

Decolonising the Internet: Assessing the Impact of Mobile Internet on Rural Dwellers in Nigeria

James Kunle Olorundare¹, Adedeji Olowe², Ebelechukwu Ayibuofu Erhuanga³

¹Next Generation Technologies and Standardisation, Nigerian Communications Commission, Abuja, Nigeria

²Open Standards, Open Technology Foundation, Lagos, Nigeria

³Environmental Technology, Federal University of Technology, Akure, Nigeria

Email address:

olorundarek@gmail.com (J. K. Olorundare), Adedeji@openbanking.ng (A. Olowe), eaerhuanga@futa.edu.ng (E. A. Erhuanga)

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Abstract: This study assessed the impact of internet access on rural dwellers in Nigeria. As the use of the internet is on the increase- presenting many opportunities and potentials for development, the digital divide between rural and urban areas become more pronounced. The internet is a great infrastructure which when fully utilized, can be useful in improving the socio-economic development of Nigeria. Data was collected using qualitative and quantitative methods with structured in-depth interview guides as tools. Two remote towns in Southwest Nigeria were selected as study areas. The survey involved a random sampling of participants who consented to participate in the study. The distribution of male to female respondents was 56:44. The research findings revealed the presence of mobile Internet Service Providers that made the internet accessible in both towns. However, some respondents reported poor internet service speed(s) and connection. 19% of the respondents at Ibule-Soro reported having no access to the internet, 100% of whom were self-employed females. Financial constraints, lack of operational knowledge and a perception that the internet was unnecessary were some of the reasons given for lack of access- implying the need for more inclusive digital education on the value of the internet in today's society. This study recommends that more intervention efforts be channeled towards educating the rural population on how useful the internet can be for personal and societal development. A more in-depth study is also recommended to determine the extent to which internet access has influenced socio-economic development in rural communities in Nigeria.

Keywords: Decolonization, Digital Divide, Internet Access, Mobile Internet, Rural Nigeria

1. Introduction

Nigeria has the largest mobile phone market in sub-Saharan Africa, however many of her rural areas still lack internet access [1]. The Nigerian Communications Commission (NCC) reported that Nigeria had 172 million mobile phone users in 2019, with the actual number of users estimated at 56 million to accommodate multiple phone users [2]. Another set of data reports that there were 104.4 million internet users and 187.9 million mobile connections in Nigeria as of January 2021 [3]. Although there are more than 90 million internet users in Nigeria, over 53 per cent of the citizens still lack access to internet connection, especially in the rural areas and thus cutting off from the world [4, 5].

The growth of the internet across the world is unevenly distributed with fewer than 67% of the world population having access to the internet [6]. 96% of the population without access to internet live in developing countries. Low levels of education and poverty are reportedly the predominant factors that inhibit access to the internet in Africa, resulting in a greater digital divide among the population [7]. Other studies [8], revealed age, gender, marital status and educational level as factors that encourage digital divide among internet users. The digital divide in countries like Nigeria do not exist only between the educated rich and the uneducated poor but also between remote rural and urban settlements- where lack of good access road networks to rural communities prevent their access to infrastructural development [7]. This trend in the digital

divide between the rural and urban areas of developing countries reveals a growing gap arising from the focus of information services on urban areas, while neglecting the rural areas [9, 4]. Making Information services available to the rural population of Nigeria is a viable project which can accelerate the development of all parts of the country. Studies assert that information services delivery to the rural population promotes indigenous knowledge and culture, which is the unique heritage of any people. Therefore, maintaining a sustainable means of information service delivery will promote the socio-cultural, political and economic values of the people over time, preserving it for future generations [10].

The internet has reshaped human communication, as Information and Communications Technology (ICT) has become a basic tool for learning, work, recreation, and a means of expression [11]. Every new technology confers some advantages to society [12] and many studies have identified some benefits associated with the use of the internet to include greater access to information on happenings around the world in real-time, and enhanced interpersonal communications [13]. However, many of the studies on the impact of the internet in Nigeria are based on secondary data. Reference [14] decried the lack of evidence-based research in the field of ICT for development. Reference [15] agrees with the above thought, opining that without rigorous research on ICT impact, it is difficult to postulate the influence of interventions on the recipients of such projects. This prompted the design of this research to understand the impact of internet access on rural dwellers by eliciting information from the rural people themselves, through structured interviews and surveys. In this study, Internet access is used to refer to the ability to make use of the internet especially in terms of the availability of the necessary infrastructure and devices for connecting.

While decolonization might imply the shedding off of colonial values and structures of domination, the concept of decolonization involves the transformative process [16] of identification, challenge and revision of certain ideologies and/or practices that are alien to the indigenous peoples and reflect the dominating influence of the colonizer. Much remains to be done in decolonizing Africa, and dependent relationships with developed economies presents a limitation [17]. During the 1960s and 1970s, “Southern countries called for a New World Information and Communication Order (NWICO) to eliminate cultural colonialism” in order “to create a balanced flow of information and cultural resources in the world” and for individual countries to be economically and culturally self-reliant [18]. Because, “no technology stands above and beyond those who design and control it” [19], and globalization does not mean imposing homogenous solutions in a pluralistic world [10], it has become imperative for Nigeria and indeed Africa to find her voice. This idea alludes that extending information and communication services to rural areas will help trigger and

achieve the decolonization of the internet in Nigeria.

2. Methodology

The study was essentially a baseline study, carried out to provide a basic understanding of the impact of the internet on the lives of rural dwellers in Nigeria. Therefore the study involved both qualitative and quantitative data collection methods using both structured interview guides and questionnaires. The purpose of engaging the respondents with oral interviews was to ensure a clear understanding of the questions and to avoid discriminating against those that could neither read nor write. Some more literate respondents filled out the paper-based questionnaire with the guidance of the research team. The oral interviews gave opportunity for interaction with the respondents, producing very rich insights.

The sampling involved the purposive selection of two (2) rural communities in South West Nigeria as study areas. The selected study areas are Ibule-Soro, in Ifedore Local Government Area of Ondo State and Gbongan, in Ayedaade Local Government Area of Osun State, Nigeria. The members of the communities were randomly approached, briefed and invited to partake in the research. While some declined, all who consented became part of the selected samples. A target sample size of 30 respondents was desired from each community. However, in Gbongan the more remote study area, only 20 persons consented to partake in the study.

The data collected was entered, sorted and translated, where necessary. The data were analyzed using descriptive statistical methods in Microsoft Excel presented as frequency charts and cross-tabulation and chi-square tests of significance in SPSS (Statistical Package of the Social Sciences, 22.0).

3. Results and Discussions

The research outcomes are highlighted in this section.

3.1. *The Demographic Layout of the Respondents in the Study Areas*

A majority of the respondents (37.5%) at Ibule-Soro were aged between 26-35 years with a gender distribution of 53% male to 47% female. The male to female ratio in Gbongan is 60:40. See figure 1.

In both locations, most of the respondents are self-employed (>55%), this is in consonance with the demographic report of Ibule-Soro in [20]. However, the unemployed formed a good part of the population, with up to 30% in Gbongan (See figure 2). 25% of the respondents in Gbongan earn close to nothing with a reported monthly income of 0-10,000 naira monthly.

A good number of the respondents in both communities are educated, with 45% having basic secondary education and 25% with a university first degree in Ibule-Soro. A majority of the respondents in Gbongan have the highest educational

qualification of 1st degree (40%), 20% have ordinary diploma and secondary school education. This shows a good level of

literacy within the study areas and is in congruence with the findings of other studies on Ibule-Soro [20].

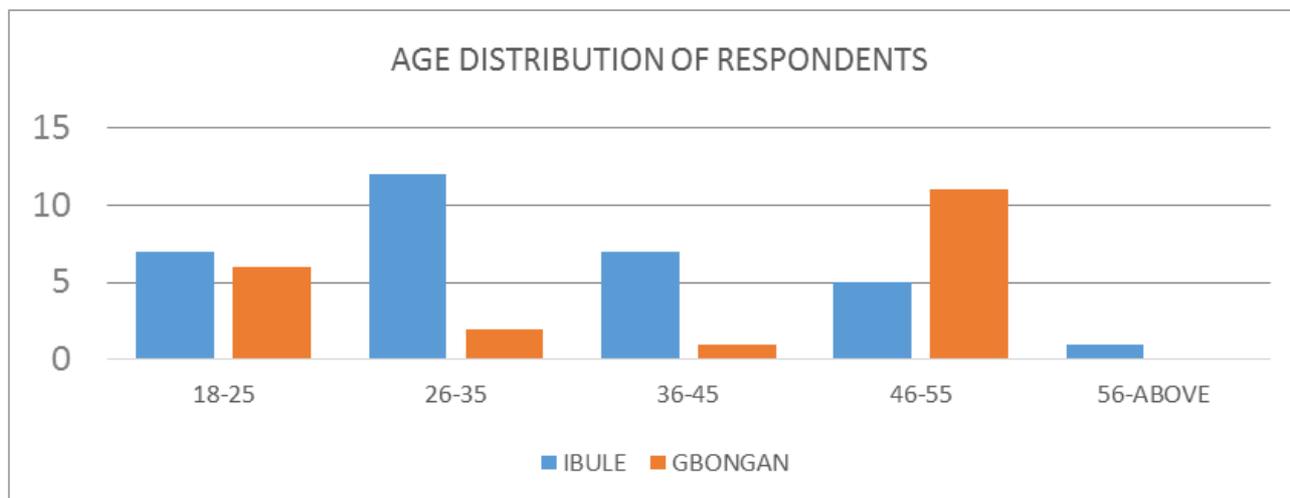


Figure 1. Age distribution of respondents.

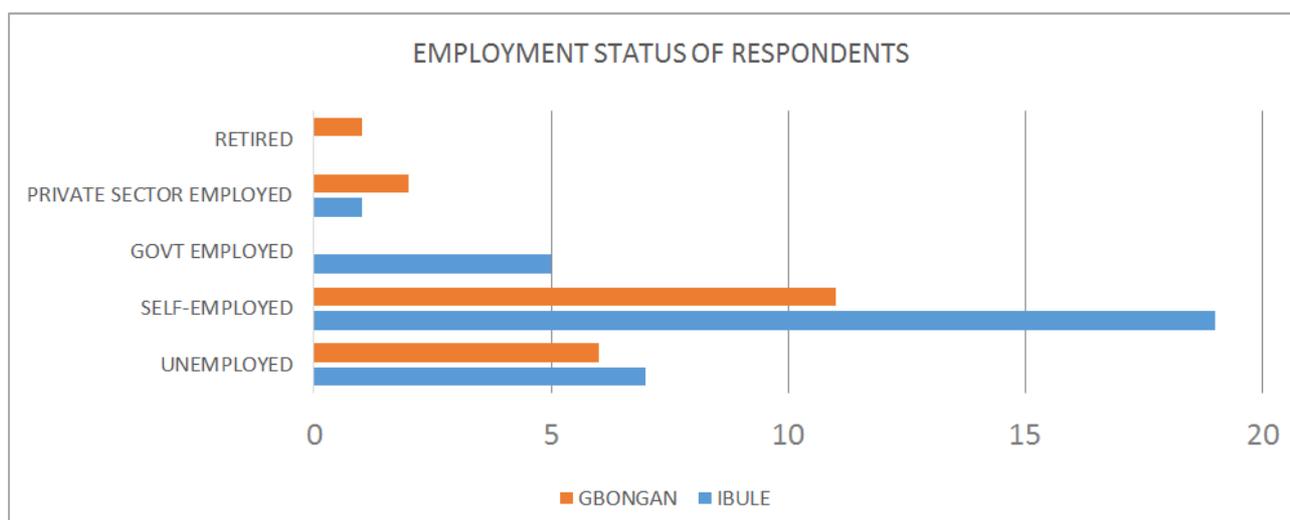


Figure 2. Employment status distribution of respondents.

A demographic summary for both locations indicates; the gender distribution is 56.3% male to 43.8% female. The median age range of the respondents is 26-35 years, and educational status is secondary level. A majority of the respondents (58.3%) are married, self-employed (56.3%) and earn an average income of between 11-20,000 naira monthly.

3.2. Access to Internet

About 19% of the respondents at Ibule-Soro, reported having no access to the internet; 100% of whom are self-employed females. The majority (69%) reported having frequent access to the internet. At Gbongan, 55% of the respondents reported accessing the internet often and 15% do not access the internet at all, 67% of which are self-employed females (See figure 3). This 15% gave reasons such as lack of interest and value validation; one said "I don't think it is necessary", while some others think they are too old to care

about it. However, in Ibule, financial constraints was mostly (66.7%) the reported reason for no access. 16.7% reported lack of operational knowledge and the other 16.7% felt the use of the internet is not necessary, just like those in Gbongan. These reasons are similar to those cited among respondents in rural India, which included personal beliefs, lack of knowledge and adequate infrastructure. [21, 22] found lack of knowledge of the use of internet a factor that limited the use of ICT amongst rural farmers in Ondo state and hence recommended that the farmers be educated on how to use ICT.

A majority (58%) of the respondents in Ibule reported using the internet several times a day, with the average number of hours reportedly spent on the internet in a day at 8.16 hours. 69% of the respondents at Gbongan reported using the internet as often as several times a day, another 12.5% reported once a day use. Showing that above 80% of the respondents accessed the internet daily in the study area.

The findings show that 75% of respondents in Ibule accessed the internet from home; 81% make use of mobile internet devices to access the internet; 52% access the internet using regular monthly subscriptions on their mobile internet devices. 100% of internet users in Gbongan utilized mobile internet data for access, with over 70% of the

respondents using regular mobile data subscriptions (53% used monthly subscriptions). Respondents in the study areas have been using the internet for 6-10 years (40%); 75% above 3 years, and 20% reported never having used the internet. The median length of use of the internet in the study group is 6-10 years.

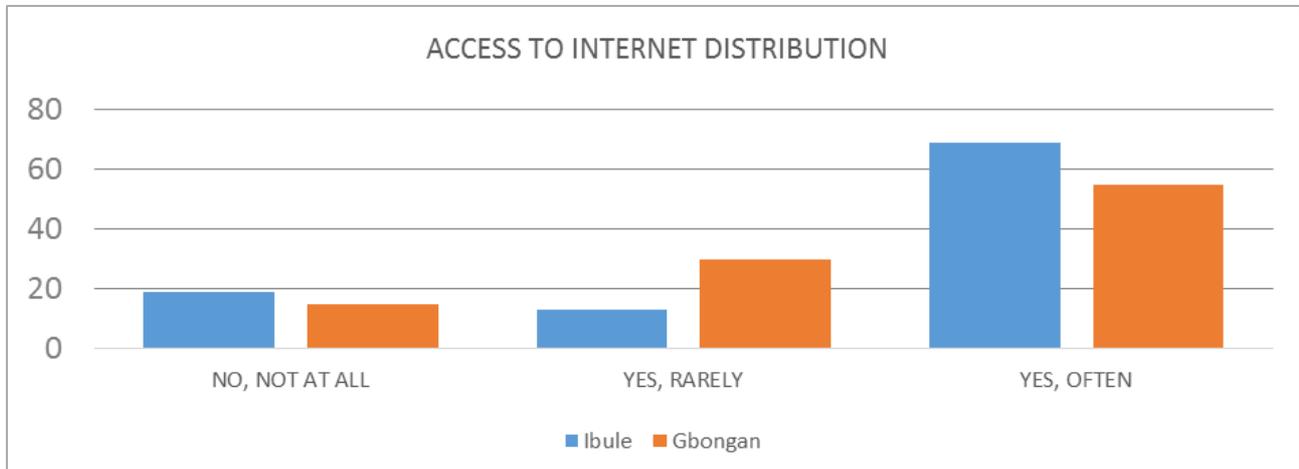


Figure 3. Respondents' access to internet distribution.

3.2.1. Factors That Influence Access to the Internet

The results of the cross-tabulation tests on demographic variables against the question– “Do you have access to the internet?” are presented in Table 1. The results indicate that there is a statistically significant relationship between the age, gender, educational level and monthly income of the respondents and their access to the internet.

Then non-parametric tests were carried out using Kendall's tau_b correlation test to determine the strength and the direction of the association between the variables. The results as presented

in Table 2, show a significant negative correlation between the ages of the respondents and their access to the internet. Implying that, as the ages of the respondents increased, the internet access amongst such class of respondents reduced. It could be said that the youths were most likely to have access to the internet. While many studies like [23, 24] agreed younger populations used the internet more, [25] reported that older employees were found to use the internet more than their younger ones. This, the study related to income level which grows with age and length of time spent at the workplace.

Table 1. Factors that influence access to internet.

Cross-tabulation test values on variables that influence respondents' access to the internet			
Variables	Chi-square value	P-value	Comment
Respondents' location	2.427	0.297	Not significant
Age of respondents	15.563	0.049	Significant
Monthly income	20.612	0.008	Significant
Educational level	21.190	0.020	Significant
Gender	9.970	0.007	Significant
Employment status	13.542	0.095	Not significant
Marital status	8.256	0.083	Not significant

Table 2. Correlation of variables that influence respondents' access to internet.

Kendall's tau_b correlation on the variables that influence access to the internet			
Variables	Correlation coef.	P-value	Comment
Age of respondents	-0.260	0.034	Significant at 0.05 level
Monthly income	-0.085	0.498	Not significant
Educational level	0.420	0.001	Significant at 0.01 level
Gender	-0.210	0.119	Not significant

3.2.2. Significance of Factors That Influence Access to the Internet

The relationship between gender and monthly income of the respondents to their access to the internet, was shown to

be significant with a negative, insignificant correlation value. This implies that while gender affects ability to access the internet and females were less likely to have access to internet than males in the study areas, this was not significant to draw a conclusion on. This also applies with the monthly

income, indicating that the more respondents earned, the more likely they were to access the internet. This is in agreement with the findings of [23, 25] which reported that higher income resulted in a greater likelihood to use the internet for greater than 3 hours daily. In the Nigerian context, this reflects the effects of the high costs associated with acquiring internet subscriptions.

There was also shown to be a positive correlation between the educational level of the respondents and their access to the internet. The more educated the respondents in the study areas, the more likely they were to have more frequent access to the internet. Reference [23] agrees, reporting a high correlation between the educational level and internet usage. While there exists a relationship between gender and monthly income of the respondents to their access to the internet, it was shown to be negative and the correlation was not significant.

3.3. Daily Use of Mobile Internet in Rural Nigeria

The respondents were asked to describe their daily use of the internet. The most frequently appearing word used to describe activities the internet was used for in the Ibule study area is 'Facebook' and 'chat'/'chatting'. While, 'Browse', 'social media', 'video call' and 'chat' were commonly used words in Gbongan. In analyzing the research data, all similar words were grouped into major classes of use: academic (comprising research, school work, learning and assignments, download of docs); communicative (including social media- Facebook and WhatsApp; chats, messaging, video call, conversing, connecting with loved ones and making friends); informative (including browsing, chrome, opera mini, information and news update); economic (including all work and business-related activities, online shopping and online business); and entertainment (involving 'Youtube' and download of movies).

The findings indicate that the most frequent uses of the internet in the study areas are; communication, as reported by 49% and 60% of the respondents in Ibule and Gbongan respectively; followed by academic and informative uses, as reported by 21% and 15% of the respondents in Ibule and Gbongan. This finding is congruence with [26], which

reported that the most common uses of the internet in their study areas were for entertainment/communication and educational purposes; and for information, in [21]. The websites/application mostly used by the respondents in both locations are Facebook, WhatsApp and Google chrome. [27] also found WhatsApp and Facebook as the most used applications on the internet in among Indian respondents. While, [26] reports Google as the most used website their study area.

This reflects the result of the reported uses of the internet in this study, where respondents were shown to be more inclined to use the internet for communicative, informative and academic purposes.

3.4. Perception of the Internet in the Study Areas

A majority of the respondents in Ibule (74%) and Gbongan (94%) had the perception that the internet 'will serve a need and be useful to them'; while 10% in Ibule and 6% in Gbongan did 'not want to be left out'. See figure 4.

77% of the respondents in Ibule and 58% in Gbongan were of the perception that internet access is 'definitely needed'; another 13% in Ibule felt it is 'probably needed', bringing it to a total of 90% of the respondents with the perception that the internet was needed in one way or the other in the study area. A total of 74% of the respondents in Gbongan perceived that the internet was needed in one way or the other. However, a good fraction (26%) were neutral in their perception of the usefulness of the internet. The results are presented in Figure 5.

The results show that information accessed on the internet is mostly moderately trusted in both locations, with 26% in Ibule and 22% in Gbongan reported extreme trust. However, it is indicated that information accessed on the internet is less trusted in Gbongan than in Ibule, as 28% of the respondents there reported slight to no trust at all. This is reflected in the daily activities the internet is used for in this study area. In [26], only 14% of the respondents reported a reliability on information gotten from the internet. Showing a general lack of trust for internet-sourced information.

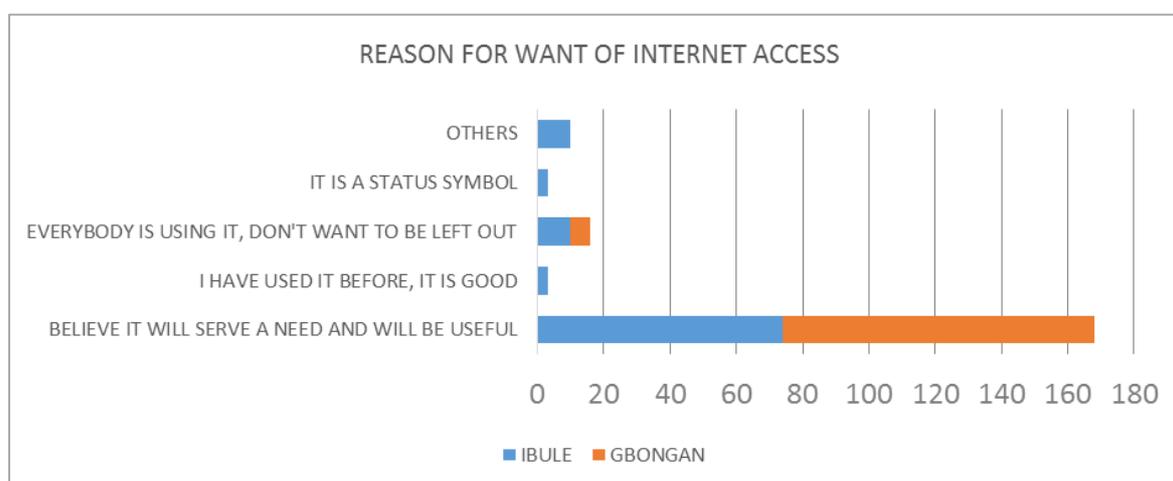


Figure 4. Respondents' reasons for wanting internet access.

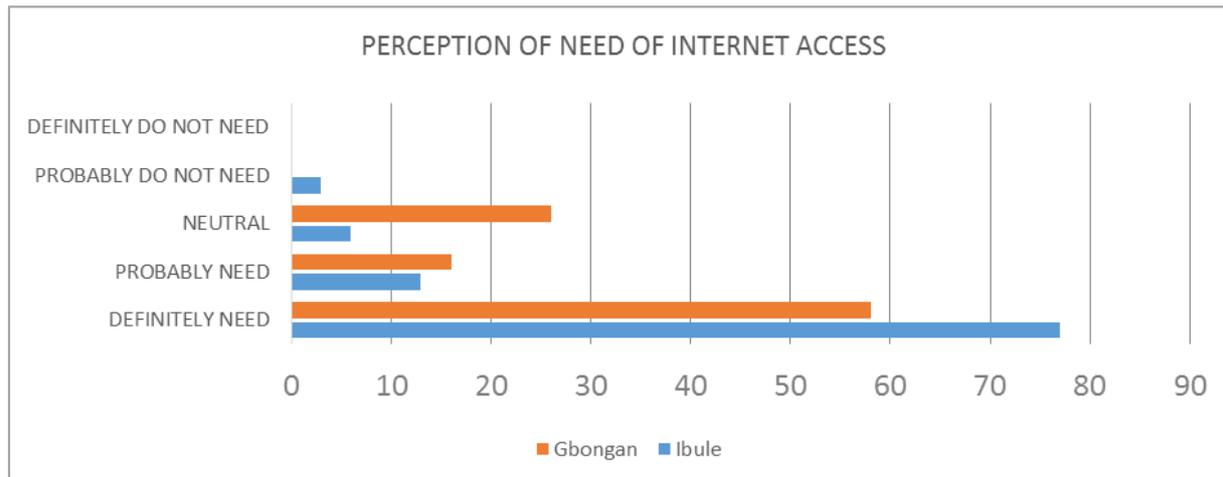


Figure 5. Respondents' Perception of the need of internet access.

3.5. Identifying the Impact of Internet Access on the Lives of Rural Dwellers in Nigeria

The aspects of the life of the rural dwellers were categorized into three (3) broad areas to help focus and analyze the data more efficiently. The categories are; interpersonal relationships, work performance, and local culture/traditional beliefs. The results are as shown in the chart in figure 6. Personal communication is the most common use of the internet in the study areas. Information seeking, business and work-related transactions/communications were the other top uses of the internet.

3.5.1. Response Distribution on the Impact of Internet

The respondents were asked if they believed that their use of the internet affected these aspects of their lives. The questions required a 'Yes' or a 'No' answer. The response distribution in percentages are presented in Table 3. The responses were not significant with Chi-square and p values of 0.333 and 0.564 respectively for 'Impact of internet on work performance'; 1.333 and 0.243 for impact on cultural beliefs; 0.083 and 0.773 for impact on personal relationships. This indicates a neutral stance on the part of the respondents on the impact of the internet on these aspects of their lives.

Table 3. Impact of internet (response distribution).

Response distribution on the impact of the internet		
Variables	'Yes' (%)	'No' (%)
Do you believe that your use of the internet affects your interpersonal relationships?	47.9	52.1
Do you believe that your use of the internet affects your work performance?	54.2	45.8
Do you believe that your use of the internet affects your current disposition to your local culture and traditional beliefs?	41.7	58.3

It was important to understand the variables that influenced these responses from the respondents, such as; location of residence (Ibule-Soro or Gbongan), age and gender of the respondents, their marital, educational and employment status, as well as monthly earnings. Each of these variables of interest was cross-tabulated against the questions and the Chi-Square test for significance was carried out. There were no significant associations found between the variables tested and the responses. This indicates that the location, age, gender, income, educational level, marital and employment status of the respondents did not significantly influence the impacts of the internet on their lives. Reference [22] found that marital status negatively impacts the use of ICT and rural farmers in Ifedore Local Government Area of Ondo state. [25] reported that while age had a positive impact on average daily use of the internet, gender and income do not have

significant impact on average daily use of internet for electronic services such as e-banking. [27] found a significant difference between gender and hours spent on internet for knowledge purposes.

3.5.2. Level of the Impact of Internet Access on the Daily Lives of Rural Dwellers in Nigeria

The figures 7(a-d) show how much the internet has affected the lives of the respondents. 50% of the respondents in the study areas reported that the internet impacted their daily activities 'very much'. 84% reported that they found the internet 'very useful' for their daily activities. Many of the respondents (52%) felt the internet had a 'positive' impact on their societies. The perception of the respondents on the growing access to the internet in Nigeria is that though there were benefits and disadvantages to its use, the benefits outweigh the disadvantages.

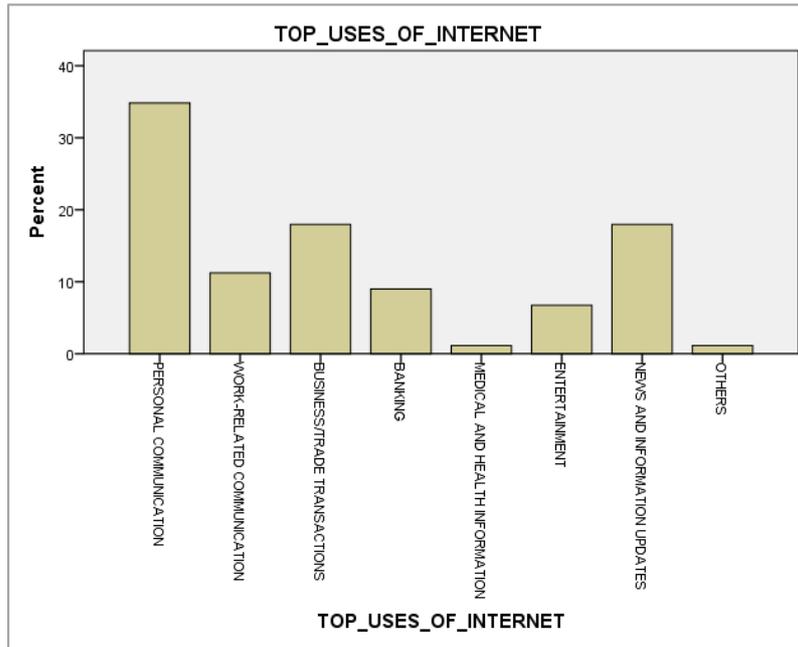


Figure 6. Top uses of internet in the study area.

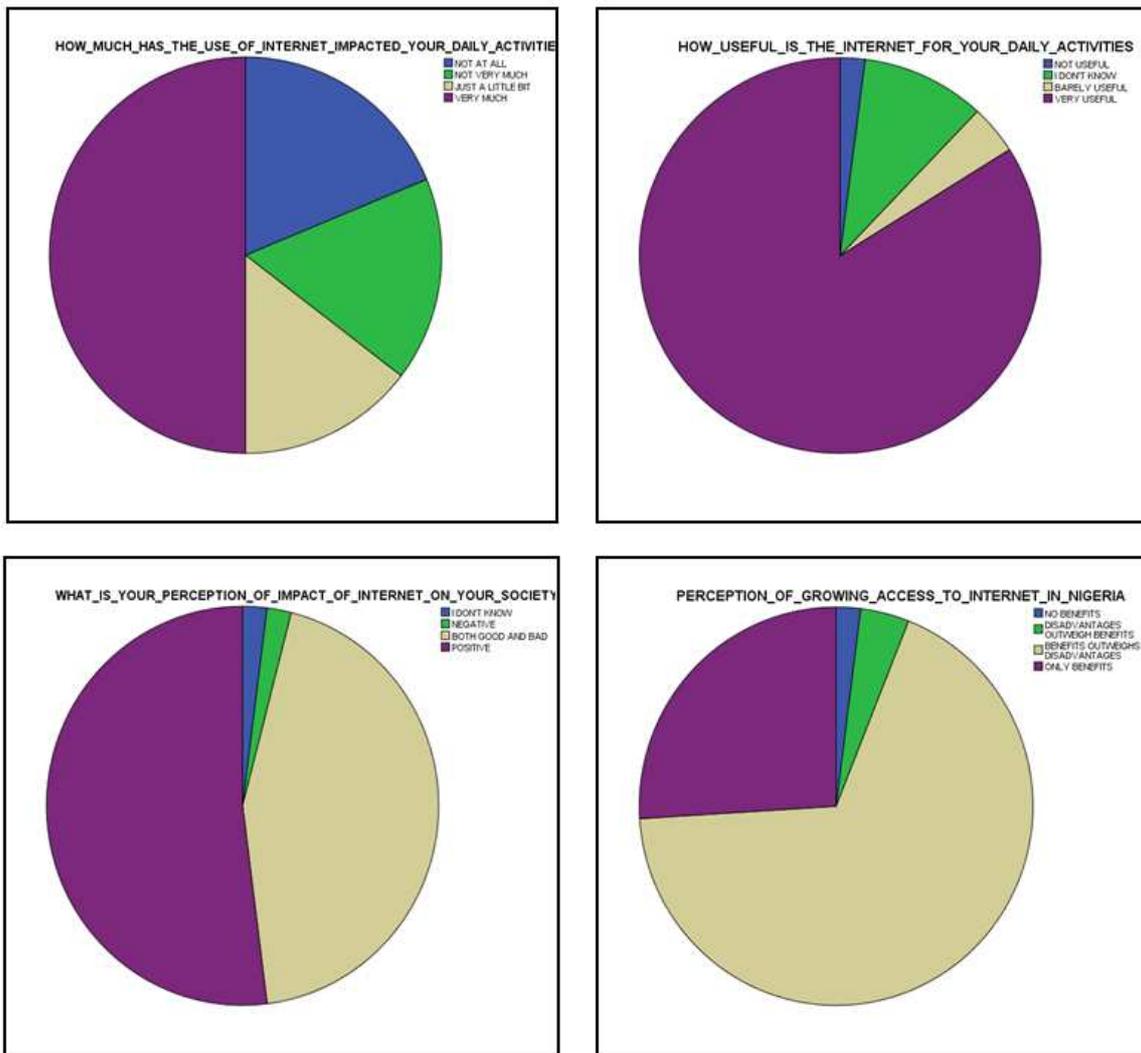


Figure 7. (a-d): Impact of internet on daily lives of respondents.

Chi-Square tests of significance were carried out to ascertain and validate the significance of the responses. The result are presented in Table 4.

Table 4. Impact of internet (test of significance).

	<i>How much has the use of internet impacted your daily activities</i>	<i>How useful is the internet for your daily activities</i>	<i>What is your perception of impact of internet on your society</i>	<i>Perception on growing access to internet in Nigeria</i>
Chi-square	11.710a	45.355b	14.313c	38.032a
Df	3	2	2	3
Asymp. Sig.	.008	.000	.001	.000

There was found to be a positive significant relationship between the respondents' perception of the usefulness of the internet and their access to the internet with a Chi-Square value of 12.998 and a P-value of 0.043, indicating that the more useful the internet was perceived to be, the more they were likely to access the internet. Studies such as [28] reported that the enhancement of scope of work had significant effect on perceived impact of internet on rural dwellers in India. Likewise [21] found that businesses perceived that e-commerce was useful for their operations, thus promoting the use of the internet among business owners.

4. Conclusion

More than half of the respondents in the study areas had frequent access to the internet, using mobile internet devices. A significant negative correlation was found between the ages of the respondents and their access to the internet, implying that, youths were more likely to have access to the internet. The study also indicated that the more educated the respondents in the study areas, the more likely they were to have more frequent access to the internet. The study showed a statistically significant relationship between the age, gender, educational level, monthly income and access to the internet; signifying that all of these factors influenced access to the internet. However, the impacts of the internet on their daily lives was perceived to be the same irrespective of the location of residence, age, gender, income, educational level, marital and employment status of the respondents.

The internet was found to have 'very much' impact on the daily activities of the rural dwellers. More than 80% found the internet 'very useful' for their daily activities and many felt the internet had a 'positive' impact on their societies and were of the perception that the benefits of using the internet outweigh the disadvantages. However, some of the respondents expressed concerns over the growing trend of fraud and other vices on the internet. Therefore, it is recommended that more intervention effort should be put into educating the rural and urban population of Nigeria on the proper use of the internet for personal and societal development, as this would encourage a wider acceptance and use of the internet.

Further research is also recommended as a follow up to this baseline study to better understand the potential and extent to which the internet has influenced socio-economic

development in rural communities in Nigeria. Having the understanding that, the introduction of the rural community to the cyberspace, would also help inject new cultural ideologies, promote the Nigerian cultural identity and end cultural colonialism amongst others.

References

- [1] International Finance Corporation, "Digital growth drives Nigeria's economy forward," IFC, 2019. <https://www.ifc.org/>
- [2] F. Ogunde, "The impact of mobile internet on Nigeria," Stears Business, March 13, 2020, Stears News Limited. <https://www.stearsng.com/article/the-impact-of-mobile-internet-on-nigeria>
- [3] S. Kemp, "Digital 2021: Nigeria," Data reportal, February 11, 2021. <https://datareportal.com/reports/digital-2021-nigeria>
- [4] J. Iwu-James, J. Idiegbeyan-Ose, G. Ifijeh, C. Segun-Adeniran, and U. C. Esse, "Information access for rural women in Nigeria," Chapter 7, In: Handbook of research on rural sociology and community mobilization for sustainable growth," pp. 112-131, 2019. DOI: 10.4018/978-1-5225-7158-2.ch007.
- [5] H. K. Kari, "Availability and accessibility of ICT in the rural communities of Nigeria," The Electronic Library, vol. 25, no. 3, pp. 363-372, 2007. <https://doi.org/10.1108/02640470710754869>
- [6] International Telecommunication Union, "Facts and figures 2021: 2.9 billion people still offline," ITU Hub, <https://www.itu.int/hub>
- [7] B. E. Akanbi and C. O. Akanbi, "Bridging the digital divide and the impact on poverty in Nigeria," Computing, Information Syst & Devt Informatics, vol. 3, no. 4, pp. 81-87, 2012. DOI: 10.22624/AIMS/CISDI/V3N4P2x.
- [8] C. Umezuruike, A. Oludele, S. O. Kuyoro, and A. A. Izang, "Broadband internet penetration in Nigeria: A review," International J. of Research Studies in Computer Sci and Eng (IJRSCSE), vol. 2, no. 1, pp. 1-7, 2015. ISSN 2349-4859.
- [9] Y. Adediran, J. F. Opadiji, N. Faruk and O. W. Bello, "On issues and challenges of rural telecommunications access in Nigeria," African J. of Res in Maths, Sci and Technol Educ, vol. 3, no. 2, pp. 16-26, 2016. <https://www.researchgate.net/publication/317844676>
- [10] C. E. Ogar, S. I. Dika, and L. A. Atanda, "Challenges and prospects of information service delivery to rural people of Nigeria," Research J. of Library and Information Sci., vol. 2, no. 3, pp. 14-28, 2018. ISSN 2637-5915.

- [11] T. K. Kayode-Adedeji and E. M. Agwu, "Application of ICT to agriculture as a panacea to unemployment in Nigeria," *Intl. J. of Advanced Multidisciplinary Res. and Review*, vol. 3, no. 4, pp. 26-48, 2015.
- [12] S. A. Aririguzoh, I. Sobowale, S. Usaini, and E. Amoka, "Influence of the internet on interpersonal communication among youths in Nigeria," 2018. <https://www.researchgate.net/publication/324809087>
- [13] I. J. Akpan and A. A. Akpan, "The impact of internet use on students' learning outcomes in higher education in developing countries," *Intl J. of Educ Research*, vol. 12, no. 1, pp. 45-54, 2017. <https://www.researchgate.net/publication/318939909>
- [14] S. Arunachalam, "Reaching the unreached: How can we use information and communication technologies to empower the rural poor in the developing world through enhanced access to relevant information?" *J. of Information Sci.*, vol. 28, pp. 513, 2002. DOI: 10.1177/016555150202800607.
- [15] M. M. Ashraf, P. A. Swatman and J. Hanisch, "Some perspectives on understanding the adoption and implementation of ICT interventions in developing countries," *The J. of Community Informatics*, vol. 3, no. 4, 2007. DOI: 10.15353/joci.v3i4.2354.
- [16] H. von Bismarck, "Defining decolonization," *Essay for the British Scholar Society*, December 2012. <http://britishscholar.org/publications/2012/12/27/defining-decolonization>
- [17] N. I Nwosu, "The dynamics of Nigeria's decolonization policy in Africa," *Transafrican J. of History*, vol. 22, pp. 74-86, 1993, Gideon Were Publications. <https://www.jstor.org/stable/24328637>
- [18] Princeton University Press, "Decolonization: A short history," Chapter 1- Decolonization as a moment and process, unpublished. <http://assets.press.princeton.edu/chapters/s10963.pdf>
- [19] S. M. Ali, "Prolegomenon to the decolonization of internet governance," In, *Internet Governance in the Global South*. D. Oppermann, Ed., pp. 109-183, 2018. International Relations Research Center (NUPRI) Brazil. University of Sao Paulo.
- [20] A. O. Olusa, "Impact of community social development projects on community improvement: Case of Ibule-Soro community, Ondo state, Nigeria," *Journal of Infrastructure Development*, vol 13, no 1, pp 7-20, 2021. DOI.10.1177/09749306211023615.
- [21] M. Prabu and R. Manoov, "Analyzing the impact of internet in rural India," 2013. School of Computing Science and Engineering, VIT University, Villore. <https://www.researchgate.net/publication/264159967>
- [22] O. F. Folayan, I. M. Folayan, and J. O. Folayan, "Socio-economic characteristics and access of rural farmers to information and communication technologies among Ifedore local government area of Ondo state, Nigeria," *International Journal of Information Technology and Business Management*, vol. 54, no. 1, 2016. <https://www.jitbm.com>
- [23] S. Bastani and M. Fazel-Zarandi, "The effect of internet usage on interpersonal relationships: A case study," *Observatorio (OBS) Journal*, vol 6, pp 293-306, 2008. DOI.10.1109/HICSS.2008.434.
- [24] X. Fang and D. C. Yen, 2006 "Demographics and behavior of internet users in China," *Technology in Society*, vol 28, pp 363-387, 2006.
- [25] I. Akman and A. Mishra, "Gender, age and income differences in internet usage among employees in organizations," *Computer in Human Behavior*, vol 26, no 3, pp 482-490, 2010. DOI.10.1016/j.chb.2009.12.007.
- [26] A. W. Waweru and M. Gichugu, "Purpose-driven internet use and its impact on academic performance of college students," *Journal of Education and Training*, vol 9, no 1, pp 55-80, 2021. DOI.10.5296/jet.v9i1.19263.
- [27] A. Shrivastava, M. K. Sharma and P. Marimuthu, "Internet use at workplaces and its effects on working style in Indian context: An exploration," *Indian Journal of Occup Environ Med*, vol 20, no 2, pp 88-94, 2016. DOI.10.4103/0019-5278.197531.
- [28] Observer Research Foundation (ORF), "Perceived impact of internet use on individuals in rural India," July 21, 2016. <https://www.orf.org/article/perceived-impact-of-internet-use-on-individuals-in-rural-india/>