



Information and Communication Technology (ICT) in Lifelong Learning among the Aging Populations of Katsina State, Nigeria

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ABSTRACT

The integration of Information and Communication Technology (ICT) in lifelong learning has emerged as a transformative avenue for aging populations. Lifelong learning play a significance role in the sustenance of the livelihood among aging populations. The most effective way to do this is to enable the elderly to have access to information and to know how to properly use it. This research focuses on the impact of ICT on lifelong learning among aging farmers, business men and retiree across the three zones of Katsina state. Focusing on the cognitive vitality, social engagement, and holistic well-being of the aging demography. The amalgamation of ICT and lifelong learning presents a recognizing, significance tailored support and user-friendly interfaces, society can ensure that aging individuals fully harness the potential of ICT to facilitate lifelong learning.

Keywords: ICT, Lifelong learning, aging populations.

INTRODUCTION

In the rapidly evolving landscape of education and technology, Information and Communication Technology (ICT) has emerged as a transformative force, reshaping the way individuals learn, connect, and engage with knowledge. Technology, especially digital technology, has become such an integral part of our daily lives, so much that it is generally expected that everyone must have some level of digital literacy (Anyikwa, 2016). One particularly dynamic and impactful facet of this transformation is the integration of ICT in lifelong learning among aging populations. As societies experience demographic shifts with a growing number of elderly individuals, the concept of lifelong learning takes on a renewed significance, and the role of technology in facilitating this process becomes ever more crucial. The tremendous growth of new technological environment is considered as a driving force that transforms our world into an electronic global society (Anyikwa, 2016).

Lifelong learning is broadly defined as learning that is pursued throughout life at any time and in any place. In other words, an adult's learning activities play a notable role in the pursuit of knowledge. Horrigan (2016) pointed out that the majority of Americans feel that they are lifelong learners and that they participate in activities that include the use of technology to learn more about a personal interest. Although those with more education and higher incomes are more likely to engage in lifelong learning, technology assets are

strongly tied to the possibility that adults engage in learning activities. Therefore, this research define as the continuous pursuit of knowledge and skills throughout one's life, holds particular significance for the elderly, fostering cognitive vitality, social engagement, and holistic well-being.

Majority of the Katsina State populations are agrarians while remaining are civil servants and business populations. Katsina State is a State in the northwest geographical zone of Nigeria with an area of 2,419.2km² (9341Sqmi) and a populations of 5,801,584 that border Kaduna, Zamfara, Kano and Jigawa States (Awazi et al 2018). Nicknamed “Home of Hospitality”, both the state capital and the town of Daura have been described as ancient seats of Islamic culture and learning in Nigeria. With a rapidly aging farmers, civil servants and business population, any attempt to improve the welfare of older is vital (Muhammad K. A and Abubakar Magaji 2023). Therefore, ICT has the potential to promote the welfare and general wellbeing of the aging population across all dimensions.

Lifelong learning, the continuous pursuit of knowledge and skill enhancement throughout one's life, is not only a pathway to personal growth but also a means to promote cognitive well-being, social interaction, and an overall higher quality of life among aging populations. Historically, advancing age has often been associated with diminished learning opportunities due to various constraints, including physical limitations, reduced mobility, and restricted access to traditional educational settings. However, the advent of ICT has dismantled many of these barriers, creating a fertile ground for a new era of inclusive and accessible lifelong learning. Adults with technology access tools, such as mobile devices, are also more likely to be lifelong learners and to use the Internet to pursue knowledge.

There is a strong sense that people feel more comfortable when they continue to learn, in order to stay relevant in a changing environment. In terms of learning and technology, new means of communications could translate learning into a happier life. Therefore, with the Internet and mobile technologies providing possible access to information and the general mobility of knowledge, mobile devices allow farmers to gain instant access to useful information. There is much research about motivation and satisfaction in the school system, but there is little empirical evidence of how these factors affect older farmers. While mobile technologies and social media have changed the value and importance of human connection, it is necessary to understand the interaction between motivation and satisfaction with life for older famers.

Problem Statement

In an era characterized by rapid technological advancements and an aging global population, there exists a critical gap in understanding the effectiveness and challenges of integrating (ICT) into lifelong learning initiatives for older adults. While the benefits of lifelong learning and the potential of ICT are well-acknowledged, there is a lack of comprehensive research examining the extent to which these technologies enhance cognitive well-being, promote social engagement, and contribute to the overall quality of life for aging individuals. Furthermore, the nuanced dynamics of technology adoption, digital literacy levels, and the interplay between various contextual factors remain relatively unexplored. Without a deeper understanding of these factors, the design and implementation of effective ICT-driven lifelong learning programs tailored to the needs and preferences of aging populations remain constrained.

Aim of the Research

The aim of this research proposal is to comprehensively examine the role of (ICT) in facilitating lifelong learning among aging populations. By investigating the impact of ICT integration on cognitive well-being, social engagement, and overall quality of life for older adults, the benefits, challenges, and potential outcomes associated with utilizing digital tools in lifelong learning initiatives. Through a multidimensional analysis of technological adoption, digital literacy levels, socio-cultural factors, and contextual influences.

Objectives of the Research

The objectives of this research is to:

- 1- To access the Impact of ICT integration on Cognitive Well-being among the aging population of Katsina State, Nigeria.
- 2- To examine the effects of ICT on their Social Engagement and
- 3- To investigate the Role of Digital Literacy in ICT Adoption among them.

Review of Related Works

This research proposal would include only the aging population that constitute men and women retirees, self-employed and farmers of three different political zones of Katsina State, Nigeria. The research however attempt to investigate the level of digital literacy usage, Heick (2014) in his definition of digital literacy thinks of it as research finding, evaluating and properly crediting digital sources. Below are some of the related literature review visited:

Tawil (2013) proposed an integrated vision of education based on two key paradigms: lifelong learning and the four pillars of learning. The report proposed a holistic conceptual framework of learning, that of the 'four pillars of learning'. It argued that formal education tends to emphasize the acquisition of knowledge to the detriment of other types of learning essential to sustaining human development. It stressed the need to think of learning over the life course, and to address how everyone can develop relevant skills, knowledge and attitudes for work, citizenship and personal fulfillment.

The term retirement is commonly used when reference is made to withdrawal from paid work. Oniye (2001) define retirement as a phenomenon marked by separating a worker from paid employment such as an occupation or a carrier, retirement is connected to the process of ageing with reference to inactivity, passivity or detachment (Keti and Wagner, 2002). Hardy (2002) says that retirement is a form of disengagement accomplished by life crisis. Retirement is classified in many ways according to literature. Awoniyi (1997) categorized retirement into voluntary and involuntary while Alutu (1999) classified retirement voluntary, compulsory and forced.

Obashoro (2012) classified retirement into early (voluntary or non-voluntary), phased and mandatory. It is voluntary if the employee decides personally to leave before attaining the mandatory retirement age or require number of years in service. It is involuntary if the employee is forced to leave due to ill-health, negligence of duty, mass retrenchment or an attainment of mandatory age. Forced retirement is when the employee is made to withdraw from service with or without benefit as in case of retirement. People who are self-employed, artisans, private-sector workers also retire from active service engagement due to physiological and health challenges that come with ageing.

As one ages, it get to time when the person will not be able to perform certain activities pertaining to the job. For example, a business man may not have the strength to travel to buy goods. Similarly, a long distance driver will stop driving due to poor vision or less of strength. Retirement therefore, means voluntary or forced withdrawal from a person's source of income due to physiological, psychological, social, and financial or policy issues. From the foregoing, one sees the inevitability of retirement and the need for the early and adequate preparation.

Drigas S. and TsolakiIn V. (2015), said that, in the most recent literature, the focus has been shifted to mobile learning which provides ubiquitous computing access. Passing from e-learning to m-learning, mobile phones could promote lifelong learning and help lifelong learners create knowledge across their life.

Unesco (education 2030), Lifelong learning LLL is rooted in the integration of learning and living, covering learning activities for people of all ages, in all life-wide contexts and through a variety of modalities that, together, meet a range of learning needs and demands. All age groups. Lifelong learning is a process that starts at birth and extends across the whole lifespan. It provides people of all ages and origins (irrespective of age, sex, ethnicity, and national, economic or social origins, and including persons with disabilities, migrants, Indigenous peoples and other vulnerable communities) with learning opportunities and activities, responding to their specific needs in different life and professional stages.

METHODS

The research employs a mixed-methods approach that combines quantitative and qualitative methods. This approach allows for a comprehensive exploration of valuable insights into the impact of ICT integration on older adults' educational experiences, cognitive well-being, digital literacy and challenges in technology adoption, intersection of technology and overall quality of older life.

RESULTS AND DISCUSSION

The results of the study provide comprehensive insights into the roles of Information and Communication Technology (ICT) in lifelong learning among aging populations in Katsina State. The analysis is structured based on the responses collected from 160 participants, covering demographic information, ICT access and usage, lifelong learning participation, perceived benefits and challenges, and recommendations for support. The data are analyzed using python software.

Demographic Information

The age distribution of respondents revealed that the majority (62.5%) were aged between 60 and 69 years, followed by 25% aged 70 to 79 years, and 12.5% aged 80 and above. Gender distribution indicated a slight majority of male respondents (56.25%) compared to females (43.75%). In terms of educational background, 25% of respondents reported having no formal education, while 31.25% had primary education, 28.13% had secondary education, and 15.63% had tertiary education. Urban and rural participants were evenly distributed, with 50% from each location. Regarding pre-retirement occupations, agriculture (37.5%) was the most common, followed by government/public service (21.88%), business (18.75%), education (12.5%), and healthcare (9.38%).

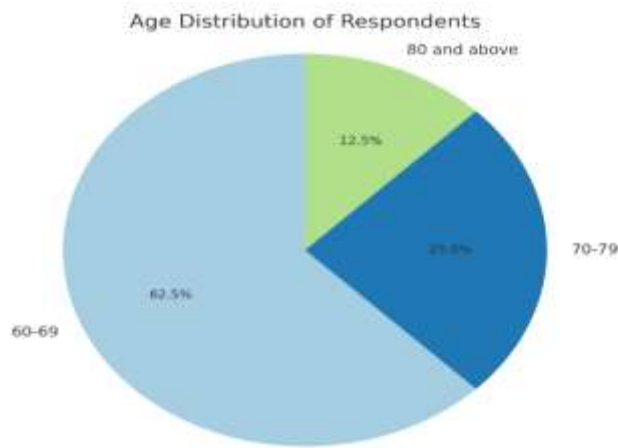


Figure 1: Age Distribution of Respondents

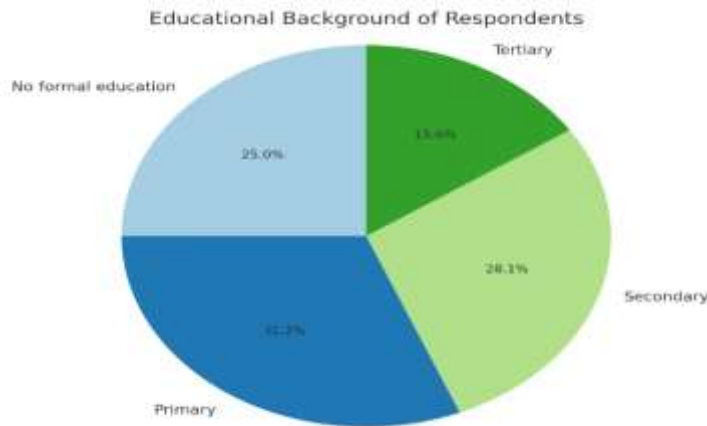


Figure 2: Educational Background of Respondents

ICT Access and Usage

The data indicated that smartphones were the most commonly accessed ICT device, with 81.25% of respondents reporting ownership. Tablets and laptops/computers were accessed by 31.25% and 25% of respondents, respectively, while 18.75% reported having no access to ICT devices. Internet usage patterns revealed that 43.75% of respondents used the internet daily, 31.25% weekly, 15.63% monthly, 6.25% rarely, and 3.13% never. The primary uses of ICT included communication (75%), information searching (56.25%), entertainment (56.25%), learning new skills or education (37.5%), health monitoring (31.25%), and online banking (25%).

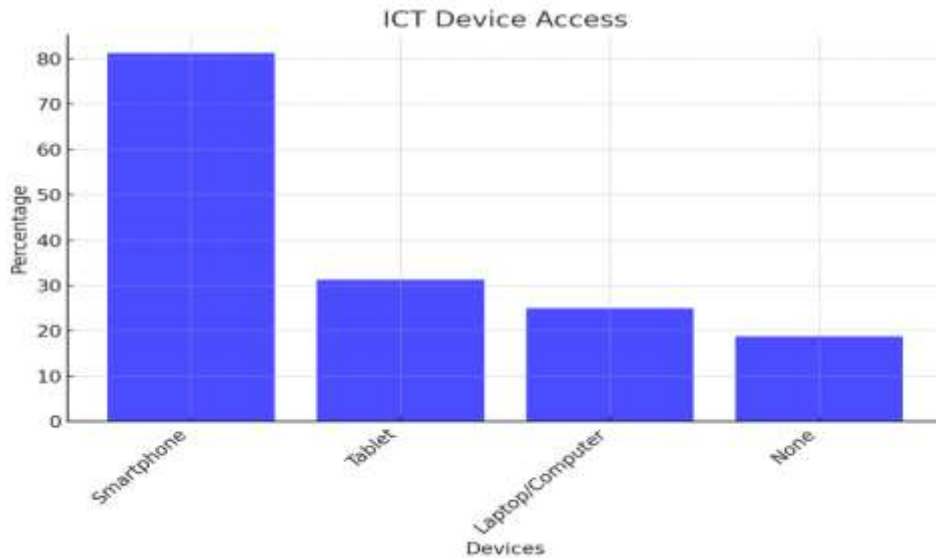


Figure 3: ICT Device Access

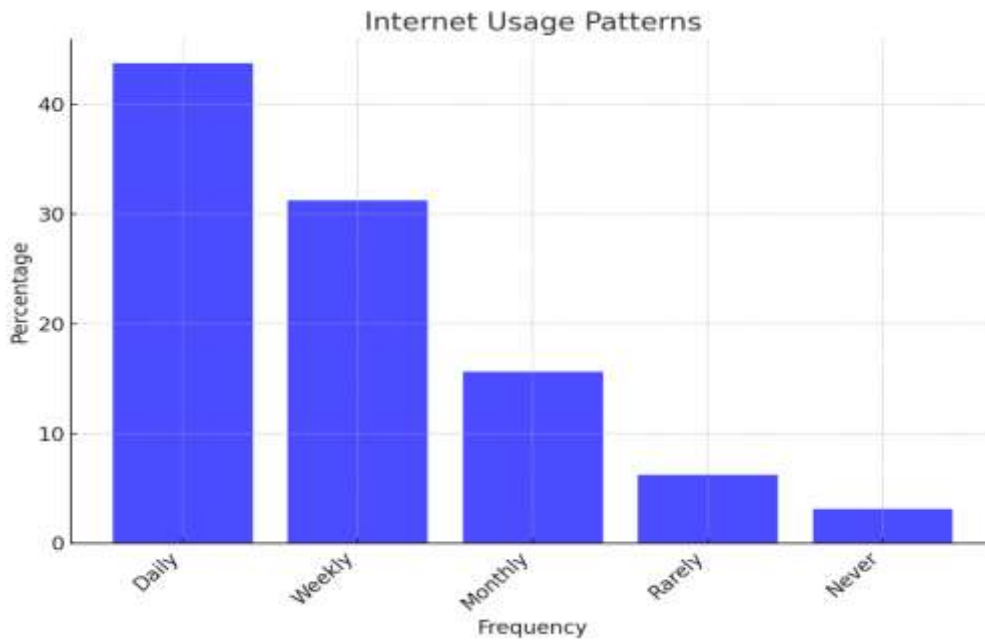


Figure 4: Internet Usage Patterns

Lifelong Learning

Participation in online learning programs was reported by 62.5% of respondents, with the remaining 37.5% indicating no prior involvement. Among those who participated, vocational training was the most popular program (40%), followed by academic courses (30%), health and wellness programs (20%), and hobby or interest-based courses (10%).



Figure 5: Participation in Online Learning Programs

Regarding the impact of ICT on lifelong learning, 43.75% of respondents indicated that ICT had significantly improved their ability to continue learning, while 31.25% reported somewhat improved outcomes. A minority noted no change (12.5%) or hindrance (12.51%). Barriers to ICT use for lifelong learning included poor internet connectivity (37.5%), lack of digital literacy skills (31.25%), limited availability of relevant courses (25%), lack of access to devices (18.75%), and the cost of online courses (18.75%).

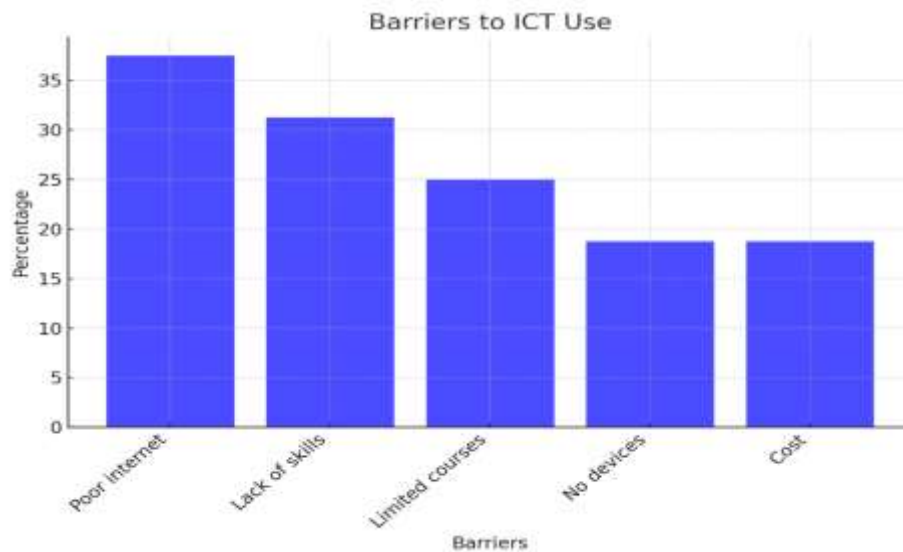


Figure 6: Barriers to ICT Use in Lifelong Learning

Perceived Benefits and Challenges

Respondents highlighted various benefits of using ICT for lifelong learning. The most frequently cited benefits were better access to information (75%), enhanced knowledge and skills (62.5%), improved social connectivity (50%), increased self-esteem and confidence (43.75%), and health and wellness improvements (31.25%). However, challenges such as technical difficulties (37.5%), security and privacy concerns (25%),

difficulty finding credible resources (31.25%), and lack of motivation or interest (18.75%) were also reported.

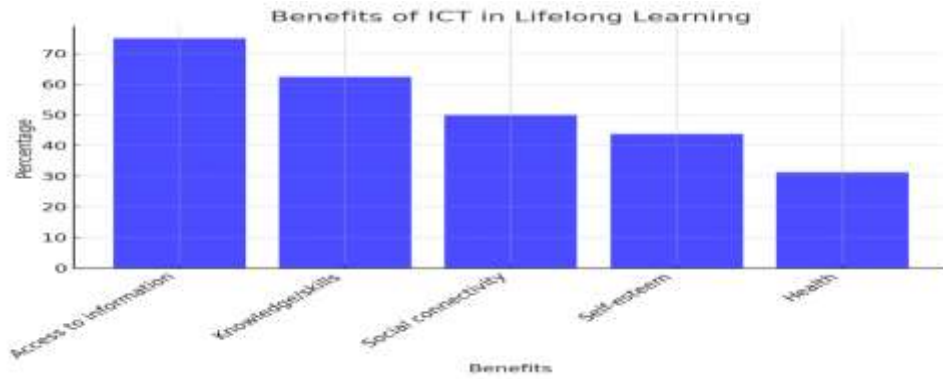


Figure 7: Benefits of ICT in Lifelong Learning

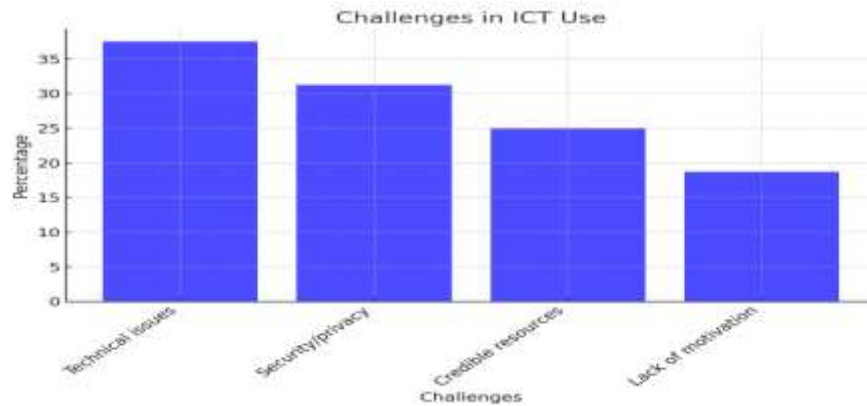


Figure 8: Challenges in ICT Use for Lifelong Learning

Support and Recommendations

Participants identified several types of support that could enhance their effective use of ICT for lifelong learning. Training programs on digital literacy were the most commonly recommended (62.5%), followed by financial assistance for purchasing devices or internet access (50%) and community centres offering ICT resources and support (50%). Additional recommendations included more accessible and affordable online courses (37.5%) and technical support for ICT devices (31.25%).

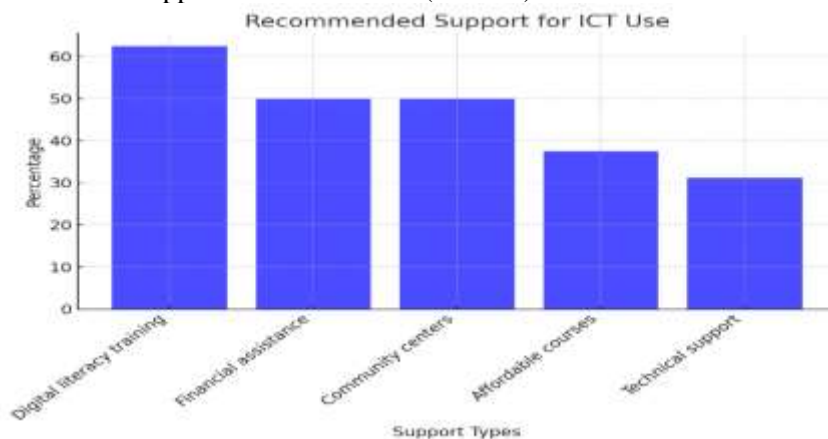


Figure 9: Recommended Support for ICT Use

Table of the summarized findings:

Category	Findings
Demographic Information	<ul style="list-style-type: none"> - Age: 62.5% aged 60-69, 25% aged 70-79, 12.5% aged 80+. - Gender: 56.25% male, 43.75% female. - Education: 25% no education, 31.25% primary, 28.13% secondary, 15.63% tertiary. - Location: 50% urban, 50% rural. - Occupation: Agriculture (37.5%), government/public service (21.88%), business (18.75%), education (12.5%), healthcare (9.38%).
ICT Access and Usage	<ul style="list-style-type: none"> - Device Access: 81.25% owned smartphones, 31.25% tablets, 25% laptops/computers, 18.75% had no access. - Internet Usage: 43.75% daily, 31.25% weekly, 15.63% monthly, 6.25% rarely, 3.13% never. - Primary ICT Uses: Communication (75%), information searching (56.25%), entertainment (56.25%), education (37.5%), health monitoring (31.25%), online banking (25%).
Lifelong Learning	<ul style="list-style-type: none"> - Online Learning Participation: 62.5% participated, 37.5% did not. - Popular Programs: Vocational training (40%), academic courses (30%), health and wellness (20%), hobby-based courses (10%). - Impact: 43.75% noted significant improvement in learning, 31.25% moderate improvement, 12.5% no change, 12.5% hindrance. - Barriers: Poor connectivity (37.5%), lack of digital skills (31.25%), limited course availability (25%), device access (18.75%), cost of courses (18.75%).
Perceived Benefits	<ul style="list-style-type: none"> - Better access to information (75%). - Enhanced knowledge/skills (62.5%). - Improved social connectivity (50%). - Increased self-esteem/confidence (43.75%). - Health and wellness improvements (31.25%).
Challenges	<ul style="list-style-type: none"> - Technical difficulties (37.5%). - Security and privacy concerns (25%). - Difficulty finding credible resources (31.25%). - Lack of motivation or interest (18.75%).
Support and Recommendations	<ul style="list-style-type: none"> - Training on digital literacy (62.5%). - Financial assistance for devices/internet (50%). - Community centres for ICT support (50%). - Affordable courses (37.5%). - Technical support for devices (31.25%).

Qualitative Insights

Qualitative data from semi-structured interviews provided deeper insights into participants' motivations, challenges, and experiences. Key themes included the transformative role of ICT in fostering social connections, overcoming isolation, and improving cognitive engagement. Several respondents emphasized the need for localized training initiatives and culturally relevant learning resources to address their unique challenges. For example, a 68-year-old male respondent highlighted, “Digital literacy programs tailored to

our needs would make a big difference in how we use technology.” Another participant, a 73-year-old female, noted, “Access to affordable devices and stable internet is a major challenge in rural areas.”

Summary of Findings

The findings reveal that ICT plays a significant role in lifelong learning among aging populations in Katsina State, particularly in enhancing knowledge, social connectivity, and access to information. However, barriers such as poor digital literacy, limited access to devices, and technical challenges must be addressed to fully realize the potential of ICT for this demographic. The results underscore the importance of targeted interventions, including training programs, infrastructure improvements, and affordable access to ICT resources, to support aging individuals in their learning journeys.

CONCLUSION

The integration of Information and Communication Technology (ICT) into lifelong learning has demonstrated significant potential in enhancing the lives of aging populations in Katsina State. By providing avenues for cognitive engagement, social connectivity, and access to valuable resources, ICT has empowered older adults to remain active participants in their communities and improve their overall quality of life.

The findings underscore the critical role of digital literacy and ICT access in overcoming barriers such as poor internet connectivity, lack of devices, and limited digital skills. While smartphones emerged as the most accessible ICT tool, there remains a pressing need for targeted interventions to expand access and training for older individuals, particularly in rural areas.

This study emphasizes the importance of inclusive policies and community-based support systems that prioritize affordability, technical assistance, and culturally relevant training programs. By addressing these challenges, ICT can serve as a powerful catalyst for lifelong learning, fostering personal development, social inclusion, and economic participation among aging populations.

Future research should delve deeper into sustainable strategies for bridging the digital divide and exploring the long-term impacts of ICT-driven lifelong learning on aging individuals' well-being and community development. With sustained efforts and collaborative initiatives, the transformative potential of ICT in lifelong learning can be fully harnessed, ensuring that no one is left behind in the journey toward an inclusive, knowledge-driven society.

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