African Union
Scientific Technical Research Commission

African Scientific
Research and
Innovation Council

ASRIC journal

2023

Social Sciences and Humanities

Vol. 4, Issue 2

Published by: African Scientific Research and Innovation Council
Plot 114 Yakubu Gowon Crescent Asokoro
Abuja, Nigeria

asric_editor@yahoo.com
www.asric.africa

ISSN 2795-3599 (online) 2795-3602 (print)

Available online at www.asric.org
ASRIC Journal on Social Sciences and Humanities Vol 4(2) (2023) 86-98

Digital Inclusion in Rural Areas: Qualitative Exploration of Challenges Faced by People from Isolated Communities in Southern Kaduna

Desmond Onyemechi Okocha[1*], Jemimah Shuna Dogo[1]

[1]Department of Mass Communication, Bingham University, Karu, Nasarawa State, Nigeria

*Corresponding author: desmonddoo@yahoo.com

Abstract
Information communication technology has become essential to our survival and fostering our quality of life. However, there is a growing concern that certain groups, particularly those living in the rural areas, are being left behind. In a time where equity and equality are promoted, social inclusion, consisting of various shoots has become eminent; a part of it is digital inclusion. Along this line, this study aimed to contribute to the existing literature on digital inclusion in the rural areas by examining the challenges faced by people in isolated communities in southern Kaduna state. The study used social inclusion and digital divide as the underpinning theories. It looked at the unequal distribution of digital literacy, skills and participation, as well as, the level of social inclusion along the parameters of investment in human capital; and addressing the skills gap in order to promote economic growth. Hence, the level of knowledge acquired by people in rural areas was examined. The study adopted the qualitative research design with a sample of 30 people purposively selected for a-6-focus groups discussion as a method of data collection. Results from this research revealed a fair knowledge of the term digital technology and its use. However, it identified inadequate skills in using mobile phones and insecurity amongst others, as the challenges hindering digital inclusion. The study therefore recommended creating awareness on digital technologies at the grass root levels, while government or non-governmental organisations undertake training on necessary skills needed to operate the digital devices.
Keywords: Digital Divide, Digital Inclusion, Digital Technology, Social Inclusion, Isolated Communities

Introduction
Information Communication Technology (ICT) is essential to our survival.It has also become necessary in certain ways due to the options it opens to improve our quality of life. Alhassan and Adam (2015) believe this to be true because in many regions of the world and in various facets of our lives, ICT is essential to maintaining quality of life (QoL). Therefore, the need for digital inclusion has become an increasingly important topic in today's world, as technology continues to advance at an unprecedented pace. Despite the numerous benefits that digital technology offers, there is a growing concern that certain groups, particularly those living in rural areas are left behind. Digital inclusion is a part of what fosters social inclusion, however, Dasuki and Effa (2021) opine that there are doubts about technology, especially information communication, as it could actually make people more socially excluded. Therefore, there is a contention by scholars that socially disadvantaged communities run the risk of being kept out of the information society, thereby failing to engage in and integrate into society due to a high cost of ICT or trouble accessing it, while those who possess it face the risk of being socially excluded which can be attributed to information processing abilities.

In contrast to metropolitan areas, rural communities may experience a digital divide for a number of reasons. The first reason, as stated by Ye and Yang (2020) is that rural areas have impenetrable internet and broadband infrastructures. The second reason is that people in rural villages have limited means which prevents them from purchasing mobile devices and finally, the majority of the villagers are uneducated, which makes it difficult for them to pick up ICT skills. Digital media, a term often interchangeably used as information communication technology, as stated by Van Dijk (2019) are used for everyday living in the

society. For business, education, office jobs, its use is inevitable. Therefore, the need to significantly reduce the gap is pertinent and can be achieved through digital inclusion. He defines digital inclusion as the ability of individuals and communities to access and use digital technologies, such as the internet, computers and smartphones to improve their social, economic and educational outcomes. Despite the growing importance of digital technologies, there are still significant disparities in access and use, particularly in rural areas.

According to the World Bank statistics in 2021, approximately 63% of the population in sub-Saharan Africa live in rural areas, which means that millions of people in this region lack access to basic digital services. This lack of access to digital technologies can result in a range of negative consequences, such as limited access to education, healthcare and employment opportunities. Lawan and Chatwin (2015) stipulate that the existing communication infrastructure in the African vicinities is highly insufficient, thus there is a need to develop digital links with cross border inter-connectivity. However, they are of the belief that the success to Africa's information technology policy and infrastructure depends greatly on satellite communications, in conjunction with variants of broadband-based terrestrial wireless technologies. In addition, Satellite communications have a competitive advantage because they supplement the currently sporadically dispersed terrestrial links (fibre optic) and radio link extensions, which accelerate sustainable growth and development, socioeconomic development; and secure communications for security agencies including security formed at grass root levels, such as the vigilante.

In recent years, the Nigerian government has been working towards improving access to digital technology in rural areas. For instance, in 2018, the Nigerian Communications Commission (NCC) launched the "National Broadband Plan 2018-2023" to improve broadband penetration in the country, particularly in underserved and unserved areas. However, despite these efforts, many people in rural areas still face significant barriers in accessing and using digital technologies. In agreement, Adebayo, Adekunle, Oyewole, & Oladele (2021), reveal that inadequate infrastructure, limited connectivity and low levels of digital literacy hinder digital inclusion in rural areas, including lack of infrastructure, such as electricity and telecommunications. In 2020, according to the National Bureau of Statistics, only 43.3% of Nigerians had access to the internet, with rural areas lagging behind urban areas (National Bureau of Statistics, 2020). This lack of access to digital technologies can limit opportunities for education, employment and social engagement, amongst other things.

Kaduna state, located in northern Nigeria is known for its high rural population. Therefore, its challenges are peculiar to the people. Ravaged by poverty, there is the issue of cost,as digital devices, smartphones and computers are expensive and unaffordable to people living in rural areas. In addition, Olaniran & Adepoju (2021) reveal that the cost of purchasing broadband services and internet connectivity can be significantly high in rural areas due to limited infrastructure, leading to a lack of access to digital technologies. Furthermore, there are cultural and societal barriers, such as gender norms and low levels of education which can limit individuals' access to and use of digital technologies, as stated by Umaru & Jalo (2019). The scholars also include lack of digital literacy as a challenge. Many individuals in rural areas lack the skills and knowledge necessary to effectively use digital technologies which can limit their ability to access information, education and job opportunities.

Digital literacy is not only about knowing how to use digital devices but also the ability to navigate and evaluate online information, engage in digital communication and understand digital security and privacy. The Nigerian government in making efforts to improve digital inclusion in rural areas, launched the Rural Information Technology Centres (RITCs) initiative, through the National Information Technology Development Agency (NITDA) with the aim of providing access to digital technologies and digital literacy training to individuals in rural areas (NITDA, 2021). However, there is the need for more targeted interventions that take into account the specific challenges faced by individuals in isolated communities, as this study aims to address.

To address these challenges and promote digital inclusion in rural areas, there is an urgent need for targeted interventions that take into account the specific barriers faced by individuals in isolated and volatile

communities ravaged by insecurity. This study aims to contribute to the existing literature on digital inclusion in rural areas by examining the challenges faced by people in isolated communities in southern Kaduna state. Using a qualitative and positivistic approach, the paper explores the challenges faced by people from Mallagum and Sakong communities of southern Kaduna in Kaduna state.

Research Objectives

The objectives of this paper are to:

1. Ascertain how much the people in the selected community know about digital technologies.
2. Identify the key challenges faced by people living in isolated communities in Southern Kaduna State in achieving digital inclusion.
3. Proffer potential solutions suitable to the selected communities.

Digital Inclusion

Digital inclusion refers to the ability of individuals to access and effectively use digital technologies, such as the internet and mobile devices in order to participate fully in social, economic, and civic life (UNESCO, 2019). Morte-Nadal and Esteban-Navarro (2022) define the term as bringing ICT knowledge and use to people who do not currently have it. The concept of digital inclusion encompasses several dimensions, including access to digital devices and internet connectivity, digital literacy and skills, in addition to the availability of relevant digital content and services (European Commission, 2019). For the purpose of this study, digital inclusion has been narrowed to a group of people bound by the same cultural values. On this note, it is important to understand that rural dwellers, otherwise known as indigenous peoples adopt and use digital technologies in ways that fit their specificsocial contexts. In rural areas, digital inclusion has constantly remained a global struggle; and according to Campbell-Meier, Sylvester & Goulding (2020), the reason is based on the fact that indigenous peoples were frequently generalised and their experiences were often taken to be universal at the national, continental or regional levels where access to the Internet is made a top priority with less attention given to trust, motivation and skills development. Adam and Alhassan (2021) reveal that having access to information communication technology does not promote digital inclusion; rather, it is promoted based on its usage. In view of this, digital inclusion can be achieved and the digital gap reduced when skills on how to effectively use them are learnt.

Isolated communities

Isolated communities are rural areas or regions that are geographically remote and have limited access to infrastructure and services (United Nations, 2019). The concept of isolated communities encompasses several dimensions, including limited access to education, healthcareand employment opportunities, as well as social and cultural isolation (Morrison & Eversole, 2018). ITU (2020) in a report, Measuring Digital Development: Facts and Figures, notes that disadvantaged and marginalised groups are overrepresented in the offline population which is disproportionately female, rural, impoverished, older and/or has low levels of education and literacy. However, in identifying isolated communities in view of digital inclusion, access to ICTs and the internet is significantly influenced by factors like geography, income, age, sex, ethnicity and disability. In respect to this study, another parameter included in defining an isolated community includes vulnerable communities that have been faced with insurgency.

Isolated communities are not remote areas. As stipulated by hill (2020), isolated communities are located far from the urban areas and people living in such communities have been exposed to civilisation. However, they face unique challenges related to socioeconomic development, and addressing these challenges requires a holistic and context-specific approach. By addressing issues related to education, healthcare and employment opportunities, policymakers, practitioners and other stakeholders can promote the development and well-being of isolated communities and reduce social and economic disparities.

Theoretical Framework

Social Inclusion Theory

Social inclusion as a notion is dated back to the nineteenth century. However, a more recent history says it originated from France in the 1970s. It later spread across Europe and the United Kingdom in the 1980s;

and was first used by the Australian government in 2002. The assumption of social inclusion theory emphasises the need for all individuals, regardless of their social, economic, or cultural background to have equal opportunities to participate in society and access resources necessary for their well-being (Foster & Seth, 2014). The implementation of social inclusion in a state stems from an ideology of neoliberalism which started to gain traction in the 1980s. According to neoliberal ideologies, boosting social inclusion entails making investments in human capital and addressing the skills gap in order to promote economic growth. This is done as part of a nationalist agenda to strengthen the country's economy so that it can compete more successfully on the global market. Social inclusion is inclusive of several social groupings-gender, children, youth, health, culture, socio-economic status and religion-to mention a few. For the purpose of this study, rural areas, as a geographical social grouping is examined,while digital inclusion, as a form of social inclusion is examined.

Social inclusion theory is integrated under communication tradition as socio-psychological because the use of digital technology is likely to affect the behaviour of its users in terms of communication, banking, buying and selling. Hence, its usage moves from interpersonal to cultural communication and has been proven using a positivistic approach. The relevance of the social inclusion theory to this study is on the emphasis laid on the importance of equal opportunities for all individuals to participate in society, including the digital world. This means ensuring that individuals from all backgrounds have access to digital technologies and the skills and knowledge to use them effectively. By using the theory, this study aims to explore the specific challenges faced by people from vulnerable and isolated communities in Kaduna state in achieving digital inclusion.

Digital Divide Theory

The word Digital divide was presumably coined by the Los Angeles Times journalists, Webber and Harmon in an article written in 1995 where the social division between those who were involved in information technology and those who were not was described. In 2001, Pipa Norrisbuttressed digital, social and democratic divide in her book. Digital divide theory is said to be an off shoot of the diffusion innovation theory propounded by Everett Rogers. The emergence of the information communication technology can be dated as far back as the World War II. Its innovation and development was so rapid it became a digital revolution. In 1993, the World Wide Web was created and later in 2004, the social media emerged; and about 2 billion people were Facebook users in about 10-12 years. However, the speed at which this digital revolution took place caused a large number of people, especially in rural areas of developing countries to lag behind. Hence, the Digital Divide.

As stipulated by Van Djik (2019), digital divide was propounded on the basis of inequality. The concept of inequality according to this theory, refers to the inequality in skills, digital literacy and participation. He defines digital divide as a partition amongst people who have access to and use of information and communication technology and those who do not. In agreement, Esteban-Navarro, Garc´ıa-Madurga, Morte-Nadal, & Nogales-Bocio (2020), define digital divide based on three aspects of inequality - lack of computer literacy among those who have access to and are equipped for technology, inequality of opportunities in technological access and connectivity to devices and networks, including the internet and more recently, a lack of the necessary digital competences for using ICT in complex situations like education, business and e-commerce. In Africa, according to ITU (2020), only 6.3% of households in rural Africa have access to the Internet at home, compared to 28% of those in metropolitan areas.

Hence, there is the need to bridge the digital gap through digital inclusion. The digital divide theory also highlights the unequal distribution of access to and use of digital technologies among different groups in society (Van Dijk, 2012). It is integrated into this study as a form of information processing to which these digital technologies can be used for interpersonal communication. However, the approach to knowing this theory is empirical. Digital divide is not just limited to access to technology but also in its usage. It is therefore relevant to this study because it emphasises the importance of addressing the structural and

systemic barriers that contribute to the digital divide, including limited infrastructure and resources, socio-economic status, and geographic location.

Factors Militating against digital inclusion in rural areas

Isolated communities face several challenges in achieving digital inclusion which can perpetuate existing social and economic inequalities. In a study by Pew Research Center (2019) on digital inclusion, findings reveal that rural residents are less likely than urban residents to have access to broadband internet due to lower levels of digital skills and digital use. Furthermore, Akpan-Obong (2020) discover that lack of access to digital devices and internet connectivity are part of the major barriers to digital inclusion in the rural areas of Nigeria. The study also finds that there is the need for more digital literacy training programmes in rural areas to help bridge the digital divide.Oluwatusin and Adebayo (2020) in a research on barriers to digital inclusion identifieslack of infrastructure and electricityas major barriers to digital inclusion in the rural areas, inclusive of poor network coverage (Adebayo and Ayoade, 2020).

Another study by Idowu, Adewoyin & Adewumi (2020) outlines lack of awareness about the benefits of digital technology and its applications as a major barrier to digital inclusion in the rural areas. Another factor that has been found to affect digital inclusion in rural areas of Nigeria is the high cost of digital devices and internet access. Many rural households cannot afford the cost of digital devices, such as computers and smartphones, and the high cost of internet access further exacerbates the problem. Similarly, Ojebisi, Ajiboye, & Akinleye (2019) aver that affordability is a major barrier to digital inclusion in rural areas and recommend that policies and programmes should be designed to make digital devices and internet access more affordable and accessible to rural populations.

On the other hand, while there are factors militating against digital inclusion in rural areas generally, Adeyemo and Adedoyin (2021) investigate the factors influencing digital inclusion in the rural areas of Nigeria and discover that gender, age, educational levels and incomeare significant predictors of digital inclusion. In another study by Adebayo and Oluwatusin (2020) findings showsignificant impact of community-based ICT centres on digital inclusion in the rural areas. The findingsindicate that these centresare effective in promoting digital inclusion by providing access to digital devices and internet connectivity, as well as digital literacy training programmes.

Mobile phones have also been identified as a key tool in promoting digital inclusion in rural areas, as stated by Akinwale, Oladele, Adigun & Olajide (2020). This is due to the fact that they provide access to information and services, such as mobile banking, e-commerce and agricultural information. Bello, Ogunleye & Adewale (2021) also believe that social and cultural factors, such as gender norms, religious beliefs and community values are important determinants of digital inclusion in the rural areas.

Despite the possibilities of digital inclusion, the challenges are perversely persistent. Cost, lack of infrastructure, cultural and geographical barriers are major hindrances to digital inclusion in rural areas. In addition, lack of relevant digital content and services that meet the needs of rural populations have also been identified as barriers to digital inclusion in rural areas of Nigeria. According to Obijiofor et al. (2021), many rural populations do not find the available digital content and services relevant to their needs, particularly in the areas of agriculture and health.

Trust and security issues with regard to digital technologies are becoming more of a concern. According to Adeleke and Ogundokun (2020), this brings up the concern of safeguarding their private information and financial transactions when utilising digital technologies. However, the study suggests that policies and programmes be created to solve these security issues and foster rural residents' faith in digital technologies.

Infrastructural Deficit in Rural Digital inclusion

Limited infrastructure is one of the major challenges hindering digital inclusion in the rural areas. The lack of necessary infrastructure, such as electricity, telecommunications and internet connectivity make it difficult for individuals in those areas to participate in the digital world. Limited access to

telecommunication services due to difficult terrains and high cost of installation as made known by Oluch (2018) are some other factors. Hence, the availability and accessibility of digital technologies, such as computers, smartphones and other digital devices are scarce, making it difficult for individuals to participate in the digital economy and digital society. To corroborate this, Gichuki & Kahumbu, (2020) identify the cost of building infrastructure in rural areas to be high due to low population density, difficult terrain, and other factors which in turn may discourage investment in infrastructure development, thus perpetuating the digital divide.

Poor infrastructure also leads to low internet penetration in rural areas. The lack of internet connectivity makes it difficult for individuals in these areas to live their lives on the go. Hence, access to information, educational resources and e-services can be delayed, thus limiting their participation in the digital economy. In buttressing this challenge, Chang (2020) opines that the available infrastructure may be of poor quality which may lead to slow or unstable internet connectivity, hindering digital inclusion efforts. Amah (2019) opines that rural areas with limited infrastructure often have inadequate power supply which makes it difficult for individuals to power digital devices or power ICT centres, hence limits access to digital technologies and hinders digital inclusion efforts (Amah, 2019).

Digital Literacy: A Gap in Knowledge

In Nigeria, majority of people living in rural areas attend public schools provided by the state and or federal governments. Usually, such schools are free for the students in order to allow equal opportunities for everyone to be educated. However, there are growing concerns about the quality of education received by these students. As reported by Ode (2023), many public schools lack the facilities needed for quality education and believes it could be tackled through digital inclusion. Access to digital technologies is a fundamental aspect of digital inclusion. The lack of access to digital technologies can have significant implications for individuals and communities, particularly in terms of social and economic exclusion. In a report by the International Telecommunication Union (ITU, 2017), it was found that around half of the global population did not have access to the internet, with the majority of those being in developing countries.

As much as digital inclusion is of the essence, Martens, Hajibayova, Campana, Rinnert, Caniglia, Bakori, Kamiyama, Mohammed, Mupinga and Oh (2020) asserts that there are complex issues at play in the relationship between accessible ICT and inequality. These issues require much more than just computer distribution to be resolved. The disparity or "digital divide" between those with access to and usage of technologies and those without involves a wide range of concerns, including race, demography, educational levels, as well as different forms of technology and its use. Along this line, Van Djik (2020) views digital inclusion as a complex issue that cuts across existing social, economic and cultural divisions.

Empirical Review

Digital inclusion in rural areas has been a subject of study for several years. Various researchers have conducted empirical reviews to explore the challenges faced by people from isolated communities in accessing and using digital technologies. In a study conducted by Tay, Tai & Tan (2022), developing nations, welcome and enhance digital financial inclusion to aid in the fight against poverty. However, the findings show that in terms of access to and use of digital financial services, there remains a persisting disparity between gender, the wealthy and the poor, as well as between urban and rural locations in developing countries. Recommendations towards the study's conclusion was with a focus on enhancing digital infrastructure.

Lyons, Kass-Hanna, & Greenlee, (2020) in understanding impacts of financial and digital inclusion on poverty in South Asia and Sub-Saharan Africa, examined the connection between poverty, financial and digital inclusion across seven developing nations in South Asia and Sub-Saharan Africa using data from the 2017 InterMedia Financial Inclusion Insights surveys. They discovered that substantial decrease in poverty, particularly food insecurity are connected with gains in a variety of financial and digital inclusion metrics.

Adeleke, (2021) in a research on digital divide in Nigeria: The role of regional differentials, findsobvious clusters of high values for Internet usage in Lagos, Oyo, Ogun, Kaduna, Kano states and Abuja. The survey provides evidence of discrepancies in Internet usage throughout the major regions of Nigeria. In contrast, there were few Internet users in the states of Ekiti, Ebonyi, and Bayelsa. Internet usage in the countryis clearly segmented along a number of economic and social lines, both between the north and south and its urban and rural sections. Internet usage is significantly influenced by factors, such market size, employment, income, access to energy, urbanisation, gender (female), age (60 years and older), and phone density. The findings of this study can serve as the foundation for regionally specialised initiatives to boost Internet access in underserved areas.

According to Adam & Alhassan (2021), access to information and communication technologies (ICTs) and the capacity to use those technologies for everyday tasks are prerequisites for digital engagement in a society that is becoming more and more digital. People run the danger of becoming digitally excluded, if they are unable to access and utilise ICTs. The study examines secondary data from numerous archival sources in 121 countries and a hypothesised model based on the structuration theory. According to the PLS analysis used in the study's findings, ICT access does not have a major impact on digital inclusion globally but ICT usage does. Additionally, there was no support for the mediation role of ICT usage.

A study by Akinwale, Oladele, Adigun & Olajide (2020) investigate the role of mobile phones in promoting digital inclusion inrural areas of Nigeria. Theydiscover that mobile phones are key toolto digital inclusion in rural areas, as they provide access to information and services, such as mobile banking, e-commerce, and agricultural information. The study recommends that policies and programmes should be designed to promote the use of mobile phones and their applications in rural areas. Mobile phones encourage digital inclusion, allowing many Nigerians to gain from information interchange for social and business activities, increased productivity and improved information access. Mobile customers can use these services to cut costs for transactions, communication and transportation.

Another study by Bello, Ogunleye & Adebowale, (2021)finds that social and cultural factors, such as gender norms, religious beliefs, and community values are important determinants of digital inclusion in the rural areas of Nigeria. The study recommends that policies and programmes should be designed to address these social and cultural factors, and promote gender equality and social inclusion in digital technology adoption.

The concept of digital divide according to Okocha & Edafewotu (2022), is a difference between two or more populations in terms of access to distribution of, and use of information and communication technology. In their study on bridging the digital gap in Nigeria where a qualitative approach was used, findings show that poverty and infrastructural disparities between rural and urban areas are to blame for Nigeria's digital divide. Although, more results from the study reveal digital divide in;Nigeria as a deliberate institutional and political phenomena, the study recommends the employment of a comprehensive strategy that should lead to increased economic development, thereby addressing the dangers posed by the divide.

Research Methods

This study made use of qualitative research method. It involved review of relevant literature with primary data gathered from five groups of focus group discussions held across two rural settlements in southern Kaduna. The study employed purposive sampling, a non-probability sampling technique that involves selecting 30 participants based on specific characteristics relevant to the research questions. The participants were selected based on their level of access to digital technologies and their experiences of using digital technologies, and tagged J1-J30 to maintain anonimity.

The method and sample size adopted for this study is in agreement with a study conducted by Okocha & Chigbo (2023) where qualitative approach was done using focus group discussions. The researchers made use of networks and contacts in rural areas to identify potential participants, and recruited them to participate in the study, as it allowed for in-depth exploration of the research questions, while ensuring the feasibility of data collection and analysis. The secondary data used in this study was generated from

scholarly works gotten in academic journals and reports from international bodies and non-governmental organisations where publications were made on the subject matter.

Results

Table 1: Demography of Discussants

Characteristics		**Frequency**	**Percentage (%)**
Sex	Male	18	60
	Female	12	40
	Total	**30**	**100**
Age Range	21-30	7	23.3
	31-40	9	30
	41-50	12	40
	51 years and above	2	6.7
	Total	**30**	**100**
Occupation	Farmers	23	76.7
	Traders	7	23.3
	Total	**30**	**100**

Source: Field Study, 2023

The table above shows the demographic details of the focus group discussions.

RO1. Knowledge level on digital technology

In the first community, the participants mentioned mobile phones, fuel pump, Point on Service (POS) as digital technologies available in their communities. J2 from Mallagum community, respectively told the benefits of using digital technology. "It is easy to operate…it saves energy and time. It makes communication easy and it used to create social awareness".

In Sakong community, the discussants mentioned mobile phones, television and the radio to be the digital technologies found around them. J19 went on to tell his understanding of digital technology as thus:

> "*The little I know on technology goes like this. After several attempts, we have items like the mobile phone, television and radio. Looking at the way we are in the world today, those that have the God-given gift on how to use the mobile phones connect it to the internet and show the entire world the attacks they suffer from terrorists. Journalists and non-governmental organisations also use technology to project what goes on in the community through the television or radio"*

Another discussant, tagged J21 recognised the potentials of digital technologies, such as the mobile phones to fight insecurity by providing a communication system that could help them mobilise support from neighbouring villages to fight off the terrorists.

RO2. Challenges Hindering Digital Inclusion

Discussants reported limited access to mobile phones in terms of the availability of the market. According to J5, those who can afford to buy a mobile phone usually send others (relatives) to get it from the cities or nearby commercial towns like Kafanchan because they are aware of the need to communicate. However, they are able to purchase television and radio without help and then connect to satellite (dish) to watch various channels.

Another challenge faced is poor digital literacy skills. As mentioned by J7, they suffer from insufficient educational training. Sometimes it feels like magic when they see how others operate the mobile phone as said by J25. He further said:

> "Lack of education affects communication using digital technology. If it continues this way, even the children will grow up without knowing how to use it. The education they have as adults is barely giving them the knowledge on how to use mobile phones".

However, he also said few people have been trained through self-sponsorship from neighbouring communities. Furthermore, discussants reported the cost of digital technologies, such as smartphones and computers to be very high, making it unaffordable for many. They also mentioned that the cost of internet connectivity is also high which makes it difficult for people to access the internet. J14 in her comment revealed that using digital technologies with reference to the mobile phones will require a person to either feed the phone or belly, of which the latter is preferred. Another respondent said poverty is a big issue for them in the community.

Communication network failure is also a challenge. Discussants reported poor infrastructure in their community as a major challenge in accessing and using digital technology. They stressed that there is lack of electricity and internet connectivity in most parts of the community which makes it difficult for people to use mobile phones. In both communities, they lack mobile telecommunication services, hence, are limited to one which is not always reliable. In Mallagum community, J8 says: "Glo network is used in getting information but sometimes, the network is not available, we won't get access to information".

Another challenge is language barrier.The participants in both communitiesexplained that language hinders them from using digital technologies in their communities. They saidmost digital technologies are in English which is neither the first nor second language spoken in the communities. Most of the locals speak the indigenous language and not even Hausawhich is commonly spoken in northern Nigeria,thus, making it difficult for people to use these technologies. In Mallagum community, older adults from 60 years and above facethe challenge of accessing digital technologies due to lack of technical know-how,while their counterparts in Sakong community have the challenge of poor eyesight.

The discussants also mentioned the consequences they face due to the unavailability of digital technology. In Mallagum community, it was a lengthy discussion on how lack of digital technologies can hinder information acquisition. According to J4 and J5, it prevents them from accessing information about tertiary institutions'admission processes and job advertisements. In Sakong, lack of digital technology affects their ability to access important information on education and job opportunities, making it difficult to compete in the job market.

RO3:Mitigating the Challenges of Digital Exclusion in Isolated Communities

The discussants believed that government intervention was necessary to address the challenges faced by isolated communities in accessing digital technologies. They suggested that the government should provide funding, support infrastructuraldevelopment and digital literacy programmes. According to J20,

> "*If boosters can be made available, it will help a lot. In places like Sakong, there are phones that are highly receptive to network. It is more like a security phone. If we can have 2 or 3 or 4 in the community, you can easily call neighbouring communities for help whenever attacks begin. So, if the boosters and network masts are installed, it will be of great benefit".*

Meanwhile, members of both communities disclosed that NGOs have played a significant role in promoting digital inclusion by providing digital skills training and access to digital devices. However, some participants noted that the reach of these initiatives is limited and not accessible to all members of the community. According to J8 in Mallagum community, there is the need for digital literacy training programmes for the youths to improve their skills and knowledge so that they can teach th]e elderly. He further said that; "Our children who have the knowledge of technology should come and teach members of the community as they are not supposed to differentiate, as the old can learn from the young".

Discussion of Findings

Digital inclusion is beyond the sharing of phones and computers. It is most accomplished when people know about its usage and importance.This is why the first objective of the study is to determine how much the people in the selected communities know about digital technologies. On the question askedregarding their experience with digital technology in Sakong community, the respondents suggestedthat the mobile phones which can be connected to the internet should be a part of their experience.This is an indication that they have a fair knowledge of the use of such phones, especially in sharing with the world the outcome of the banditry attacks they experience.

In Mallagum community, their experiences revealed they have little knowledge about digital technology. The responses gotten during the focus group discussions in both communities revealed their understanding of digital technology to be television, fuel pump and direct-to-home satellite dish for viewing channels, mobile phones, computers and Point of Sale (P.O.S). However, the knowledge on how it is used and what digital technology can help achieve in terms of communication is limited, especially in Mallagum community. Nevertheless, the mobile phone stands out amongst other digital technology known to them, however, its use is not totally applied.

This illustrates the community's unequal access to and use of digital technology, in accordance with the digital divide theory, as well as inequality in participation. The digital divide between urban and rural areas will be further bridged by increasing mobile phone usage in rural areas. This is in agreement with the study by Akinwale, et al (2020) who finds out that mobile phones are a key tool for digital inclusion in rural areas, as they provide access to information and services, such as mobile banking, e-commerce and agricultural information. This also brings to limelight the need to create an awareness with an intervention to train people in rural communities on digital skills as a policy implication.

The second research objective was to identify the key challenges faced by people living in isolated communities in Southern Kaduna State in achieving digital inclusion. Despite being ravaged by insecurity, the communities did not mention the insurgence as a barrier. Rather, poverty stands out as a major hindranceto digital inclusion, after which comes internet access. The choice to effectively use digital technology, especially the mobile phones comes at the expense of feeding and catering to the needs of others in a household. This challenge further hinders social inclusion as finance is relevant to ensuring quality of life. Along this line, Ojebisi et al. (2019) found unaffordability as a major barrier to digital inclusion in rural communities in Nigeria as a country.

In Sakong community, lack of satellite phones as a digital technology is a reason for the escalation of the attacks they receive from bandits and terrorists. Being a vulnerable community where most of them are farmers, having these mobile devices would enable them call for help from neighbouring communities. This further sheds light on the need to empower neighbouring communities with digital technology, and equipping them with the skills on how to use them. It is of importance because the digital divide theory also emphasises the use of digital technology as key tobridge the gap. There is a high cost of digital devices of which internet rates are exacerbating. Therefore, this finding is important as it has brought attention to the need for poverty alleviation in these communities. Other challenges include poor network connection, language barrier, lack of digital skills and limited access to digital technologies. These findings are consistent with Kodur & Bhati, (2020) in their studies on digital inclusion in rural areas.

In proffering potential solutions as the third objective, the focus group participants suggested an increase in infrastructure investment, providing digital literacy training and subsidising the cost of digital technologies. They requested for intervention both from the government and non-governmental organisations, especially on the aspect of computer training. In Sakong community where the people have a fair understanding of digital technologies, they believe having adequate knowledge can help track the terrorists, thereby averting or reducing the damages. This suggestion is in line with the assumption of social inclusion theory gotten from the neoliberal ideology that social inclusion entails making investments in human capital and addressing the skills gap in order to promote economic growth. The findings from this

research provide a clear cut policy implication on the need for information communication technology to be harnessed in order for the digital divide to be shortened and social inclusion fostered. The need for skills training cannot be overemphasised. Participants' proposed solution is consistent with a study by Akpan-Obong (2020)thatsees the need for more digital literacy training programmes in rural areas to help bridge the digital divide.

Conclusion and Recommendations

This study explored the challenges faced by people from isolated communities in achieving digital inclusion in southern Kaduna state. The findings of the study revealed that limited infrastructure, low digital literacy level and poverty are major challenges that hinder digital inclusion which in turn has increased insurgency and damages done to the communities after attacks as the communities are unable to quickly request for help from neighbouring communities. This study concluded that mobile phones are key to fostering digital inclusion and satellite communication technology is paramount in achieving communication without network failure. The approach suggested harnessing digital inclusion needs to be holistic,as such the need for continued research on digital inclusion in rural areas is of importance. More empirical studies should be conducted to provide a deeper understanding of the challenges faced by people in isolated communities so as to identify effective strategies for promoting digital inclusion in these areas. By promoting digital inclusion in rural areas, policymakers and stakeholders can help to bridge the digital divide and promote equitable access to and usage of digital technologies for all Nigerians.

Therefore, this study recommends the following;

1. Policy makers and development organisations should closely collaborate with residents in remote villages to determine how best to address the needs of the people in terms of digital technology.
2. Provision of electricity and internet connectivity for people in rural areas should be made paramount projects by the government and development sector, as it is key in sustaining digital inclusion.
3. The government and members of the development sector should also offer training and awareness campaigns on digital literacy to help individuals in these communities improve their digital literacy.

References

Adebayo, A. A., Adekunle, I. A., Oyewole, O. O., & Oladele, E. O. (2021). Digital literacy and its determinants among rural women in Ogun State, Nigeria. *Heliyon*, 7(1), e05921.

Adebayo, A. T., & Ayoade, F. O. (2020). Barriers to digital inclusion in rural Nigeria: a qualitative study of challenges and opportunities. *Journal of Rural and Community Development*, 15(3), 105-120.

Adeleke, A. A., & Ogundokun, R. O. (2020). Trust and security concerns as barriers to digital inclusion in rural Nigeria. *Journal of Business and Technology Research*, 18(1), 15-24.

Adam, I.O., & Dzang Alhassan, M. (2021), "Bridging the global digital divide through digital inclusion: the role of ICT access and ICT use". *Transforming Government: People, Process and Policy*, 15(4), 580-596. https://doi.org/10.1108/TG-06-2020 0114

Akinwale, A. A., Oladele, P. O., Adigun, M. O., & Olajide, T. A. (2020). The role of mobile phones in promoting digital inclusion in rural areas of Nigeria. *Journal of Telecommunications and the Digital Economy*, 8(4), 9-24.

Bello, R. A., Ogunleye, A. O., & Adebowale, O. (2021). Social and cultural determinants of digital inclusion in rural Nigeria. *Journal of Rural Studies*, 82, 109-117.

Chang, H. (2020). Infrastructure quality and digital divide: A comparative study of OECD countries. *Telecommunications Policy*, 44(2), 101865.

Dasuki, S. & Effah, J. (2021). Mobile phone use for social inclusion: the case of internally displaced people in Nigeria. *Information Technology for Development.* 28(1) 26. 10.1080/02681102.2021.1976714.

Esteban-Navarro, M.A., Garc´ıa-Madurga, M.A., Morte-Nadal, T., &Nogales-Bocio, A.I. (2020). The rural digital divide in the face of the covid-19 pandemic in Europe recommendations from a scoping review. *Informatics.*7(4), 1–18. https://doi.org/10. 3390/informatics7040054

European Commission. (2019). *Digital inclusion and skills*. https://ec.europa.eu/digital-single-market/en/digital-inclusion-skills

Foster, M., & Seth, M. J. (2014). Social inclusion of persons with disabilities in India: the role of ICTs. In ICTs and sustainable solutions for the digital divide. *Springer*.83-96.

Gichuki, E. N., & Kahumbu, R. W. (2020). Overcoming the digital divide in rural Kenya: a review of challenges and opportunities. *Journal of Telecommunications and Information Technology*, 4, 27-38.

Idowu, A. O., Adewoyin, O. O., & Adewumi, O. A. (2020). Digital inclusion in rural Nigeria: A qualitative study of challenges and opportunities. *International Journal of Advanced Computer Science and Applications*, 11(12), 401-407.

International Labour Organization. (2017). *Rural Development and Job Creation: The Role of Agriculture and SMEs.*https://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_567203.pdf

International Telecommunication Union. (2017*). Measuring the Information Society Report*. https://www.itu.int/en/ITUD/Statistics/Documents/publications/misr2017/MISR2017_Volume1.pdf

ITU (2020). *Measuring digital development: facts and figures*. Geneva: ITU

Kishore, M.& Gopalakrishnan, G. (2020). Digital inclusion in rural America: An exploratory study of broadband access, adoption, and use.*National Rural Health Association*.

Lawal, L. & Chatwin, C. (2015). African rural financial and digital inclusion exploiting Nigerian communications satellite. *Research Meets Africa Workshop*.

Lyons, A., Kass-Hanna, J., & Greenlee, A. (2020). Impacts of financial and digital inclusion on poverty in South Asia and Sub-Saharan Africa. *Social Science Research Network* http://dx.doi.org/10.2139/ssrn.3684265

Martens, Hajibayova, Campana, Rinnert, Caniglia, Bakori, Kamiyama, Mohammed, Mupinga and Oh (2020), *Aslib Journal of Information Management*3806 DOI 10.1108/AJIM-05 2020-0172

Morrison, J.& Eversole, R. (2018). Understanding isolated communities. *New York: Routledge*.

Morte-Nadal, T. & Esteban-Navarro, M.A. (2022.) Digital competences for improving digital inclusion in e-government services: a mixed-methods systematic review protocol. *International Journal of Qualitative Methods* .21(1–9). DOI: 10.1177/1609406921107093

Mukama, E.& Kafuko, J. (2020). Factors influencing digital inclusion in rural communities in Uganda. *International Journal of Education and Research*, 8(8), 146-162.

National Bureau of Statistics. (2020). Selected social statistics on Nigeria 2020. https://www.nigerianstat.gov.ng/pdfuploads/Social_statistics_on_Nigeria_2020.pdf

National Information Technology Development Agency (NITDA). (2021). *Rural Information Technology Centres (RITCs).*https://www.nitda.gov.ng/ritc/

Nigerian Communications Commission. (2018). *National Broadband Plan 2018-2023.*https://www.ncc.gov.ng/stakeholder/broadband-plan-2018-2023

Obijiofor, L. C., Ojebisi, A. O., & Idowu, A. O. (2021). Digital content and service needs of rural populations in Nigeria. *Journal of Rural Studies*, 81, 130-138.

Ode, E. (2023, April 17-21). Train the tutor project (workshop session). Emerald Isle Foundation, Kaduna, Nigeria.

Ojebisi, A. O., Ajiboye, E. A., & Akinleye, G. T. (2019). Affordability as a barrier to digital inclusion in rural Nigeria. *Journal of Information Technology and Economic Development*, 10(2), 46-62.

Okocha, O. D & Chigbo, M. (2023). Flattening the curve of fake news in the epoch of infodemic in the Nigerian news media industry. Journal of Communication and Media Technology. 5(1). ISSN 2814-3663

Okocha, O. D. & Edafewotu, E. (2022). Bridging the Digital Divide in Nigeria. *The Journal of development communication.* 33. 45-54.

Olaniran, B. A., & Adepoju, A. O. (2021). A qualitative exploration of factors that influence digital inclusion in rural Nigeria. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, 17(1), 42-60.

Oluwatusin, F. M., & Adebayo, O. F. (2020). Digital inclusion in rural Nigeria: Barriers, opportunities and the way forward. *International Journal of Information Management*, 54, 102151. https://doi.org/10.1016/j.ijinfomgt.2020.102151

Pew Research Center. (2019). Who doesn't use the internet in America today? https://www.pewresearch.org/fact-tank/2019/04/22/some-americans-dont-use-the-internet-who-are-they/

Rainie, L., & Anderson, M. (2019). *Digital inclusion in rural areas: A review of research and policy.* Pew Research Center.

Richard Adeleke (2020): Digital divide in Nigeria: The role of regional differentials. *African Journal of Science, Technology, Innovation and Development.* DOI:10.1080/20421338.2020.1748335

Tay, L., Tai, H., & Tan, G. (2022). Digital financial inclusion: a gateway to sustainable development. *Heiliyon*, 8(6), E09766. DOI: https://doi.org/10.1016/j.heliyon.2022.e09766

Umaru, I. I., & Jalo, R. I. (2019). Digital gender divide in rural Nigeria: Implications for social and economic development. *Journal of International Women's Studies*, 20(3), 70-84.

UNESCO. (2019). *Digital Inclusion.*https://en.unesco.org/themes/information-access/digital-inclusion

United Nations. (2019). *Sustainable Development Goals.*https://www.un.org/sustainabledevelopment/sustainable-development-goals/

United Nations (2021). Leveraging digital technologies for social inclusion. PB_92-1.pdf (un.org)

Van Dijk, J. (2012). The evolution of the digital divide: The digital divide turns to inequality of skills and usage.*In The Routledge Handbook of Global Public Policy and Administration* (pp. 270-282). Routledge.

World Bank. (2015). *World Development Report 2015: Mind, Society, and Behaviour.*https://openknowledge.worldbank.org/bitstream/handle/10986/20758/9781464804793.pdf

World Bank. (2021). *Rural Population (% of total population) - Sub-Saharan Africa.*https://data.worldbank.org/indicator/SP.RUR.TOTL.ZS?locations=ZG

World Health Organization. (2010*). Increasing Access to Health Workers in Remote and Rural Areas through Improved Retention: Global Policy Recommendations.*https://www.who.int/hrh/retention/guidelines/en/

Ye, L.& Yang, H. (2020). From digital divide to social inclusion: a tale of mobile platform empowerment in rural areas sustainability. DOI: https//:12. 2424. 10.3390/su12062424.