

ARTIFICIAL INTELLIGENCE AND ICT AMONG CAREGIVERS IN EARLY CHILDHOOD EDUCATION IN THE 21st CENTURY FOR SUSTAINABLE DEVELOPMENT

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Abstract

The benefits of Artificial intelligence and information and communication technology in educational sector necessitates the study on the use AI and ICT among caregivers for 21st century. The paper revealed that the use AI and ICT among caregivers will help to improve training of caregivers by providing unrestricted access to better educational resources, providing multimedia resources that will help the caregivers in the stimulation of good basic information technology and encourage collaborative learning among preschoolers and caregivers. The paper exposed the basic AI and information technological skills needed by caregivers in the 21st century as word processing skills, electronic presentation skills and file management strategy among others. The paper revealed that the challenges of using AI and information technology among caregivers as inadequate expertise knowledge of lecturers and shortage of basic AI and ICT tools among others. The paper concluded that the procurement of information and communication technology is not the panacea for caregivers effective teaching but the ability to harvest the potentials technological skills that will enhance caregivers' teaching skills. This paper suggested that the administrators of the early childhood education sector should provide a dossier of caregivers with skills and knowledge of technology and certificate issued and will be used as one of the requirements for appointment and promotion.

Keywords: Artificial Intelligence, Information Technology, Network, Information and Communication Technology, Caregivers' Education, and Sustainable development

Introduction

The concept of education involves the process of cultural transmission, its deals with the art of instilling on the people or individual, positive values, morals, ethics among others all to make the people live a functional and productive life and become fit to contribute to the development of any nation. Akinpelu (1981) as cited in Agabi O. G, Okirosaye – Orubite, A. K Ezekiel – Hart, J. and Egbezor, D. E (2005) states that the end product of education is the educated man, who in Africa is one who shows evidence of a well-integrated personality...he is economically efficient, socially and politically competent, morally accepted and intellectually and culturally sophisticated. The above statement imply that education also inculcate skills, knowledge, and virtues that will make the individual presentable in the society to participate in democratic process.

This brings to limelight the significant role of caregivers in the attainment of the national policy of education as it concerns the preschool children. The achievement of the policies in the early childhood education solely rests on the shoulders caregivers who are saddled with the direct responsibilities of implementing them in the classroom to ensure educational objectives of the ECE are achieved in all ramification and make it paramount for continuous training and retraining of caregivers for sustainable development. Caregivers have significant role in building preschoolers morally, emotionally, physically, cognitively and socially.

In view of the above, education international (2010) states that only experienced, passionate and lovable caregivers can effect quality education of the children. Hence qualification with experience play important role in the life of the preschool children. Caregivers or caregiver according to Houghton (2011) as people who play the role of assistants to other people on demand in order to make it faster for someone to achieve results within time frame, help provided to support someone. Further, a caregiver is someone, it could be a male or female to is paid to look after preschool children in all educational

institution or at home provided the preschoolers are well taken care of in terms of needs. Brisbane (2000) opines that a caregiver often times refer to as someone who cares for the preschoolers which could be on a short or long- term period. He further added that family members, parent, grandparent, foster parent, babysitters as well as child workers can provide the same skills in caring for children or preschoolers.

In a world where the information and communication technology has created a paradigm shift in every aspect of human endeavors, has changed the way people reason, teaching/learning are no longer the normal old method, people relate to one another in a dynamic way or manner, the way and manner knowledge is shared has changed significantly and improved. Today, the information and communication technology is a name that rings bell everywhere or aspect of the society which the education is not left out. Utilization of ICT among the caregivers to enhance the process of teaching/learning of the preschool children is one of necessity.

Conceptual Clarification:

Information and Communication Technology:

The information and communication technology (ICT) refers to the technologies that facilitate the capturing, processing, storage and dissemination of data via the electronic process or means. It goes further to encompasses a wide or variety range of technologies such as the computers, telecommunications software applications and networks. Before the inception of The Information and Communication Technology ideas and information were passed through the use or means of letter writing and memos or the use of oral means of communication or dissemination. However, the inception of ICT led to different channels by which messages are passed through one person to another or from the sender to the receiver, information and communication technology are two different concepts that people often mistake as the same. But for the purpose of clarification, information technology (IT) refers to the use of computers, networks, software, and other technologies to manage and process data, communicate, and solve problems. It covers wide range of activities that include computer programming, data management, networking, cybersecurity and software development. Put differently, information technologies are frequently used in the industries while the information and communication technologies are used in educational settings.

Information and communication technology is the application of the technological tools to solve educational problems while enriching it's services. The component of the ICT includes the radio, television, computers, CD/DVD, internet and others - that can store and retrieve data, information and communication technology encompasses computer and computer networks, hardwares, software, electronics mail and other services. These services that the ICT carry out are video conferences, distance learning, internet technology, audio conferencing and multimedia utilization (Anulobi & Anusiem 2012). Accordingly, Okai (2008) states that the information and communication technology are computer-based tools that people use to work with information that aide the data and data processing needs of an organization. It includes the keyboard, joystick, mouse, printers, monitors, screen, payroll software, modems etc.

Emerging technologies like artificial intelligence (AI) machine learning, blockchain, virtual reality (VR), augmented reality (AR), internet of things (IOT) and robotics which are transforming how information is processed, communicated and utilized. According to Agweche (2008) information and communication technology can make preschool caregivers to be more effective and productive in the classroom. The ICT can also enhance teaching and learning via it's dynamic interactive and engaging

content and it can provide real opportunities for individualized instruction, has the potential to accelerate, enrich and deepen skills, motivate and engage the preschool children in learning.

The Artificial intelligence and information and communication technology (ICT) can play a very important and significant role when properly acquired and effectively applied during teaching and learning process by the caregivers in the classroom.

1. **Interactive Learning Tools:** the ICT offers interactive learning tools such as educational software, apps and games designed specifically for preschool children. The tools can make learning more engaging, enjoyable and effective by incorporating colorful graphics, animations and interactive elements.
2. **Communication and Collaboration:** The ICT facilitates communication and collaboration among preschool children through platforms like videos-conferencing, online forums and collaborative projects. This helps them share, learn how to interact ideas, work as a team, and develop social skills.
3. **Parental Involvement:** ICT enables parents to be more involved in their child's learning journey through educational apps, online/progress tracking tools and communication platforms with caregivers. This partnership fosters a supportive learning environment both at home and in preschool settings.

Overall, when used appropriately and under guidance, ICT can be a valuable tool for enhancing preschool education, promoting holistic development and fostering a love for learning among young children.

Caregiver Education:

Teaching is seen as one of the oldest progressions to mankind. Teaching is the deliberate or conscious efforts made by the caregiver to impact on the learners certain skills, knowledge, values, morals, attitude and culture of a particular people that cause a change in the behavior of the learners or children and make them become fit in the society where they may find themselves or among their peers. It is inter-relational process in which the knowledgeable caregiver tries to infuse certain skills and attitudes to the preschool children who may be seen as less knowledgeable in order to prepare the preschoolers for a functional life or future.

Caregiver education typically involves training and support programmes designed to help individuals learn how to care for others effectively. This can include understanding the needs of the preschool children being cared for, learning about medical conditions, developing caregiving skills such as communication and empathy and managing caregiver stress. It involves the equipping of caregivers with ethical intellectual competences and skills, dispositions and emotions that enable the caregivers to imbue in the preschool children the requisite educational and societal dispositions (Nwankwo & Ofojebe 2016). . Professional development represents an integral component to quality caregiving, and offers caregivers the opportunity to continually finetune and improve their caregiving skills. Findings show that participation in specialized intensive multi-model professional development improves caregivers' competency in the area of skill improvement targeted by the professional development activity (Trost, 2006 Sadowski, 2006, Fukkink & Lont 2007, Ingvarson, Meiers & Beavis 2005). For instance, a meta-analysis examining effects of caregiver participation in professional development found that specialized trainings (that targeted specific caregiving behaviors or practice) resulted in improved caregiver pedagogical competency, attitude toward caregiving, content knowledge, and skill when compared to participant in more generalized, broad brushing trainings (Fukkink & Lont 2007)

The Goals of caregiver Education:

The federal government in recognizing the importance of quality caregiving shall continue to emphasize caregiver education in educational planning and development (FGN, 2014). The goals of caregiver education among others includes the encouragement of the spirit of enquiry and creativity in caregivers and providing them with the intellectual and professional background that will be equitable for their assignments and also make them adaptable to changing situations. Government did not only recognize that caregivers should be professionally trained but that information technology (IT) should be integrated into the caregivers training programmes (FGN 2014).

It is important we take a look at how the application of information and communication technology will be of help to achieve educational goals. Making reference from the goals of caregivers' education, and the integrating of information technology (IT) in the professional training of caregivers the federal government without hesitation want to achieve the following educational objectives in the early childhood education sector.

- ❖ Expanding access to caregivers' education
- ❖ Improving the quality of caregivers' education
- ❖ Developing lifelong learning process in caregivers' education

Expanding Access to Caregivers' Education

This aspect is very crucial for improving the quality of care provided to the preschoolers or children using the online education platforms, making available online courses and platforms tailored to caregivers' needs allows them to access education from anywhere at any time. Providing financial support in terms of grant and scholarship can make education more affordable and accessible to our caregivers.

The availability of workplace training programmes is another important area where employers can offer training programmes and workshops to improve the existing knowledge of the caregivers focusing on relevant skills and knowledge that will be of great benefits to the preschoolers, collaborating with community, organizations and colleges can also help in designing and delivering educational programmes for caregivers, offering flexible schedules and part-time options for education allows caregivers to balance their work and education responsibilities. Advocating for policies that support caregivers' education, such as tax incentives or funding for education programmes, can lead to systematic improvement. By implementing these strategies, we empower caregivers with the knowledge and skills they need to provide high-quality care to the preschool children.

Improving the Quality of Caregivers' Education

This is another way of enhancing the overall standard of care and support provided to the individuals in need. Develop and implement comprehensive training programmes that cover a wide range of topics relevant to caregiving, including communication skills, medical knowledge, empathy building and stress management. Provide opportunities for caregivers to gain hands-on experience through internships, shadowing experience caregivers or stimulated training scenarios, practical experience is invaluable for applying theoretical knowledge in real-life situation.

Continuing education that encourages and support caregivers to pursue continuing education opportunities to stay updated with the latest advancements best practices, and regulations in the field of caregiving. Establishing a mentorship programmes where experienced caregivers can mentor and guide newer caregivers. This fosters a culture of continuous learning and professional development. Emotional

intelligence training plays a vital role in improving the quality of caregivers' education, incorporate training on emotional intelligence, cultural competence, and ethical considerations into caregiver education. These crucial skills are essential for building meaningful relationships with care recipients and their families.

Creating technology integration training into caregiver education to familiarize them with tools and platforms that can enhance the efficiency, communication and coordination of care can create peer support networks or support groups where caregivers can share experiences, seek advice, and provide emotional support to each other. This can help reduce burnout and improve overall well-being of the individuals, implement regular evaluations and feedback mechanisms to assess the effectiveness of caregiver education programmes and make necessary improvements based on input from caregivers and care preschool children.

Developing Lifelong Learning Process in Caregivers Education

Caregivers are fundamental in the achievement of quality education, therefore there is the need for the continuous training and retraining of caregivers if they must be effective in the discharge of their tasks or duties. Foundational knowledge that involves ensuring caregivers have a strong foundation in the principles of caregiving, including understanding of medical conditions, basic healthcare practices and communication skills. Caregivers should also be offered regular training sessions or workshops to update caregivers on new technological advancement and their benefits to the early childhood education.

In collaborating this assertion Onuoha- Chidiebere (2016) states that caregivers are people who aim at bringing about the desired outcomes not only in preschool children to the society at large. For caregivers to bring the desired skills out of the preschool children and the society, there should be the need for the training and retraining of caregivers in the theory and practice of the early childhood education.

The need for AI and Information and Communication Technology in Caregiver Education

Information and communication technology (ICT) plays a crucial role in caregiver education by enhancing training methods, improving access to resources and facilitating communication among caregivers, early childhood providers or administrators. The early childhood education is overwhelmed with population of preschool children and there is the need to meet the aspirations of the society or parents in the attainment of the ECE pursuit. Therefore, there is the need for the effective use or application of technology in the process of teaching and learning. The universe is changing in every aspect or sphere of human endeavors be it socially, economically, culturally, politically, religiously and therefore the early childhood education sector in Nigeria must not be neglected or left out.

The emergence of this new global economy that is information and knowledge driven has a great implication where caregivers can access a wide range of educational resources through ICT platforms, including e-books, research articles, videos and online forums. This access helps them stay updated with the latest practices and guidelines in caregiving. ICT also allows caregivers to participate in remote or distance learning programmes, which is especially beneficial for those in the rural areas who may not have easy access to traditional educational institutions. This also enable flexibility in learning schedules. The information and communication technology tools facilitate collaboration and networking among caregivers, ECE providers or administrators and researchers. The collaboration fosters knowledge sharing, peer support, and update professional development opportunities.

The integration of information and communication technology in caregivers' education is now a necessity that is long overdue in Nigeria early childhood education sector. The ICT system can be used

to collect, manage and analyze data related to caregiver education and training. The data driven approach helps in identifying learning trends, assessing programmes effectiveness and making data informed decision for the ECE curriculum improvements. Though online platforms and mobile applications caregiver can engage in continuous learning and professional development activities such as certification courses, workshops, and conferences without geographical constraints.

AI and ICT Skills Needed in Caregiver Education

The caregiver education of this contemporary age must possess or acquire certain rudimental basic skills of information technology to enable caregivers to perform optimally. Some of these skills are:

- Electronic presentation skills
- Assistive technologies
- Information literacy
- Educational copy rights knowledge

However, the 21st century caregiver should not only possess the above stated skills but should equally carry out the following role:

- Instill on the preschool children the skills on the use of digital tools in the process of teaching and learning
- Encourage high order thinking and knowledge that will help in problem-solving
- Guide the learner to learn new knowledge and skills that will encourage collaborative learning among peers and experts

Artificial intelligence and ICT tools that can aid Caregiver Education:

The upswing of information technology has open vista of opportunities for effective and efficient communication between the caregivers, parents, preschool children and ECE providers /Administrators. In the recent past, radio and television played an important role in the dissemination of information on education materials or services but upon the emergence of the 21st century where information and knowledge drive the system has changed the entire educational system including the ECE sector. In this global economy the roles and the responsibilities are on the ECE administrators to choose the required ECE instructional resources that best suit the preschool children so that they can achieve the ECE predetermined goals.

There are ample of information technological tools that can be used by caregivers in the ECE sector that will in turn benefit the preschool children.

- i. Video Conferencing Tools: platforms like zoom, Microsoft teams, or google meet enable caregivers to participate in virtual meetings, workshops and conferences fostering collaboration and professional development.
- ii. Data Management System: tools for collecting, analyzing and managing preschool children's data can aid caregivers in tracking progress, identifying areas for improvement and making data informed decisions
- iii. E-mails: this is simply an act of sending or receiving of messages through the electronic devices from one computer to another. The message could be memos/letters, ideas, assignments or collective research. E-mails is an important channel and medium of delivering of lessons either in school or off-school premises. During COVID-19, parents collaborated with caregivers to open email address for the preschoolers via which assignment are conveyed from the caregivers to the children to be done with the help of their parents.

Challenges in Using AI and Information Technology in Caregiver Education

Despite the numerous benefits of information and communication technology in caregiver education, there are yet some bottlenecks or factors mitigating the effective application/use of technology in caregivers' education and foremost is the caregivers' attitude or behavior or perception on the use of information technology. Perception here indicates how people believe, think and see the person or objects. among them are:

- i. **Language Barrier:** Here the type of language used to build the technology will determine the level of knowledge the caregivers can get or understand the device especially if the technology used does not support multiple languages or if the caregiver have limited proficiency in the language in which the ECE resources or materials are delivered.
- ii. The federal government has not made quality provisions of adequate funds for the ECE or the education sector at large to meet the basic standard of 26% of annual budget as prescribed by UNESCO. So, the educational institutions are bereft of technological facilities that can enhance caregivers' education such facilities like computers, projectors, fax machines, photocopiers etc. Adomi & Kpangban (2010) buttress the assertion when they stated that unavailability of some ICT component in the schools has hampered on caregivers' use of ICT tools.
- iii. **Digital Divide:** Here, some socioeconomic disparities can escalate the digital divide, a situation where certain groups or regions have limited access to technology or lack the skills to use it effectively. In collaborating this fact, Ohiweres, Azil and Okoli (2013) stated that barriers to utilization of the ICT include inadequate skills and lack of caregivers' knowledge about computer. This inequality can impact the quality and equity of caregivers' education.

Possible Solution to Challenges Inhabiting the Effective Use of Artificial intelligence and Information Technology in Caregivers' Education:

The globalization and modernization in the society has caused desired and trend change throughout the entire human race and the ECE sector is not left out. The upswing of information technology has changed the preschool children and caregivers' relationship and this invariable affected the ECE classroom management, content delivery, lesson plan and presentation. Hence there is the need for caregivers to initiate change methodology of passing instruction or impacting skills in order to keep abreast with the modern tools that aid to enrich the ECE caregivers teaching and learning. Again, invest in building and upgrading IT infrastructures such as internet connectivity, computer labs and digital resources to ensure accessibility and reliability.

Furthermore, the Ministry of Education in collaboration with the following educational bodies like Early/Childhood Association of Nigeria (ECAN) and the Teachers Registration Council of Nigeria can advocate for government policies and initiatives that prioritize IT integration in caregiver education including funding support regulatory frameworks and partnership with IT providers. They should also ensure that IT solutions are accessible and inclusive, considering factors such as language diversity, disabilities, and geographical limitations, to reach a wider audience of ECE caregivers.

Conclusion:

Artificial intelligence and ICT has come to stay in as much as the global education system is concern, and Nigerian caregivers should not be left out else, they will be endanger species that will merely fizzle out and cannot contribute to the ECE enhancement and development. The procurement of Information technology gadgets is not just the leeway in solving the challenges of caregivers' education but the ability to cultivate and harvest in the potentials of technology in training of caregivers on the use of modern

technological facilities. Caregivers who use ICT tools and resources are able to enhance their teaching methods, engage the preschool children in an interactive learning experience and streamline administrative tasks. However, it is important for caregivers to be mindful of potential risks associated with excessive screen time and to ensure that technology is used in a balance and purposeful manner. Overall, the integration of ICT in early childhood education can support caregivers in providing a stimulating and enriching environment for preschool children to learn and grow.

Suggestions:

- i. Implementing online training programmes and webinars for caregivers in education to enhance their skills and knowledge in providing care for preschool children with low learning mind and low self-esteem.
- ii. Utilizing social media platforms and online support groups to correct caregivers in education with others who are in similar situations and provide a sense of community and support.
- iii. Using virtual reality (VR) technology for training caregivers in education on practical skills, such as proper lifting and transferring techniques and to help them better understand the perspectives of preschool children with learning disabilities or cognitive impairments.

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