POTENTIALS OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN TRANSFORMATION OF ADULT TEACHING AND LEARNING PROCESSES

AJAYI ADEJOKE RACHAEL (Ph.D)
Department of Adult and Special Education,
Lagos state University of Education, Lagos State

Abstract

In today's digital world, the transformation of adult teaching and learning processes has become imperative. Adult teaching and learning has experienced tremendous innovations since Information and Communication Technology was introduced. Infact, the application of ICTs is having a great impact on global education delivery. This paper aims to explore the potentials of ICT for transforming adult education processes. Drawing on literature from both adult education and ICT domains, the paper reviews existing research related to the utilisation of ICT in adult teaching and learning. Additionally, it examines the implications of ICTs for the roles of educators, learners, and institutions, and explores how ICTs can be used to facilitate and enhance adult teaching and learning. The findings highlight the significant impact ICTs can have on adult education, offering new opportunities for effective and engaging learning experiences. The paper however recommends among others that the government should make provisions for the procurement of adequate ICT gadgets for Adult Education Programmes and more private financial interventions should be solicited for by the major stake holders in field of adult Education Practice.

Keywords: Information and Communication Technology, Adult Learners, Digital Learning, Teaching and Learning.

Introduction

The digital revolution has transformed various aspects of our lives, including education. With the advent of Information and Communication Technologies (ICTs), adult teaching and learning processes have witnessed significant advancements. Information and Communication Technologies (ICTs) offer numerous advantages in the context of adult education. These advantages have the potential to transform teaching and learning processes by boosting access to information, promoting learner engagement, and enablingcustomized learning experiences (Rodrigues & Rishi, 2018). ICTs have revolutionized access to learning resources by mitigating constraints of time and place. Adult learners can consume a wide range of online materials, including e-books, journal articles, videos, and interactive tutorials, allowing them to engage with learning materials at their own convenience (Kearsley, 2018). This accessibility eliminates geographical constraints and enables learners to pursue education regardless of their location or work commitments (Ally, 2009).

ICTs provide opportunities for flexible learning environments, accommodating the diverse needs and criteria of adult learners. Online learning platforms and virtual classrooms allow learners to partake in self-paced learning, enabling them to study at their own speed and schedule (Allen & Seaman, 2017). This adaptability presents a lot of value to adult learners burdened with work or family responsibilities, as it fosters and balance their learning commitments with other aspects of their lives.

ICTs offer collaborative and appealing learning experiences, capturing the attention and interest of adult learners. Various multimedia elements such as videos, simulations, and gamified learning

environments promote active participation and increase learner motivation (Rodrigues & Rishi, 2018). Additionally, online discussion and collaborative platforms as well as social media integration facilitate communication and knowledge sharing among learners, fostering a sense of integration and promoting collaborative learning (Yang & Cornelius, 2005).

ICTs promote customized and flexible learning experiences tailored to individual learner needs. Intelligent teaching schemes, adaptive educational platforms, and learning analytics provide insights into learner progress, allowing educators to tailor instruction based on learners' strong suits, short comings, and learning preferences (Shute, 2011). Personalized learning pathways not only enhance learner engagement but also optimize learning outcomes by addressing individual learning gaps (Dabbagh & Kitsantas, 2012).

ICTs facilitate lifelong learning and professional development opportunities for adult learners. Online courses, webinars, and computer-generated conferences offer flexible avenues for acquiring new knowledge and skills (Khan, 2020). Moreover, digital badges and micro-credentials provide a means to recognize and validate learners' achievements, promoting continuous learning and enhancing employability (Gibson, 2018).

The advantages outlined above demonstrate the transformative potential of ICTs in adult education. By leveraging these technologies, educators can create appealing and tailored learning experiences, while learners benefit from increased access, flexibility and interactive learning environments.

Implications of Information and Communication Technologies for the Educators

The integration of Information and Communication Technologies (ICTs) in adult education brings about significant changes in the role of educators and therefore requires them to be exposed to regular trainings. As technology transforms the learning landscape, educators are required to adapt their practices to effectively leverage ICTs and facilitate meaningful learning experience.

In the digital age, educators are no longer just the disseminators of knowledge but rather facilitators of learning. They now assume the role of facilitators who help to provide real life applications in order to help the adult learners to learn effectively. (Okenimkpe, 2003). With the abundance of online resources and information, educators guide adult learners in navigating and critically evaluating digital content (Dennen & Burner, 2008). They curate and recommend appropriate online resources, facilitate discussions, and provide guidance in the application of ICT tools effectively (Picciano, 2009). Educators play a crucial role in helping learners develop digital literacy skills, enabling them to make informed decisions and engage in lifelong learning (Kirschner & Selwyn, 2009).

ICTs offer opportunities for educators to design engaging and interactive learning experiences and this is why they must be adequately equipped with ICT skills. Educators can grasp digital tools to create multimedia-rich content, gamified activities, and virtual simulations that can help to create diverse learning strategies. (Herrington, Reeves, & Oliver, 2010). By incorporating technology, educators have the ability to design learner-centered activities that foster collaboration, creativity, and critical thinking that will help to enhance effective teaching and learning processes (Johnson, Adams Becker, Estrada, & Freeman, 2015). They become architects of learning environments that leverage the potential of ICTs to enhance engagement and promote deeper understanding (Koehler & Mishra, 2009)

As adult learners engage in online and blended learning environments, educators serve as guides, motivators and mentors, supporting their learning endeavours. Educators provide feedback, assess learner progress, and offer personalized guidance to address individual needs (Garrison & Vaughan, 2008). Through online discussion forums, video conferencing, and communication tools, educators

create opportunities for interaction and collaboration, fostering a sense of belonging in the digital space (Swan, 2002). They assist in providing timely and meaningful feedback to facilitate reflection, growth, and metacognitive development (Conrad & Openo, 2018)

Educators need to embrace technology and become proficient in integrating ICTs into their teaching practices. They should explore and adopt innovative educational technologies that align with the learning goals and needs of adult learners (Bates, 2015). By staying updated with emerging technologies and pedagogical approaches, educators can harness the potentials of ICTs to enhance instruction and meet the changing demands of adult education (Koehler & Mishra, 2009). They play a critical role in modeling effective use of technology, promoting digital citizenship, and inspiring learners to become lifelong digital learners (Selwyn, 2011).

The evolving role of educators in the digital era necessitates a commitment to ongoing professional development, collaboration, and reflective practice. By embracing their changing role, educators can effectively leverage ICTs to create meaningful and transformative learning experiences for adult learners.

Enhancing Adult Teaching and Learning with ICTs

Information and Communication Technologies (ICTs) offer significant potentials to engender teaching and learning experiences in adult education. By leveraging the capabilities of ICTs, educators can develop engaging, personalized and interactive learning environments that cater to the diverse needs and preferences of adult learners. ICTs can be utilized to enhance adult teaching and learning.

ICTs enable educators to provide bespoke learning experiences tailored towards the realisation of the individual needs of adult learners. Adaptive education systems, intelligent teaching systems, and learning analytics can gather and analyse data on learners' performance, preferences, and progress (Shute, 2011). This data-driven method enables educators to provide targeted feedback, recommend appropriate learning resources, and adapt instructional strategies to optimize learning outcomes (Rodrigues & Rishi, 2018). Personalized learning pathways empower adult learners to take charge of their learning and progress at their own pace (Dabbagh & Kitsantas, 2012).

ICTs can help to expand access to a wealth of diverse learning resources, enabling adult learners to explore a wide range of content relevant to their learning goals. Online platforms, digital libraries, and open educational resources (OER) offer a vast array of multimedia materials, e-books, articles, and videos (Kearsley, 2018). Learners can access up-to-date information, explore different perspectives, and engage with interactive learning materials that cater for their interests and learning styles (Ally, 2009). This access to diverse resources enhances the depth and breadth of adult learning experiences which will invariably bring about effective teaching learning processes.

ICTs will also assist in engendering collaboration and interactivity among adult learners, fostering a sense of community and collective knowledge building. Online discussion forums, virtual classrooms, and social media platforms provide avenues for learners to engage in meaningful interactions, share ideas, and work together on projects (Yang & Cornelius, 2005). Through online collaboration tools, adult learners can work together, provide peer feedback, and engage in joint problem-solving activities, irrespective of geographical constraints (Rodrigues & Rishi, 2018). These collaborative opportunities enhance engagement, promote critical thinking, and cultivate communication skills.

ICTs facilitate the integration of multimedia elements and simulated learning experiences, enhancing adult teaching and learning. Videos, simulations, virtual reality, and gamification techniques capture

learners' attention, make abstract concepts more tangible, and create an information technology learning environments (Herrington, Reeves, & Oliver, 2010). Multimedia presentations, interactive tutorials, and virtual laboratories provide adult learners with hands-on experiences and real-world applications, enhancing their understanding and retention of knowledge (Rodrigues & Rishi, 2018).

ICT also offers opportunities for lifelong learning and professional enhancement for adult learners. Online courses, webinars, and virtual conferences provide flexible opportunities to acquire new knowledge, skills, and credentials (Khan, 2020). Massive Open Online Courses (MOOCs) and series of courses that enables adult learners to engage in self-paced learning, allowing them to upskill or reskill according to their professional needs (Gibson, 2018). ICTs facilitate continuous learning, supporting adult learners in staying current in their fields and enhancing their employability.

By leveraging ICTs, educators can create learner-centered, interactive, and personalized learning environments that foster collaboration, access to diverse resources, and continuous learning for adult learners. The integration of Information and Communication Technologies (ICTs) in adult teaching and learning processes has significant implications for educators, learners, and institutions. The use of ICTs in adult education requires educators to continuously develop their digital competencies and keep pace with technological advancements (Conole, 2012). Educators need to acquire the necessary skills to effectively utilize ICT tools, design engaging online learning experiences, and navigate digital platforms (Finger & Jamieson-Proctor, 2010). Ongoing professional development opportunities, training programs, and collaboration with technology specialists are essential for educators to stay current and proficient in integrating ICTs into their teaching practices (Koehler & Mishra, 2009).

ICTs require educators to adapt their pedagogical approaches to align with the affordances and possibilities of digital learning environments (Herrington, Reeves, & Oliver, 2010). Educators need to design instruction that promotes active learning, collaboration, and critical thinking in online and blended settings (Garrison & Vaughan, 2008). They must develop strategies for boosting engagement, providing appropriatefeedback as at when due, and facilitating inclusive learning environments that cater to diverse learners' needs (Bower et al., 2010). Additionally, educators should adopt innovative instructional design models and leverage emerging technologies to enhance the learning experiences of adult learners (Kirschner & Selwyn, 2009)

ICT integration in adult education also requires the development of digital literacy skills among learners (Selwyn, 2011). Adult learners need to acquire the ability to successfully circumnavigate digital systems, critically appraise online material, and utilize ICT tools for learning purposes (Eshet-Alkalai, 2004). Educators play a critical role in fostering digital literacy skills and providing guidance on responsible and ethical digital citizenship (Livingstone & Helsper, 2007). Digital literacy programs, online tutorials, and support services can empower adult learners to become confident and independent users of ICTs (Van Deursen & Van Dijk, 2019)

ICTs also make opportunities available for adult learners to engage in autonomous learning and take ownership of their educational activities. (Kearsley, 2018). Online resources, multimedia materials, and collaborative tools enable learners to explore topics of interest, engage in reflective practices, and pursue lifelong learning (Koehler & Mishra, 2009). Adult learners can apply their learning experiences to align with their goals, preferences, and learning styles (Dabbagh & Kitsantas, 2012). However, learners need to develop self-regulation skills and digital discipline to effectively manage their time, set goals, and maintain motivation in online learning environments (Gibson, 2018)

The successful integration of ICTs in adult education requires institutions to invest in robust

technological infrastructure and support systems (Selwyn, 2011). Institutions need to provide reliable and high-speed internet connectivity, equip classrooms with appropriate hardware and software, and ensure technical support services are readily available (Picciano, 2009). Additionally, institutions should establish policies and guidelines for the ethical and responsible use of ICTs, including data privacy and security measures (Bates, 2015).

The effective utilization of ICTs in adult education necessitates a collaborative and supportive institutional culture (Conrad & Openo, 2018). Institutions should foster opportunities for collaboration and knowledge sharing among educators, promoting interdisciplinary approaches and the exchange of best practices (Bower et al., 2010). Supportive leadership, adequate resources, and a culture of novelty and research are essential for institutions to embrace the transformative potential of ICTs (Garrison & Vaughan, 2008).

Institutions need to address issues of access and equity to ensure that all adult learners have equal opportunities to benefit from ICT-enhanced education (Warschauer, 2003). Institutions should consider factors such as affordability, digital divide, and learners' diverse technological backgrounds (Bates, 2015). Efforts should be made to bridge the digital divide and provide access to ICTs and online learning resources for relegated and underserved populations (Selwyn, 2011). Institutions can collaborate with community organizations, provide scholarships, or establish technology loan programs to reduce barriers to access.

By understanding and addressing the implications of ICTs for educators, learners, and institutions, stakeholders can leverage these technologies to enhance the quality, accessibility, and inclusivity of adult teaching and learning processes.

The Challenges of Using ICT by Adult Educators in Teaching and Learning
The use of Information and Communication Technology (ICT) by adult educators in teaching adult learners in Nigeria faces numerous challenges. According to Ayodele and Olatunji (2016), Akinyemi and Okunola (2019); Ajayi and Oseni (2020); Eze and Ugochukwu (2019); Nwachukwu (2020) and Oladele (2018) these challenges are multifaceted, involving infrastructure, skills, socio-cultural factors, and financial limitations:

Limited Infrastructure and Technological Resources: Many adult education centers in Nigeria suffer from insufficient technological infrastructure, including a lack of computers, internet connectivity, and audio-visual equipment. This makes it difficult to integrate ICT effectively into the learning environment.

Unreliable Power Supply: The frequent power outages in Nigeria make it challenging for educators to use ICT tools that require constant electricity. The instability of power supply undermines the reliability of ICT-based teaching methods.

Inadequate ICT Training for Educators: Digital Divide and Access Issues: The digital divide, particularly between rural and urban areas, significantly impacts the use of ICT in adult education. While urban areas might have better access to technology, rural areas often face barriers to accessing ICT tools, making it difficult for many adult learners to engage with technology.

Low Digital Literacy among Adult Learners: Many adult learners in Nigeria have limited or no experience with ICT, making it difficult for them to engage with technology. This low level of digital literacy further compounds the challenges faced by educators in incorporating ICT into their teaching.

Cultural and Psychological Barriers: Cultural factors and psychological barriers, such as fear of technology and resistance to change, may affect both educators and learners. Adult learners, in

particular, may be reluctant to adopt ICT due to unfamiliarity and concerns about technology.

High Cost of Technology and Maintenance: The financial cost of acquiring and maintaining ICT tools such as computers, software, and internet services is a significant barrier for adult education centers, particularly in public or non-profit institutions. The high cost limits the scale of ICT integration.

Language Barriers: The predominance of English as the medium of instruction in ICT-based content presents a challenge for many adult learners who may be more comfortable with local languages. This language barrier limits access to ICT-based learning materials.

Lack of Technical Support: The absence of technical support for ICT equipment and platforms is another challenge. Educators may struggle with troubleshooting technical issues, which can hinder the effective use of technology in teaching.

Conclusion

This paper has explored the potentials of Information and Communication Technologies (ICTs) for transforming adult teaching and learning processes. By examining literature from both adult education and ICT domains, it has reviewed existing research related to the use of ICTs in adult education. The findings demonstrate the advantages of ICTs in enhancing adult teaching and learning experiences, as well as the evolving roles of educators, learners, and institutions in the digital era. To fully harness the potentials of ICTs, ongoing professional development, learner-centred approaches, and flexible learning environments are crucial. However, challenges such as the digital divide, ethical considerations, and ensuring quality in online education must also be addressed. With careful implementation, ICTs offer exciting opportunities for empowering adult learners and facilitating lifelong learning in the digital age.

Recommendations

Facilitators of adult Education Programmes need to continuously develop and improve on their digital skills in order to keep up with technological innovations and advancements.

The government should make provisions for the procurement of adequate Information and Communication technology gadgets for Adult Education Programmes.

More private financial interventions should be solicited for by the major stake holders in the field of adult Education Practice.

Government should take more account of adult education in their development plans and adequate budgetary allocations should be provided for adult education programs all over the nation

Access to ICTs and Online learning resources for disadvantaged citizens who are desirous of improving themselves educationally should be strengthened through private and corporate collaborations.

References

Ajayi, O.A. and Oseni, S. (2020). Cultural influences on the adoption of ICT in adult   education in Nigeria. African Journal of Educational Technology, 8(1), 55

Akinyemi, O.O. and Okunola, A. O. (2019). Financial barriers to ICT integration in adult education programs in Nigeria. International Journal of Education Administration and   Policy   Studies, 11(4), 33-40.

Allen, E.I. and Seaman, J. (2017). Digital Learning compass: Distance education enrolment

report 2017. Retrieved from https://onlinelearningsurvey.com/reports/digitallearningimpasse enrolment 2017.pdf

Ally, M. (2009). Mobile learning: Transforming the delivery of education and training. Athabasca University Press.

Association for the Advancement of Computing in Education (AACE).

Ayodele, A.O. and Olatunji, O.S. (2016). Digital literacy and the challenge of ICT integration in Nigerian adult education. Journal of Adult and Continuing Education, 12(3), 121- 132.

Bates, A.W. (2015). Teaching in a digital age: Guidelines for designing teaching and learning. Tony Bates Associates Ltd.p.201.

Bower, M., Hedberg, J. and Kuswara, A. (2010). A framework for Web 2.0 learning design. Educational Media International, 47(3), 177-198.

Comas-Quinn, A. (2011). Learning to teach online or learning to become an online teacher: An exploration of teachers' experiences in a blended learning course. ReCALL,23(03), 218-232

Conole, G. (2012). Designing for learning in an open world. Springer Science & Business Media.

Conrad, D. and Openo, J. (2018). Assessment Strategies for Online Learning: Engagement and Authenticity. Edmonton, AB: Athabasca University Press.

Dabbagh, N. and Kitsantas, A. (2012). Personal learning environments, social media, and self-regulated learning: A natural formula for connecting formal and informal learning. The Internet and Higher Education, 15(1), 3-8.

Eshet-Alkalai, Y. (2004). Digital literacy: A conceptual framework for survival skills in the digital era. Journal of Educational Multimedia and Hypermedia, 13(1), 93-106.

Eze, M.O. and Ugochukwu, U. (2019). The digital divide in adult education: Challenges and prospects for Nigeria. Journal of Educational and Social Research, 9(4), 9-18.

Finger, G. and Jamieson-Proctor, R. (2010). Teacher readiness: TPACK capabilities and redesigning tasks for digital age learners. In C. D. Maddux, D. Gibson, & B. Dodge (Eds.), Research highlights in technology and teacher education 2010 (pp. 323-331). Garrison, D.R. and Vaughan, N.D. (2008). Blended learning in higher education: Framework, principles, and guidelines. John Wiley & Sons.

Gibson, D. (2018). Exploring the potential of digital badges in higher education. EDUCAUSE Review, 53(5),

Herrington, J., Reeves, T.C. and Oliver, R. (2010). A guide to authentic e-learning. Routledge.

Kearsley, G. (2018). Online learning: Personal reflections on the transformation of education. Educational Technology, 58(6), 42-46.

Khan, A. (2020). MOOCs as a vehicle for lifelong learning. Journal of Continuing Education, 68(2), 67-70.

Kirschner, P. A. and Selwyn, N. (2009). Education 2.0? Designing the web for teaching and learning. In P. Peterson, E. Baker, & B. McGaw (Eds.), International encyclopedia of education (3rd ed., Vol. 7, pp. 548-553). Elsevier.

Koehler, M. J. and Mishra, P. (2009). What is technological pedagogical content knowledge? Contemporary Issues in Technology and Teacher Education, 9(1), 60-70.

Kozma, R.B. (2005). National policies that connect ICT-based education reform to economic and social development. Human Technology, 1(2), 117-156.

Livingstone, S. and Helsper, E. (2007). Gradations in digital inclusion

Nwachukwu, I.E. (2020). Curriculum development and ICT integration in adult education in Nigeria. Journal of Education and Practice, 11(14), 98-107

Okenimkpe, M. (2003).Adult Education Teaching Methods, Principles, Procedures and Techniques. Lagos: University of Lagos Press

Oladele, O.A. (2018). The role of technical support in ICT adoption in adult education institutions in Nigeria. Educational Technology Research and Development, 66(3), 781-791.

Olaluba, A. (2006). The Virtual Classroo: Learning Without Limits Via Computer Networks. Norwood, N.J. Ablex.

Picciano, A.G. (2009). Blending with purpose: The multimodal model. Journal of Asynchronous Learning Networks, 13(1), 7-18.

Rodrigues, A. and Rishi, M. (2018). Innovative teaching strategies and technologies in the online classroom. In B. Keengwe (Ed.), Handbook of Research on Innovative Pedagogies and Technologies for Online Learning in Higher Education (pp. 1-24). IGI Global.

Selwyn, N. (2011). Education and technology: Key issues and debates. Bloomsbury Publishing.

Shute, V.J. (2011). Stealth assessment in computer-based games to support learning.   Computer Games and Instruction, 55(1), 503-524.

Van Deursen, A.J. and Van Dijk, J.A. (2019). The first-level digital divide shifts from inequalities in physical access to inequalities in material access. New Media &   Society, 21(2), 354-375.

Warschauer, M. (2003). Technology and social inclusion: Rethinking the digital divide. MIT Press.

Yang, S.H. and Cornelius, L.F. (2005). Preparing instructors for quality online instruction: A case study of an online learning course. Journal of Instructional Psychology, 32(2), 134-141.