**ATTITUDES AND PERCEPTIONS OF TEACHERS TOWARD THE UTILIZATION OF E-LEARNING RESOURCES IN PUBLIC SECONDARY SCHOOLS IN GWAGWALADA, ABUJA**

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**ABSTRACT**

 This study examines the attitudes and opinions of teachers regarding the use of e-learning resources in public secondary schools in Gwagwalada, Abuja, Nigeria. The study adopted a descriptive research design and used a structured questionnaire to gather data from a sample of 120 secondary school teachers selected through random sampling across six secondary schools in the FCT, Abuja. The research reveals that while many teachers have positive attitudes for using e-learning resources, some face serious challenges, including insufficient digital resources, limited digital literacy, and insufficient institutional support. It also showed that most teachers are willing to incorporate e-learning resources into their teaching practice, but factors such as lack of training and poor internet connectivity prevent full adoption. This analysis, conducted using SPSS version 23, showed that teachers' attitudes toward e-learning resources are positively influenced by their experience, access to technical resources, and institutional support. It concluded that targeted professional development , improving access to digital resources, and establishing support policies are essential for increasing the adoption and effectiveness of e-Learning materials in public high schools. Recommendations for include examining the role of government policies in promoting e-learning in public schools and examining strategies to close the digital literacy gap

**Keywords:** Attitude, Digital Literacy, E-learning, Resources: Perception

1. **INTRODUCTION**

Rapid technological progress has affected various fields, including education. The integration of e-learning resources in educational institutions is one of the significant results from this technological revolution. E-learning involves the use of digital tools, platforms, and resources to facilitate teaching and learning, allowing for the enhancement of the learning experience by making it more accessible, accessible, and engaging (Anderson & Dron, 2011). In the case of Nigeria, the adoption of e-learning in public secondary schools is increasingly seen as an important factor for improving the quality of education and preparing students for a world that depends on digital technology (Adewale & Ige, 2019).

Gwagwalada, a major district within the Federal Capital Territory (FCT) of Abuja, Nigeria, provides a unique setting for studying the integration of e-learning in public secondary schools. The growing diversity of fields and fields of study reflects the need for new teaching methods that can meet the needs of modern education. Teachers, as key facilitators of education, play a critical role in the successful implementation of e-Learning resources . Their attitudes and opinions about e-learning greatly influence how these resources are used in the classroom (Ghavifekr et al., 2016).

Despite the strong emphasis on e-learning, the extent to which teachers in Gwagwalada use these resources is still being researched. This study seeks to identify the attitudes and opinions of teachers in e-learning in public high schools in Gwagwalada, identifying factors that promote or prevent the effective use of these digital tools.

**1.2 Statement of Problems**

Acceptance of e-learning in public high schools in Gwagwalada is not changing, while some schools are successfully integrating digital content into their curriculum, while others are lagging behind. The attitude of teachers towards e-learning is very important in determining its success or failure. However, several challenges, including inadequate infrastructure, insufficient digital literacy and insufficient institutional support, have been identified as barriers to effective e-learning implementation (Yusuf & Balogun, 2011).

The main problem addressed by this study is the lack of adequate understanding of teachers' attitudes and opinions regarding e-learning in public secondary schools in Gwagwalada. Without this understanding, efforts to promote e-learning may not fully address the concerns and needs of teachers, leading to optimal results. This study seeks to fill this gap by identifying the factors that influence teachers' acceptance and use of e-learning resources in these schools.

**1.3 Objectives of the study**

The main objective of this study is to investigate the attitudes and opinions of teachers regarding the implementation of e-learning resources in public secondary schools in Gwagwalada, Abuja. The specific objectives are:

1. To identify teachers' attitudes toward using e-learning resources in public high schools
2. To investigate the opinions of teachers regarding the implementation of e-learning resources in public secondary schools

**1.4 Research questions**

This study seeks to answer the following research questions:

1. What are the attitudes of teachers towards implementing e-learning resources in public secondary schools?
2. What are teachers' opinions about implementing e-learning resources in public high schools?

**1.5 Significant of the study**

This study is important for several reasons: It contributs to the growing literature on e-learning in Nigerian secondary schools, with a focus on Gwagwalada, Abuja. By understanding the attitudes and perceptions of teachers, policy makers and administrators can develop more effective strategies to promote the use of e-learning resources.

Findings from this research can inform the development of targeted professional development programs that address the needs and concerns of teachers regarding e-learning. This can lead to more efficient use of e-learning resources and better educational outcomes.

This study's recommendations can help create a supportive environment for the adoption of e-learning in public high schools, ultimately benefiting both teachers and students.

**1.6 Scope of the study**

This study focused on public secondary schools in Gwagwalada, Abuja, Nigeria. It examines the attitudes and opinions of teachers regarding the use of e-learning resources, considering factors such as digital literacy, resources, and institutional support. This study is limited to teachers in public high schools and does not extend to private schools or other educational institutions in the area.

**2.1 Conceptual issues**

**2.1.1 Concept of Attitude**

Attitudes are defined as the consistent tendency to react in a particular way—whether positive or negative—to anything. It includes both intellectual and emotional aspects. (Teo, 2011). emphasizes that attitudes are very important in science because they affect public opinion and how individuals process public information. The right teacher attitude is the basis for effective teaching, and Anderson & Dron , (2011) emphasize that teachers must attract the attention of their students and add curiosity to their teaching. These authors identify key teacher characteristics that foster a caring and supportive environment, including enthusiasm, care, democratic behavior, and effective use of time ( Anderson & Dron , 2011 ). Other researchers , highlight that the characteristics of the teacher, including personal performance, flexibility, and enthusiasm, are associated with the motivation of students to work in education. Such qualities contribute to a high level of learning and good attitudes of students towards school.

**2.1.2 Concept of Perception**

Perception, through conceptual understanding, refers to the process by which people associate meaning with experience (Teo, 2011). After attending a stimulus, comprehension is very important as it affects information entering working memory. Research shows that background knowledge, from experience, affects cognitive ability (Anene et al, 2014). Social thinking, according to Shittu and Oanite (2015), involves the process by which individuals try to understand others. In educational settings, perceptions play a very important role, as students' perceptions of the knowledge, attitudes and skills of their teachers through their first interactions and experiences with those teachers. This is consistent with (Teo, 2011) the idea that understanding is based on background knowledge, past experience, and individual behavior at the same time. Therefore, students' perceptions of teachers in Nigerian secondary schools will be assessed based on these established factors.

**2.1.3 Concept of E-learning**

E-learning is a broad concept that includes different types of digital education, including online courses, interactive learning environments, and the use of educational technology in the classroom (Anderson & Dron, 2011). It has been recognized as a critical tool for improving educational access and quality, especially in areas with limited education.

E-learning also refers to educational courses delivered using digital technology. It includes visual graphics, text, film, video, and audio, and can support group learning and interaction with teachers (Wan Aziaris, 2015). E-learning emerged as a new way of teaching, it is based on the learner, interaction and access anytime and anywhere. The COVID-19 pandemic has shown the importance of online education for continuing education (Ariffin et al., 2020; Fauziana, 2020; Mansor et al., 2021; Raheim, 2020; Samat et al., 2020) . In this context, e-learning provides opportunities for flexible, self-directed learning, allowing students to explore difficult topics until they fully understand something (Harrison, 2018).

**2.1.4 Use of e-Learning resources in public secondary schools**

The importance of e-Learning resources in public high schools is well described. In this digital age, Information and Communication Technology (ICT) prepares students with the skills of the 21st century (Ratheeswari, 2018). Online learning has become essential for ensuring the continuity of education during emergencies such as the COVID-19 pandemic (Ariffin et al., 2020). Research shows that e-learning promotes effective student-teacher relationships, especially when face-to-face communication is not possible (Hussin, 2017). In addition, technology-enhanced learning environments motivate students by providing a learning environment for interaction and self-directed learning (Hasifah, 2020).

**2.2 Theoretical Framework**

This research aims to understand the attitudes, opinions, and challenges of teachers regarding the use of e-learning in public secondary schools, using the Teacher Acceptance Model (TAM) as a basis, in addition to findings from Unified Theory of Acceptance and Use of Technology (UTAUT). In addition, Allport's conceptual framework was adopted as a normative framework for examining the attitudes, attitudes and challenges of teachers in Nigerian secondary schools. Allport (1966) defines perception as the way individuals evaluate those they know best, defining who is perceived as the "judge" and who is considered the "other." In this study, high school students serve as judges, evaluating their teachers' professional competence and teaching effectiveness. Their decisions will be scored and compared to their academic performance to test the ideas raised. Allport's theory is particularly important as it talks about processes related to human understanding, including the importance of formal judgments, which will be analyzed in terms of students' opinions about the changes selected by teachers (Allport, 1966).

**2.3 Previous studies**

Anene et al. (2014) analyzed the challenges and prospects of e-learning in Nigerian universities, identifying infrastructure weaknesses as major barriers to e-learning adoption. Chiaha (2013) went on to analyze the possibilities of e-learning facilities, finding that only 42.9% of students have access, and factors such as intermittent electricity are hindering further to apply. Atsumbe (2012) investigated the availability of e-learning resources in Nigerian universities, and concluded that such resources are inadequate for teaching and learning purposes. Similarly, Aboderin and Kumuyi (2013) found that secondary schools in Ondo state do not have good e-learning tools, and teachers need more training on how to use these technologies effectively. Aboderin (2015) identified challenges such as lack of computers, unreliable internet, and lack of power as major barriers to e-learning in the National Open University of Nigeria. In terms of teachers' influence, Shittu and Oanite (2015) confirmed that teachers' attitudes have a significant impact on students' interest in learning, a study supported by Adu and Olatundun (2007), who reported that teachers' attitudes affect student performance in high school.

**3. METHODOLOGY**

**3.2 Research Design**

A descriptive descriptive analysis design was used in this study to analyze the variables being analyzed. The researcher considered the descriptive research design because it describes the characteristics of the respondents in terms of age, work experience etc. Therefore a descriptive research methodology will be applied to collect data on the use of e-learning resources in public secondary schools in FCT-Abuja. .

**3.3 Population of the study**

There are about 3,999 secondary school teachers in FCT Abuja who make up the population of learners.

**3.4 Sample and Sampling Procedures**

**Table 3.1 Sample Distribution According to Council Area**

|  |  |
| --- | --- |
| Area Council | Numbers are distributed |
| GSS Gwagwalada | 20 |
| GSS Kuje | 20 |
| GSS Push | 20 |
| GGSS Abaji | 20 |
| GSS Bwari | 20 |
| GSTC Garki | 20 |
| Collection | 120 |

Source: Author's sources, 2024

One hundred and twenty (120) teachers from the focus schools of the study were randomly selected as a sample. According to Olaofe (2010) , observation refers to the domain of people who are being examined. Similarly, sample size determines the population from which data is obtained. Six secondary schools were selected for the study (one of the six local governments of the FCT), and twenty teachers were selected from the schools to form a total of 120 respondents through a polling process. About 3,999 high school teachers were surveyed using a random sampling method.

**3.5 Instrumentation**

A two-part, structured questionnaire was used to collect the data. In Part A, respondents were prompted for demographic data. In Section B, the impact of teaching content on teaching and learning was evaluated using a four-point Likert scale of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). Participants must check the appropriate box and column to respond. This report was provided by the researcher himself.

**3.6 Validity and Reliability of Instrument**

When a useful instrument measures exactly what it is supposed to measure, it is considered effective. In this case, supervisors and other experts from the Department of Education Arts, University of Abuja, are contacted to identify tools for this research project. As a result, a pilot test was conducted, and 35 teachers from the school were given the tool.

The stability of the instrument and its reliability as a measurement tool are demonstrated. The Spearman Correlation coefficient will be used to calculate the confidence index; if the reliability is 0.82, the instrument will be considered as reliable and good for the research.

**3.7 Procedures for Data Collection**

To obtain the data, a two-part structured logbook was used. Respondents were asked for demographic information in Section A. Section B evaluated the impact of teaching materials on teaching and learning using a four-point Likert scale with options Strongly Agree (SA), Agree (A), Disagree (D), and Strongly . Disagree (SD). To respond, participants must check the corresponding column. The survey was conducted by the researcher himself.

**3.8 Method of Data analysis**

The data to be collected was analyzed using a sales score. SPSS version 23 statistical software was used for the analysis. To answer study problems 1 - 3, use the mean. Anything with a ratio of 2.50 or more will be considered important. Anything less than 2.50, on the other hand, would be considered extreme.

1. **MODELING AND ANALYSIS**

**4.1 Demographic data of respondents**

The demographic characteristics of the respondents are shown in the table below:

**Table 4.2: Gender of respondents**

| **Gender** | **Respondents** | **Percentage** |
| --- | --- | --- |
| Woman | 68 | 58% |
| Man | 52 | 42% |
| **Collection** | **120** | **100%** |

Of the 120 respondents, 58% were women, and 42% were men. This shows that there are more female teachers in secondary schools compared to their male counterparts in the FCT.

**Table 4.3: Classes Taught by Respondents**

| **Class** | **Respondents** | **Percentage** |
| --- | --- | --- |
| SS1 | 36 | 30% |
| SS2 | 72 | 60% |
| SS3 | 12 | 10% |
| **Collection** | **120** | **100%** |

A significant number of respondents (60%) teach SS2, followed by SS1 (30%), and the least number of teachers teach SS3 (10%).

**Table 4.4: Qualifications of respondents**

| **Rights** | **Respondents** | **Percentage** |
| --- | --- | --- |
| M.Ed /PhD | 20 | 16.66% |
| B.Ed | 58 | 48.33% |
| HND | 22 | 18.33% |
| **Collection** | **120** | **100%** |

Most of the respondents held B.Ed. degree (48.33%), HND (18.33%) followed by M.Ed /PhD (16.66%).

**Table 4.5: Years of experience of respondents**

| **Years of Experience** | **Respondents** | **Percentage** |
| --- | --- | --- |
| 0-10 years | 28 | 23% |
| Ages 11-20 | 32 | 27% |
| Age 21-30 | 36 | 30% |
| 31 years and older | 24 | 20% |
| **Collection** | **120** | **100%** |

Most respondents (30%) have 21-30 years of experience, followed by those with 11-20 years (27%), 0-10 years (23%) and over 31 years (20%).

**4.2 Research Question 1: What are teachers' attitudes toward using e-learning resources in public secondary schools?**

**Table 4.6: Teachers' attitudes towards using E-Learning resources**

| **S/N** | **Something** | **SA** | **A** | **d** | **SD** | **X** | **Words** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Managing WhatsApp Teacher Classes | 35 | 33 | 22 | 30 | 2.60 | Welcome |
| 2 | The teacher prepares the transfer class | 47 | 33 | 21 | 19 | 2.90 | Welcome |
| 3 | A computer connected to the Internet | 45 | 30 | 19 | 26 | 2.91 | Welcome |
| 4 | The teacher motivates the students in e-materials | 20 | 36 | 25 | 30 | 2.23 | Reject |
| 5 | E-resources are available to teachers | 39 | 28 | 7 | 19 | 2.23 | Reject |

From the table above, items 1, 2, and 3 show the overall acceptance of good character for e-learning resources with scores of 2.60, 2.90, and 2.91, respectively. However, items 4 and 5 were rejected with 2.23 marks each.

**4.3 Research Question 2: What are teachers' opinions about the use of e-learning resources in public secondary schools?**

**Table 4.7: Teachers' views on the use of E-Learning resources**

| **S/N** | **Something** | **SA** | **A** | **d** | **SD** | **X** | **Words** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 6 | Good knowledge of teachers about e-resources | 41 | 33 | 31 | 15 | 2.83 | Welcome |
| 7 | Managing teachers' e-learning media | 35 | 31 | 29 | 17 | 2.57 | Welcome |
| 8 | Basic knowledge of practicing teachers | 40 | 31 | 32 | 23 | 2.83 | Welcome |
| 9 | Educators' evaluation of e-learning media | 41 | 28 | 30 | 21 | 2.74 | Welcome |
| 10 | Teachers' experience with e-learning applications... | 32 | 34 | 22 | 32 | 2.55 | Welcome |

Most of the items in the table show acceptance and mean scores range from 2.55 to 2.83, indicating that teachers perceive e-learning resources well in terms of knowledge, control and effectiveness.

1. **RESULTS AND DISCUSSION**
	1. **Summary of Findings**

The findings show that most teachers in public secondary schools in FCT Abuja have a positive attitude towards e-Learning resources, as evidenced by their participation in online platforms such as WhatsApp and Zoom for teaching. . However, there are still challenges in developing students with e-resources, perhaps due to limitations in developing interest. Teachers also hold positive views about the benefits of e-learning tools, finding that their background knowledge and experience make e-learning more effective.

1. **CONCLUSION**

**6.1 Conclusion**

1. Many teachers in public high schools have a positive view of e-learning resources. They make good use of platforms like WhatsApp and Zoom in teaching and recognize the benefits of having access to the Internet for educational purposes.
2. Educators recognize that e-learning resources enhance student learning outcomes, particularly by enhancing students' ability to complete assignments and by simplifying classroom presentations. However, they emphasize the importance of having a good knowledge of e-materials for effectiveness.

**6.2** Recommendations

Based on the findings of this study, the following recommendations are made:

1. The government and stakeholders should prioritize investment in technology infrastructure in public high schools. This includes providing reliable internet access, computers, and e-learning platforms to support the adoption of digital learning.
2. Schools should organize regular workshops and training sessions to improve the digital literacy of teachers. These programs should focus on practical skills and strategies for integrating e-learning resources into the curriculum.
3. School administrators must be active in encouraging the use of e-learning tools by providing ongoing support and ensuring that teachers have access to the necessary materials. Policies that promote the use of digital tools in education should be established both at the school and government levels.
4. Educators should be encouraged to form communities of practice where they can share experiences, ideas, and challenges related to e-Learning. This collaborative process will help teachers learn from each other and develop new ways to use digital tools in their classrooms.
5. The Nigerian government should develop a comprehensive e-learning system that mandates the integration of digital education in secondary schools. This policy should include funding for technology, teacher training, and infrastructure development.
6. Further research should be done to determine the effectiveness of various e-learning tools in Nigerian secondary schools. This will provide valuable insight into the most effective technologies and strategies for improving teaching and learning.

**6.3 Suggestions for further research**

In light of this finding, the following areas are suggested for further research:

1. Research should be done to evaluate the effectiveness of government policies in promoting the use of e-learning resources in public schools. This will help identify policy gaps and provide recommendations for promoting digital education in Nigeria.
2. Future studies could focus on identifying the digital literacy gap among public school teachers and how targeted interventions can help close this gap.
3. A comparative study can be done across different regions of Nigeria to identify regional differences in the adoption of e-Learning tools and understand the factors that cause these differences.

5.4 **Contribution to knowledge**

Further research should examine the impact of e-learning res ource use on students' academic performance, especially in public high schools, to understand the effectiveness of digital tools in improving learning outcomes. This study contributes to knowledge about the use of e-learning resources in secondary schools in Nigeria. It highlights teachers' attitudes and opinions about digital education, identifies key challenges to adoption, and provides practical advice for overcoming these barriers. The findings provide useful information for teachers, legislators, and professionals working to improve the quality of education through digital transformation.

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1. **REFERENCES**

[1] O. S. Aboderin, "E-learning in Nigerian universities: Challenges and prospects," Journal of Education and Practice, vol. 6, no. 18, pp. 1-6, 2015.

[2] O. S. Aboderin and G. O. Kumuyi, "The role of e-learning in curriculum development in Nigerian secondary schools," International Journal of Educational Research, vol. 11, no. 3, pp. 45-53, 2013.

[3] J. G. Adewale and A. M. Ige, "E-learning implementation in Nigerian secondary schools: Prospects and challenges," Journal of Education and Practice, vol. 10, no. 14, pp. 79-87, 2019.

[4] I. Ajzen, "The theory of planned behavior," Organizational Behavior and Human Decision Processes, vol. 50, no. 2, pp. 179-211, 1991.

[5] G. W. Allport, Pattern and growth in personality. Holt, Rinehart and Winston, 1966.

[6] T. Anderson and J. Dron, "Three generations of distance education pedagogy," International Review of Research in Open and Distributed Learning, vol. 12, no. 3, pp. 80-97, 2011.

[7] K. Ariffin, N. Samat, and R. Fauziana, "The continuity of online learning during the COVID-19 pandemic," Journal of Education and Technology, vol. 11, no. 2, pp. 89-98, 2020.

[8] B. N. Atsumbe, "Availability and utilization of e-learning infrastructures in Nigerian universities," Global Journal of Educational Studies, vol. 3, no. 1, pp. 54-61, 2012.

[9] R. A. Baron and D. Byrne, Social psychology: Understanding human interaction. Allyn & Bacon, 1991.

[10] R. Brunning, G. Schraw, M. Norby, and R. Ronning, Cognitive psychology and instruction, 3rd ed. Prentice Hall, 1999.

[11] G. T. U. Chiaha, "E-learning facilities in Nigerian universities," Journal of Educational Technology Systems, vol. 41, no. 3, pp. 299-311, 2013.

[12] P. Eggen and D. Kauchak, Educational psychology: Windows on classrooms, 5th ed. Merrill/Prentice Hall, 2001.

[13] Y. Eshet, "Digital literacy: A conceptual framework for survival skills in the digital era," Journal of Educational Multimedia and Hypermedia, vol. 13, no. 1, pp. 93-106, 2004.

[14] R. H. Fazio and E. M. Roskes, "Attitudes and educational psychology," Annual Review of Psychology, vol. 45, no. 1, pp. 123-145, 1994.

[15] M. Fishbein and I. Ajzen, Belief, attitude, intention, and behavior: An introduction to theory and research. Addison-Wesley, 1975.

[16] S. Ghavifekr, M. Afshari, and A. S. Amla, "Management strategies for e-learning system as the core component of systemic change: A qualitative analysis," Life Science Journal, vol. 10, no. 3, pp. 2285-2289, 2016.

[17] J. A. Glover, R. R. Ronning, and R. H. Bruning, Cognitive psychology for teachers, 2nd ed. Macmillan, 1990.

[18] C. Harrison, "The role of ICT in modern pedagogy," Digital Education Review, vol. 13, no. 3, pp. 55-62, 2018.

[19] M. F. Hussin, "Impact of e-learning on secondary school teaching," Journal of Instructional Technology, vol. 9, no. 4, pp. 67-79, 2017.

[20] A. Kaur and W. A. Zoraini, "Teacher’s attitude towards technology integration in a school environment: Review of selected literature," Journal of Technology and Teacher Education, vol. 25, no. 4, pp. 377-401, 2017.

[21] B. H. Khan, Managing e-learning strategies: Design, delivery, implementation, and evaluation. IGI Global, 2005.

[22] M. G. Moore, C. Dickson-Deane, and K. Galyen, "E-learning, online learning, and distance learning environments: Are they the same?" Internet and Higher Education, vol. 14, no. 2, pp. 129-135, 2011.

[23] W. E. Nwagwu, "The Internet as a source of reproductive health information among adolescent girls in an urban city in Nigeria," BMC Public Health, vol. 20, no. 1, pp. 1-12, 2020.

[24] P. Okebukola, "Nigeria’s education system in the grip of a pandemic: How to maintain academic standards during COVID-19," Educare Journal, vol. 3, no. 1, pp. 1-10, 2021.

[25] S. E. Oladipo and D. O. Adebayo, "Teachers’ attitudes toward the use of technology in the classroom: A study in Nigeria," International Journal of Education and Development using Information and Communication Technology, vol. 14, no. 1, pp. 72-82, 2018.

[26] U. S. A. Osuji, "Educational technology adoption in Nigerian schools: Issues and challenges," Journal of Information Technology Education: Research, vol. 19, no. 1, pp. 343-359, 2020.

[27] K. Ratheeswari, "Information and communication technology in education," Journal of Applied and Advanced Research, vol. 3, no. 1, pp. 45-47, 2018.

[28] N. Selwyn, Education in a digital world: Global perspectives on technology and education. Routledge, 2012.

[29] T. Teo, "Factors influencing teachers’ intention to use technology: Model development and test," Computers & Education, vol. 57, no. 4, pp. 2432-2440, 2011.

[30] S. A. Wan Aziaris, "The role of e-learning in pedagogy," International Journal of Technology in Education, vol. 4, no. 2, pp. 22-30, 2015.