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Empowering Women Entrepreneurs through Mobile Technology: A Study of Terminus Market, Jos Plateau State, Nigeria

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Abstract
The rapid development of any modern society is heavily influenced by the adoption of Information and Communication Technologies (ICTs), particularly smartphones, which are crucial tools for industrial and economic growth. For women entrepreneurs, especially in developing regions, smartphones play a vital role in alleviating poverty by enhancing socio-economic opportunities. This study investigates smartphone use and satisfaction among market women, and its impacts on business communication, transactions, and decision-making among women entrepreneurs in Terminus Market, Jos, North Central Nigeria. Specifically, it explores their satisfaction with smartphone applications and services and examines how smartphones impact business communication, financial transactions, and decision-making processes. Data were gathered from 107 Terminus Market women through a structured survey. The findings indicate that most respondents were satisfied with their smartphones and viewed them as essential for business activities. Age, education level, and business type significantly influenced smartphone usage and related business outcomes. The study concludes with recommendations aimed at improving smartphone accessibility and developing business-focused applications to support market women's entrepreneurial activities further.

Keywords: ICT, Mobile Phones, Women Entrepreneurs, Socio-Economic Activities.

Introduction

Before the year 2001, only analogue landline phones were available in Nigeria through government-owned Nigerian Telecommunication Limited (NITEL) with less than 500 thousand telephone lines; and the privately-owned mobile line popularly called CELLULAR. Then, only the elite and a few rich individuals and corporate bodies could afford the usage of these means of communication. The public telephone booths were also the order of the day for the common populace at less affordable charges and inefficient services due to long queues and network failures. The Global System of Mobile Communication (GSM) was introduced in Nigeria by former President Olusegun Obasanjo in 2001. Today, GSM has become a household item owned by both young and old, and virtually every family member now carries different sophisticated handsets. The MTN Group (MTN) and ECONET Wireless (ECONET) were licensed by the Nigerian Communication Commission (NCC) to operate as privately owned service providers alongside NITEL. The GSM market was later joined by Globacom. Econet Wireless (which later metamorphosed, changing from Econent to Vmobile, Celtel and now Airtel) was the first GSM mobile phone network to go live in Nigeria. It was soon after joined by MTN, and later by Globalcom and Mtel. However, the story of mobile telecommunication in Nigeria is not just about GSM, as the Code Division Multiple Access (CDMA) also contributed to its quota. Companies like Starcoms, Visafone and Bourdex were leaders in CDMA technology. Today, the popular GSM providers in Nigeria include MTN, Globalcom, Airtel and 9-Mobile. By 2008, 42% of the Nigerian population was using mobile phones. According to the Adesope and Efe-Omojevwe (2010)Nigeria has a telephone subscriber base range of 70 million. Of this, 62 million are GSM subscribers The revolution of GSM has contributed in no small measure to the psychological, political and educational as well as socio-economic development of Nigeria. Incidentally, the monopoly hitherto enjoyed by NITEL dissolved with the introduction of GSM (Isabona, 2013). Since NITEL has ceased to exist, the telecommunication market has become very competitive, though with a very high level of effectiveness and efficient service delivery at a relatively low cost. The world has become a global village and the GSM has been

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aided by the growth and development of ICT and various apps in various forms such as WhatsApp, Facebook, Instagram, Twitter, etc.

The uses and gratification theory is a communication theory that helps us understand why people use certain media and what they benefit from it Karimi and Hosseini (2014), suggest that uses and gratifications examine the question of "how and why" individuals use media to satisfy particular needs. Rather than focusing on the media itself, this theory looks at the motivation and goals of the audience. Asemah (2011) assert that the U & G theory is employed to examine, explain, and provide answers to why people use certain media and what benefits or gratifications they get after that. While Lasswell (1948) asserts that U& G inquire, 'What does an active audience do with the media, why, and with what effect? As opposed to asking 'What does media do to people.' The Smartphone is a multipurpose physical device of internal complexity with processors, sensors, GPS, camera, microphone, speaker and display (Brynjolfsson & McAfee 2014). The telecommunications industry underwent a significant change after smartphones were introduced. Women's participation in societal affairs engenders opportunities to showcase their potential and abilities (Masika & Bailur, 2015). Technology is believed to open up new avenues through which vulnerable groups can be reached (Chigona & Licker, 2009).).

Katz et al. invented the Uses and Gratification method (theory) in 1974. The theory dates back to the 1940s when academics first began examining why individuals tune in to popular radio shows and read newspapers every day (McQuail, 2010). Thus, in answer to the requirement for an explanation of why people utilize particular media and the satisfaction (or advantages) they derive from them, the U&G theory was developed. The tenets of this theory are that people determine the mass media's influence on them through what " they selectively choose, attend to, perceive and retain" in media messages based on "their needs, beliefs and so on" (Anaeto et al., 2008, p. 71). The U&G approach is aimed at understanding why and how people actively seek out specific media to satisfy their specific needs. In other words, the approach explains audience members' motivation(s) to use one media over the other. Asemah (2011) avers that the U&G theory is employed to examine, explain, and provide answers to why people use certain media and what benefits or gratifications they get after that. Karimi et al. (2014), posit that uses and gratifications examine the questions of "how" and "why" individuals use media to satisfy particular needs. While Lasswell (1948) avers that U&G inquire, 'What does an active audience do with the media, why, and with what effect?" as opposed to asking 'What media do to people.'

The basic assumption of the U&G theory is that people use mass media for several reasons and seek to derive various gratifications (Asemah, 2011). Katz et al. (1974) outlined the primary assumptions on which uses and gratifications research are based. The social and psychological origins of needs, which generate expectations of the mass media and other sources, lead to differential patterns of media exposure (or engagement in other activities), resulting in need gratifications and other consequences, perhaps mostly unintended ones (Katz et al., 1974, p. 20). In a comprehensive review of the contributions of telecommunications to development, Saunders et al. (1994) argued that telecommunications can contribute to economic development in the following ways: better market information; improved transport efficiency and more distributed economic development. Smartphones have reduced travel needs, provided better access to business information, easy contact with family members and friends (Usman, 2005).

Similarly**,** Butler (2005) remarked that smartphones enable traders to check prices in different markets before selling produce, eventually allowing the quick and easy transfer of funds, just like we witnessed during the scarcity of cash throughout February 2023, so many market women had to embrace the use of mobile apps, Point of sale (Pos) and bank apps to send and receive funds to sell their products, from the big shop owners down to the tomato sellers. Smartphones seemed particularly to be valued because they were seen to substitute for unproductive travel (Jagun et al., 2008). Jagun et al. (2008, p. 57) state that, "smartphones were seen to have reduced some of the risks inherent in commerce. Ochonogor (2006) points out that telecommunications services boost traders' contact with suppliers, reduce the need to travel, improve trade, and create an informed society.

This study is anchored on the Uses and Gratification Theory. The uses and gratifications theory examines the motivations of media users. The theory shifts perspective from 'What media does to individuals?' to assessing "What individuals do to media?' (Palmgreen & Rayburn1985 as cited in Gerlich et al., 2015). The studies of According to Katz et al. (1974, p. 20) as cited in Scherer (2010, p. 4), scholars of uses and gratifications are generally concerned with, "the social and psychological origins of needs which generate expectations of mass media or other sources, which lead to differential patterns of media exposure, resulting in need gratifications and other consequences". Scholars such as Brandtzæg et al. (2009), Cheung et al. (2011), and Rubin (2009) were interested in investigating what needs to motivate people to use different types of media and the outcome of the process of attempting to fulfil those needs. They shared the view that the theory seeks to explain the reasons why

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certain media were chosen over alternative communication media and the motivators that influence particular media behaviour to occur.

Rubin (2009) asserts that the way users utilize the media to meet and fulfil their needs places them as active consumers of media and their consumption is on a need basis. The needs that drive users to use a particular media affect their behaviour thus providing insight into how and why an active audience uses the media (Seekhiew, 2009). Hence, users are seen as goal-oriented and the core goals or needs for determining the use of the web, according to McQuail, (1987) are for (i) information, (ii) entertainment, (iii) social interaction, and (iv) personal identity. Katz et al. (1973) as cited in Harper (2002), developed 35 needs taken from the social and psychological functions of the mass media and put them into five categories. Satisfaction of tension release needs to weaken contact with the world (Katz, 1973 as cited Harper, 2002). Thus, the uses and gratification theory is relevant to this work as it seeks to provide an answer to Bittner's (1996) question cited in Ejiga (2019, p. 81), 'What do people do with the media?' Hence, the theory will help to provide insight into why women entrepreneurs in Terminus market Jos, use the internet and the gratification they obtain therein. Mobile phones have the potential to accelerate the sharing of information, ideas, and strategies by individuals and communities and also enhance people's ability to make informed decisions that would lead to economic and social development (Umar, 2006). This development, Umar argued, would help to bridge disparities between the rich and the poor, men and women, and encourage a collaborative global network toward equality and empowerment for all. Bertolini (2002) opined that mobile phones offer access to information, particularly about prices, productivity, time-savings, or reduction of travel expenses.

Mobile phones increase the accessibility of information for market strategies, thereby eliminating the need to employ intermediaries. Moreover, it covers a wider area as compared to other media such as newspapers, (Aker, & Mbiti, 2010). Calls are made and information is received immediately promoting faster business transactions. The improved communications by the managers provide availability, cost, quality and other characteristics of information (Heeks & Duncombe, 2008). The supply chain management increased profits and aided in the supply chain management for industries. Smartphones have created jobs for many low-income earners, and this has contributed in no small measure to the Nation's economy. Furthermore, students engage in GSM business to raise money for their tuition fees and other educational expenses (Adesope, & Efe-Omojevwe, 2010). Mobile Telephony is one of the Information and Communications Technologies (ICTs) that is reshaping and revolutionizing communication in an increasingly global village. The former United Nations Secretary-General Kofi Annan points out that, "If harnessed properly, Information and Communication Technologies (ICTs) have the potential to improve all aspects of our social, economic and cultural life, ICT can serve as an engine for development in the twenty-first century" (Annan, 2003, p. 1).

The National Policy on Telecommunications has as a medium-term objective to ensure that public telecommunication facilities are accessible to all communities in the country (Federal Republic of Nigeria, 2001). Several studies have shown that telephone and microenterprises provide the most significant part of income generation and development in many developing countries and that they are "a key ingredient in poverty reduction". (ILO, 2001; Palmer, 2004, p. 31). Adeoti et al.(2008) found that the relatively lower cost of acquiring GSM lines stands out more than any other factor as the driver to adopt GSM lines by small-scale entrepreneurs in a major Nigerian city like Jos. Molony, and Hammett 2007, also emphasized that the telephone is used extensively to maintain social networks. Phone usage has its intrinsic perspective such as status symbols, gratifications, happiness, and economic and consumption items (Donner, 2004). Duncombe et al. (2001, p. 19) conclude that mobile phones are the information-related technology that has helped to reduce costs, increase income and reduce uncertainty and risk in our day-to-day activities. Presently, the cheap nature of the GSM has led people of both low- and high-income levels to have access to mobile services. Mobile phone creates an informed society where everybody learns the act of communicating with each other via mobile phones (Nwokoro, 2005). Some of the benefits of the telecom sector as enumerated by Nwokoro (2005) include improvement of family and social relationships, significant improvement in the security situation and corporate social responsibilities that have brought smiles to a segment of the Nigerian society. Butler (2005) also enumerated the benefits to include communicating with distant family members, making it easier to find employment opportunities and solution providers during emergencies. Jagun et al. (2008) point out that costs and risks are being reduced and time is saved, often by substitution mobile communications for journeys.

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Aim and Objectives of the study

The study aimed to explore smartphone use and satisfaction among market women in Terminus Market, Jos, North Central Nigeria and its impacts on business communication, transactions, and decision-making. Specifically, the objectives of the study are to:

1. Determine the level of satisfaction among market women regarding the applications and services on their smartphones
2. Find out how market women perceive the value of smartphones for their businesses
3. Determine how smartphone use influences communication with customers, suppliers, and business partners
4. Find out the extent demographic factors (age, education level) affect smartphone use and business-related decisions among market women
5. Determine how smartphone access impacts financial transactions and online marketing for market women
6. Find out the role business type, age, and education level play in accessing and using smartphone applications.

Research Questions

Based on the objectives of the study the following research questions guided the study:

1. What is the level of satisfaction among market women regarding the applications and services on their smartphones?
2. How do market women perceive the value of smartphones for their businesses?
3. How does smartphone use influence communication with customers, suppliers, and business partners?
4. To what extent do demographic factors (age, education level) affect smartphone use and business-related decisions among market women?
5. How does smartphone access impact financial transactions and online marketing for market women?
6. What role do business type, age, and education level play in accessing and using smartphone applications?

Methodology

The research design for this study is a cross-sectional survey. It involves collecting data at a specific point in time. The target population for this study is women entrepreneurs in the Terminus market, Jos. A convenience sampling method will be used, where participants will be selected based on their availability and willingness to participate. A structured questionnaire will be used as the primary data collection tool. The questionnaire will be designed to gather information about participants' demographics, their perceptions of smartphones, and their patterns of usage. This will be collected through face-to-face interactions. The study was conducted by focusing on women entrepreneurs in Terminus market Jos. The entire market was selected as sample size, and the population is the whole of Terminus market Jos, for this study. The selection was because economic and social activities flourish in the market daily and Terminus market houses entrepreneurs and women in different businesses and levels. Economic activities range from basic foodstuffs, provision shops, wine shops, pharmaceuticals, textiles, fashion designing, hair stylists, including wholesales and major distributors. A sample size of One hundred and twenty [120] respondents was used for this study. A convenience sampling technique was used in this study. Those who voluntarily agreed to participate in the study were randomly selected. Some of the respondents who were illiterates were helped by their children or shipmates to complete the designed questionnaires. The research employed a quantitative approach to represent the respondent's position to a numerical value, using a questionnaire to achieve this purpose. The quantitative approach provides an overarching framework for providing objective and generalization of findings (Robson et al., 2017). The goal of a quantitative study is to provide neutrality, objectivity and the acquisition of a sizable scope of knowledge through statistical description (Leavy, 2017). Similarly, the method and procedures allow the researchers to obtain a broad and generalizable set of findings and present them succinctly and prudently (Yilmaz, 2013).

The questionnaire had 20 items on a five-point scale: Strongly agree = 1, Agree = 2, Uncertain = 3, Disagree = 4, Strongly disagree = 5.

The respondents were first briefed and assured of their confidentiality and asked to give their true opinion in relation to the subject matter. The data were collected by the researchers with the questionnaire instrument.

Data were collected from 120 in Terminus market Jos as a sample size to represent the population. The data were analyzed by tabulations and Bar graph illustrations. The completed copies of the questionnaire were cross-checked for completeness of data and filling of questions, out of the 120 copies of the questionnaire issued only 107 were accurate, returned and usable. Frequency, charts and percentages were used for data analysis.

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Results

This section presents the data gathered from the one hundred and seven (107) retrieved questionnaires.

Table 1: Age distributions of respondents

Age	Number of respondents	Percentage (%)
20-26	15	14
27-33	29	27
34-40	37	34
41-47	19	18
48 AND ABOVE	7	7
TOTAL	**107**	**100%**

From the table above, out of 107 respondents, 15 (14%) respondents fell under the age bracket of 20-26, 29 (27%) respondents fell under the age bracket of 27-33, 37 (34%) respondents fell under the age bracket of 34-40, 19(18%) respondents fell under the age bracket of 41-47, while 7(7%) respondents fell under the age bracket of 48 and above.

Table 2: Educational background of respondents

Educational background	Number of respondents	Percentage (%)
None	9	8
Primary	30	28
Secondary	38	36
Tertiary	17	16
Vocational	13	12
Total	**107**	**100%**

Information in the table above shows the highest educational qualification of the 107 respondents. From the figure, 9 respondents representing 8% of the total respondents have no educational background, 30 respondents representing 28% have a Primary School Leaving Certificate, 17 respondents representing 16% are holders of a Tertiary Education Degree, while 13 respondents representing 12% of the respondents are Vocationally trained.

Table 3: Business type distributions of respondents

Occupation	Number of respondents	Percentage (%)
Foodstuffs	43	40
Fashion	22	21
Pharmaceuticals	19	18
Financial services	9	8
Arts& Entertainment	14	13
Total	**107**	**100%**

Information in the table above shows the type of business of the 107 respondents. From the figure, respondents representing 40% of the total respondents deal with foodstuff, 22 respondents representing 21% deal with fashion, 19 respondents representing 18% deal with Financial services, while 14 respondents representing 13% of the respondents deal with Arts & Entertainment.

Research question 1: What is the level of satisfaction among market women regarding the applications and services on their smartphones?

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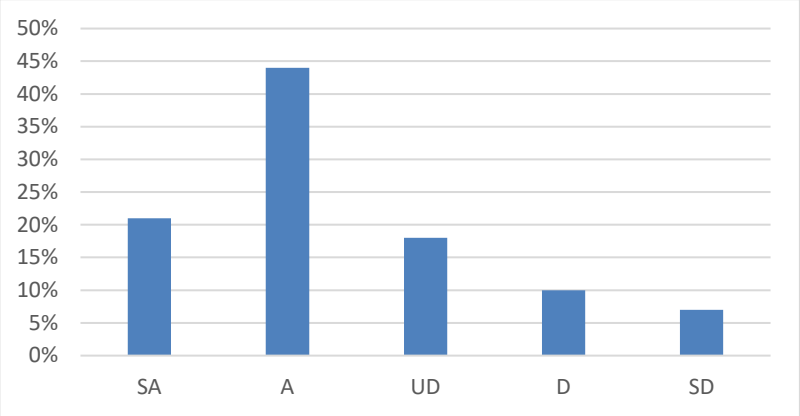

Figure 1. Bar chart for satisfaction with smartphone applications

From the result of the completed survey 23 respondents representing 21% chose (strongly agree), 47 respondents representing 44% chose (agree), 19 respondents representing 18% chose (undecided), 11 respondents representing 10% chose (disagree), and 7 respondents representing 7 % chose (strongly disagree).

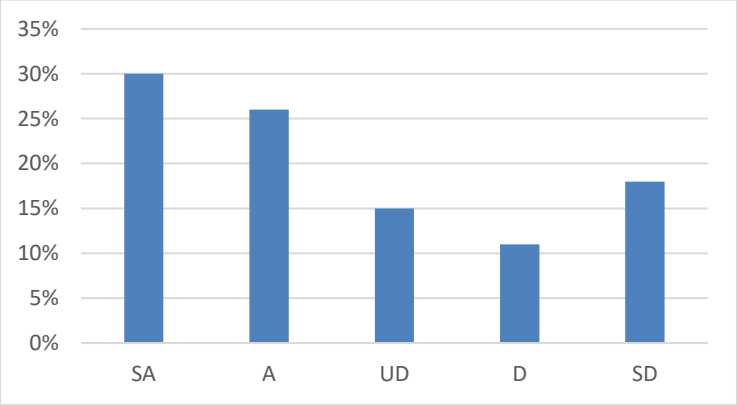

Figure 2. Bar chart for satisfaction with services offered by my network providers

From the result of the completed survey 32 respondents representing 30% chose (strongly agree), 28 respondents representing 26% chose (agree), 16 respondents representing 15% chose (undecided), 12 respondents representing 11% chose (disagree), and 19 respondents representing 18% chose (strongly disagree).

Research question 2: How do market women perceive the value of smartphones for their businesses?

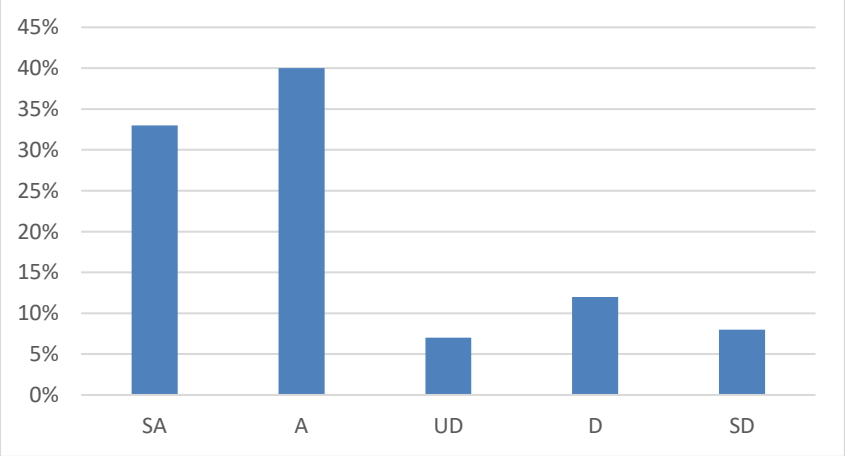

Figure 3. Bar chart for the value of the smartphone in business

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From the result of the completed survey 35 respondents representing 33% chose (strongly agree), 43 respondents representing 40% chose (agree), 7 respondents representing 7% chose (undecided), 13 respondents representing 12% chose (disagree), and 9 respondents representing 8% chose (strongly disagree).

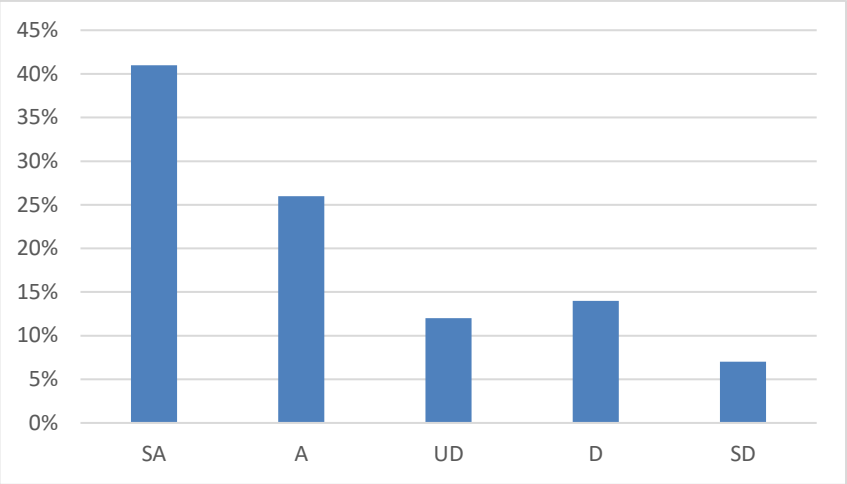

Figure 4. Bar chart for recommending the smartphone to others in the business

From the result of the completed survey 44 respondents representing 41% chose (strongly agree), 28 respondents representing 26% chose (agree), 13 respondents representing 12% chose (undecided), 15 respondents representing 14% chose (disagree), and 7 respondents representing 7% chose (strongly disagree).

Research question 3: How does smartphone use influence communication with customers, suppliers, and business partners?

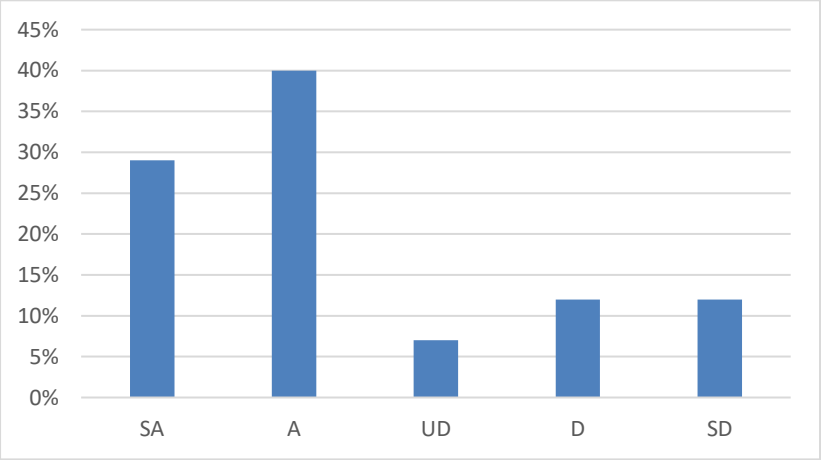

Figure 5. Bar chart for the use of smartphones in communicating with other business partners

From the result of the completed survey 31 respondents representing 29% chose (strongly agree), 43 respondents representing 40% chose (agree), 7 respondents representing 7% chose (undecided), 13 respondents representing 12% chose (disagree), and 7 respondents representing 12% chose (strongly disagree).

Research question 4: To what extent do demographic factors (e.g. age, education level) affect smartphone use and business-related decisions among market women?

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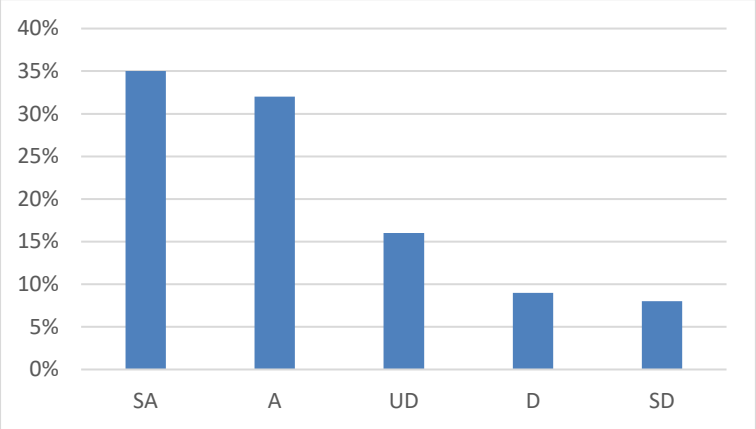

Figure 6. The bar chart on how business type influences smartphone utilization

From the result of the completed survey 37 respondents representing 35% chose (strongly agree), 34 respondents representing 32% chose (agree), 17 respondents representing 16% chose (undecided), 10 respondents representing 9% chose (disagree), and 9 respondents representing 8% chose (strongly disagree).

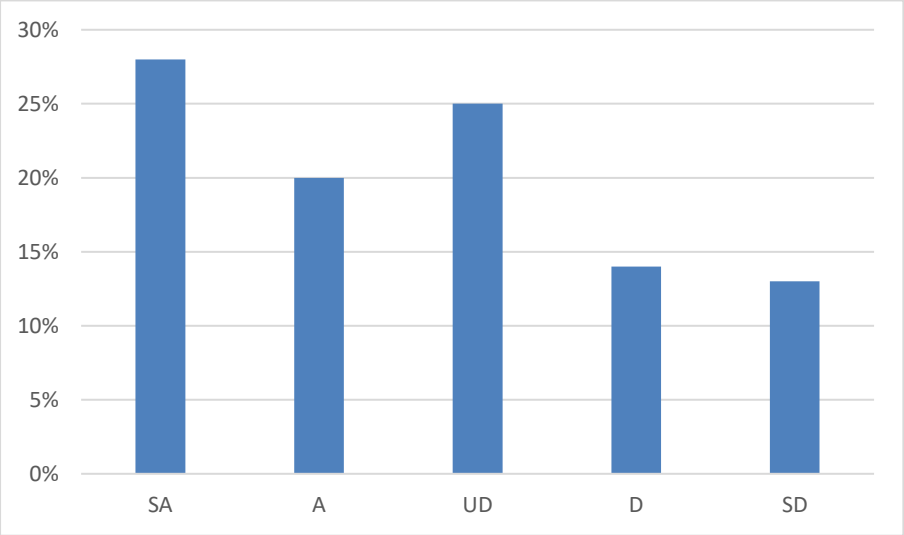

Figure
7. The bar chart on how educational level influences smartphone utilization

From the result of the completed survey 30 respondents representing 28% chose (strongly agree), 21 respondents representing 20% chose (agree), 27 respondents representing 25% chose (undecided), 15 respondents representing 14% chose (disagree), and 14 respondents representing 13% chose (strongly disagree).

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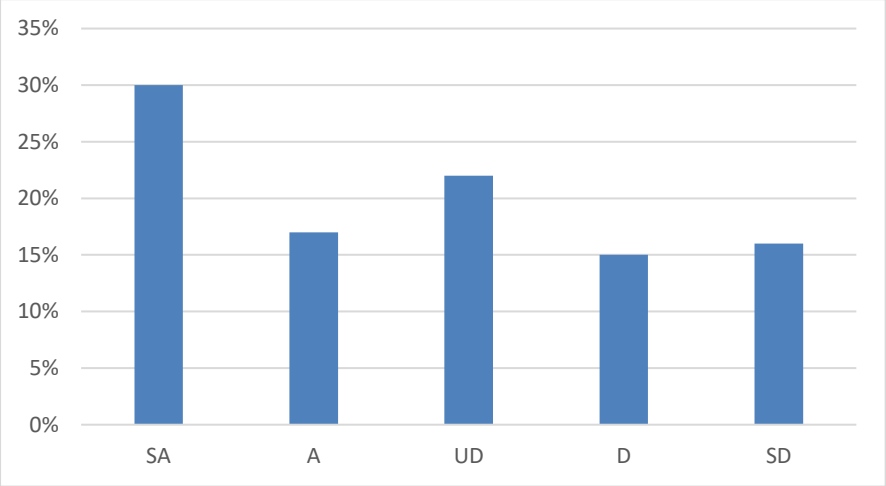

Figure 8. The bar chart on how age influences smartphone utilization

From the result of the completed survey 32 respondents representing 30% chose (strongly agree), 18 respondents representing 17% chose (agree), 24 respondents representing 22% chose (undecided), 16 respondents representing 15% chose (disagree), and 17 respondents representing 16% chose (strongly disagree).

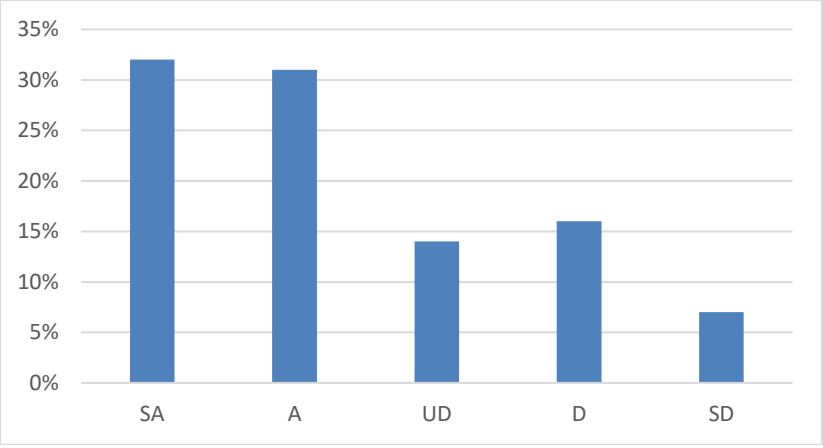

Figure 9. Bar chart on how educational level influences decision-making

From the result of the completed survey 34 respondents representing 32% chose (strongly agree), 33 respondents representing 31% chose (agree), 15 respondents representing 14% chose (undecided), 18 respondents representing 16% chose (disagree), and 7 respondents representing 7% chose (strongly disagree).

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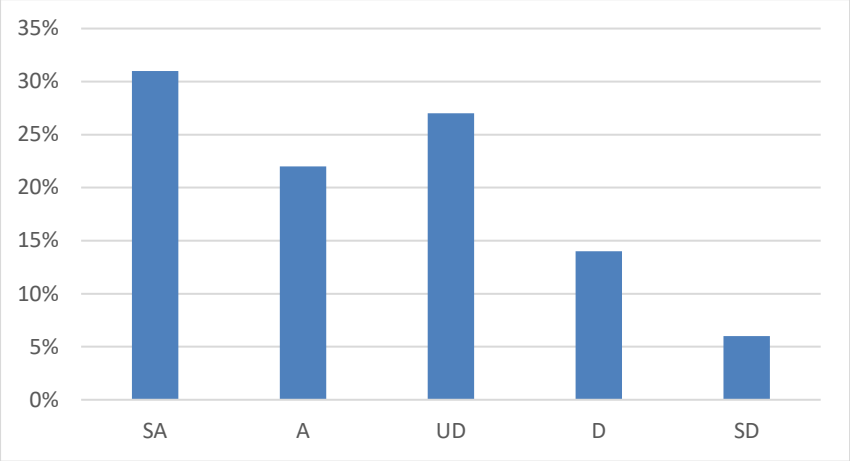

Figure 10. Bar chart on how business type influences decision-making

From the result of the completed survey 33 respondents representing 31% chose (strongly agree), 24 respondents representing 22% chose (agree), 29 respondents representing 27% chose (undecided), 15 respondents representing 14% chose (disagree), and 6 respondents representing 6% chose (strongly disagree).

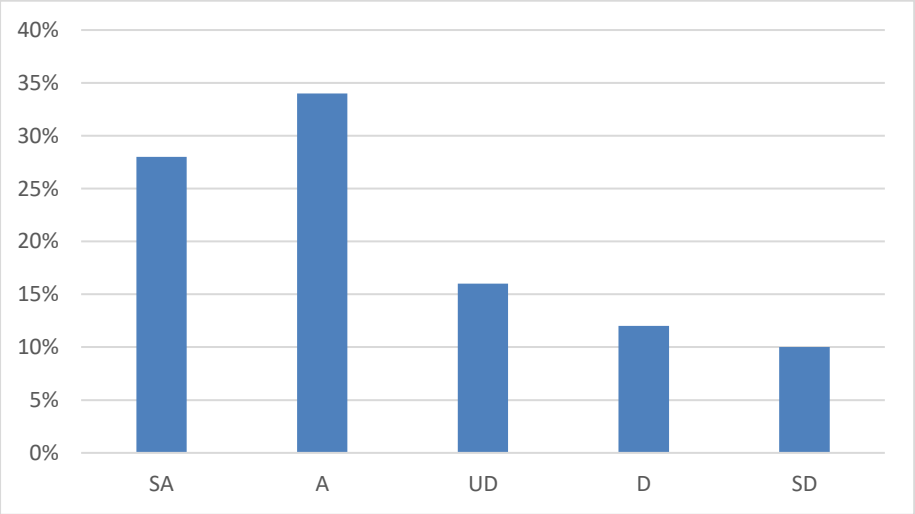

Figure 11. Bar chart on how age influences decision-making

From the result of the completed survey 30 respondents representing 28% chose (strongly agree), 36 respondents representing 34% chose (agree), 17 respondents representing 16% chose (undecided), 13 respondents representing 12% chose (disagree), and 11 respondents representing 10% chose (strongly disagree).

Research question 5: How does smartphone access impact financial transactions and online marketing for market women?

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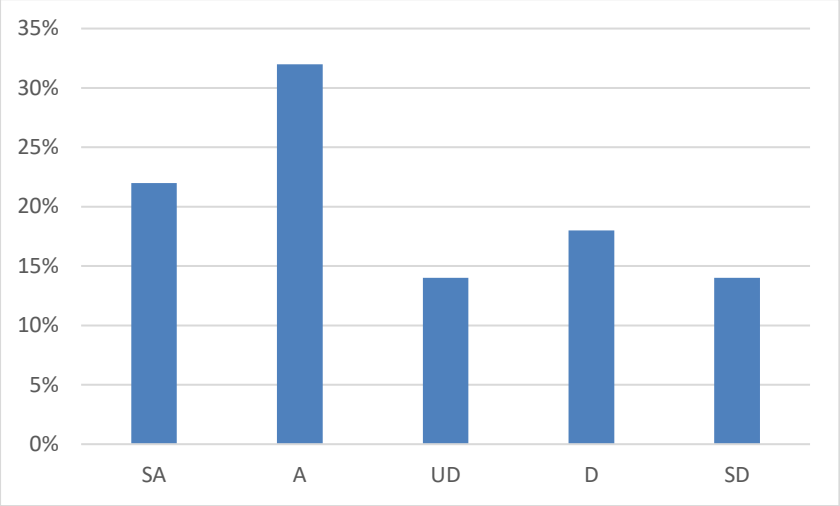

Figure 12. The bar chart on smartphone App utilization in financial transactions

From the result of the completed survey 24 respondents representing 22% chose (strongly agree), 34 respondents representing 32% chose (agree), 15 respondents representing 14% chose (undecided), 19 respondents representing 18% chose (disagree), and 15 respondents representing 14% chose (strongly disagree).

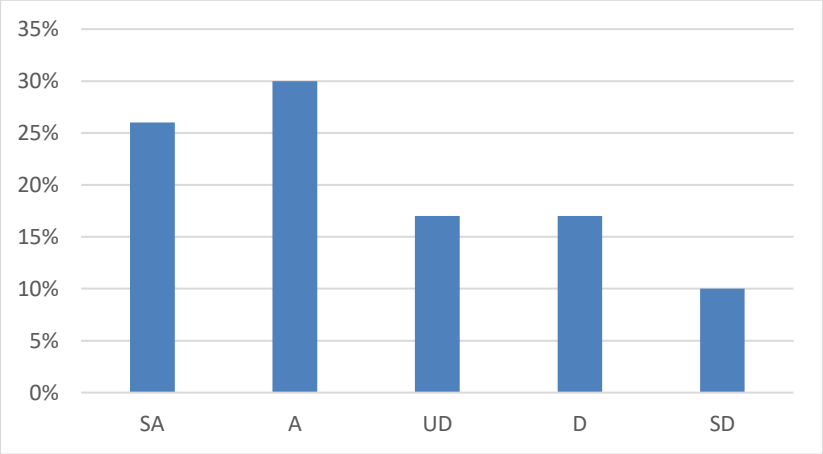

Figure 13. Bar chart on smartphone App utilization to promote and market products and services (using social media)

From the result of the completed survey 28 respondents representing 26% chose (strongly agree), 32 respondents representing 30% chose (agree), 18 respondents representing 17% chose (undecided), 18 respondents representing 17% chose (disagree), and 11 respondents representing 10% chose (strongly disagree).

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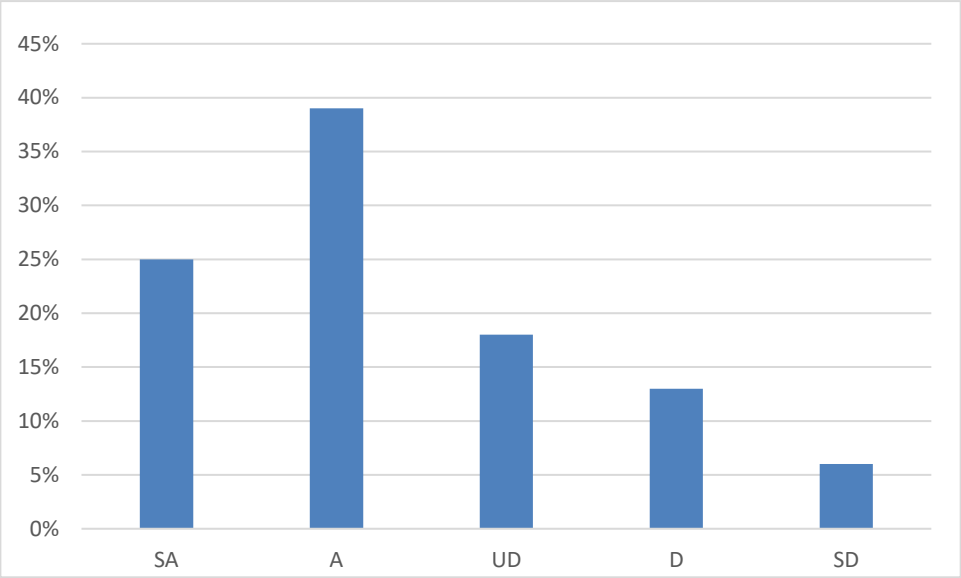

Figure 14. Bar chart on acquiring information about the business using a smartphone

From the result of the completed survey 27 respondents representing 25% chose (strongly agree), 42 respondents representing 39% chose (agree), 19 respondents representing 18% chose (undecided), 13 respondents representing 12% chose (disagree), and 6 respondents representing 6% chose (strongly disagree).

Research question 6: What role do business type, age, and education level play in accessing and using smartphone applications?

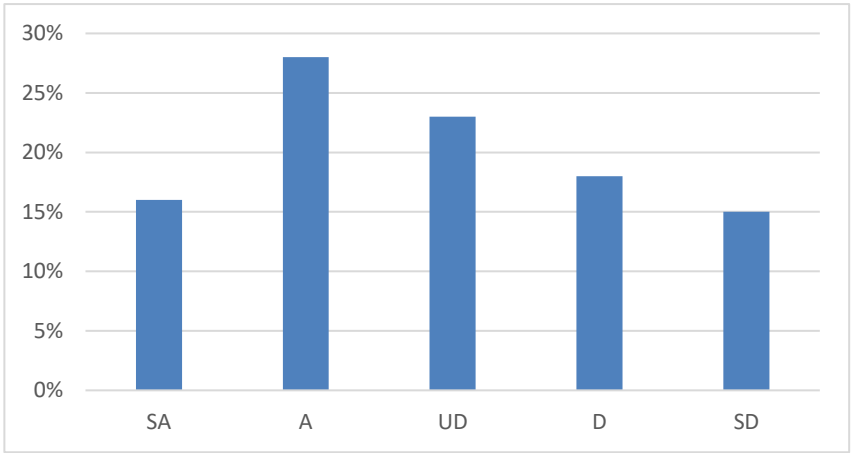

Figure 15. The bar chart on how age affects app access

From the result of the completed survey 17 respondents representing 16% chose (strongly agree), 30 respondents representing 28% chose (agree), 25 respondents representing 23% chose (undecided), 19 respondents representing 18% chose (disagree), and 16 respondents representing 15% chose (strongly disagree).

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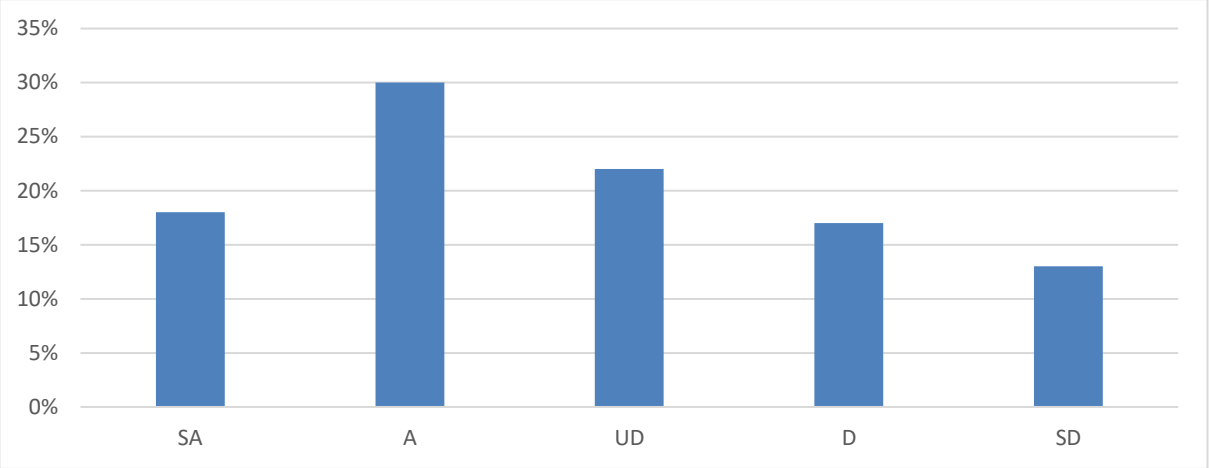

Figure 16. Bar chart on how education affects app access

From the result of the completed survey 19 respondents representing 18% chose (strongly agree), 32 respondents representing 30% chose (agree), 24 respondents representing 22% chose (undecided), 18 respondents representing 17% chose (disagree), and 14 respondents representing 13% chose (strongly disagree).

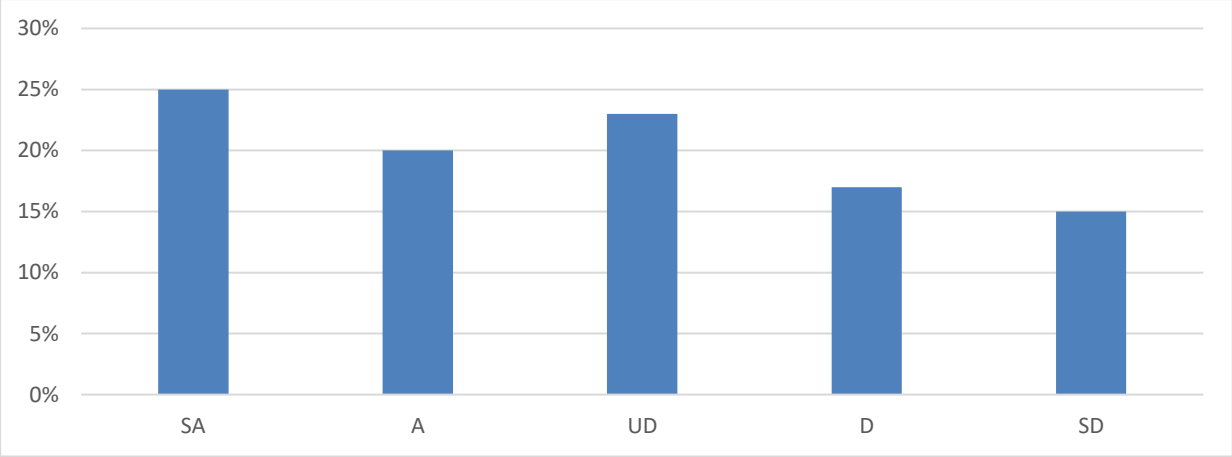

Figure 17. The bar chart on how business type affects app access

From the result of the completed survey 27 respondents representing 25% chose (strongly agree), 21 respondents representing 20% chose (agree), 25 respondents representing 23% chose (undecided), 18 respondents representing 17% chose (disagree), and 16 respondents representing 15% chose (strongly disagree).

Discussion

The purpose of this study was to explore smartphone use and satisfaction among market women in Terminus Market, Jos, North Central Nigeria and its impacts on business communication, transactions, and decision-making. This section discussed and identified areas that may be important in providing a potential explanation of the results. The resulting trends generally interpreted as strongly agree and agree responses represent positive responses, and strongly disagreed and disagree responses represent negative responses; while uncertain responses represent a position of neutrality.

A majority of the respondents expressed satisfaction with their smartphone applications, with 44% agreeing and 21% strongly agreeing that they were satisfied. Similarly, most respondents (56%) were satisfied with the services provided by their network providers. This overall positive perception highlights the importance of smartphones as a business tool for communication and transactions. However, a small percentage (18%) were dissatisfied with network services, indicating potential areas for improvement in connectivity or service quality. Respondents overwhelmingly perceived smartphones as valuable for their business operations. About 33% strongly agreed and 40% agreed that smartphones added value to their business. This suggests that smartphones are seen as indispensable tools for communication, marketing, and financial transactions. Furthermore, 67% of respondents

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said they would recommend smartphones to other market women, demonstrating their confidence in the utility of the device for business growth. Smartphones were considered essential for communicating with customers, suppliers, and business partners. A combined 69% of respondents (strongly agree and agree) highlighted the significance of smartphones in maintaining business relationships, emphasizing the device's role in enhancing communication efficiency and effectiveness in the marketplace.

Age, education, and business type played significant roles in smartphone usage. For instance, respondents aged 34-40 were the most active in using smartphones for business. Educational background also had a notable impact, as those with higher levels of education (secondary and tertiary) were more likely to utilize smartphone applications effectively. However, a considerable number of respondents (25%) were undecided about whether their level of education influenced their smartphone use, suggesting that practical business experience may also play a role in their decision-making processes. Smartphones were also instrumental in facilitating financial transactions and promoting products through social media platforms like WhatsApp, Facebook, and Instagram. About 54% of respondents agreed or strongly agreed that they could easily use their smartphone apps for financial transactions. Additionally, 56% of respondents found smartphones helpful in promoting their products online, underscoring the growing reliance on digital tools for marketing in informal markets. The study also examined how demographic factors affect access to smartphone applications. Age was a significant factor, with younger respondents finding it easier to access apps, while older respondents faced more challenges. Similarly, those with higher levels of education were more adept at accessing and utilizing smartphone applications compared to those with lower educational levels. The type of business also played a role, with more tech-savvy sectors like fashion and financial services being more reliant on smartphone apps compared to other sectors like foodstuff trading.

Conclusion

The findings reveal that smartphones are a critical tool for market women in Terminus Market, Jos. Age, education, and business type significantly influence how market women utilize smartphones for communication, decision-making, and financial transactions. While the majority of respondents were satisfied with their smartphones and the services provided, there is still room for improvement in network services and smartphone accessibility for older or less-educated users. Expanding smartphone literacy and improving digital infrastructure could further enhance the economic opportunities for market women.

Recommendations

1. To ensure that all market women, especially those with lower educational levels and older age groups, can fully benefit from smartphone technology, training programs on smartphone usage should be organized. These programs should focus on enhancing digital literacy, particularly in using smartphone applications for financial transactions, online marketing, and communication with business partners. Such initiatives could be facilitated by government agencies, NGOs, or private sector partners.

2. Since some respondents expressed dissatisfaction with their network providers, telecommunication companies need to improve the quality and coverage of their services, especially in market areas. Strengthening network services would allow market women to effectively utilize smartphone applications without interruptions, leading to smoother business operations and more reliable online transactions.

3. Develop tailored smartphone applications for market women businesses that cater to market women, such as app developers and service providers, should create customized smartphone applications specifically designed to meet the needs of small-scale entrepreneurs. These applications could include simple interfaces for managing inventory, processing payments, and conducting online marketing. Additionally, efforts should be made to promote awareness of these applications to ensure wider adoption among market women.

References

Adeoti, J.O., & Adeoti, I.A. (2008). Easing the burden of fixed telephone lines on small-scale entrepreneurs in Nigeria: GSMlines to the rescue. *Telematics and Informatics*, *25*(1), 1–18.

Adesope, O.M., & Efe-Omojevwe, Z.A. (2010). The impact of Global System for Mobile Communication (GSM) revolution on low income earners in Nigeria. *20 (3),* 1-3 Retrieved from http/www. Iimahd.ernet.in /egov.

Aker, J. C., & Mbiti, I. M. (2010). Mobile phones and economic development in Africa. *Journal of Economic Perspectives*, 24(3), 207-232.

Anaeto, S. G., Onabajo, O. S., & Osifeso, J. B. (2008). *Models and theories of communication*. African Renaissance Books Incorporated.

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Annan, K. (2003). *Information and communication technologies for development*. United Nations.
Asemah, E. S. (2011). *Selected mass media themes*. Jos University Press.
Bertolini, R. (2002). *Telecommunications in Africa: Progress and prospects*. World Bank.
Bittner, T. (1996). Consciousness and the act of will. *Philosophical Studies*, 331-341.
Brandtzæg, P. B., Heim, J., & Karahasanović, A. (2009). Understanding the new digital divide: A typology of Internet users in Europe. *International Journal of Human-Computer Studies*, 67(3), 212-223.
Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. W.W. Norton & Company.
Butler, D. (2005). Mobile phones and economic development: Evidence from the developing world. *Technology and Society*, 27(1), 67-72.
Cheung, C. M. K., Chiu, P.-Y., & Lee, M. K. O. (2011). Online social networks: Why do students use Facebook? *Computers in Human Behavior*, 27(4), 1337-1343.
Chigona, W., & Licker, P. (2009). Exploring the potential of cell phones to address digital divide issues in South Africa. *Journal of Information, Communication and Ethics in Society*, 7(3), 122-137.
Donner, J. (2004). Microentrepreneurs and mobiles: An exploration of the uses of mobile phones by small business owners in Rwanda. *Information Technologies and International Development*, 2(1), 1-21.
Duncombe, R., & Heeks, R. (2001). Information and communication technologies and small enterprise in Africa. *Institute for Development Policy and Management*, University of Manchester.
Ejiga, N. N. (2019). *Uses and gratifications theory and the impact of social media on the behavior of youths in Nigeria*. Unpublished master's thesis, University of Jos, Nigeria.
Federal Republic of Nigeria. (2001). *National telecommunications policy*. Federal Ministry of Communications.
Gerlich, R. N., Drumheller, K., Babb, J., & De'Armond, D. A. (2015). App consumption: An exploratory analysis of the uses & gratifications of mobile apps. *Academy of Marketing Studies Journal*, *19*(1), 69.
Gerlich, R. N., Drumheller, K., Babb, J., & De'Armond, D. A. (2015). App consumption: An exploratory analysis of the uses & gratifications of mobile apps. *Academy of Marketing Studies Journal*, *19*(1), 69.
Harper, D. (2002). Talking about pictures: A case for photo elicitation. *Visual studies*, *17*(1), 13-26.
Heeks, R., & Duncombe, R. (2008). *Telecommunications and economic development in developing countries*. MIT Press.
International Labour Organization (ILO). (2001). *Telecommunications, employment, and development*. ILO Publications.
Isabona, J. (2013). Telecommunications infrastructure, digital economy, and regional development in Nigeria. *Journal of Telecommunication and Information Technology*, 2, 72-84.
Jagun, A., Heeks, R., & Whalley, J. (2008). The impact of mobile telephony on developing country micro-enterprise: A Nigerian case study. *Information Technologies and International Development*, 4(4), 47-65.
Karimi, L., & Hosseini, M. (2014). Uses and gratifications theory: Applications in online communication in the 21st century. *Journal of Information Technology and Digital Society*, 3(1), 50-65.
Katz, E., Blumler, J. G., & Gurevitch, M. (1974). Uses and gratifications research. *Public Opinion Quarterly*, 37(4), 509-523.
Lasswell (1948).*The Structure and Function of Communication in Society.*
Lasswell, H. D. (1948). *The structure and function of communication in society*. University of Chicago Press.
Leavy, P. (Ed.). (2017). *Handbook of arts-based research*. Guilford Publications.
Masika, R., & Bailur, S. (2015). Women's empowerment and mobile phones: A case study of East Africa. *Gender and Development*, 23(1), 123-134.
McQuail, D. (1987). *Mass communication theory: An introduction*. Sage Publications, Inc.
McQuail, D. (2010). *McQuail's mass communication theory* (6th ed.). SAGE Publications.
Molony, T., & Hammett, D. (2007). The friendly financier: Talking money with the silenced assistant. *Human Organization*, *66*(3), 292-300.
Nwokoro, R. (2005). The impact of telecommunications on economic and social development in Nigeria. *Journal of African Studies*, 15(2), 123-136.
Ochonogor, C. (2006). Telecommunications in Nigeria: Development and impact. *Journal of Communication Studies*, 18(3), 92-100.
Ogbonna, O. (2017). *Laggard Zone: A Perspective on Telecommunications Technology Availability in'very'Late Adopter Nations Like Nigeria*. Olileanya Ogbonna.
Palmer, A. (2004). Fictional Minds. *U of Nebraska P*.
Palmgreen, P., & Rayburn, J. D. (1985). Uses and gratifications research: The past ten years. In *The Uses of Mass Communications: Current Perspectives on Gratifications Research* (pp. 23-55). SAGE Publications.

Robson, M., Im, S. A., Senkus, E., Xu, B., Domchek, S. M., Masuda, N., ... & Conte, P. (2017). Olaparib for metastatic breast cancer in patients with a germline BRCA mutation. *New England Journal of Medicine*, *377*(6), 523-533.

Rubin, A. M. (2009). Uses and gratifications perspective on media effects. In J. Bryant & M. B. Oliver (Eds.), *Media effects: Advances in theory and research* (pp. 165-184). Routledge.

Saunders, R. J., Warford, J. J., & Wellenius, B. (1994). *Telecommunications and economic development* (2nd ed.). Johns Hopkins University Press.

Scherer, M. J. (2010). Uses and gratifications theory: Predicting Facebook addiction. *Journal of Information and Communication Technology*, 8(2), 1-18.

Seekhiew, P. (2009). Exploring the use of social networking sites between Extraversion and Introversion among Thai College Students: The Uses and Gratification Theory. *Faculty of the College of Communication, Hawaii Pacific University*.

Umar, A. (2006). The role of mobile telephony in economic development: Case study of Nigeria. *Journal of Economic Development*, 12(4), 89-110.

Usman, S. (2005). Telecommunications and economic development: Case study of Nigeria. *African Journal of Economic Policy*, 6(3), 32-48.

Yilmaz, K. (2013). *Comparison of quantitative and qualitative research traditions: Epistemological, theoretical, and methodological differences*. Retrieved from https://doi.org/10.1111/ejed.12014.