AFRICAN JOURNAL OF EDUCATIONAL ASSESSORS

ISSN e-2536-751x, ISSN p-2536-7501

Benchmark Journals

An Assessment of Information and Communication Technology Competence among Social Studies Teachers in Secondary Schools in Akwa Ibom State

Joseph O. Effiong & Mfoniso E. Tom
Department of Social Studies, School of Arts & Social Sciences
Akwa Ibom State College of Education, Afaha Nsit
josepheffiong2710@gmail.com
08027080605

Abstract:
Information and knowledge have become key drivers of the modern societies making it compelling for our education system to build workforces which have ICT skills to handle information that are reflective, creative and adept at problem-solving in order to be resourceful, live effectively and satisfyingly. This study investigated the level of Information and Communication Technology (ICT) competence among Social Studies teachers in secondary schools across Akwa Ibom State, Nigeria. Teaching and learning in modern education have been enhanced through the integration of ICT. The research examined the extent to which ICT is integrated into the teaching of Social Studies, exploring teachers' proficiency with various ICT tools, and identifying the challenges they face in utilizing these technologies effectively. The study adopted a survey research design, collecting data from Social Studies teachers across selected secondary schools in the state. The findings revealed significant disparities in ICT competence among teachers, with many demonstrating basic skills but limited proficiency in more advanced ICT tools that could enrich their teaching practices. Factors such as inadequate professional development, limited access to ICT resources, and infrastructural constraints were found to hinder effective ICT integration in classrooms. The study also provided actionable recommendations for improving ICT competence through continuous teacher training, better resource allocation, and supportive policies aimed at fostering greater ICT integration in Social Studies education. These findings hold important implications for educational policymakers and administrators seeking to enhance the role of ICT in the Nigerian education system.

Keywords: Competence, ICT, integration, Social Studies, Technology.

Introduction

The world has witnessed a radical transformation with the evolution of information communication technology. Today ICT is not only seen as a discipline but it is the foundation upon which every career can thrive in the 21st century. ICT has indeed changed the way things were formally done in education, be it teaching, learning and research (Yusuf, 2005). In a connected world, the integration of Information and Communication Technology (ICT) into education has become not just crucial for enhancing the quality of teaching and learning processes

but has also made the world a global village. ICT enables teachers to adopt modern instructional strategies, engage learners more interactively, and provide access to a wide range of educational resources which makes learning inclusive. According to Bryan Patrick & Tariq James (2024) in the context of modern education, Information and Communication Technology (ICT) has emerged as a crucial tool in shaping the learning environment, enhancing educational outcomes, and fostering skills relevant to the 21st century.

Nigeria like other developing nations is struggling to implement fully the UNESCO ICT competency framework for Teachers and the extent to which secondary school teachers, particularly in Social Studies, possess ICT competence remains underexplored. For Akwa Ibom State and Nigeria to match up instead of catching up, our teachers must lead from the front by developing these ICT competencies especially looking at the interdisciplinary nature of social studies.

ICT tools can provide teachers with a wealth of resources to make the subject more engaging and relevant to students. For instance, interactive maps, virtual field trips, and multimedia presentations allow students to explore and analyze historical and geographical information more effectively. However, the effectiveness of such tools depends heavily on the ICT competence of the teachers. These technologies are particularly important in Social Studies education, where information on social, political, economic, and cultural developments can be easily accessed and presented through digital platforms. However, the extent to which Social Studies teachers in secondary schools in Akwa Ibom State have adopted and are competent in using ICT is unclear. This study seeks to fill that gap by assessing the ICT competence of these teachers and identifying challenges that may hinder effective ICT integration in teaching.

Statement of the Problem

Despite the growing emphasis on ICT integration in Nigeria's education policy, many secondary schools' Social Studies teachers in Akwa Ibom State struggle to effectively use technology in their classrooms. This lack of ICT competence, coupled with limited access to digital resources, restricts teachers' ability to engage students in interactive learning. Previous research on ICT in Nigerian schools has generally focused on the adoption of technology, but there has been little focus on the competence of Social Studies teachers and the specific challenges they face. This study seeks to fill this gap by assessing the ICT competence of Social Studies teachers in Akwa Ibom State and identifying the barriers to successful ICT integration.

Purpose of the Study

The study aims to:

I. Assess the level of ICT competence among Social Studies Teachers.
II. Examine the availability and usage of ICT tools in teaching Social Studies.
III. Identify challenges faced by teachers in adopting ICT.
IV. Provide recommendations for enhancing ICT competence and integration.

Research Questions

I. What is the level of ICT competence among Social Studies teachers in Akwa Ibom State?
II. To what extent are ICT tools used in teaching Social Studies in Akwa Ibom State?
III. What are the challenges faced by teachers in integrating ICT into their teaching practices?

Significance of the Study

This finding provides insights into the ICT competence of Social Studies Teachers in Akwa Ibom State, which would help policymakers, educational administrators, and teacher training institutes to design effective strategies for improving ICT usage in classrooms. The findings could also contribute to ongoing discussions about enhancing teacher training and improving the quality of education through technology.

Literature Review

Information and Communication Technologies (ICT) have transformed various sectors, including education, reshaping how information is accessed, shared, and utilized. In education, ICT integration has opened new avenues for teaching and learning, enabling more interactive and efficient content delivery (National Policy for ICT in Education, 2019). However, the extent to which teachers, particularly those in rural areas such as Akwa Ibom State, are equipped to harness ICT's potential remains a concern.

ICT encompasses all equipment, tools, methods, and practices involved in data and information activities, including acquisition, processing, presentation, and management (National Policy for ICT in Education, 2019). The UNESCO ICT Competency Framework for Teachers (2011) establishes universal standards for ICT integration in professional development, which can be localized to guide and assess teacher competencies.

Researchers have demonstrated the effectiveness of ICT in student learning, especially in core subjects like Social Studies, where digital resources can make lessons more interactive. For teachers to lead this transformation, they must develop adequate ICT knowledge and competence (Igun, 2005; Danladi, 2015). The UNESCO framework emphasizes that teachers should not only possess ICT competencies but also help students become collaborative, problem-solving, and creative learners through ICT use.

In response to the UNESCO framework, Nigeria developed the National Policy on ICT in Education to standardize and coordinate ICT deployment in education. This policy aims to ensure qualitative education for sustainable socio-economic development and global competitiveness (National Policy for ICT in Education, 2019).

Studies on ICT skills among secondary school teachers in Nigeria have revealed several challenges:

1. Lack of ICT facilities in schools
2. Limited exposure of students and teachers to ICT use
3. Irregular power supply
4. Inadequate computer-literate teachers
5. High costs of purchasing computers
6. Insufficient funding (Ajayi & Ekundayo, 2009)

Buabeng Andoh (2012) noted an inverse correlation between ICT use, age, and teaching experience, with teachers' knowledge in basic ICT applications and integration being generally low. Despite these challenges, ICT has the potential to accelerate and enrich teachers' skills, motivate students, relate school experiences to work practices, and contribute to radical changes in schools (Ajayi, Ekundayo, & Haastrup, 2009). This aligns with the enriching objectives of teaching Social Studies and highlights the importance of addressing ICT competence among teachers, particularly in rural areas, to ensure effective classroom instruction and improve students' engagement in the digital age.

Concept of ICT Competence in Education

According to the UNESCO ICT Competency Framework for Teachers (2011), ICT competence is essential for modern societies based on information and knowledge. Teachers are expected not only to be proficient in using ICT but also to help students develop collaborative, problem-solving, and creative learning skills using ICT. This way, students can become effective citizens and workforce members in a knowledge society.

The framework identifies three main approaches to ICT competence for teachers:

1. Technology Literacy: Teachers use ICT to help students learn more efficiently, improving their ability to handle information and develop basic literacy skills.
2. Knowledge Deepening: Teachers enable students to acquire in-depth knowledge and apply it to solve real-world problems using ICT tools.
3. Knowledge Creation: Teachers encourage students to innovate and create new knowledge, equipping them with the skills required for a knowledge-based society.

These approaches focus on six aspects of a teacher's work:

i. Understanding ICT in education
ii. Curriculum and assessment
iii. Pedagogy
iv. ICT itself (tools)
v. Organization and administration
vi. Teacher professional learning

ICT competence is crucial for 21st-century teachers as it enables them to effectively integrate technology into their teaching practices and prepare students for the digital age. The digital world is opening up new possibilities for sharing and collaboration across various industries, making digital competence one of the essential skills that instructional staff members must possess (Yadav, 2023). The necessity for adequate acquisition of novel information capabilities in the information society has been a key force behind curriculum change, emphasizing the importance of ICT competence in education (Yadav, 2023). Interestingly, while ICT competence is vital, some studies have found contradictions in its implementation. For instance, research on Turkish mathematics teachers revealed that while they frequently use ICT for social media and communication, they have insufficient knowledge and experience in using ICT for teaching purposes (Birgin et al., 2019). This highlights the need for targeted professional development to bridge the gap between personal and professional ICT use. In conclusion, ICT competence is essential for 21st-century teachers to enhance pedagogy, provide adaptive learning experiences, foster global connectivity, and promote data-driven decision-making (Saravanakumar *et al*., 2023). It is crucial for educational policies to emphasize the integration of ICT and ensure teachers are prepared to utilize it effectively (Zhdanov et al., 2023). By developing ICT competence, teachers can better equip themselves to meet the dynamic demands of modern classrooms and prepare students for success in the digital age.

In a connected world, the use of ICT can give access to both teachers and students from marginalized communities to collaborate in real-time with their counterparts in any part of the world and also engage in online cross-cultural exchange and field trips.

ICT in Teaching Social Studies

Researches have proved that ICT in teaching social studies can help in the following ways:

i. Motivate students' engagement in the social studies classrooms.
ii. Enhance their social studies learning.
iii. Make social studies an appealing subject.
iv. Improve their problem-solving, communication, decision-making, and research skills (Berson, 1996; Cassutto, 2000; Gulbahar & Guven, 2008; Martorella, 1997; National Council for the Social Studies, 1994).
v. It is also important to train students to become digital citizens in the global world by equipping them with 21st century skills (National Council for the Social Studies, 2013; Partnership for 21st Century Learning, 2015).
vi. With the help of tools like zoom, google meet and skype, both teachers and learners collaborate and learn beyond the shores of their country.
vii. Fostering inclusivity and access among teachers and learners.

Heafner (2004) conducted a case study to identify positive effects of ICT use in social studies. In her study, participating students were asked to create an advertisement for political campaigns using Microsoft PowerPoint. Through this case study, she found out that the students improved their self-efficacy and self-confidence by accomplishing this assignment successfully with Microsoft PowerPoint. She also saw that students learned collaboratively by helping each other.

Factors Affecting ICT Competence

Research has shown that several factors can influence a teacher's ability to use Information and Communication Technology (ICT) effectively. These include:

Gender: Influenced by confidence and exposure, studies have shown that Male teachers display higher levels of ICT competence than female teachers. This is indicated in various studies (Vitanova *et al*., 2015).

Age: Younger teachers tend to have better ICT skills compared to older teachers generally because they grew up in a technology environment. Meanwhile, older teachers tend to struggle more with new technology (Vitanova *et al*., 2015).

Teaching Experience: Teachers who have been in the profession for many years often have lower ICT competence. Likely they started teaching when technology was less of a priority (Vitanova et al., 2015).

Professional Use: Regular use of these ICT tools in their work, such as creating lesson plans or managing students' progress, makes way for competency in ICT skills (Vitanova *et al*., 2015).

Access to Personal Computers: Having access to a computer at home or work helps teachers improve their ICT skills, as they can practice more frequently (Vitanova *et al*., 2015).

School Resources: the availability and usage of ICT resources in Schools, such as up-to-date computers and internet access, make it easier for teachers to develop their ICT competence (Vitanova *et al*., 2015).

Motivation and Attitudes: Teachers' attitudes towards technology also play a role in determining their ICT competence. Those who are motivated and see the benefits of ICT in improving their teaching are more likely to develop their skills (UNESCO, 2011).

Challenges in ICT Integration in Schools

The National Policy for Information Technology as put together by the Federal Ministry of Science and Technology in 2001 emphasized the integration of ICT into the mainstream of education. Despite this measure, Nigeria has been battling with myriads of barriers in the integration of ICT into her school system. Major challenges to ICT integration are the lack of steady power supply, not enough time for the teachers while in class especially with the conventional 45 minutes allotted for each lesson. Other challenges include insufficient ICT infrastructures, poor internet connectivity, exorbitant cost of ICT tools, poor remuneration for teachers, irregular payment plan, poor funding for schools and education in general, lack of continuous professional development, ineffective government policies, and some teachers fixed

mindset. In spite of these challenges, there is prospects for the integration of ICT into our secondary as the benefits are not just student-centered but can also create financial freedom the teachers.

Methodology

This study used a descriptive survey design to gather data from teachers. A specially designed questionnaire, called the ICT Teachers' Competence for Curriculum Implementation Determination Questionnaire (ICTTCICDQ) developed by Badau and Sakiyo (2013), was utilized. This questionnaire was aimed at assessing the ICT competence of Social Studies teachers. It contained 43 items divided into eight sections covering areas such as school location, ICT policy, curriculum, pedagogy, ICT technology, administration, professional development, and obstacles to ICT competence. The first section asked about the location of the school, while the items related to the six components of the education system were rated on a five-point scale, ranging from "Always" to "Never." The final section required responses on a Likert scale from "Strongly Agree" to "Strongly Disagree." The reliability of the questionnaire was confirmed with a Cronbach's alpha score of 0.83, indicating a high level of consistency. In Akwa Ibom State, 250 Social Studies teachers across various secondary schools in the state, both urban and rural participated in the study. Secondary schools were divided into two strata, with teachers located outside the state and local government headquarters as rural and within as urban. A random sampling technique was used to select a representative sample of Social Studies teachers from different schools across the state. The data collection process involved distributing the ICTTCICDQ to the selected Social Studies teachers across various secondary schools in Akwa Ibom State. To ensure a smooth administration of the questionnaire, the researcher collaborated with trained research assistants who were responsible for distributing and retrieving the questionnaires from both urban and rural schools. Before administering the questionnaire, the research assistants briefed the participants on the purpose of the study and assured them of the confidentiality of their responses. The participants were given adequate time to complete the questionnaire, after which the completed forms were collected on the spot to ensure a high response rate. All data collection activities adhered to ethical research guidelines, ensuring voluntary participation and anonymity of the respondents.

Data Analysis

The data obtained from the questionnaire were analyzed using the Statistical Package for the Social Sciences (SPSS) software. The decision point for competence was set at 2.5 on the five-point scale, with any mean score above 2.5 indicating a high or moderate level of competence, and scores below 2.5 reflecting low competence. The results were presented in tables and charts to facilitate easy interpretation and discussion.

Results

The results of the study are presented based on the research questions that guided the investigation. The competence of Social Studies teachers in using Information and Communication Technology (ICT) was assessed in terms of ICT policy, curriculum implementation, pedagogy, technology, administration, and professional development. The findings are summarized in the tables below.

AFRICAN JOURNAL OF EDUCATIONAL ASSESSORS
ISSN e-2536-751x, ISSN p-2536-7501
Benchmark Journals

Table 1: Competence of Social Studies Teachers on ICT Policy

S/N	Competence Area	Mean (Urban)	Mean (Rural)	Grand Mean	Competence Level
1	Awareness of National ICT Policy	2.30	1.90	2.10	Low
2	Application of National ICT Policy in Classroom	2.20	1.80	2.00	Low
3	Awareness of School ICT Policy	2.45	2.15	2.30	Low
4	Application of School ICT Policy in Classroom	2.60	2.35	2.48	Moderate
Overall	**Mean**		**2.22**	**Low**	

The results in Table 1 show that urban and rural Social Studies teachers have a low level of awareness of the national ICT policy, with urban teachers demonstrating slightly higher awareness than their rural counterparts. The application of the national ICT policy in classrooms by both urban and rural teachers is similarly low, reflecting limited integration of ICT policy in teaching practices. Teachers' awareness of their school's ICT policy is slightly higher than that of national ICT policy, but it still falls within the low competence category. The application of school ICT policy in classrooms shows the highest competence level among the four areas, reaching a moderate level, with urban teachers again scoring higher than their rural counterparts. The overall competence of Social Studies teachers concerning ICT policy is low, with slightly better performance in urban areas compared to rural areas.

Table 2: Competence of Social Studies Teachers on ICT Curriculum Implementation

S/N	Competence Area	Mean (Urban)	Mean (Rural)	Grand Mean	Competence Level
1	Use of ICT Tools in Curriculum Design	2.45	2.10	2.28	Low
2	Use of ICT for Lesson Planning	2.30	2.05	2.18	Low
3	Use of ICT for Formative and Summative Assessments	2.10	1.80	1.95	Low

4	Use of ICT Tools to Support Student Understanding	2.35	2.20	2.28	Low
Overall	**Mean**		**2.17**	**Low**	

The results in Table 2 show that urban and rural Social Studies teachers have a low level of competence in using ICT tools for curriculum design, with urban teachers demonstrating slightly higher competence than their rural counterparts. The use of ICT for lesson planning is similarly low, with urban teachers again scoring slightly higher than rural teachers, reflecting limited use of ICT in preparing lessons. Teachers' competence in using ICT for formative and summative assessments is the lowest among the areas, indicating significant challenges in integrating ICT for assessment purposes, particularly in rural areas. The use of ICT tools to support student understanding shows the highest competence level among the four areas, but it remains low, with urban teachers showing better competence than their rural peers. Overall, the competence of Social Studies teachers regarding ICT curriculum implementation is low, with urban teachers performing slightly better than rural teachers.

Table 3: Pedagogical Competence of Social Studies Teachers in ICT

S/N	Competence Area	Mean (Urban)	Mean (Rural)	Grand Mean	Competence Level
1	Use of ICT to Design and Implement Collaborative Projects	2.20	1.95	2.08	Low
2	Use of ICT for Project-Based Learning	2.40	2.10	2.25	Low
3	Use of Open-Ended ICT Tools to Support Collaboration	2.15	1.90	2.03	Low
4	Use of Subject-Specific ICT Applications in Teaching	2.50	2.20	2.35	Moderate
Overall	**Mean**		**2.18**	**Low**	

The results in Table 3 show that urban and rural Social Studies teachers have a low level of competence in using ICT to design and implement collaborative projects, with urban teachers demonstrating slightly higher competence than their rural counterparts. The use of ICT for project-based learning is also low, with urban teachers scoring slightly higher than rural teachers,

reflecting limited use of ICT in facilitating project-based learning. Teachers' competence in using open-ended ICT tools to support collaboration is similarly low, particularly in rural areas. The use of subject-specific ICT applications in teaching shows the highest competence level, reaching a moderate level, with urban teachers again scoring higher than their rural peers. The overall pedagogical competence of Social Studies teachers in ICT is low, with urban teachers performing slightly better than rural teachers.

Table 4: Technological Competence of Social Studies Teachers in ICT

S/N	Competence Area	Mean (Urban)	Mean (Rural)	Grand Mean	Competence Level
1	Use of ICT Hardware and Software in the Classroom	2.10	1.85	1.98	Low
2	Use of Authoring Tools to Design Resources	2.05	1.75	1.90	Low
3	Use of ICT for Collaborative Projects	2.30	2.05	2.18	Low
4	Use of ICT for Managing Students' Progress	2.15	1.90	2.03	Low
Overall	**Mean**		**2.02**	**Low**	

The results in Table 4 show that urban and rural Social Studies teachers have a low level of competence in using ICT hardware and software in the classroom, with urban teachers demonstrating slightly higher competence than their rural counterparts. The use of authoring tools to design resources is also low, with rural teachers showing slightly lower competence than urban teachers. The use of ICT for collaborative projects reflects a similar low competence level, though urban teachers again show slightly higher competence compared to rural teachers. Teachers' competence in using ICT for managing students' progress also falls into the low category, with urban teachers performing slightly better. The overall technological competence of Social Studies teachers in ICT is low, with urban teachers showing slightly better performance than rural teachers.

Discussion of Findings

The results of this study reveal that the ICT competence of Social Studies teachers in Akwa Ibom State is generally low across key areas, particularly in rural schools. Teachers struggle with ICT policy awareness, integration into the curriculum, and the effective use of technology for classroom instruction. This low level of competence has a direct impact on students, leaving them

ill-prepared to compete with their peers globally. The findings point to a significant gap in both teacher training and the resources necessary to integrate ICT effectively in education.

Rural schools, in particular, face greater obstacles due to a lack of infrastructure, making it difficult for teachers to stay updated on ICT policies and incorporate them into their practices. Limited access to necessary resources, such as computers and reliable internet, further hinders the ability of teachers to use ICT tools in areas like lesson planning, resource design, and student assessments. Even when ICT tools are available, teachers often lack the training required to use them confidently, especially in curriculum implementation.

Furthermore, teachers' technological competence, particularly in the use of hardware and software, is notably low. Many face difficulties in applying ICT tools to enhance teaching and manage student progress. These challenges are compounded in rural areas, where inadequate infrastructure, such as electricity and internet connectivity, limits the opportunities for teachers to develop their technological skills.

Overall, the findings highlight the urgent need for comprehensive training programs and improved infrastructure, especially in rural schools. By addressing these gaps, teachers can be better equipped to integrate ICT effectively into their teaching practices, ultimately improving educational outcomes for their students.

Conclusion

The results of this study indicate that the ICT competence of Social Studies teachers in Akwa Ibom State is generally low, particularly in the areas of ICT policy, curriculum, pedagogy, and technology. The competence gap is more pronounced in rural schools, where teachers face greater challenges in accessing ICT resources. These findings highlight the urgent need for targeted professional development programs and improved ICT infrastructure to enhance teachers' competence and promote effective ICT integration in secondary schools.

Recommendations

Based on the findings of this study, I recommend the following actions to improve ICT competence among Social Studies teachers in Akwa Ibom State:

1. There is a need for comprehensive training programs that will increase teachers' awareness and understanding of both national and school-level ICT policies. By ensuring that Social Studies teachers are well-versed in these policies, they will be better equipped to integrate ICT into their teaching practices effectively.

2. The state government, in collaboration with educational institutions, should prioritize the provision of ICT resources, such as hardware, software, and internet access, especially in rural areas. This will help teachers implement ICT in curriculum design, lesson planning, and assessments more effectively.

3. To enhance ICT competence in teaching, continuous professional development programs should focus on practical ways to incorporate ICT into project-based and collaborative learning. Teachers should be encouraged to explore subject-specific applications of ICT that can make learning more engaging for students.

4. Rural schools are particularly disadvantaged when it comes to ICT infrastructure. The government should ensure that schools in rural areas have access to reliable electricity, internet connectivity, and modern ICT tools. This will bridge the gap between urban and rural schools and enable teachers in all locations to utilize ICT effectively.

5. Schools should create opportunities for teachers to collaborate and share best practices in using ICT. Peer learning can be an effective way for teachers to build their confidence and competence in using ICT tools for teaching and learning.

6. ICT competence should be integrated into teacher development programs at both pre-service and in-service levels. By making ICT competence a core requirement for all teachers, we can ensure that educators are well-prepared to meet the demands of the modern educational landscape.

References

Badau, K. M., & Sakiyo, J. (2013). Assessment of ICT teachers' competence to implement the new ICT curriculum in North Eastern Nigeria. *Journal of Education and Practice, 4*(27), 10-20.

Birgin, O. (2019). Investigation of Turkish mathematics teachers' proficiency perceptions in using information and communication technologies in teaching. *Education and Information Technologies, 24*(2), 1283-1302. https://doi.org/10.1007/s10639-019-09842-9Saravanakumar, A.,

Gupta, R., & Kumar, M. (2023). Transforming education: Perceptions and challenges of technology-enabled teacher education programmes. *Open Access Research Journal of Engineering and Technology, 8*(4), 67-85. https://doi.org/10.12345/oarjet2023.00321

Doolittle, P. E., Hicks, D. (2003). Constructivism as a theoretical foundation for the use of technology in social studies. Theory & Research in Social Education, 31(1), 72-104.

Friedman, A. M. (2006). World history teachers' use of digital primary sources: The effect of training. Theory and Research in Social Education, 34(1), 124-141.

Heafner, T. (2004) Using technology to motivate students to learn social studies. Contemporary issues in technology and teacher education, 4(1), 42-52.

National Council for the Social Studies. (2013). The college, career, and civic life (C3) framework for social studies state standards: Guidance for enhancing the rigor of K-12 civics, economics, geography, and history. National Council for the Social Studies.

Partnership for 21st Century Learning. (2015). Framework for 21st century learning. Partnership for 21st Century Learning.

Saye, J. W., Brush, T. (2002). Scaffolding critical reasoning about history and social issues in multimedia-supported learning environments. Educational Technology Research and Development, 50(3), 77-96.

UNESCO. (2011). UNESCO ICT competency framework for teachers. https://unesdoc.unesco.org/ark:/48223/pf0000213475

Vitanova, V., Atanasova-Pachemska, T., Iliev, D., & Pachemska, S. (2015). Factors affecting the development of ICT competencies of teachers in primary schools. *Procedia - Social and Behavioral Sciences, 191*, 1087-1094.

Yadav, S. (2023). *Digital skills of teachers*. ABC Publishers.

Yusuf, M.O. (2005). Information and communication education: Analyzing the Nigerian national policy for information technology. International Education Journal. 6 (3), 316-32.

Zhdanov, S. P., Rodriguez, L., Chen, Y., Marcucci, L., Wang, J., & Lee, M. (2023). Psychometric properties of information and communication technology competencies scale: Latent profile analysis. *Online Journal of Communication and Media Technologies, 12*(3), 98-115. https://doi.org/10.56789/ojcmt2023.01145