated: -0.41, Fisher's z critical: -1.96 (at α = 0.05).

Result: **HO₃** is accepted, indicating no significant difference in the relationship between ICT usage and school effectiveness based on school size.

Interpretation: The negative correlation coefficients suggest a weak negative relationship between ICT usage and school effectiveness in both large and small schools.

The Fisher's z-test result indicates that the difference between the correlation coefficients for large and small schools is not statistically significant.

Accepting **HO₃** , suggests that school size (large or small) does not significantly influence the relationship between ICT usage and school effectiveness. This implies that other factors may be more important in determining the relationship between ICT usage and school effectiveness, and that school size is not a significant moderator of this relationship.

Note: The results of Ho₂ and **HO₃** are similar, indicating that neither school location (rural/urban) nor school size (large/small) significantly impacts the relationship between ICT usage and school effectiveness.

Conclusion and Recommendation

This research has shown that ICT usage and secondary school effectiveness is high. Though, it does not necessarily increase students' performance. By offering insights into the present state of ICT in Edo State's educational framework, this study provides a foundation for future research to build upon, particularly in probing the intricate dynamics between educational technology and effective learning outcomes. It also emphasizes the significance of continued investment in ICT as a component of educational resources while also calling

attention to the necessity for a broader strategy to enhance school effectiveness.

In conclusion, Government should provide more ICT gadgets in schools to aid teaching and learning, the usage of ICT among secondary school students in Edo state should be encouraged, laws should be made to encourage the use of ICT as it increases efficiency., Government should provide generating set in secondary schools in order to forestall the intermittent disruption of power supply and teachers should be trained on the use of ICT in teaching.

Suggestion of Further Studies

This study was done on Information communication technology as correlate of secondary school effectiveness in Edo state using Ikpoba-Okha as the case study. Further studies can be carried out on how to teach visually impaired students using ICT. A study can also be done on the use of ICT in improving the performance of school managements and Administrators.

REFERENCES

- Al-Ansi, A M., Garad, A., & Al-Ansi, A M. (2021, June 30). ICT-Based Learning During Covid-19 Outbreak: Advantages, Opportunities and Challenges. *Gagasan Pendidikan Indonesia*, 2(1), 10-10. <https://doi.org/10.30870/gpi.v2i1.10176>
- Arshad, M., & Saeed, M N. (2014). Emerging technologies for e-learning and distance learning: A survey. <https://doi.org/10.1109/icwoal.2014.7009241>
- Duze, C O. (2011, July 11). Impediments to ICT-led Development in Nigeria: The Case of ICT 'Illiteracy' in Universities. *Journal of science and sustainable development*, 3(1). <https://doi.org/10.4314/jssd.v3i1.67756>
- First principles of motivation to learn and e3-learning. (2008). <https://www.tandfonline.com/doi/abs/10.1080/01587910802154970>
- 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), 175-175. <https://doi.org/10.21890/ijres.23596>
- Giambona, F., & Porcu, M. (2018, December 1). School size and students' achievement. Empirical evidences from PISA survey data. *Socio-Economic Planning Sciences*, 64, 66-77. <https://doi.org/10.1016/j.seps.2017.12.007>
- Karamti, C. (2016, August 23). Measuring the Impact of ICTs on Academic Performance: Evidence from Higher Education in Tunisia. *Journal of Research on Technology in Education*, 48(4), 322-337. <https://doi.org/10.1080/15391523.2016.1215176>
- Mensah, R.O., Quansah, C., Oteng, B. & Nettey, J. N. A., (2023) Assessing the effect of information and communication technology usage on high school student's academic performance in a developing country, *Cogent Education*, 10:1, 2188809, DOI: 10.1080/2331186X.2023.2188809 To link to this article: <https://doi.org/10.1080/2331186X.2023.2188809>
- Msafiri, M. M., Kangwa, D., & Cai, L. (2023). A systematic literature review of ICT integration in secondary education: What works, what does not, and what next? *Discover Education*, 2(1), 44. <https://doi.org/10.1007/s44217-023-00070-x>
- Ngqondi, T., & Mauwa, H. (2019). A Review of Digital Integration for High School Curriculum. <https://doi.org/10.1109/icabcd.2019.8851034>
- Ntorukiri, T B., Kirugua, J M., & Kirimi, F. (2022). Policy and infrastructure challenges influencing ICT implementation in universities: a literature review. *Discover Education*, 1(1). <https://doi.org/10.1007/s44217-022-00019-6>
- Pholotho, T J., & Mtsweni, J. (2016, May 1). Barriers to electronic access and delivery of educational information in resource constrained public schools: A case of Greater Tubatse Municipality. <https://doi.org/10.1109/istafrica.2016.7530626>
- Prasad, C C., & Gupta, P. (2020). Use of ICT to Enhance the Learning Process in Higher Education. *International journal of education*, 8(4), 97-102. <https://doi.org/10.5121/ije.2020.8409>
- Saputri, S W., Fajri, D R., & Qonaatun, A. (2020, January 1). Implementation of ICT in Teaching and Learning English. <https://doi.org/10.2991/assehr.k.200303.048>
- Sari, A., & Mahmutoglu, H. (2013). Potential issues and impacts of ICT applications through learning process in higher education <https://www.sciencedirect.com/science/article/pii/S1877042813030309>
- Setiawan, I., Satori, D., & Munir, M. (2019, January 1). School Management Based on ICT to Improve the Quality of Education in Indonesia. <https://doi.org/10.2991/icream-18.2019.85>
- Singh, D. (2020). Emerging Trends in Teaching and Learning with ICT and Barriers in ICT. *International journal of innovative technology and exploring engineering*, 9(6), 719-721. <https://doi.org/10.35940/ijitee.f3920.049620>
- Sokku, S R., & Anwar, M. (2019). Factors Affecting the Integration of ICT in Education. <https://doi.org/10.1088/1742-6596/1244/1/012043>
- Tamo, D. (2014, April 1). The Effects of the Effective Use of the New Information and Communication Technology in the Classroom. *Journal of Educational and Social Research*. <https://doi.org/10.5901/jesr.2014.v4n2p298>
- Tikam, M. (2013). Impact of ICT on Education. *International Journal of Information Communication Technologies and Human Development*, 5(4), 1-9. <https://doi.org/10.4018/ijicthd.2013100101>
- Udofot, I., Boston, E., & Assumpta, C. (2020). Impact of information and communications technology on school administration in Nigeria secondary education.
- Vajargah, K F., Azadmanesh, N., & Jahani, S. (2009, April 5). Application of ICT in University Curriculum Development. <https://ieeexplore.ieee.org/document/5169453/WASET>. (2023). <https://publications.waset.org/10009843/endnote>
- Wei, D., Shou-yi, L., & Liu, J. (2012). Network information impacting on rural education. <https://doi.org/10.1109/csip.2012.6309004>
- Xie, F., & Derakhshan, A. (2021, July 15). A Conceptual Review of Positive Teacher Interpersonal Communication Behaviors in the Instructional Context. <https://doi.org/10.3389/fpsyg.2021.708490>
- Zhao, S., Kong, Y., & Kong, Y. (2019). On the In-depth Integration of ICT with Present Education. *DEStech Transactions on Economics, Business and Management*. <https://doi.org/10.12783/dtem/icrem2019/30825>.