

The Role of ICT in Skilled Manpower Development: A Study of Plateau State Polytechnic, Barkin-Ladi Nigeria

Manuscript received May 1, 2023; revised January 25, 2024

Innocent Nasuk Dajang*,
Department of English
University of Jos
Nigeria
dajangi@unijos.edu.ng

Mandong Mathias Ayuba
Department of General Studies
Plateau State Polytechnic
Barkin-Ladi, Nigeria
mandongmathias4@gmail.com

Samuel Mahanan Dang
Department of General Studies
Plateau State Polytechnic
Barkin-Ladi, Nigeria
mahansd@gmail.com

Abstract— Information and Communication Technology (ICT) in workforce development is an essential and rapidly growing study area. An increasing number of countries are now undertaking training to develop skills in the use of ICT in teaching and other school activities to ensure higher efficiency, higher productivity, and higher educational outcomes, including quality of cognitive, creative, and innovative thinking. Against this backdrop, this study examined the role of ICT in skilled workforce development in polytechnics with Plateau State Polytechnic, Barkin-Ladi as the focus. Using the WhatsApp platform, a focus group discussion was conducted with eighteen academic staff members of the Department of General Studies of the Plateau State Polytechnic for data collection. The theoretical framework adopted for the study was the Computer-Aided Language Learning (CALL). Amongst other findings, the study discovered that computers and the internet have become indispensable worldwide and have frequently aided the training of skilled workforce and the creation of jobs and economic growth. It concluded that using ICT in lecture preparation and presentation, instructional delivery, individualized learning, collaboration, and evaluation of learning will significantly benefit our society in skilled workforce development for nation-building.

Keywords—ICT, Learning, Skilled Manpower, Teaching, Utilization

I. INTRODUCTION

Information and Communication Technology (ICT) has revolutionized the education sector worldwide. Ref. [1] described ICT as a technology that supports activities involving the creation, storage, manipulation, and communication of information, together with related methods, management, and application. ICT enables users to record, store, process, retrieve, and transmit information. He asserted that ICT encompasses modern technology such as computers, telecommunication, facsimiles, and microelectronics. ICT has replaced older technologies such as document-filling systems, mechanical accenting machines, printing, and care drawings, which are also seen as part of information technology. Ref. [2] affirmed that ICT is an umbrella that includes using communication devices or applications, such as radio sets, televisions, cellular phones, computers, hardware and software, satellite systems, and so on. Generally speaking, technology involves modifying the natural world to suit a specific purpose. ICT has become an indispensable tool in education today.

Ref. [2] argued that education is a prerequisite for today's knowledge-based economy; the production and use of new

knowledge require a more educated population. ICT plays a significant role in acquiring and diffusing knowledge, which is fundamental to education. It offers increasing possibilities for absent teaching and invocation in teaching activities through delivering learning cognitive activities anywhere at any time. The availability of the Internet has given rise to an electronic approach to the educational system called e-learning. Tertiary educational institutions have always been at the forefront of new scientific discoveries and innovations by teaching, learning, and research.

We can deduce from Ref. [2] that ICT gives students a better education, which helps ensure that the nation gets a well-equipped workforce to drive its growth and development. In a rapidly changing world, higher education is essential for an individual to access and apply information and develop specific skills for work. The Polytechnic offers such a platform for workforce development to meet the needs of a nation.

Plateau State Polytechnic provides technical education to students, and it can utilize ICT to enhance its mandate of workforce development. The nation needs a skilled workforce, and by incorporating ICT in its teaching and learning, the polytechnic can help in that regard. Ref. [3] asserted that new instructional techniques that use ICTs provide a different modality of instruments. For students in the institution, using ICT allows for increased individualization of learning. In institutions where new technologies are used, students can access tools that adjust to their attention span and provide valuable and immediate feedback for literacy enhancement, which is currently not fully implemented in the Plateau State Polytechnic.

Plateau State Polytechnic, just like any other tertiary institution, is focused mainly on the training of the workforce, middle-man for industries, national development, and self-reliance. The institution requires teaching and learning with an adequate supply of modern facilities and infrastructures to achieve this. This is why taking ICT development seriously in the polytechnic is essential. The ICT mode of application is necessary for this sophisticated training to replace old and obsolete methods of imparting knowledge and workforce training to meet global and current challenges. It ensures adequate competency in workforce training and national development. Therefore, the problem under investigation in this study is to examine whether ICT can help develop a skilled workforce in polytechnics.

II. LITERATURE REVIEW

Several studies have been conducted on ICT and its relevance in education and workforce development. Ref. [4] asserted that in the twenty-first century, most English language teachers and learners desire to use technology. Similarly, teachers' pedagogical aptitudes for technology are central to effectively integrating technology into classrooms [5],[6]. Teachers, therefore, need to take significant roles as stakeholders and practitioners in mediating this development for personal and professional reasons [6],[7]. Therefore, teachers use numerous modes of continuing professional development in technology tools and skills to improve their teaching. They believe these actions can enhance student-centered learning and inspire transformation for teachers and students [8],[9].

As in other parts of the world, technology has become an integral part of learning and teaching, and technology use continues to evolve as English language teachers both aspire and struggle to embrace it [4],[7],[10]. Therefore, it is challenging that language lecturers do not yet have full access to technology despite the evident advantage of professional development in technology skills and tools.

Several studies have enumerated the relevance of integrating technology for second language acquisition (e.g., interactivity, collaboration, authentic materials, independent learning) [11]-[13]. In language studies, English language teaching and digital pedagogy assume different forms, ranging from drilling and practicing specific language skills, such as reading and writing, to adopting ICT tools/resources to experience virtual reality for knowledge acquisition.

Ref. [14] conducted a study and discovered that teachers could only incorporate technology and subsequent digital pedagogy when they understood it. Unfortunately, many continuing professional development activities do not actively engage teachers/lecturers but focus on developing competencies in one specific type of information communication technologies (ICT) application.

One of the benefits of using ICT resources is to convey information quickly and effectively to all students and to keep them interested in learning. It provides students with visuals of subjects, resulting in their interest and motivation. More so, it increases learning and also saves time during lectures. Ref. [15] bolstered this in their study, which examined the factors relating to the uptake of ICT in teaching. The factors that were found to be the most important to these teachers in their teaching were making the lessons more enjoyable, more accessible, more fun for them and the learner, more diverse, more motivating, and more enjoyable. Furthermore, Ref. [16] argued that ICT resources introduce new perspectives to learning experiences because concepts are more accessible to present and comprehend when the words are complemented with images and animations.

The studies reviewed all pointed to the fact that incorporating ICT in teaching and learning is highly beneficial. However, the studies did not examine how relevant it can be in the polytechnic as a center for skilled workforce development. That is the area of divergence between the previous and present studies. All experiments were conducted in the chemistry laboratory, department of Chemistry, Government College University Faisalabad, Pakistan.

III. METHODS

To address the paper, the study carried out a Focus Group Discussion (FGD) using the departmental WhatsApp platform of the Department of General Studies of the Plateau State Polytechnic to gather data for the study. The group had

eighteen English language lecturers. They were engaged in a discussion on the topic, and all participants freely and richly contributed their views about the subject unbiasedly. At the end of the one-hour debate, the key issues raised were used for the discussion in this study.

The study adopted Computer-Aided Language Learning (CALL) as its framework. In this method, students will be guided through scenarios relevant to the teaching and learning different subject areas. Workforce development is partly determined by the ability to establish a synergistic interaction between technological innovation and human values. Ref. [17] supported this when he asserted that the rapid rate at which ICTs have evolved since the mid-20th century and the convergence and pervasiveness of ICTs give them a vital role in workforce development and globalization. ICTs significantly impact all areas of human activity, particularly the technological development of any country. To achieve successful adoption and use of technology in workforce development, it is essential to ensure that both the lecturers and the students know how to effectively utilize the technology, informing the adoption of CALL as a theoretical framework for the paper.

IV. RESULTS AND DISCUSSION

The discussants acknowledged being aware of using ICT tools such as video cameras/players, flash memory, modems, and overhead projectors, among others. However, these tools are not available in the polytechnic to be utilized. The study also revealed that most of the ICT tools available in the institution's ICT center were insufficient for the institution's workforce training tasks. So, despite the importance of ICT in skill development, it is not explored in the polytechnic. This unavailability of ICT resources and underutilization of the available ICT affect the sustainable workforce development of the institution. ICT resources are poorly utilized in evaluating students' achievement among lecturers. This stems from their inability to apply ICT resources in simulation techniques such as project designs, use of computers in conducting examinations, marking and computing of students' and cumulative grade points. ICT is also important for the following reasons:

1. It is a systematic arrangement of instruction in such a way that learning is facilitated; helps learners to interact individually or in groups for learning to take place; easy delivery of a lesson by the lecturer; allows learners to learn at their own pace and place; helps learners to understand faster and better; broadens students' knowledge and level of understanding.
2. Using computers and ICT in education and training allows countries to improve their educational systems. It has emphasized innovation, new business models, and new ways of organizing work and learning.
3. ICT, through its e-learning platform, creates a learning environment that overcomes time and space barriers, offering learners a fantastic opportunity to become familiar with the specific work conditions in education. It helps in human infrastructure, which includes skilled people, vision, and management.

From the FGD, it was established that the relevance of ICT in skilled workforce development is non-negotiable and unquantifiable. Using ICT skills in teaching and research in higher institutions creates a good teaching and learning atmosphere among teachers and students [18]. Lecturers should utilize ICT facilities to inculcate relevant knowledge to students. A lecturer with adequate and professional skills in

ICT utilization is expected to perform better in classroom learning than in the school curriculum alone [19].

ICT challenges students to learn independently and updates teachers with efficient and practical tools to care for students' differences [20]. It provides opportunities for cooperation with colleagues through networking and Internet services. Educators and learners are challenged with new methods of requiring knowledge through sharing and connections to the global world. ICT tools used in classrooms for educational purposes include laptop computers, local area networks, and the internet; the computer can put texts, graphics, and pictures on the screen and accept students, which can be easily retrieved and analyzed.

ICT integration in the polytechnic changes student and lecturer learning behavior and develops higher-order skills such as collaborating across time and place and solving complex real-world problems. Computers and the internet have become indispensable worldwide and have frequently aided the training of a skilled workforce and the creation of jobs and economic growth.

ICT in education is the mode of education that uses information and communication technology to support, enhance, and optimize the delivery of information [20]. It has become increasingly responsible for the economic growth and development of the country. It makes information available to the right user at the right time and place in the proper form. The polytechnic can help facilitate this process. Also, benefits to the classroom teaching and learning process are listed: give greater exposure to vocational and workforce skills for students, provide opportunities for multiple technologies delivered by lecturers, create tremendous enthusiasm for learning amongst students, provide lecturers with new sources of information and knowledge, prepare learners for the real world, producing people capable of working and participating in the new economies and societies arising from ICTs and related developments [18]. It is leveraging ICT to assist and facilitate learning for all learners and lecturers across the curriculum. The use of ICT in the teaching and learning process enhances the effectiveness of learning. It adds a new dimension to the teaching-learning process, which was not previously available. Students found learning in a technology-enhanced environment more stimulating and engaging compared to a traditional classroom environment. ICT resources also elicit the highest information retention rate, resulting in shorter learning time.

V. CONCLUSION

The findings have indicated that ICT is significant in supporting polytechnic lecturers in their teaching process. Lecturers have a strong desire for the integration of ICT into education. Still, the polytechnic does not have a fully functional ICT center to integrate into teaching and learning. Applying ICT in training a skilled workforce brings collaborative teaching, education, and research. However, ICT strategies and plans must be holistic in the polytechnic to effectively help in workforce training. The utilization of ICT in lecture preparation and presentation, instructional delivery, individualized learning, and collaborative evaluation of learning will significantly benefit our society.

REFERENCES

- [1] Adebayo, S.S (2013). "The impact of the application of information and communications technology (ICT) in the administration of polytechnics in Ogun State, Nigeria." *International Journal of Students Research in Technology & Management* Vol 1 (05), September 2013, ISSN 2321-2543, pg 505-515 www.giapjournals.com/ijstrtm/ Page 505. Accessed June 15, 2022.
- [2] Akintunde, F. A. & Danlami, A. Y. (2015). "The use of information and communication technology (ICT) in the teaching and learning of English language in Nigeria." *Journal of Literature, Languages and Linguistics* www.iiste.org ISSN 2422-8435 An International Peer-reviewed Journal Vol.15, 2015. Accessed June 15, 2022.
- [3] Emuku, UA, Emuku, O (1999 & 2000) Breaking down the walls: Computer application in correctional/prison education. *Benin J. Educa. Stud.* 12/13 (1/2): 64-71. Accessed June 15, 2022.
- [4] Healey, D. (2018). Technology-enhanced learning environments. In *The TESOL Encyclopaedia of English language teaching*. John Wiley & Sons, Inc. 10.1002/9781118784235.eelt0437. Accessed June 15, 2022.
- [5] Hubbard, P. (2018). Technology and professional development. In *The TESOL encyclopedia of English language teaching*. John Wiley & Sons, Inc. doi:10.1002/9781118784235.eelt0426. Accessed June 15, 2022.
- [6] Son, J. B. (2018). Teacher development in technology-enhanced language teaching. Palgrave Macmillan.
- [7] Stockwell, G. (2018). Mobile assisted language learning: Concepts, contexts & challenges. Cambridge University Press
- [8] Kessler, G., & Hubbard, P. (2018). Language teacher education and technology. In C. A. Chapelle & S. Sauro (Eds), *Handbook of technology and second language teaching and learning* (pp. 278–292). John Wiley & Sons, Inc.
- [9] Wang, X., Jacobo, J.W., Blakesley, C.C., Xiang, W., Ye, H., Xu, S., & Lu, F. (2020). Optimal professional development ICT training indicatives at flagship universities. *Education and Information Technologies*, 25, 4397–4416.
- [10] Knobel, M., & Kalman, J. (2016). *New literacies and teacher learning: Professional development and the digital turn*. Peter Lang.
- [11] Cardenas-Claros, M., & Oyanedel, M. (2015). "Teachers' implicit theories and use of ICTs in the language classroom." *Technology, Pedagogy and Education*, 25(2), 207–225.
- [12] Chapelle, C. A. (2012). "Computer-assisted language teaching and testing." In M. Long & C. Doughty (Eds.), *Handbook of second and foreign language teaching*. Blackwell
- [13] Stockwell, G. (2012). *Computer-assisted language learning: Diversity in research and practice*. Cambridge University Press
- [14] Chiu, T. K. F., & Churchill, D. (2016). Adoption of mobile devices in teaching: Changes in teacher beliefs, attitudes, and anxiety. *Interactive Learning Environments*, 24(2), 317–327.
- [15] Cox, M.J., Preston, C., & Cox, K. (1999). "What motivates teachers to use ICT?" Paper presented at the British Educational Research Association Conference. Brighton. September. Accessed June 15, 2022.
- [16] Ogunbote, K. O. & Adesoye, A. E. (2006) Quality Assurance in Nigerian Academic Libraries Networked Multimedia Services. *Journal of library and information science* 3(2) 100-111.
- [17] Nwagwu WE (2006) Integrating ICTs into the globalization of the poor developing Countries. *Information Development* 22 (3): 167- 179.
- [18] Almazova, N., Krylova, E., Rubtsova, A., & Odinokaya, M. (2020). Challenges and opportunities for Russian higher education amid COVID-19: Teachers' perspective. *Education Sciences*, 10(12), 1-11.
- [19] Quaicoe, J. S., & Pata, K. (2020). Teachers' digital literacy and digital activity as digital divide components among basic schools in Ghana. *Education and Information Technologies*, 25, 4077-4095.
- [20] Bhattacharjee, B., & Deb, K. (2016). Role of ICT in 21st century's teacher education. *International Journal of Education and Information Studies*, 6(1), 1-6.