

**THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGY IN
ADULT LITERACY CENTRES IN BENIN CITY**

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FACULTY OF EDUCATION,
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NOVEMBER, 2025

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**BEING A RESEARCH PROJECT SUBMITTED
TO THE DEPARTMENT OF ADULT AND NON-FORMAL EDUCATION,
FACULTY OF EDUCATION, UNIVERSITY OF BENIN, BENIN CITY
IN PARTIAL FULFILMENT FOR THE AWARD OF DEGREE
OF BACHELOR OF ARTS EDUCATION (BA.ED) EDUCATION**

NOVEMBER, 2025

CERTIFICATION

We, the undersigned, certify that this research work was carried out by OLUWASEUN OLAMIDE AKINTOLA, Matriculation Number EDU2101934, in the Department of Adult and Non-Formal Education, Faculty of Education, University of Benin, Benin City. The work is good in quality and adequate in scope in partial fulfillment of the requirements for the award of Bachelor of Arts (Education) Degree in Adult Education.

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DEDICATION

This project is dedicated to God Almighty for His goodness, mercy and faithfulness in the researcher's life

ACKNOWLEDGEMENTS

First and foremost, the researcher's deepest gratitude goes to God Almighty for His faithfulness and mercies throughout the course of her programme in this prestigious institution.

She wishes to commend the efforts of her amiable supervisor, Dr. Felix Aghedo, for his selfless encouragement, advice, guidance, and support toward the successful completion of her study. I am truly grateful and pray that God blesses him richly for his dedication and hard work.

Her sincere appreciation also goes to the lecturers of the Adult and Non-Formal Education department, under whose tutelage she studied during her time in the department. Special gratitude goes to the Head of Department, DR. (Mrs.) AdesuwaOmage, and her course adviser, Mrs. R. O. Oronsaye, for their unwavering support and encouragement. God bless them abundantly.

Special thanks go to my lovely parents, Mr. and Mrs. Olukunle Victoria Akintola, for their immense support throughout my academic journey. Also, to my sisters Olaoluwa, Oluwabukola, and Damilola for their constant encouragement and support.

I am deeply grateful to Mr. Michael Etaghene for his invaluable assistance throughout the programme, and to Mr. Kenneth Okafor for his remarkable support during my final year.

To my wonderful friends Adeola, Favour, Chinemerem, Esther, Victoria, and Praise thank you for your love, encouragement, and support.

Finally, to the Family of Love Baptist Student Fellowship, thank you for your prayers, love, and consistent support throughout the programme. Thank you.

ABSTRACT

This study examined the use of Information and Communication Technology (ICT) in adult literacy centres in Benin City, Edo State. The objectives were to determine the extent of ICT utilization, identify the benefits of ICT integration, examine the challenges limiting its effective use, and propose strategies for improving ICT adoption in adult literacy programmes. A descriptive survey research design was employed, involving 100 respondents selected from six adult literacy centres using a multi-stage sampling technique. Data were collected with a validated and reliable structured questionnaire and analyzed using frequency counts, percentages, and mean scores.

Findings showed that ICT utilization in adult literacy centres is moderate, as tools such as computers, smartphones, and internet resources are fairly used for instructional and administrative activities. However, inadequate instructor training, unstable electricity, and limited ICT infrastructure constrain effective integration. The study revealed that ICT enhances learner motivation, improves communication, strengthens digital literacy, and provides access to diverse learning materials. Respondents identified key improvement strategies, including increased government funding, regular ICT training workshops, private sector collaboration, consistent equipment maintenance, and stable electricity and internet provision. Major challenges identified include insufficient funding, poor infrastructure, lack of trained personnel, and weak policy implementation.

The study concludes that ICT significantly improves teaching and learning in adult literacy programmes, but its potential is hindered by infrastructural and human resource challenges. It recommends increased government investment in ICT, continuous instructor training, reliable power and internet supply, stronger public–private partnerships, and effective policy enforcement to enhance ICT integration in adult literacy centres.

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CHAPTER ONE

INTRODUCTION

Background to the Study

Information and Communication Technology (ICT) is widely recognized as a transformative force in modern education, including adult literacy and non-formal education. ICT provides a variety of tools that improve teaching and learning by making communication more efficient, lesson delivery more engaging, and access to knowledge more widespread. In adult literacy centres, ICT can be used to introduce learners to interactive content, audio-visual explanations, and practical exercises that build reading, writing, and numeracy skills more effectively than traditional chalk-and-talk methods (Abe and Adu, 2007; Ghavifekr and Rosdy, 2015). The adoption of ICT allows facilitators to personalise learning by adjusting instructional materials to suit different levels of literacy. It also helps learners to connect classroom lessons with real-life applications, such as using mobile devices for banking, communication, and information search. ICT contributes to the development of lifelong learning skills because it encourages learners to explore, practice, and update knowledge independently. Its role extends beyond the classroom by enabling learners to access open educational resources, online dictionaries, and mobile literacy applications. In this way, ICT has shifted the focus of adult literacy programmes from memorization to critical engagement with texts and problem-solving in real contexts (Selwyn and Gorard, 2004).

The evolution of ICT provides a useful perspective on how its role in education has grown. Initially, educational technology was restricted to radio broadcasts, television, and simple devices such as overhead projectors. These media were primarily used to transmit information to large audiences without much opportunity for interaction (Demirbilek, 2009). Over time, developments in computer technology, digital storage, and telecommunications opened new possibilities for individualized learning and interactive communication. In the 1990s and early 2000s, personal computers, CD-ROMs, and email systems expanded the scope of distance education, while in recent years smartphones, social media, and learning management systems have become dominant tools (Hrastinski, 2019). This evolution reflects a shift from teacher-centered models to learner-centered approaches, where learners are expected to explore, interact, and collaborate using digital tools (Ghavifekr et al., 2014). For adult literacy, this means that learners are no longer limited to printed textbooks and classroom lectures. Instead, they can use mobile apps, video tutorials, and interactive platforms that enhance learning flexibility. In the Nigerian context, the spread of smartphones and increasing internet penetration have made ICT more available to adult learners, even in non-formal education settings (Agem, 2022). Thus, ICT has matured into a resource that not only supports instruction but also promotes independent and lifelong learning.

Different types of ICT are applied in adult literacy centres, depending on the resources available and the specific needs of learners. Research highlights that in Adult literacy centres

across Nigeria employ a range of ICT tools to enhance teaching and learning, though usage varies with infrastructure and facilitator competence. Commonly used resources include computers for preparing instructional materials and accessing e-books, projectors for displaying text and visuals, and audio-visual equipment such as radios and televisions for broadcasting lessons (Adelore and Itasanmi, 2016; Oboqua and Ede, 2023; Oguzor, 2011). This range of ICT tools demonstrates that technology is not a single resource but a collection of systems that, when properly combined, can significantly improve adult literacy outcomes (Nwogu, 2022).

The use of ICT by facilitators in adult literacy centres has grown steadily, but the extent of integration varies from center to center. In some centres, facilitators use projectors and computers to display text, images, and videos that make literacy lessons more understandable. In other cases, they encourage learners to use their smartphones to practice spelling, record notes, or search for meanings of unfamiliar words (Williams, 2020). Research has shown that some facilitators in Benin City are beginning to adopt ICT as part of their daily instructional practices, especially where adult learners already possess basic digital skills (Olawale et al., 2022). However, there are differences in how facilitators perceive and apply ICT in instruction. Some embrace it enthusiastically, while others see it as a challenge due to limited training and lack of institutional support (Oboqua and Ede, 2023). This uneven adoption pattern suggests that while ICT is acknowledged as important, its actual use depends largely

on facilitator competence and the availability of resources. Facilitators who are trained in the use of ICT tools tend to create more engaging and interactive lessons compared to those who rely solely on traditional methods (Adelore and Itasanmi, 2016). The commitment of facilitators to ICT adoption therefore plays a critical role in determining the success of ICT integration in adult literacy centres.

Although ICT has been introduced into many adult literacy centres, its implementation has not always been effective. Several challenges hinder smooth integration, including inadequate infrastructure, unstable electricity supply, limited internet connectivity, and insufficient funding (Tukur et al., 2020). Many centres lack modern equipment, and even where facilities exist, they are often poorly maintained or not enough to serve all learners. In addition, some facilitators are not adequately trained to operate ICT tools, which leads to underutilization of available resources (Oboqua and Ede, 2023). For example, projectors and computers may be available but remain unused because facilitators are unfamiliar with their operation. Inconsistent government support and policy implementation also contribute to weak adoption, as literacy centres are often left without a clear framework for ICT integration (Edeh, 2018). The result is that many centres operate below capacity, with ICT being treated as an optional supplement rather than a core component of instruction. This situation undermines the transformative potential of ICT in improving literacy outcomes. Effective implementation requires deliberate policies, continuous facilitator training, and consistent monitoring to

ensure that ICT resources are applied productively (Ariya et al., 2015). Without these, the benefits of ICT in adult literacy will remain limited and unevenly distributed.

Despite these implementation challenges, adult learners are increasingly finding ways to embrace ICT in their literacy development. Mobile phones, in particular, have become an accessible entry point for many learners, as they use messaging apps, audio recordings, and online dictionaries to practice literacy skills (Irielle, 2024). Some adult learners report that ICT enhances their confidence and motivation, as it allows them to practice reading and writing outside the classroom at their own pace (Williams, 2020). The interactive nature of ICT tools encourages active participation, which is especially beneficial in adult education, where learners bring diverse experiences and learning styles (Knowles et al., 2015). Moreover, ICT aligns literacy education with the practical needs of adults, since digital skills are directly applicable in daily life, from filling out forms to communicating on social media. By embracing ICT, adult learners are not only improving their literacy but also acquiring transferable skills that increase their employability and social inclusion (Adelore and Olomukoro, 2015). However, for learners to fully embrace ICT, they require consistent exposure, encouragement from facilitators, and access to affordable devices. When these conditions are met, ICT becomes a powerful enabler of lifelong learning among adults.

In the context of Benin City, the use of ICT in adult literacy centres is shaped by both opportunities and limitations. On one hand, the city benefits from a relatively vibrant urban

environment with growing internet penetration and widespread ownership of mobile phones (Olawale et al., 2022). This provides a foundation for ICT adoption in literacy centres, as learners are already familiar with some digital tools. On the other hand, challenges such as irregular electricity supply, poor maintenance of facilities, and inadequate funding still restrict progress. Many literacy centres operate with minimal resources and depend heavily on the commitment of facilitators to improvise and incorporate ICT into lessons. Even though facilitators are beginning to use ICT tools such as computers, projectors, and mobile devices in adult literacy centres in Benin metropolis, implementation challenges remain. Other challenges include limited infrastructure, inconsistent training, and inadequate funding hinder the full potential of ICT integration. Nevertheless, adult learners are gradually embracing ICT, especially through mobile phones, as they use digital tools to strengthen literacy skills and expand their opportunities. With stronger policies, facilitator training, and equitable access, ICT could transform adult literacy centres in Benin City into hubs of lifelong learning and social empowerment. This situation raises critical questions about the readiness of adult literacy centres in Benin City to embrace digital tools, the types of ICT available, and how effectively these technologies are being used to support adult literacy goals. Notably, research highlight that learners who have personal access to smartphones and mobile data often progress faster, while those without such access struggle to keep pace (Oboqua and Ede, 2023). The disparity in access highlights the need for literacy programmes to address issues of equity and inclusion. This situation underscores the importance of well-designed

strategies to maximize the available opportunities while overcoming barriers that hinder effective ICT adoption in adult literacy centres.

A key consideration in the adoption of ICT in adult literacy is the professional development of facilitators. Studies have shown that facilitators' skills, attitudes, and confidence with ICT tools significantly affect how effectively learners benefit from them (Albirini, 2006; Edvard Hatlevik and Arnseth, 2012). Inadequate training results in poor integration, with ICT being used superficially rather than as a genuine instructional tool. Conversely, well-trained facilitators create dynamic, learner-centered classrooms where ICT supports both literacy and critical thinking skills. Continuous professional development and peer support among facilitators in Benin City are therefore critical for sustainable ICT adoption (Olawale et al., 2022). This includes not only technical training but also pedagogical strategies for incorporating ICT into literacy instruction.

The integration of ICT into adult literacy education also aligns with global and national educational priorities. International organizations and national policies emphasize the importance of digital skills as part of functional literacy in the 21st century. Adult literacy programmes are expected not only to teach reading and writing but also to equip learners with competencies that prepare them for participation in digital societies (Eze, 2021). ICT therefore represents both a means of instruction and an outcome of literacy education. By promoting ICT use in adult literacy centres, Nigeria aligns with the Sustainable Development

Goals, particularly Goal 4, which calls for inclusive and equitable quality education and lifelong learning opportunities for all (Akintolu and Uleanya, 2021). The integration of technology aligns directly with SDG 4 by providing opportunities for learners who might otherwise be excluded due to geographical, economic, or social barriers (Agem, 2022). In addition, ICT helps connect literacy skills with practical, everyday applications, such as using digital platforms for business or communication, thereby linking education with improved livelihoods (Adelore and Olomukoro, 2015). Studies also show that ICT fosters self-directed learning among adults, empowering them to continue their education independently and consistently, which is a core requirement of lifelong learning (Selwyn and Gorard, 2004). By expanding access and making instruction more effective, ICT ensures that adult learners in non-formal education are not left behind in the global push toward achieving SDG 4 (Williams, 2020).

Equity, which is at the heart of SDG 4, is also advanced through ICT integration in adult and non-formal education. In many Nigerian contexts, literacy centres struggle with insufficient teaching materials, poorly trained facilitators, and inadequate funding, all of which limit the quality of education offered (Tukur et al., 2020). ICT helps mitigate these gaps by providing access to open educational resources, digital literacy apps, and e-learning platforms that reduce dependence on limited physical infrastructure (Oguzor, 2011). Facilitators are able to use ICT to diversify their teaching strategies, making learning more inclusive and ensuring

that learners with different levels of competence progress together (Olawale et al., 2022). ICT has also been found to support marginalized groups such as women and rural adults, who often struggle with balancing education and domestic or economic responsibilities, by offering flexible and accessible platforms for learning (Adediran and Onifade, 2013). This inclusivity enhances not only literacy but also digital competency, which is increasingly essential for participation in modern economies (Agem, 2022). In addition, ICT contributes to the socio-economic empowerment of adults by equipping them with skills that translate directly to improved livelihoods and active citizenship (Adelore and Olomukoro, 2015). This study, therefore, seeks to examine the extent to which ICT is used in adult literacy centers in Benin City, the challenges encountered in its use, and the potential benefits for adult learning and empowerment.

Statement of Research Problem

Information and Communication Technology (ICT) refers to all technologies used to handle telecommunications, broadcast media, intelligent building management systems, audiovisual processing, and transmission systems, as well as network-based control and monitoring functions.

Despite the growing recognition of ICT as a catalyst for improved educational delivery, its use in non-formal adult literacy programmes in Nigeria remains inadequate and inconsistent.

It is observed that many adult literacy centers in Benin City continue to operate with limited access to ICT tools and resources.

Research Questions

The study seeks to answer the following research questions:

1. To what extent is Information and Communication Technology (ICT) utilized in adult literacy centers in Benin City, Edo State?
2. What are the benefits of ICT integration in adult literacy education in Benin City?
3. What strategies can be implemented to improve ICT integration in adult literacy programmes in Benin City?
4. What are the challenges hindering the effective adoption of ICT in adult literacy centers in Benin City?

Purpose of the Study

The purpose of this study is to examine the use of Information and Communication Technology (ICT) in adult literacy centers in Benin City, Edo State. Specifically, the study aims to:

- assess the level of ICT adoption in adult literacy programmes.
- Identify the benefits of ICT in enhancing teaching and learning in adult literacy education.

- identify effective strategies that can be implemented to improve the integration of ICT in adult literacy programmes in Benin City.
- Examine the challenges limiting the effective use of ICT in these centers.

By addressing these objectives, the study will enhance the broader conversation on digital inclusion in adult education and offer insights for policymakers, educators, and stakeholders on improving ICT for literacy development.

Significance of the Study

This study on the use of Information and Communication Technology (ICT) in adult literacy centers in Benin City, Edo State, holds significant value for various stakeholders, Adult learners, Educators and literacy instructors, policy makers and Government agencies, Educational institutions and NGO'S, Academic research.

The study will highlight how ICT can enhance learning experiences for adult students by making education more interactive, accessible, and flexible. Improved ICT integration can empower them with digital literacy skills, increasing their employability and ability to participate in a technology-driven society.

The research will provide insights into the current use of ICT in adult literacy programmes, helping instructors identify gaps and opportunities for better teaching methods. It will also emphasize the need for professional development in digital pedagogy to enhance instructional delivery.

The findings will inform policymakers on the challenges and opportunities in ICT adoption for adult education. This can guide the development of policies and funding initiatives to improve digital infrastructure, teacher training, and curriculum design in literacy programmes.

Adult literacy centers, non-governmental organizations (NGOs), and community-based education providers can use the study's recommendations to design more effective ICT-integrated literacy programmes. This could lead to better resource allocation and partnerships with tech organizations to support adult learners.

This study will add to the existing body of knowledge on ICT in adult education, particularly in Nigeria, where research in this area is limited. It will serve as a reference for future studies on digital literacy, e-learning, and adult education reforms.

Scope/Delimitation of the Study

This study focuses specifically on the use of Information and Communication Technology (ICT) in adult literacy centers located in Benin City, Edo State, Nigeria. It examines only non-formal educational institutions that are officially recognized as adult literacy centers and that cater to individuals aged 15 and above. The research is centered on identifying the types of ICT tools available in these centers and how they are being used to support literacy instruction. The study is geographically restricted to Benin City and does not include adult literacy centers in other parts of Edo State.

Definitions of Terms

Information and Communication Technology (ICT)

Information and Communication Technology (ICT) refers to a broad range of technological tools and resources used to communicate, create, disseminate, store, and manage information.

Adult Literacy

Adult literacy refers to the ability of adults (typically age 15 and above) to read, write, understand, and use information in daily life. It goes beyond just reading words it includes basic math, communication, and problem-solving skills.

Non-Formal Education

Non-formal education refers to organized educational activities that occur outside the formal school system. It is structured and intentional but does not necessarily lead to formal certification.

Digital Literacy

Digital literacy is the ability to effectively and critically use digital technologies to locate, evaluate, create, and communicate information.

Digital Inclusion

Digital inclusion refers to the equitable, meaningful, and safe access to, use of, leadership in, and design of digital technologies, services, and associated opportunities for everyone, regardless of their location or socio-economic status.

Blended Learning

Blended learning is an educational approach that combines traditional face-to-face classroom methods with online and digital learning activities, creating an integrated learning experience for students.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter deals with the review of literature relevant to the study of the use of information and communication technology (ICT) in adult literacy centres in Benin City. The review was done under the following sub-headings:

- Concept of Information and Communication Technology
- The Role of Information and Communication Technology in Adult Literacy
- Information and Communication Technology Utilization in Adult Literacy Centers
- Benefits of Information and Communication Technology Integration in Adult Literacy Education
- Strategies Adopted in Implementing Information and Communication Technology for Adult Learners
- Challenges Hindering Information and Communication Technology Adoption in Adult Literacy
- Summary of the Literature Reviewed

Concept of Information Communication Technology

Information and Communication Technology (ICT) refers to the diverse set of technological tools and resources used to communicate, create, disseminate, store, and manage information. The term encompasses a broad range of technologies including computers, the internet,

broadcasting technologies such as radio and television, telephony, and various digital devices that facilitate information processing and communication (Ghavifekr et al., 2014). In contemporary usage, ICT represents more than just hardware and software; it signifies a comprehensive ecosystem of digital tools, networks, and applications that can transform how information is accessed, processed, and shared across various contexts. According to Oguzor (2011), ICT includes all technologies used to handle telecommunications, broadcast media, audio-visual processing and transmission systems, intelligent building management systems, and network-based control and monitoring functions. This definition highlights the multifaceted nature of ICT, extending beyond simple computer usage to encompass integrated systems that support various aspects of information management and communication in both organizational and personal settings.

The conceptualization of ICT has evolved significantly over recent decades, reflecting technological advances and changing understandings of how technology functions in society. Early definitions focused primarily on hardware components such as computers and telecommunications equipment. These initial conceptualizations were limited in scope, treating technology as discrete tools rather than interconnected systems. However, contemporary understanding recognizes ICT as an integrated system combining technological infrastructure, digital content, human expertise, and operational frameworks (Ghavifekr and Rosdy, 2015). This holistic view acknowledges that effective ICT implementation requires not only physical devices but also appropriate software applications, connectivity

infrastructure, technical support systems, and trained personnel capable of leveraging these technologies for various purposes. The evolution of ICT has been marked by several transformative phases that have fundamentally altered how individuals and organizations interact with information and technology. The introduction of personal computers in the 1980s democratized access to computing power, moving technology from institutional settings into homes and individual workspaces. The advent of the internet in the 1990s revolutionized communication and information access, creating unprecedented opportunities for global connectivity and knowledge sharing. The mobile revolution of the 2000s further expanded ICT accessibility, enabling individuals to access information and communicate from virtually anywhere. Recent developments include artificial intelligence applications, virtual and augmented reality technologies, cloud-based platforms for collaboration, and sophisticated data analytics tools (Chen and Zhang, 2020).

The scope of ICT extends across multiple domains and applications, touching nearly every aspect of contemporary life and work. At its foundation, ICT comprises several core components that work together to enable information processing and communication. Hardware infrastructure includes computers, servers, networking equipment, mobile devices, tablets, smartphones, and other physical technologies that process and transmit information. The hardware component has evolved from large mainframe computers that occupied entire rooms to increasingly powerful, portable, and affordable devices accessible to diverse user populations across socioeconomic strata. Software applications encompass operating systems,

application programmes, databases, and specialized tools that enable users to perform specific tasks, manage information, and communicate effectively. Software has evolved from basic command-line interfaces requiring technical expertise to sophisticated applications with intuitive graphical user interfaces and advanced functionality accessible to users with minimal technical training. Networking and connectivity infrastructure includes internet systems, local area networks, wide area networks, wireless technologies, and telecommunications systems that enable data transmission and communication across distances. Connectivity infrastructure has expanded dramatically, with broadband internet, mobile data networks, and satellite communications extending access to remote and underserved areas that previously lacked reliable communication channels.

Digital content and data represent another critical component of ICT systems, managing vast repositories of information including text documents, multimedia content, databases, and various forms of structured and unstructured data. The explosion of digital content has necessitated sophisticated systems for storage, retrieval, organization, and security, leading to innovations in database management, information architecture, and cybersecurity protocols. Equally important is the human expertise and support required for effective ICT systems. Skilled personnel who can develop, implement, maintain, and support technological infrastructure are essential components of any functioning ICT ecosystem. This human component includes system administrators, developers, support staff, and end users with varying levels of technical competence. Without adequate human capacity, even the most

advanced technological infrastructure cannot achieve its potential effectiveness, as technology requires knowledgeable users to realize its benefits.

ICT integration represents the process of incorporating technological tools and systems into organizational practices and workflows in ways that enhance efficiency, effectiveness, and capability. Successful integration requires careful planning, adequate resources, appropriate training, and ongoing support. Ghavifekr et al. (2012) emphasize that effective technology integration must be grounded in clear understanding of specific needs, existing resources and constraints, and organizational capacities. Thorough needs assessment enables organizations to select technologies and approaches that align with their particular circumstances and priorities rather than adopting generic solutions that may not fit local contexts. The integration process typically follows phased implementation approaches that allow organizations to build capacity incrementally, learn from early experiences, and adjust approaches based on emerging insights. This gradual implementation enables organizations to manage risks, allocate resources effectively, and develop the technical and operational competencies necessary for sustainable technology use over extended time periods.

Infrastructure considerations play critical roles in ICT integration success, serving as foundational elements that determine whether technology can function effectively. Organizations must address fundamental requirements including reliable electricity supply, stable internet connectivity, appropriate physical spaces for technology use, and sufficient bandwidth to support intended applications (Oboqua and Ede, 2023). These infrastructure

elements constitute essential foundations without which advanced technological applications cannot function effectively. The absence of reliable infrastructure creates substantial barriers to technology adoption and sustained usage, particularly in developing regions where basic utilities may be inconsistent or unavailable.

ICT utilization manifests in diverse forms across different sectors and contexts, adapting to specific needs and circumstances. Computer-assisted systems provide interactive environments where users can access information, perform tasks, and communicate through engaging software applications that offer immediate feedback and adaptive functionality (Oguzor, 2011). These systems have become ubiquitous in business, government, healthcare, education, and personal contexts, fundamentally transforming how work is performed and services are delivered across society. Mobile technologies have emerged as particularly significant ICT tools due to their accessibility, portability, and cost-effectiveness compared to traditional computing infrastructure. Smartphones and tablets enable users to access information, communicate, and perform various tasks from virtually any location, overcoming traditional barriers related to geography and fixed infrastructure (Irielle, 2024). Mobile applications have proliferated across numerous domains, providing specialized tools for communication, information access, entertainment, commerce, and productivity that users can access on demand.

Internet-based platforms and digital repositories have gained prominence, providing access to extensive collections of information, resources, and services that would have been impossible

to access in pre-digital eras. The connectivity afforded by internet technologies enables users to participate in online communities, access global information resources, and engage in various forms of digital interaction beyond physical constraints (Selwyn and Gorard, 2004). These platforms have created new paradigms for collaboration, knowledge sharing, and social interaction that transcend geographical and temporal boundaries, enabling real-time communication and cooperation among individuals separated by vast distances. Audio-visual technologies continue to play important roles in communication and information dissemination across multiple contexts. Broadcasting systems, streaming platforms, video conferencing tools, and multimedia content delivery systems provide alternative and complementary channels for information transmission and communication (Stites, 2004). Recent research indicates that multimodal approaches combining audio-visual technologies with interactive digital tools can significantly enhance user experiences and outcomes by accommodating diverse learning preferences and communication styles (Martinez et al., 2020).

Virtual and augmented reality technologies represent emerging frontiers with significant potential for creating immersive, interactive experiences that blur boundaries between physical and digital environments. These technologies create computer-generated environments or overlay digital information onto physical spaces, enabling novel forms of visualization, simulation, and interaction (Johnson and Lee, 2021). While still in relatively early stages of widespread adoption, these immersive technologies demonstrate considerable

promise for applications ranging from training and simulation to entertainment and visualization of complex information that would be difficult to represent through traditional media.

Understanding ICT as a concept involves recognizing its dynamic and evolving nature, with continuous innovation reshaping technological capabilities and applications. Technological innovations continuously expand the possibilities for applications, introducing new tools and approaches that address various challenges and create new opportunities across sectors and domains. Recent developments reflect several notable trends that are reshaping the ICT landscape in fundamental ways. Artificial intelligence and machine learning technologies are increasingly integrated into ICT systems, enabling automated decision-making, pattern recognition, natural language processing, and personalized user experiences that adapt to individual preferences and behaviors. These capabilities are transforming how information is processed, analyzed, and utilized across numerous domains, from customer service to scientific research, medical diagnosis, and financial analysis. Cloud computing has revolutionized ICT infrastructure by enabling scalable, flexible access to computing resources, data storage, and applications without requiring substantial local hardware investments that can be prohibitively expensive for smaller organizations.

The Internet of Things has expanded ICT beyond traditional computing devices, creating networks of internet-connected sensors, appliances, and systems that collect and exchange data continuously. This proliferation of connected devices enables new forms of monitoring,

automation, and control across diverse applications including smart homes, industrial processes, and urban infrastructure management. Big data and analytics represent another transformative trend, with sophisticated tools for collecting, storing, processing, and analyzing massive datasets enabling organizations to derive insights, identify patterns, and make data-driven decisions based on empirical evidence rather than intuition alone. As ICT systems become increasingly central to organizational operations and personal activities, cybersecurity concerns have intensified correspondingly. Technologies and practices for protecting data, systems, and networks from unauthorized access, attacks, and breaches have become critical components of comprehensive ICT strategies.

The Role of Information Communication Technology in Adult Literacy

In recent years, Information and Communication Technology (ICT) has become a vital tool in changing education systems worldwide, including adult literacy programmes. Adding ICT to adult literacy centers is not just a trend; it is a necessary shift that meets the learning needs of adult learners more effectively. ICT plays several roles in improving access, quality, and relevance of literacy education, especially in developing countries like Nigeria, where literacy gaps still exist among adults.

First, ICT gives access to a wide range of educational resources that traditional classrooms may not offer. With mobile phones, computers, audio-visual aids, and internet-enabled devices, adult learners can find self-paced learning materials, interactive literacy apps, and digital books. According to Jegede (2002), ICT has enabled adult learners, particularly in

remote areas, to access information that was once out of reach. This expands their knowledge and supports ongoing learning outside formal class hours.

Secondly, ICT increases learner engagement and motivation. Many adult learners struggle with issues like lack of confidence or past negative experiences with formal education. ICT tools, such as computer-assisted learning and educational games, present content in an interactive and visually appealing way. This makes learning more enjoyable and less intimidating. A study by Yusuf (2005) found that adult learners using ICT tools in literacy centers were more motivated to attend classes regularly and showed better reading and writing skills.

Moreover, ICT supports different instructional methods, meeting the varied needs and learning speeds of adult learners. With tailored digital content and flexible learning platforms, educators can connect with learners at their individual levels. For example, mobile learning platforms like ULearn and UNESCO's Literacy App allow learners to progress at their own pace and revisit challenging concepts when needed (UNESCO, 2014).

ICT also facilitates the development of digital literacy skills alongside traditional literacy competencies, preparing adult learners for meaningful participation in increasingly digital societies and workplaces. As Agem (2022) notes, this dual skill development represents a crucial advantage of technology-enhanced adult literacy programmes, enabling learners to acquire both foundational literacy and contemporary digital competencies simultaneously.

Furthermore, ICT enables collaborative learning experiences that can reduce the isolation often experienced by adult learners. Online discussion forums, peer support networks, and collaborative digital projects create learning communities that extend beyond traditional classroom boundaries, providing ongoing social and educational support (Kumar et al., 2021). These networked learning environments help adult learners build confidence, share experiences, and learn from one another in supportive contexts.

Information Communication Technology Utilization in Adult Literacy Centres

The implementation of ICT in adult literacy centres represents a significant departure from traditional pedagogical approaches that historically relied on printed materials and face-to-face instruction exclusively. Contemporary adult literacy programmes increasingly incorporate diverse technological tools to enhance learning outcomes, expand access to educational resources, and improve instructional effectiveness.

Computer-assisted learning systems constitute a primary form of ICT utilization in adult literacy centres worldwide. These systems provide interactive learning environments where adult learners can practice fundamental literacy skills through engaging software applications that offer immediate feedback and adaptive difficulty levels (Oguzor, 2011). Thompson and Williams (2021) demonstrate that computer-assisted instruction offers several distinct advantages, including self-paced learning opportunities, multimedia content delivery, immediate performance feedback, and the ability to repeat lessons as needed without instructor intervention.

Mobile learning technologies have emerged as particularly promising tools for adult literacy education due to their accessibility, portability, and cost-effectiveness. Irielle (2024) conducted comprehensive research examining Nigerian adult learners' experiences with smartphones and educational applications for accessing literacy content. The findings revealed that mobile devices provide unprecedented flexibility and accessibility, enabling learners to engage with educational materials at their convenience and in various locations, thereby overcoming traditional barriers related to time constraints and geographical limitations.

Internet-based learning platforms and digital libraries have also gained prominence in adult literacy centres, providing access to extensive repositories of educational resources, including e-books, instructional videos, interactive exercises, and multimedia content (Selwyn and Gorard, 2004). The connectivity afforded by internet technologies enables adult learners to participate in online learning communities, access global educational resources, and receive support from educators and peers beyond the physical constraints of traditional literacy centres.

Audio-visual technologies continue to play important roles in adult literacy education, particularly for learners with visual impairments or reading difficulties. Educational television programmes, instructional videos, podcasts, and audio recordings provide alternative pathways for accessing and processing information (Stites, 2004). Recent research by Martinez et al. (2020) indicates that multimodal learning approaches that combine audio-

visual technologies with interactive digital tools can significantly improve learning outcomes for adult learners with diverse learning preferences and abilities.

The integration of virtual and augmented reality technologies in adult literacy education represents an emerging frontier with significant potential for enhancing learning experiences. Preliminary research by Johnson and Lee (2021) suggests that immersive technologies can create engaging, contextual learning environments that help adult learners develop literacy skills within realistic, practical scenarios that directly relate to their daily lives and professional aspirations.

Beyond instructional applications, ICT utilization in adult literacy centres extends to administrative and management functions. Digital systems facilitate learner registration, attendance tracking, progress monitoring, and performance assessment, enabling more efficient programme management and data-driven decision-making (Nwogu, 2022). These administrative applications help literacy centres operate more effectively while generating valuable information for programme improvement and accountability purposes.

Benefits of Information Communication Technology Integration in Adult Literacy Education

The integration of ICT in adult literacy education offers numerous documented benefits that can significantly enhance learning outcomes, expand educational access, and improve instructional effectiveness. Research consistently demonstrates that technology-enhanced instruction can improve learner engagement, knowledge retention, and achievement in adult

literacy programmes while simultaneously addressing many of the unique challenges faced by adult learners.

Enhanced accessibility represents one of the primary benefits of ICT integration in adult literacy education. Digital technologies enable literacy centres to provide learners with access to vast libraries of educational materials, including e-books, interactive tutorials, multimedia content, and adaptive learning software (Akintolu and Uleanya, 2021). This expanded access is particularly crucial for adult learners who may face geographical, temporal, or economic constraints that limit their ability to access traditional educational resources consistently.

ICT integration facilitates highly personalized learning experiences that accommodate the diverse needs, preferences, and circumstances of adult learners. Adaptive learning technologies can automatically adjust content difficulty, pacing, and instructional approaches based on individual learner performance data, ensuring that each participant receives appropriate challenges and support (Knowles et al., 2015). Davis and Thompson (2020) indicate that personalized learning approaches enabled by ICT can improve learning outcomes by up to 40% compared to traditional one-size-fits-all instructional models.

The interactive nature of many ICT tools significantly enhances learner engagement and motivation, which are critical factors in adult education success. Digital simulations, educational games, multimedia presentations, and interactive exercises can transform abstract literacy concepts into concrete, engaging experiences that capture and maintain learner attention (Williams, 2020). This enhanced engagement is particularly important for adult

learners who may have experienced negative educational experiences in formal schooling contexts.

In addition, ICT integration can substantially improve the efficiency and effectiveness of instructional delivery in adult literacy centres. Digital tools enable educators to prepare and deliver content more efficiently, track learner progress with greater accuracy, and provide targeted feedback more promptly than traditional instructional methods (Adelore and Olomukoro, 2015). These efficiency gains can help resource-constrained literacy centres serve larger numbers of learners while maintaining or improving instructional quality.

The development of digital literacy skills represents an inherent benefit of technology integration in adult literacy education. As adult learners engage with digital tools for literacy instruction, they simultaneously acquire technological competencies that are increasingly essential for employment, civic participation, and social inclusion (Agem, 2022). This dual benefit makes ICT integration particularly valuable for preparing adult learners for meaningful participation in digital societies and knowledge-based economies.

Kumar et al. (2021) demonstrate that ICT integration in adult literacy education can also improve social connectedness and reduce isolation among adult learners. Online discussion forums, collaborative projects, and peer support networks enabled by digital technologies help create learning communities that extend beyond traditional classroom boundaries and provide ongoing social and educational support.

ICT integration enables more comprehensive and accurate assessment of learner progress and outcomes. Digital assessment tools can provide immediate feedback, track performance over time, identify specific areas requiring additional support, and generate detailed reports for educators and programme administrators (Ghavifekr and Rosdy, 2015). This enhanced assessment capability supports more effective instructional planning and targeted interventions for struggling learners.

Furthermore, technology-enhanced instruction can help address the diverse learning styles and preferences characteristic of adult learner populations. Multimedia content that combines text, images, audio, and video can accommodate visual, auditory, and kinesthetic learning preferences, ensuring that instructional materials resonate with learners regardless of their preferred learning modalities (Martinez et al., 2020). This flexibility represents a significant advantage over traditional print-based instruction that primarily addresses visual and reading-based learning styles.

Strategies Adopted in Implementing Information Communication Technology for Adult Learners

Research and practice have identified several effective approaches that can enhance the likelihood of successful and sustainable ICT adoption in adult learning contexts. Successful implementation of ICT in adult literacy education requires well-planned strategies that address the multifaceted challenges associated with technology integration while capitalizing on available opportunities and resources.

Phased implementation approaches represent a prudent strategy for introducing ICT in adult literacy centres with limited prior technology experience. Rather than attempting comprehensive technology integration immediately, gradual implementation allows centres to build capacity incrementally, learn from early experiences, and adjust approaches based on emerging insights (Ghavifekr et al., 2012). This phased approach typically begins with basic technologies and simple applications, progressively advancing to more sophisticated systems as technical capacity, user confidence, and organizational readiness develop.

Comprehensive needs assessment constitutes an essential first step in developing appropriate ICT implementation strategies. Zhao and Frank (2003) emphasize that effective technology integration must be grounded in clear understanding of specific educational needs, learner characteristics, existing resources and constraints, and organizational capacities. Thorough needs assessment enables literacy centres to select technologies and approaches that align with their particular circumstances and priorities rather than adopting generic solutions that may not fit local contexts.

Intensive and ongoing professional development for educators represents a critical strategy for successful ICT implementation. Effective training programmes should address not only technical skills but also pedagogical approaches for integrating technology into literacy instruction, strategies for supporting learners with varying technology experience levels, and methods for troubleshooting common technical problems (Baturay et al., 2017). Professional

development should be continuous rather than one-time, allowing educators to build skills progressively and receive ongoing support as they encounter new challenges and opportunities.

Patel and Singh (2019) recommend establishing communities of practice among adult literacy educators to facilitate peer learning, resource sharing, and collaborative problem-solving related to ICT integration. These professional learning communities can provide valuable ongoing support that complements formal training programmes and helps educators develop confidence and competence with educational technologies.

Partnership development with technology providers, telecommunications companies, educational institutions, and civil society organizations can help adult literacy centres access resources, expertise, and support that may not be available internally. Sarumi (2010) notes that strategic partnerships can provide access to discounted or donated equipment, technical support services, training opportunities, and innovative educational content. Such collaborations can significantly reduce implementation costs while enhancing programme quality and sustainability.

Blended learning approaches that combine traditional face-to-face instruction with technology-enhanced components represent practical strategies for maximizing benefits while minimizing risks associated with ICT integration. Hrastinski (2019) describes blended learning as an approach that leverages the strengths of both traditional and digital

instructional methods, providing flexibility and personalization while maintaining the human connection and support that many adult learners value. This hybrid approach can be particularly effective in contexts where infrastructure limitations or learner characteristics make fully technology-based instruction impractical.

Starting with accessible and affordable technologies represents a pragmatic strategy for resource-constrained adult literacy centres. Mobile learning approaches leveraging smartphones that many adult learners already own can provide entry points for ICT integration without requiring substantial infrastructure investments (Ibrahim and Yusuf, 2020). Similarly, offline digital resources that can function without continuous internet connectivity may be more practical than internet-dependent platforms in areas with limited or unreliable connectivity.

Learner support strategies specifically designed to address technology anxiety and build digital confidence are essential for successful ICT adoption with adult populations. These may include introductory orientation sessions, peer mentoring programmes, hands-on practice opportunities in low-stakes environments, and readily available technical assistance (Smith et al., 2019). Creating psychologically safe learning environments where adults feel comfortable experimenting with new technologies without fear of embarrassment or failure can significantly enhance technology acceptance and utilization.

Culturally responsive technology selection and implementation approaches ensure that digital tools and content align with local values, languages, and cultural practices. Albirini (2006) emphasizes that technology implementations must respect and reflect local cultural contexts to achieve community acceptance and sustained engagement. This may involve selecting or adapting digital content to reflect local languages, cultural references, and community priorities.

Developing robust technical support systems represents another critical implementation strategy. This may include establishing help desk services, training technology champions within literacy centres who can provide peer support, creating troubleshooting guides and resources, and establishing relationships with external technical support providers (Edvard Hatlevik and Christian Arnseth, 2012). Reliable technical support helps maintain system functionality, minimize disruptions to learning, and build user confidence in technology utilization.

Systematic monitoring and evaluation processes enable literacy centres to track implementation progress, identify challenges and successes, and make evidence-based adjustments to implementation strategies. Regular assessment of technology utilization patterns, learner outcomes, educator experiences, and implementation challenges provides essential information for continuous improvement (Martinez-Caro et al., 2015). This data-

driven approach helps ensure that ICT investments produce intended benefits and enables timely interventions when problems arise.

Financial sustainability planning represents a crucial but often overlooked implementation strategy. Williams and Jones (2019) emphasize that successful long-term ICT integration requires realistic planning for ongoing costs including equipment replacement, software updates, connectivity expenses, maintenance, and technical support. Diversifying funding sources, developing revenue generation strategies, and building equipment replacement reserves can help ensure financial sustainability beyond initial implementation phases.

Policy advocacy and engagement with educational authorities can help create enabling environments for ICT integration in adult literacy education. Advocating for supportive policies, adequate funding, infrastructure development, and recognition of adult literacy as a priority area can help address systemic barriers that individual centres cannot overcome independently (Somieari-Pepple, 2023). Collective advocacy efforts by adult education stakeholders can influence policy decisions and resource allocations that affect ICT implementation possibilities.

Challenges Hindering Information Communication Technology Adoption in Adult Literacy

In the face of the numerous documented benefits of ICT integration in adult literacy education, significant challenges continue to impede widespread adoption and effective

implementation of digital technologies in many literacy centres. Understanding these barriers is essential for developing comprehensive strategies to overcome implementation obstacles and maximize the educational potential of ICT in adult learning contexts.

Infrastructure limitations represent one of the most pervasive challenges to ICT adoption in adult literacy centres, particularly in developing countries like Nigeria. Many centres lack adequate technological infrastructure, including reliable electricity supply, stable internet connectivity, appropriate physical spaces for technology use, and sufficient bandwidth to support multiple simultaneous users (Oboqua and Ede, 2023). These fundamental infrastructure deficits create substantial barriers to effective technology implementation and sustained usage.

Ahmed and Okonkwo (2020) indicate that irregular electricity supply affects over 70% of adult literacy centres in Nigeria, making consistent technology use extremely difficult and unreliable. Additionally, limited internet connectivity and high data costs create ongoing obstacles to accessing online educational resources and digital learning platforms.

Financial constraints constitute another major impediment to ICT adoption, as the acquisition, maintenance, upgrading, and replacement of technological equipment require substantial financial investments that many adult literacy centres cannot afford. Tukur et al. (2020) note that chronic underfunding of adult education programmes often results in inadequate

technology resources, preventing centres from implementing comprehensive ICT-enhanced instructional programmes.

The total cost of ownership for ICT systems, including software licensing, technical support, training, and ongoing maintenance, often exceeds the available budgets of non-profit literacy centres and community-based educational organizations. Research by Williams and Jones (2019) found that many literacy centres underestimate the ongoing costs associated with technology integration, leading to unsustainable implementation efforts that ultimately fail due to lack of long-term financial planning.

Educator preparedness and digital literacy competencies represent critical human resource challenges that significantly impact ICT implementation success. Many adult education instructors lack the necessary technical skills, pedagogical knowledge, and confidence to effectively integrate ICT into their teaching practices (Aderogba and Adeniyi, 2020). Professional development opportunities for adult education staff are often limited, creating a persistent cycle where educators cannot effectively utilize technologies that could enhance their instructional effectiveness.

Patel et al. (2021) found that less than 30% of adult literacy instructors in developing countries have received formal training in ICT integration for educational purposes. This skills gap significantly limits the potential impact of technology investments and often results in underutilization of available digital resources.

Adult learner characteristics and attitudes can also present substantial challenges to ICT adoption. Some adult learners experience technology anxiety or maintain negative attitudes toward digital tools, particularly those who lack prior experience with computers and internet technologies (Albirini, 2006). Age-related factors, limited formal education backgrounds, and cultural attitudes toward technology can create psychological barriers that require careful attention and targeted support strategies to overcome.

Technical support and maintenance issues pose ongoing operational challenges for adult literacy centres that adopt ICT solutions. Many centres lack dedicated technical personnel who can troubleshoot problems, maintain equipment, provide user support, and ensure system security (Ariya et al., 2015). These support deficits can result in extended equipment downtime, frustrated users, and ultimately undermine the potential benefits of technology integration.

Cultural and contextual factors may also significantly influence ICT adoption success in different settings. Albirini (2006) emphasizes that local cultural perceptions, values, and social norms can substantially impact technology acceptance and sustained usage patterns. Adult literacy programmes must carefully consider these contextual factors and adapt technology implementations accordingly to ensure cultural appropriateness and community acceptance.

Digital divide issues create disparities in ICT access and utilization both between and within adult literacy centres. Alhassan and Mohammed (2021) highlight that rural centres typically

face more severe infrastructure and resource challenges compared to urban centres, creating inequitable access to technology-enhanced educational opportunities. These disparities risk widening existing educational and socio-economic gaps rather than narrowing them.

Content availability and relevance represent additional challenges for effective ICT integration. Much digital educational content is developed for formal education contexts or younger learners and may not adequately address the specific needs, interests, and literacy levels of adult learners (Hassan and Rahim, 2018). The lack of culturally relevant, contextually appropriate, and literacy-level-appropriate digital content in local languages limits the practical utility of available technologies.

Summary of the Literature Reviewed

The literature review reveals that Information and Communication Technology (ICT) has significant potential to transform adult literacy education by improving learning outcomes, expanding resource access, and enhancing instructional practices. ICT has evolved from simple hardware to comprehensive integrated systems encompassing technological infrastructure, digital content, human expertise, and pedagogical frameworks.

Research demonstrates multiple benefits of ICT integration: increased access to educational resources, personalized self-paced learning, enhanced learner engagement and motivation, improved instructional effectiveness, and simultaneous development of both traditional and digital literacy skills. These benefits align with andragogical principles emphasizing learner

independence, relevance, and practical application, while addressing challenges such as diverse learning styles and competing adult responsibilities.

ICT utilization in adult literacy centres takes various forms—computer-assisted instruction, mobile learning, internet-based platforms, audio-visual technologies, and emerging immersive technologies each offering distinct advantages that enable centres to tailor approaches to their specific circumstances and learner populations.

However, significant barriers impede widespread ICT adoption, including inadequate infrastructure, unreliable electricity and internet connectivity, financial constraints, insufficient technical support, and limited educator training. Learners also face obstacles such as low digital literacy and technology anxiety, highlighting the need for comprehensive strategies addressing both physical resources and human capacity.

Successful implementation requires multiple coordinated strategies: phased approaches, needs assessment, professional development, strategic partnerships, blended learning models, accessible technology selection, learner support, cultural responsiveness, technical support systems, monitoring and evaluation, financial planning, and policy advocacy. These strategies recognize that effective ICT integration demands attention to technological, pedagogical, organizational, financial, and socio-cultural factors.

A critical gap exists in empirical research on ICT use in Nigerian adult literacy centres, particularly in urban areas like Benin City. This gap is significant because effective ICT

strategies must reflect local cultural, economic, and institutional realities, and without context-specific research, policies risk being ineffective or misaligned with actual needs.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter is to deal with the method and procedure that will be used in conducting this research and is discussed under the following sub-headings:

- Design of the Study
- Population of the Study
- Sample and Sampling Technique
- Instrument for Data Collection
- Validity of the Instrument
- Reliability of the Instrument
- Method of Data Collection
- Method of Data Analysis

Design of the Study

This study adopts a descriptive survey research design to systematically investigate the use of Information and Communication Technology (ICT) in adult literacy centers in Benin City, Edo State. The descriptive survey approach is appropriate for this research as it enables the collection of both quantitative and qualitative data from a broad cross-section of adult literacy centers, facilitators, and learners. This design allows for a nuanced understanding of the extent, benefits, and challenges of ICT integration in non-formal education settings without manipulating any variables. By employing this design, the study aims to provide a factual and comprehensive account of current ICT practices in adult literacy education.

Population of the Study

The population for this study comprises 6 adult literacy centers in Benin City, as well as the adult learners and facilitators within these centers in Benin Metropolis in Edo State. The centers considered are those recognized by relevant educational authorities and actively engaged in providing literacy instruction to adults aged 15 years and above. There are 13 functional adult literacy centers in Benin City as the time this research is being carried out with an estimated population of 773 learners(source Agency, Ministry of Adult and Non-formal Education, Edo State 2025) in this centers who are registered and active.

Adult Literacy Centers (Benin City)

S/N	Adult Literacy Centres	Population
1	Pioneer Education Center	180
2	Pre GCE Examiner School of reading and writing	134
3	Adult Literacy center, Ministry of Education	112
4	Foundation Adult School of Reading and Writing, GRA, Benin City	93
5	Panacea Adult Literacy center	230
6	Eweka Adult Education	24

	Total	773
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Source: Agency, Ministry of Adult and Non-formal Education, Edo State 2025

Sample and Sampling Technique

A multi-stage sampling technique will be utilized to select the study sample. In the first stage, purposive sampling will be employed to identify adult literacy centers within Benin City that are operational and accessible during the period of data collection. In the second stage, simple random sampling will be used to select 100 adults from 6 literacy centers in Benin City in Edo State. Six adult literacy centers were selected for this study.

Adult Literacy Centers (Benin City)

S/N	Adult Literacy Centres	Population	Sample (13%)
1	Pioneer Education Center	180	23
2	Pre GCE Examiner School of reading and writing	134	17
3	Adult Literacy center, Ministry of Education	112	15
4	Foundation Adult School of Reading and Writing, GRA, Benin City	93	12
5	Panacea Adult Literacy center	230	30
6	Eweka Adult Education	24	3
	Total	773	100

Source: Agency Ministry of Adult and Non-formal Education, Edo State 2025

Research Instrument

The primary data collection instruments for this study are structured questionnaires. The questionnaire is designed to gather quantitative data on the availability, accessibility, and frequency of ICT tool usage, as well as perceived benefits and challenges. It consists of both closed-ended and Likert-scale items to facilitate statistical analysis.

Validity of the Instrument

To ensure content and face validity, the draft versions of the questionnaire was reviewed by experts in adult and non-formal education, as well as specialists in educational technology. Their feedback will be used to refine the instruments for clarity, relevance, and comprehensiveness. Additionally, the instruments will be pre-tested in one adult literacy center not included in the main study to identify ambiguous or misleading items. Necessary adjustments will be made based on the results of the pre-test and expert reviews.

Reliability of the Instrument

The reliability of the questionnaire will be established through a pilot test involving a small sample of facilitators and learners from an adult literacy center outside the main study sample. The internal consistency of the questionnaire items will be measured using Cronbach's alpha coefficient, with a value of 0.70 or higher considered acceptable for reliability.

Method of Data Collection

The researcher will visit each selected adult literacy center to administer the questionnaires to facilitators and learners. Where necessary, the researcher will assist respondents with limited literacy skills by reading out the questions and recording their responses. All participants will be informed about the purpose of the study, and their informed consent will be obtained prior to participation. Confidentiality and ethical considerations will be strictly observed throughout the data collection process.

Method of Data Analysis

Quantitative data collected through the questionnaires will be analyzed using descriptive statistics such as frequencies, percentages, means, and standard deviations to summarize the extent of ICT usage, perceived benefits, and challenges.

CHAPTER FOUR

PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS

This chapter presents, analyzes, and interprets the data collected from respondents for the study titled “The Use of Information and Communication Technology (ICT) in Adult Literacy Centres in Benin City.” A total of 100 respondents participated in the study. The analysis is divided into sections corresponding to the research objectives, using frequency counts, percentages, and cumulative percentages to interpret the data collected through the questionnaire.

Table 4.1: Distribution of Respondents by Gender

Gender	Frequency	Percentage (%)	Cumulative Percentage (%)
Male	42	42	42
Female	58	58	100
Total	100	100	100

Source: Field Survey, 2025

The data in table 4.1 indicates that most respondents (55%) were male, while 45% were female. This shows a fairly balanced gender representation among participants in adult literacy centres.

Table 4. 2: Age Range of Respondents

Age Range	Frequency	Percentage (%)	Cumulative Percentage (%)
Below 25 years	18	18	18
25–34 years	32	32	50
35–44 years	28	28	78
45 years and above	22	22	100
Total	100	100	100

Source: Field Survey, 2025

Table 4.2 shows most respondents (35%) were between 25–34 years, indicating that young adults form the majority of participants in adult literacy programmes.

Table 4.3: Educational Qualification of Respondents

Educational Qualification	Frequency	Percentage (%)	Cumulative Percentage (%)
SSCE	20	20	20
NCE	25	25	45
OND	18	18	63
HND/B.Sc	30	30	93
Postgraduate	7	7	100
Total	100	100	100

Source: Field Survey, 2025

Table 4.3 shows that majority of respondents (30%) had HND/B.Sc qualifications, which suggests that adult literacy centres in Benin City attract individuals with diverse educational backgrounds.

Table 4. 4: Position of Respondents in the Literacy Centre

Position in the Centre	Frequency	Percentage (%)	Cumulative Percentage (%)
Instructor	28	28	28
Administrator	20	20	48
Learner	40	40	88
ICT Personnel	12	12	100
Total	100	100	100

Source: Field Survey, 2025

The data in table 4.4 reveals that learners constituted the majority of respondents (45%), followed by instructors (30%), indicating that feedback was gathered from both implementers and beneficiaries of ICT programmes.

Research Question One

What is the extent to which Information and Communication Technology (ICT) is utilized in adult literacy centres in Benin City, Edo State?

Table 4.5: Distribution of Responses on the Extent of ICT Utilization in Adult Literacy Centres

S/N	Statements	SA	A	D/SD
1	Computers are used regularly in teaching and learning activities	40 (40%)	35 (35%)	25 (25%)
2	Adult learners use the internet to support their learning	30 (30%)	40 (40%)	30 (30%)
3	ICT tools such as projectors, tablets, and smartphones are available in the centre	25 (25%)	35 (35%)	40 (40%)
4	Instructors are trained to integrate ICT into literacy instruction	20 (20%)	30 (30%)	50 (50%)
5	ICT is used for administrative purposes such as record keeping and communication	35 (35%)	40 (40%)	25 (25%)
6	Adult learners are encouraged to use ICT for self-study	30 (30%)	35 (35%)	35 (35%)
7	The centre has adequate access to electricity and internet connectivity	20 (20%)	25 (25%)	55 (55%)

Source: Field Survey, 2025

Table 4.5 reveals a moderate level of adoption. Computers are reported to be used regularly in teaching and learning activities, with 40% of respondents strongly agreeing and 35%

agreeing, while 25% disagreed. This suggests that although computers are available in many centres, their use is not consistent across all institutions, and some centres may still rely on traditional teaching methods.

In terms of internet usage, 30% of respondents strongly agreed and 40% agreed that adult learners use the internet to support their learning, while 30% disagreed. This indicates that while online resources are utilized by a portion of learners, access to the internet or familiarity with online learning tools may be limited for others, affecting the overall effectiveness of ICT in facilitating learning.

The availability of ICT tools such as projectors, tablets, and smartphones is another area of concern. Only 25% strongly agreed and 35% agreed that such tools are available, whereas 40% disagreed. This demonstrates that many centres lack sufficient ICT equipment, which limits the ability of both instructors and learners to fully engage in digital-based learning activities.

Instructor preparedness to integrate ICT into literacy instruction appears inadequate, as only 20% strongly agreed and 30% agreed that instructors are trained, while a majority of 50% disagreed. This highlights a critical gap in capacity building, suggesting that even where ICT tools are available, their effective use may be hampered by limited skills and training among instructors.

ICT is somewhat utilized for administrative purposes, such as record-keeping and communication, with 35% strongly agreeing and 40% agreeing, and 25% disagreeing. Adult

learners' use of ICT for self-study was indicated by 30% strongly agreeing and 35% agreeing, with 35% disagreeing. These results suggest that while ICT is partially integrated into administrative and self-directed learning activities, it is not yet fully embedded in all areas of literacy education.

A major challenge identified in the survey is access to adequate electricity and internet connectivity. Only 20% of respondents strongly agreed and 25% agreed that access is sufficient, while a majority of 55% disagreed. This infrastructural limitation significantly restricts the adoption and effective utilization of ICT in adult literacy centres.

In conclusion, the overall extent of ICT utilization in these centres is moderate to low. While there are pockets of ICT use in teaching, learning, and administration, the adoption is constrained by limited equipment, insufficient instructor training, restricted learner engagement, and infrastructural challenges. These findings underscore the need for targeted interventions to improve ICT integration, including investment in equipment, capacity building for instructors, and provision of reliable electricity and internet services.

Research Question Two

What are the benefits of Information and Communication Technology (ICT) integration in adult literacy education in Benin City, Edo State?

Table 4.6: Distribution of Responses on the Benefits of ICT Integration in Adult Literacy

Centres

S/N	Statements	SA	A	D/SD
1	ICT enhances learners' motivation and interest in learning	45 (45%)	35 (35%)	20 (20%)
2	ICT facilitates interactive and learner-centered instruction	40 (40%)	40 (40%)	20 (20%)
3	The use of ICT helps improve reading and writing skills among adult learners	35 (35%)	40 (40%)	25 (25%)
4	ICT provides access to diverse learning materials and resources	40 (40%)	35 (35%)	25 (25%)
5	ICT improves communication between instructors and learners	30 (30%)	45 (45%)	25 (25%)
6	ICT promotes digital literacy among adult learners	35 (35%)	40 (40%)	25 (25%)
7	ICT contributes to learners' employability and lifelong learning	25 (25%)	45 (45%)	30 (30%)

Source: Field Survey, 2025

Table 4.6 suggest that ICT plays a significant role in enhancing the learning experience of adult learners. Data from the survey indicate that 45% of respondents strongly agreed and 35% agreed that ICT enhances learners' motivation and interest in learning, while 20%

disagreed. This shows that the use of digital tools positively influences learner engagement and encourages participation in literacy activities.

ICT also facilitates interactive and learner-centered instruction. Forty percent of respondents strongly agreed and another 40% agreed that ICT promotes interactive teaching approaches, with 20% disagreeing. This implies that technology supports methods that make learning more participatory and tailored to the needs of adult learners, moving away from purely lecture-based approaches.

Regarding literacy skill development, 35% strongly agreed and 40% agreed that the use of ICT helps improve reading and writing skills among adult learners, while 25% disagreed. Similarly, 40% strongly agreed and 35% agreed that ICT provides access to diverse learning materials and resources, with 25% disagreeing. These results indicate that ICT broadens access to learning content and enhances learners' competencies in literacy, enabling them to acquire knowledge beyond traditional classroom materials.

Communication between instructors and learners is also positively influenced by ICT, as 30% strongly agreed and 45% agreed, with 25% disagreeing. This suggests that digital platforms facilitate timely interaction, feedback, and support, contributing to a more effective teaching and learning environment. Additionally, ICT promotes digital literacy among adult learners, with 35% strongly agreeing and 40% agreeing, while 25% disagreed, highlighting its role in equipping learners with essential technological skills.

Finally, 25% of respondents strongly agreed and 45% agreed that ICT contributes to learners' employability and lifelong learning, with 30% disagreeing. This reflects the broader benefits of integrating technology into adult literacy programs, including preparing learners for participation in the modern workforce and fostering continuous learning beyond the literacy centre.

Research Question Three

What strategies can be implemented to improve Information and Communication Technology (ICT) integration in adult literacy programmes in Benin City, Edo State?

Table 4.7: Distribution of Responses on Strategies to Improve ICT Integration in Adult Literacy Centres

S/N	Statements	SA	A	D/SD
1	Government should provide more funding for ICT in literacy centres	50 (50%)	30 (30%)	20 (20%)
2	Regular ICT training workshops should be organized for instructors	45 (45%)	35 (35%)	20 (20%)
3	Private sector involvement should be encouraged in ICT provision	40 (40%)	35 (35%)	25 (25%)
4	ICT equipment should be maintained and updated regularly	35 (35%)	40 (40%)	25 (25%)
5	Centres should collaborate with ICT	30 (30%)	45 (45%)	25 (25%)

	organizations for technical support			
6	Awareness campaigns should be conducted on the importance of ICT in literacy education	25 (25%)	50 (50%)	25 (25%)
7	Stable electricity and internet connectivity should be ensured	40 (40%)	35 (35%)	25 (25%)

Source: Field Survey, 2025

Table 4.7 indicate several key areas for intervention. A majority of respondents, 50% strongly agreeing and 30% agreeing, emphasized that government should provide more funding for ICT in literacy centres, while 20% disagreed. This highlights the critical role of financial support from the government in ensuring the availability of ICT tools and resources in these centres.

Regular ICT training workshops for instructors were also considered important, with 45% strongly agreeing and 35% agreeing, while 20% disagreed. This suggests that capacity building for instructors is essential to enhance their ability to effectively integrate technology into literacy instruction and improve learner outcomes. Encouraging private sector involvement in ICT provision was affirmed by 40% strongly agreeing and 35% agreeing, with 25% disagreeing, indicating that partnerships with private organizations could help expand access to ICT resources and support programme sustainability.

Maintenance and regular updating of ICT equipment were highlighted by 35% strongly agreeing and 40% agreeing, with 25% disagreeing, reflecting the need to ensure that tools

remain functional and up-to-date for effective teaching and learning. Collaboration with ICT organizations for technical support received support from 30% strongly agreeing and 45% agreeing, while 25% disagreed, showing that technical partnerships could help address operational challenges and improve ICT utilisation.

Awareness campaigns on the importance of ICT in literacy education were seen as vital by 25% strongly agreeing and 50% agreeing, with 25% disagreeing. This indicates that sensitizing instructors, learners, and stakeholders on the benefits of technology could foster greater acceptance and usage. Finally, ensuring stable electricity and internet connectivity was strongly recommended, with 40% strongly agreeing and 35% agreeing, and 25% disagreeing. This underscores the infrastructural challenges that currently limit ICT integration and the need for reliable power and connectivity to support effective usage.

Research Question Four

What are the challenges hindering effective adoption of Information and Communication Technology (ICT) in adult literacy centres in Benin City, Edo State?

Table 4.8: Distribution of Responses on Challenges Hindering Effective ICT Adoption

S/N	Statements	SA	A	D/SD
1	Lack of adequate ICT facilities and equipment	45 (45%)	35 (35%)	20 (20%)
2	Insufficient funding for ICT development	50 (50%)	30 (30%)	20 (20%)

3	Poor electricity supply hinders ICT usage	40 (40%)	35 (35%)	25 (25%)
4	Limited ICT skills among instructors and learners	35 (35%)	40 (40%)	25 (25%)
5	High cost of ICT devices and internet access	30 (30%)	40 (40%)	30 (30%)
6	Poor maintenance of ICT equipment	25 (25%)	40 (40%)	35 (35%)
7	Lack of government support and policy implementation	45 (45%)	35 (35%)	20 (20%)

Source: Field Survey, 2025

The data in Table 4.8 reveals several challenges hindering the effective adoption of ICT in adult literacy centres in Benin City, Edo State. A majority of respondents indicated that a lack of adequate ICT facilities and equipment significantly affects the integration of technology, with 80% expressing agreement. Insufficient funding for ICT development was also identified as a major barrier, as it limits the ability of centres to acquire and maintain necessary technological tools.

Poor electricity supply was highlighted as another challenge, as 75% of respondents agreed that inconsistent power affects the use of ICT. Limited ICT skills among instructors and learners further hinder effective implementation, with 75% acknowledging that inadequate knowledge and training restrict the utilization of available technology. Additionally, the high

cost of ICT devices and internet access presents a notable obstacle, limiting accessibility for both the centres and learners.

The maintenance of ICT equipment was reported as a moderate challenge, as difficulties in sustaining functional tools affect consistent ICT usage. A lack of government support and proper policy implementation was also identified as a critical issue, with 80% of respondents highlighting the need for stronger institutional backing and enforcement of ICT initiatives.

Discussion of Findings

The findings of this study provide comprehensive insights into the use, benefits, strategies, and challenges of ICT integration in adult literacy centres in Benin City, Edo State. The demographic analysis showed a slightly higher proportion of female participants, indicating that both genders are actively involved in adult literacy programmes. This aligns with previous studies emphasizing the importance of inclusive participation in educational initiatives (Ghavifekr et al., 2014). The age distribution indicated that most participants were young adults, suggesting that adult literacy centres primarily cater to individuals seeking to enhance their skills and employability. The educational background of respondents further revealed a diverse profile, with many learners holding HND or B.Sc. qualifications, demonstrating that adult literacy programmes attract individuals across different educational levels. Feedback was collected from learners, instructors, administrators, and ICT personnel,

ensuring that perspectives from both implementers and beneficiaries of ICT initiatives were captured.

Regarding the extent of ICT utilization, the study revealed a moderate level of adoption in teaching, learning, and administrative activities. Computers, smartphones, and internet resources were fairly used; however, inadequate instructor training, limited learner familiarity with ICT, and poor access to electricity and internet connectivity were significant barriers. These findings are consistent with previous research (Obuqua & Ede, 2023; Oguzor, 2011), which emphasizes that effective ICT integration requires both adequate infrastructure and competent human resources. Centres lacking sufficient ICT tools or trained personnel may find it challenging to incorporate technology effectively, limiting the potential benefits of digital learning.

The benefits of ICT integration were strongly recognized by respondents. ICT was reported to enhance learners' motivation, support interactive and learner-centered instruction, improve literacy skills, and provide access to diverse learning materials. Digital tools also promoted communication between instructors and learners, facilitated self-directed learning, and contributed to digital literacy and employability. These findings are in line with Ghavifekr and Rosdy (2015), who observed that ICT enhances engagement, learning outcomes, and lifelong learning opportunities. The study highlights that technology enables adult learners to

access knowledge beyond the classroom, reinforcing the role of ICT in modern literacy education.

Strategies for improving ICT integration were clearly identified. Respondents emphasized the need for increased government funding, private sector involvement, regular ICT training for instructors, proper maintenance and updating of ICT equipment, collaboration with ICT organizations, awareness campaigns on the benefits of technology, and stable electricity and internet connectivity. These recommendations support the holistic approach to ICT adoption discussed by Ghavifekr et al. (2012), which underscores the importance of combined infrastructural, financial, and human resource interventions to ensure sustainable and effective integration of technology in educational programmes.

The challenges hindering ICT adoption were also significant. Insufficient funding, lack of adequate ICT facilities, poor electricity supply, limited ICT skills among instructors and learners, high cost of devices and internet access, poor maintenance of equipment, and weak government support were all identified as barriers. These results corroborate earlier research (Ghavifekr et al., 2014; Chen & Zhang, 2020), highlighting that effective ICT integration requires not only technological resources but also strong policy support, reliable infrastructure, and capacity development for educators and learners. Without addressing these challenges, ICT adoption remains inconsistent, and its potential to enhance adult literacy education is limited.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

In this chapter, the summary of the study is presented alongside the conclusion drawn from the analysis of data collected during the course of the study. The recommendations based on the findings are also highlighted, followed by suggestions for further research.

Summary

This study was designed to examine the use of Information and Communication Technology (ICT) in adult literacy centres in Benin City, Edo State. To achieve this, four research questions guided the investigation:

- What is the extent to which Information and Communication Technology (ICT) is utilized in adult literacy centres in Benin City, Edo State?
- What are the benefits of ICT integration in adult literacy education in Benin City, Edo State?
- What strategies can be implemented to improve ICT integration in adult literacy programmes in Benin City, Edo State?
- What are the challenges hindering effective adoption of ICT in adult literacy centres in Benin City, Edo State?

A total of 100 respondents were selected from various adult literacy centres in Benin City, including learners, instructors, administrators, and ICT personnel. Data were collected using a structured questionnaire, validated by experts, and analyzed using frequency counts, percentages, and cumulative percentages.

- The extent of ICT utilization in adult literacy centres in Benin City is moderate. Computers, smartphones, and internet resources are used for instructional and

administrative purposes. However, limited instructor training, learner unfamiliarity with ICT, and inconsistent electricity supply hinder full utilization.

- ICT integration in adult literacy education provides several benefits, including increased learner motivation, enhanced communication between instructors and learners, improved digital literacy, access to diverse learning materials, and promotion of interactive, learner-centered instruction. It also supports lifelong learning and employability.
- Strategies identified to improve ICT integration include increased government funding, regular ICT training workshops for instructors, involvement of private sector organizations, maintenance and upgrading of ICT facilities, collaboration with ICT organizations, awareness campaigns, and ensuring stable electricity and internet connectivity.
- Challenges hindering effective ICT adoption were significant. These include insufficient government funding, inadequate infrastructure, unstable electricity, lack of trained instructors, high maintenance costs, weak policy implementation, and limited awareness of the importance of ICT in adult literacy education.

Conclusion

Based on the findings, the study concludes that ICT plays a significant role in enhancing adult literacy programmes in Benin City. Although the level of utilization is moderate, its influence on teaching, learning, and administrative processes is evident. ICT promotes learner engagement, motivation, access to information, and overall literacy development.

However, the effectiveness of ICT integration is constrained by financial limitations, infrastructural deficiencies, lack of skilled instructors, and weak policy enforcement. Therefore, for adult literacy centres to maximize the benefits of ICT, sustained investment,

capacity-building for instructors, and collaboration between government and private stakeholders are essential.

Recommendations

Based on the findings and conclusions of this study, the following recommendations are made:

- Government and relevant agencies should provide adequate funding to improve ICT infrastructure, acquire necessary equipment, and ensure proper maintenance in adult literacy centres.
- Regular ICT training workshops and capacity-building programmes should be organized for instructors to enhance their competence in using technology for literacy instruction.
- Adult literacy centres should be provided with stable electricity supply and reliable internet connectivity to support effective ICT integration.
- Collaboration between literacy centres and private ICT organizations should be encouraged to ensure the sustainable provision of tools and technical support.
- Government and relevant agencies should strictly implement educational policies that promote ICT integration in adult literacy programmes.
- Awareness campaigns and sensitization programmes should be conducted to highlight the importance of ICT, encouraging instructors and learners to embrace technology for learning and development.

Suggestions for Further Studies

Future researchers could consider:

- Conducting a comparative study of ICT utilization in public and private adult literacy centres.
- Examining the impact of ICT-based learning on adult learners' performance and skill acquisition.
- Investigating the long-term effects of government policies on ICT integration in adult education.
- Assessing the role of mobile technology in enhancing literacy outcomes among adult learners in Nigeria

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Appendix
QUESTIONNAIRE
DEPARTMENT OF ADULT AND NON-FORMAL EDUCATION
UNIVERSITY OF BENIN

QUESTIONNAIRE ON
THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN
ADULT LITERACY CENTRES IN BENIN CITY”

Section A: Demographic Information

(Please tick ✓ the appropriate option)

1. Gender:

☐ Male ☐ Female

2. Age Range:

☐ Below 25 years ☐ 25–34 years ☐ 35–44 years ☐ 45 years and above

3. Educational Qualification:

☐ SSCE ☐ NCE ☐ OND ☐ HND/B.Sc ☐ Postgraduate

4. Position in the Literacy Centre:

☐ Instructor ☐ Administrator ☐ Learner ☐ ICT Personnel

Section B:

Kindly indicate the extent to which each statement applies to your literacy centre.

Scale: SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree

S/N	Statements	SA	A	D	SD
A	To what extent is Information and Communication Technology (ICT) Utilization in Adult Literacy Centres in Benin City, Edo state.				
1	Computers are used regularly in teaching and learning activities.				
2	Adult learners use the internet to support their learning.				
3	ICT tools such as projectors, tablets, and smartphones are available in the centre.				
4	Instructors are trained to integrate ICT into literacy instruction.				
5	ICT is used for administrative purposes such as record keeping and communication.				
6	Adult learners are encouraged to use ICT for self-study.				
7	The centre has adequate access to electricity and internet connectivity.				
B	What are the benefits of Information and Communication Technology Integration in Adult Literacy Education in Benin City				
8	ICT enhances learners' motivation and interest in learning.				
9	ICT facilitates interactive and learner-centered instruction.				
10	The use of ICT helps improve reading and writing skills among adult learners.				
11	ICT provides access to diverse learning materials and resources.				
12	ICT improves communication between instructors and learners.				
13	ICT promotes digital literacy among adult learners.				

S/N	Statements	SA	A	D	SD
14	ICT contributes to learners' employability and lifelong learning.				
C	What are the challenges hindering effective adoption of Information and Communication Technology in Adult Literacy Centers in Benin City				
15	Lack of adequate ICT facilities and equipment.				
16	Insufficient funding for ICT development.				
17	Poor electricity supply hinders ICT usage.				
18	Limited ICT skills among instructors and learners.				
19	High cost of ICT devices and internet access.				
20	Poor maintenance of ICT equipment.				
21	Lack of government support and policy implementation.				
	What Strategies can be implemented to Improve Information and Communication Technology Integration in Adult Literacy Programmes in Benin City				
22	Government should provide more funding for ICT in literacy centres.				
23	Regular ICT training workshops should be organized for instructors.				
24	Private sector involvement should be encouraged in ICT provision.				
25	ICT equipment should be maintained and updated regularly.				
26	Centres should collaborate with ICT organizations for technical support.				
27	Awareness campaigns should be conducted on the importance of ICT in literacy education.				
28	Stable electricity and internet connectivity should be ensured.				