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(RESEARCH ARTICLE)

From USSD to apps: Understanding mobile money platform preferences among Zimbabwean youths.

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Abstract

This research investigates the factors influencing the choice between Unstructured Supplementary Service Data (USSD) and mobile money applications among young people in Zimbabwe. With the increase in mobile money services, an understanding of user preferences is crucial for providing platform support services, enhancing financial inclusion and service delivery. The study uses a quantitative survey to gather data from a diverse sample of young Zimbabweans aged between 18-35 years. Key findings indicate that while USSD remains popular due to its accessibility and ease of use on basic mobile phones, mobile money apps are gaining traction among tech-savvy users who are interested in advanced features and user experience. Smartphone penetration, internet accessibility, transaction costs, and perceived security significantly influence the choice of mobile money platform The research highlights the need for mobile money providers to tailor their services to meet the diverse needs of young users, promoting broader financial inclusion and economic participation.

Keywords: User interaction; Technology uptake; USSD; Mobile money; Mobile money app

1. Introduction

The increase in mobile money services has significantly transformed the financial landscape in Zimbabwe in recent years. With the country's economic challenges, including hyperinflation and limited access to traditional banking services, mobile money platforms have become indispensable for financial inclusion (1). Unstructured Supplementary Service Data (USSD) and mobile money applications are the primary channels for mobile financial transactions, offering accessible and innovative solutions to meet the population's financial needs (2). This study explores the preferences and determinants influencing the choice between USSD and mobile money apps among Zimbabwean youths, a demographic that is both tech-savvy and critical to the future of digital financial services (3).

USSD technology allows users to interact with their mobile network operator's computers via text messages (4). It has been widely adopted due to its simplicity and accessibility, even on basic mobile phones, making it particularly valuable in low-income and rural settings (5). On the other hand, mobile money apps offer a more sophisticated interface, providing a range of services, including money transfers, bill payments, and account management options. However, these apps require smartphones and internet connectivity, which can be barriers for users in areas with limited infrastructure (6)

The youth demographic is the most tech-savvy and adaptable, and it plays a crucial role in these platforms' adoption and usage patterns. Understanding the demography's preferences can provide valuable insights into the future of mobile financial services in Zimbabwe (7). This research will delve into convenience, cost, security, and user experience to determine what drives the choice between USSD and mobile money apps among young Zimbabweans.

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1.1. Significance of the Research

This research can significantly influence policy decisions in several ways

- Financial Inclusion: By understanding the preferences of Zimbabwean youths, policymakers can design initiatives that promote financial inclusion. If USSD is preferred due to its accessibility, policies could focus on enhancing USSD services and ensuring they remain affordable and reliable (2).
- Digital Infrastructure: This research could provide insights into the need for improved digital infrastructure. If mobile money apps are favoured but hindered by limited internet access, policies could aim to expand internet coverage and reduce data costs (8)
- Consumer Protection: The study can reveal security concerns associated with USSD and mobile money apps. Policymakers can then implement regulations to enhance the security of these platforms, protecting users from fraud and ensuring their financial data is secure (1).
- Youth Empowerment: Understanding youth's financial behaviours could help craft policies that empower them economically. Youth empowerment groups and civil society organisations could develop programs to educate young people on financial management and the benefits of using digital financial services (6).
- Economic Development: The government can stimulate economic activities by promoting the most effective mobile money platforms. Easier and more secure financial transactions can boost small businesses and entrepreneurship among the youth (3).
- Innovation and Competition: The findings can encourage innovation within the mobile money sector. Policymakers might support competitive practices that lead to better services and lower consumer costs (2).

By aligning policies with the preferences and needs of the youth, the government can foster a more inclusive, secure, and dynamic financial ecosystem in Zimbabwe.

1.2. Theoretical Framework

This research will draw upon the Technology Acceptance Model (TAM), a widely used framework for understanding how individuals accept and utilise technology (7). The model consists of four primary components: perceived usefulness, perceived ease of use, attitude toward use, and behavioural intention to use. These components can be described as follows:

- Perceived Usefulness: Refers to the extent to which an individual believes using a specific system would improve their performance. The study will investigate how Zimbabwean youths perceive the usefulness of USSD compared to mobile money applications in managing their financial transactions (9).
- Perceived Ease of Use: Refers to the extent to which an individual believes that utilising a specific system will require minimal effort. The research will analyse the usability of USSD compared to mobile money applications (7).
- Attitude Toward Using: This aspect assesses the user's overall emotional response to employing a system. A person's attitude can be shaped by their perceived usefulness and ease of use (9).
- Behavioural Intention to Use: Indicates how much an individual has made conscious plans regarding the future use or non-use of the system. It indicates the actual usage behaviour, examining the potential for ongoing or future platform engagement based on users' experiences and attitudes (7).

1.2.1. Benefits of Using the Technology Acceptance Model (TAM)

TAM is an effective model for predicting user acceptance and usage behaviour. It makes predicting whether a user is likely to accept a particular technology or exhibit certain usage behaviours more straightforward. The simple model can be adapted to various technologies and contexts (7). Based on these benefits, TAM is well-suited for this study. Additionally, TAM has been extensively validated in numerous studies across different fields, making it a reliable framework for this research (9).

2. Methodology

The study uses a quantitative approach to investigate Zimbabwean youths' preferences for mobile money platforms. Its purpose is to identify the variables that affect mobile money users' decisions between using mobile services via apps or USSD codes. The research design, data collection strategies, and data analysis methodologies are detailed below.

2.1. Research Design

This survey uses a cross-sectional survey design. This method allows for gathering information from a representative sample of young people in Zimbabwe at one moment, providing an overview of their preferences for mobile money platforms and associated attitudes (10). We selected a quantitative approach to facilitate statistical analysis and extrapolate results to the larger Zimbabwean youth population.

2.2. Data Collection Method

An online survey was used for data gathering. Online questionnaires were distributed via a web-based survey platform. We chose Google Forms because of its simplicity in design and ease of use across various potential recipients. Online surveys enable access to a geographically dispersed population, including those in urban and rural areas (11). They also reduce the costs associated with traditional paper-based surveys, such as printing, distribution, and data entry. Online surveys provide efficiency by allowing for rapid data collection and automated data entry, thereby saving time and streamlining the research process (12). Another benefit of using online surveys is that they provide anonymity and confidentiality. This encourages respondents to respond honestly, especially regarding sensitive topics (11).

3. Results

3.1. Demographic breakdown

This section provides a critical contextual foundation by detailing the characteristics of the study participants. Understanding the demographic composition allows for a more nuanced interpretation of platform preferences. It reveals how factors such as age, gender and education intersect with the choice of platform for mobile money technology adoption and usage.

3.1.1. Age distribution

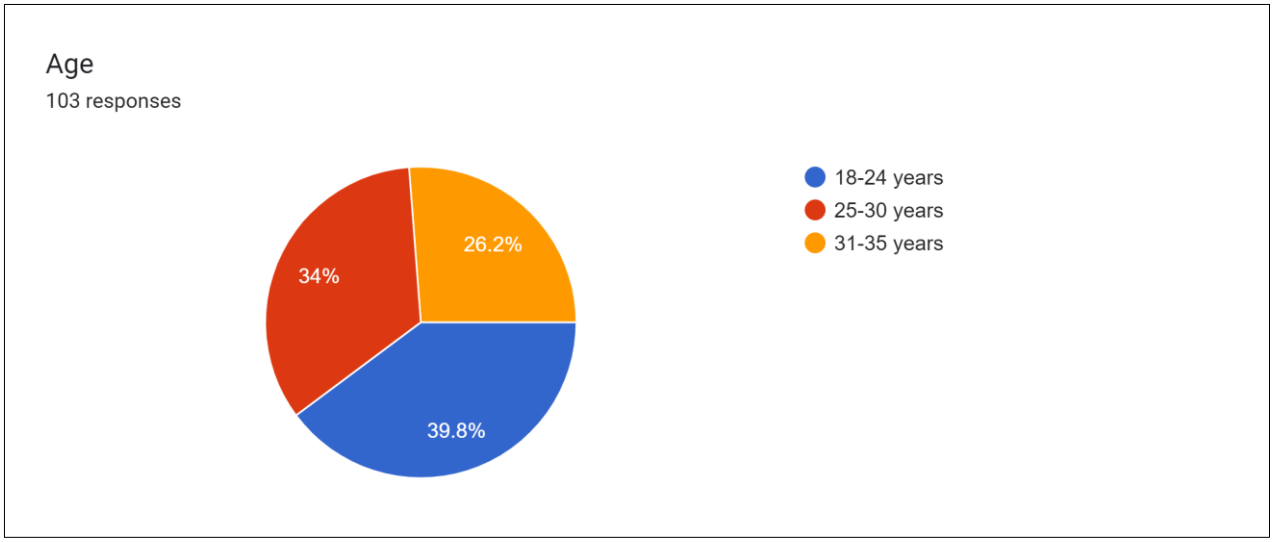

Figure 1 Age distribution

Of the respondents, a higher percentage comprised the age range 18-24 years. This range constituted 39.8% of the total respondents. The following range was the 25–30-year-olds, who comprised 34% of the total respondents. A measly 26.2% was composed of the 31-35-year-olds. These statistics are a close representation of the actual ratios of the same ranges according to (13). The sampled respondents can be assumed to represent the actual population. We can safely take the opinions and perceptions of the study's respondents as indicative of the actual preferences among the Zimbabwean youths. Younger populations are more likely to adopt digital financial services (2)

3.1.2. Gender composition

The majority of the respondents (52.4%) were males. 46.6% were females. Only one respondent (1%) preferred not to disclose whether they were male or female.

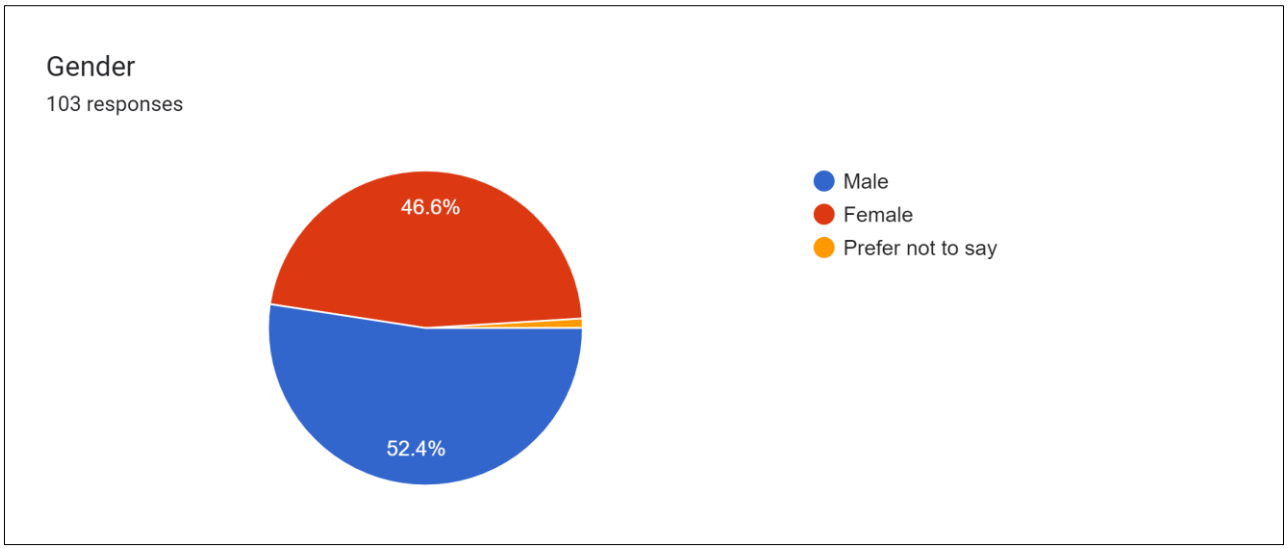

Figure 2 Gender distribution

3.1.3. Education level

Most respondents had attained or were going through Tertiary education (92.2%). Since education level was not a significant factor to consider in the study, we can combine tertiary education (92.2%), undergraduate (1%) and university education (1.9%) under the same class. Combining these education levels under the same class was done to avoid distortion of data since they all fall under tertiary education. The total percentage of the above gives us 95.1%. A total of 4.9% indicated that they had secondary education as their highest level of education. None of the respondents indicated their level of education as vocational training or primary level. This statistic summarises that the respondents had gone through some formal education and had at least attained secondary school education. The statistic indicates that all respondents were literate enough to make informed choices about their preferred mobile money platform. The high level of education suggests that respondents are likely to be tech-savvy and comfortable with digital platforms, consistent with other findings that education positively correlates with mobile money adoption (1).

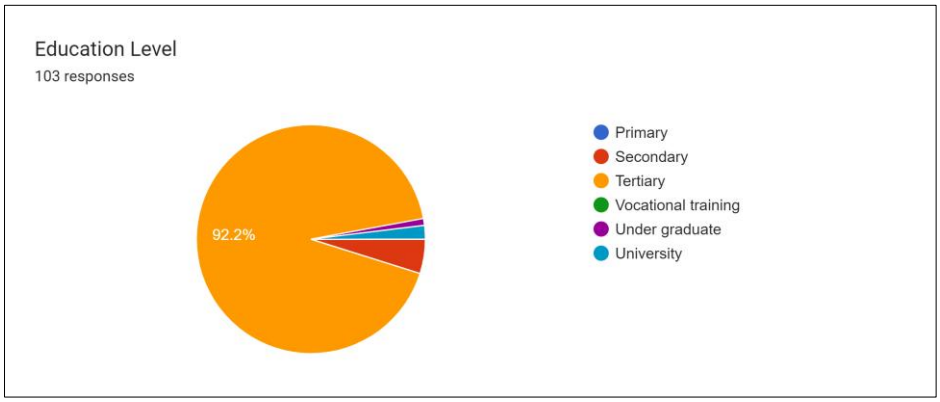

Figure 3 Education level

3.2. Mobile Money Platform Usage landscape

The dataset reveals key trends in how respondents use mobile money platforms, including their preferred platforms, frequency of use, and common types of transactions.

3.2.1. Popular platforms

EcoCash emerged as the most widely used platform, with InnBucks being the second most popular. Ecocash had the highest usage of 96.1%. InnBucks also had a very high percentage of 75.7%. The Other respondents indicated that they used O'Mari (16.5%), OneMoney (9.7%) and Telecash (1.9%). Of all the respondents, 3.9% used at least 4 mobile money platforms. Other mobile money platforms indicated just 1% of usage among the respondents. EcoCash's dominance is

likely due to its early market entry, widespread agent network, and brand recognition, which are critical factors in mobile money adoption (5).

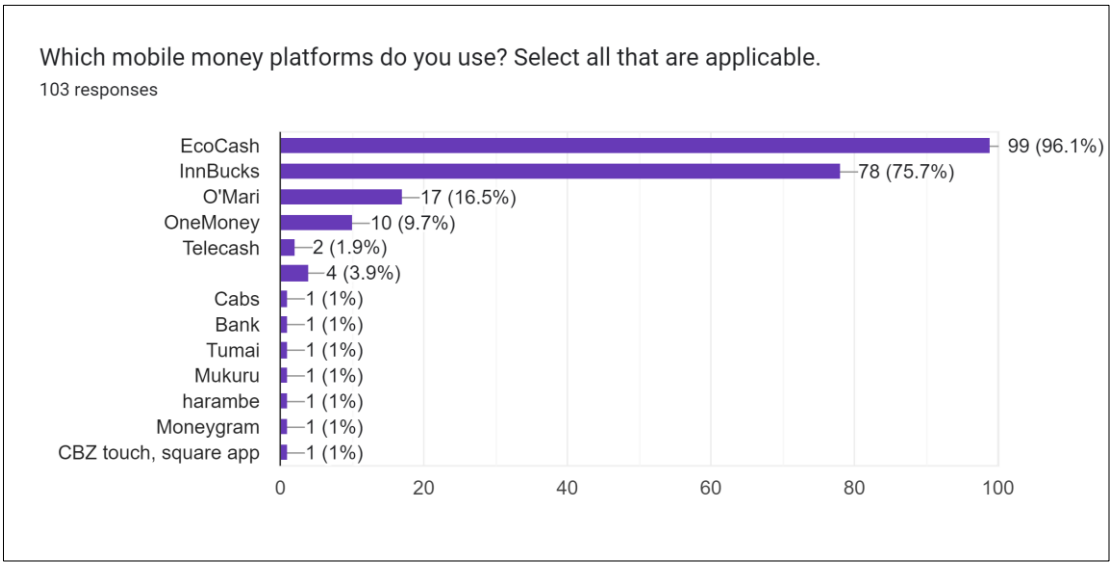

Figure 4 Mobile money wallet used

For the above platforms, 78.6% of mobile money platform users responded that they used the USSD platforms to access their mobile money wallets. The percentage of mobile application users was very low (21.4%) compared to that of USSD users. The USSD platform proved to be the most popular method of transacting among the Zimbabwean youths.

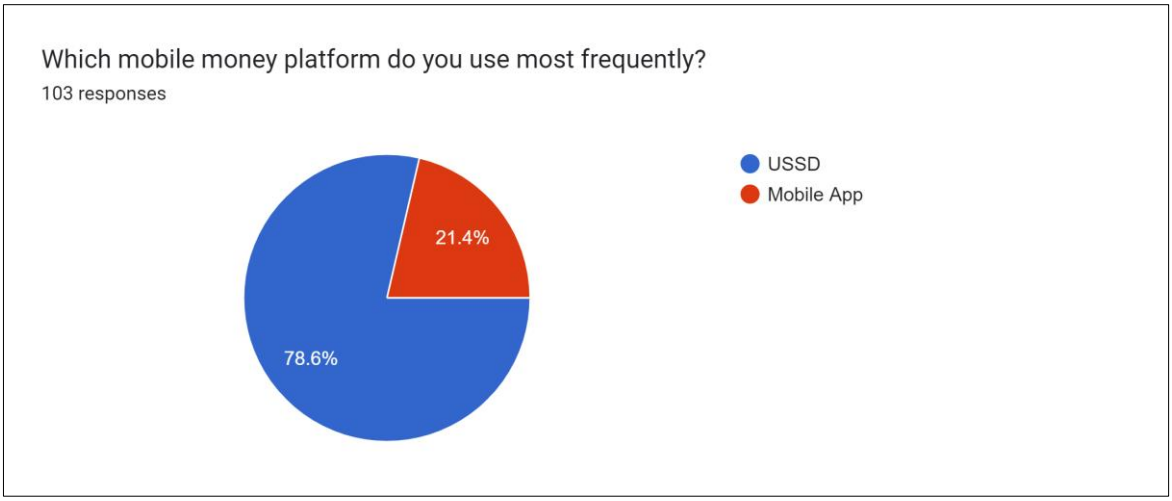

Figure 5 Mobile money platform frequently used

3.2.2. Frequency of Use

Most respondents used mobile money services Weekly (28.2%) or Monthly (29.1%). Daily users were 22.3%. A smaller proportion used them bi-weekly (6.8%) or rarely who were 13.6%.

The statistics suggest that mobile money is a regular part of users' financial activities, though not daily. Similar patterns have been observed in other African countries, where mobile money is used for frequent and occasional transactions (3).

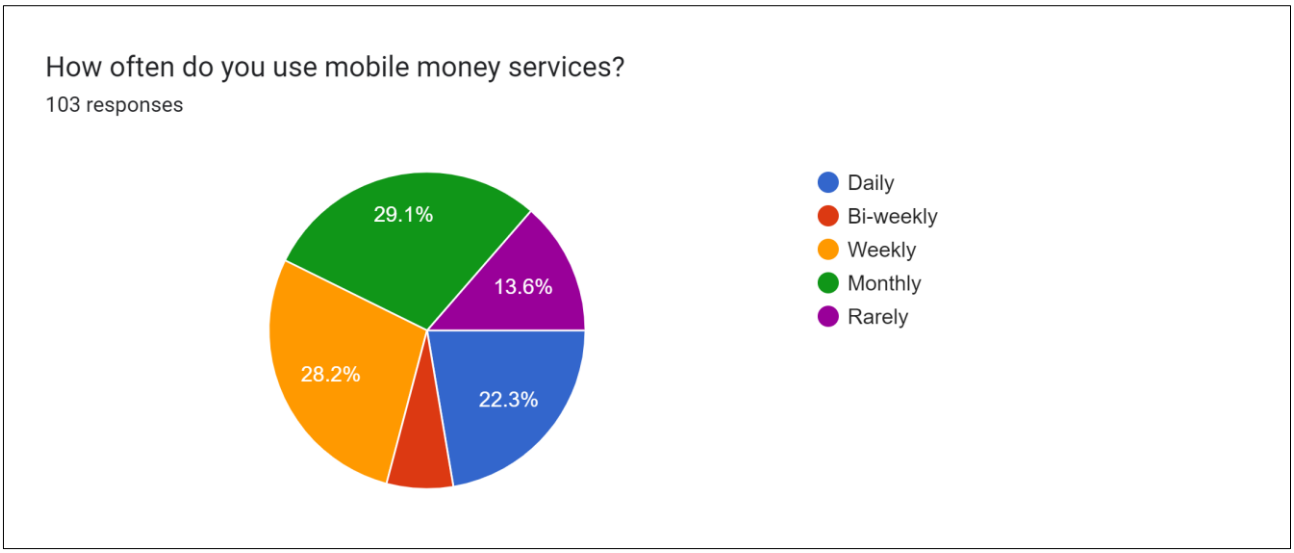

Figure 6 Frequency of using mobile money services

3.2.3. Types of Transactions

The most common transactions included sending money (86.4% of respondents), receiving money (87.4%), buying airtime (91.3%), which had the highest frequency, and paying bills (60.2%). Other transactions accounted for 10.7% of all mobile money users' transactions.

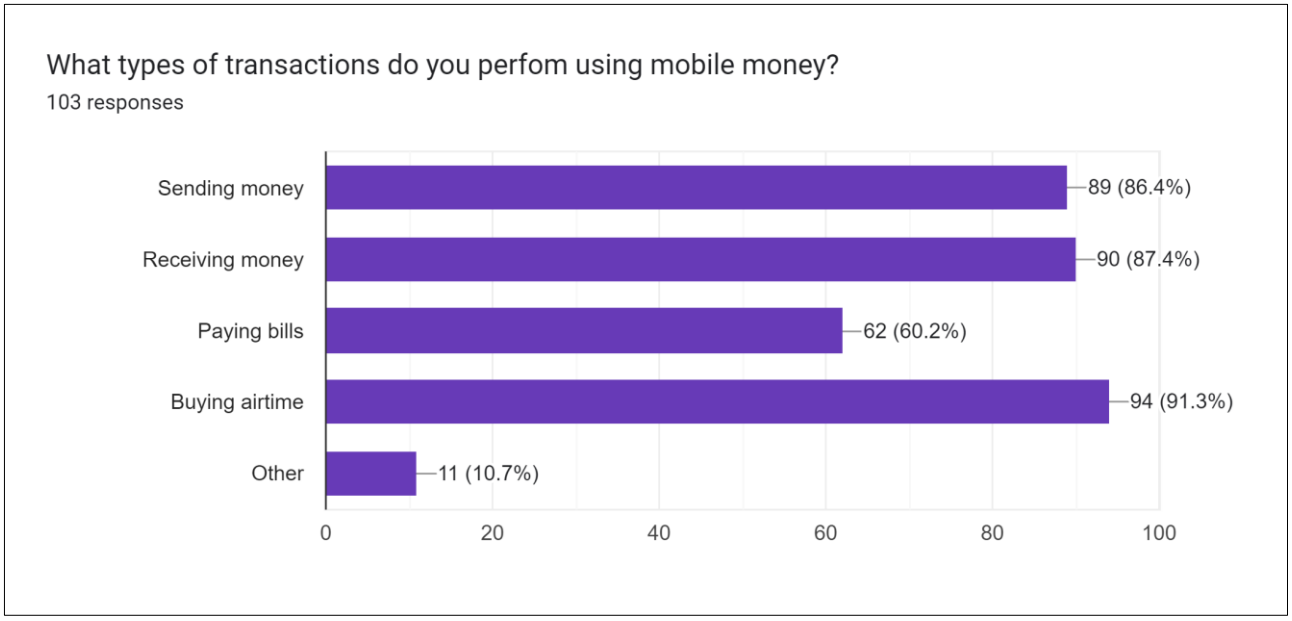

Figure 7 Types of transactions performed using mobile money

These findings highlight the versatility of mobile money platforms in meeting various financial needs, consistent with the broader role of mobile money in facilitating financial inclusion (6).

3.3. User Satisfaction

Respondents rated their satisfaction with various aspects of their preferred mobile money platforms, providing insights into areas of strength and improvement.

3.3.1. Ease of Use

Many respondents were Satisfied or Very Satisfied, indicating that most users find the platforms user-friendly.

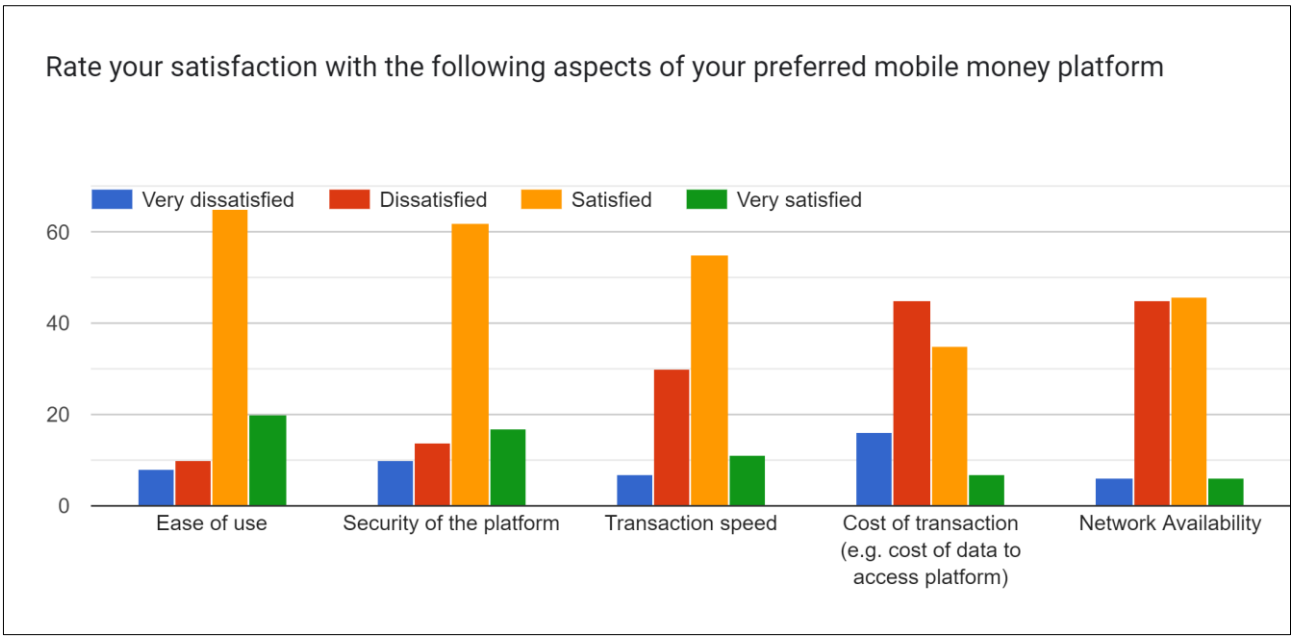

Figure 8 Rate of satisfaction

USSD users appreciated the simplicity of the interface, while mobile app users valued the intuitive design and additional features. These findings align with those suggesting that ease of use is critical in adopting digital financial services (7).

3.3.2. Security

The levels of satisfaction among respondents were mixed. A higher proportion were satisfied with the security of their mobile platform of choice. Dissatisfaction levels were associated with lower frequencies on the mobile platform of choice among the sample. Mobile app users felt more secure due to features like biometric authentication, while USSD users expressed concerns about the vulnerability of USSD-based transactions. Security concerns are a well-documented barrier to mobile money adoption, particularly in low-income settings (1)

3.3.3. Transaction Speed

More respondents were satisfied with transaction speed than dissatisfied, where users cited delays in transaction processing. Mobile app users generally reported faster transactions compared to USSD users. Transaction speed is a key determinant of user satisfaction, as delays can undermine trust in the platform (3).

3.3.4. Cost of Transactions

Many respondents were dissatisfied or very dissatisfied with the cost of transactions compared to those who expressed satisfaction. High fees were a common complaint, particularly among users. High transaction costs have been identified as a major barrier to financial inclusion in developing countries (6). Most mobile money apps require users to have a subscription to Internet access in order to be able to perform transactions.

3.3.5. Network Availability

55% of respondents expressed dissatisfaction with network availability, particularly in rural areas. Poor connectivity was a significant barrier to seamless mobile money usage. Network reliability is a critical factor in the success of mobile money services, especially in remote areas (2).

3.4. Factors Influencing Platform Choice

Respondents identified several factors that influenced their choice of mobile money platform:

Convenience (cited by 71.8% of respondents), Cost of Access (44.7%), Ease of Use (61.2%), Security (36.9%), Network Availability (51.5%), Availability of Support Services (34%). Of those who responded with “Other” (3.9%), they cited the perceived popularity of the platform and availability of services as the factors that also contributed to their choice of platform.

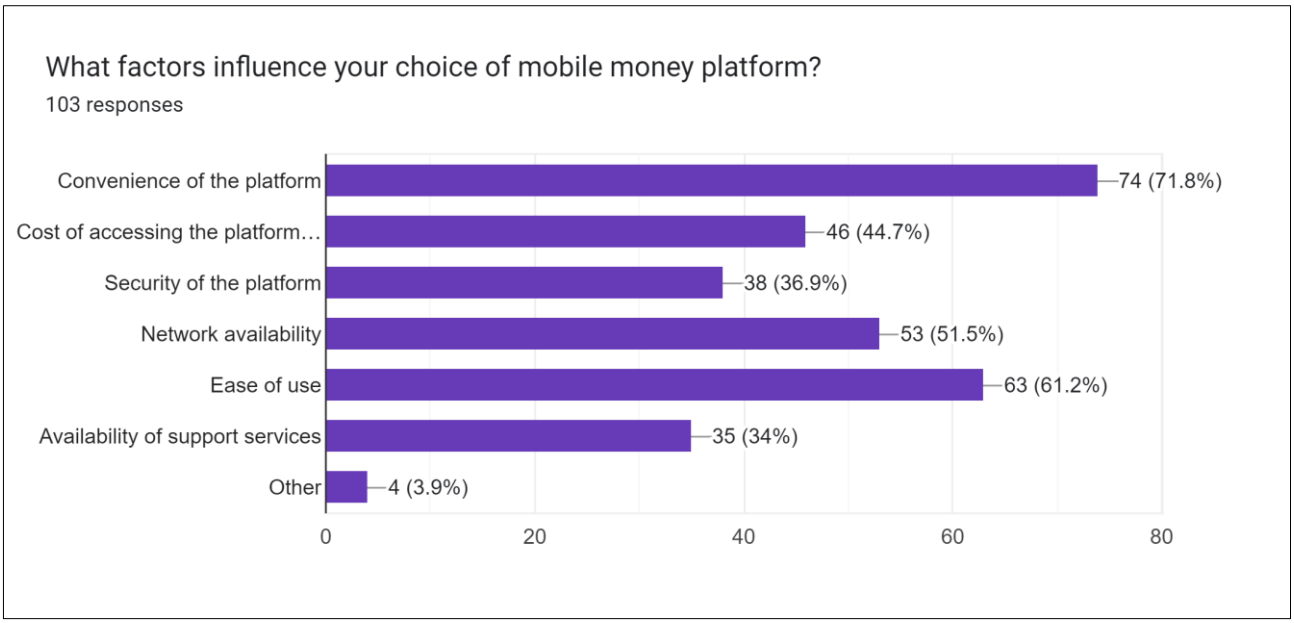

Figure 9 Factors influencing choice of mobile money platform

These factors highlight the importance of accessibility, affordability, and user experience in driving platform adoption, which is consistent with the Technology Acceptance Model (TAM) and related frameworks (7)

3.5. Challenges Faced by Users

The dataset reveals several challenges that users face when accessing mobile money platforms:

3.5.1. Network Issues

Poor connectivity and slow network speeds were the most common complaints, affecting 70% of respondents. This issue appeared familiar in rural areas, where infrastructure is often lacking (2) Unstable network connectivity could also contribute to these issues, especially during peak usage.

3.5.2. High Transaction Costs:

65% of respondents cited high fees as a significant barrier to usage. It was a primary concern for low-income users who rely on mobile money for essential transactions (6). High transaction costs were a common factor affecting mobile apps since most apps required Internet connectivity to allow transactions.

3.5.3. Customer Support

40% of respondents reported difficulties in accessing timely and effective customer support. This highlights the need for improved support channels, such as 24/7 chat or phone services (3).

3.5.4. Complex USSD Processes

30% of users found USSD-based services cumbersome and time-consuming. Some users usually forget the short USSD codes for transacting. As a result, it would extend the time they take to complete a transaction. The longer time taken usually means that a transaction is likely going to be timed out or fail as a result of network disruption whilst in the process of transacting. Simplifying USSD menus could enhance the user experience, as ease of use is a critical factor in adoption (7).

3.5.5. Data Costs

Mobile app users (20%) expressed concerns about the high cost of data required to access services, which is a significant barrier for users in areas with limited network coverage (2).

3.6. Recommendations for Improvement

Respondents suggested several measures to enhance mobile money services:

3.6.1. Improve Network Infrastructure

70% of respondents called for better network coverage and reliability. Users, particularly in rural areas, have highlighted the need for improved telecommunications infrastructure as it improves network coverage (2).

3.6.2. Reduce Transaction Costs

65% recommended lowering fees to make services more affordable. Lowering transaction costs has been understood to increase usage, making services more affordable to a broader range of users (6).

3.6.3. Simplify USSD Processes

50% suggested streamlining USSD menus for faster and easier transactions. If financial service providers streamlined USSD menus and functionalities, it would improve the time taken to complete transactions. Transactions, as a result, become faster and easier to complete (7).

3.6.4. Enhance Security Features

40% of respondents advocated for stronger security measures. Implementing stronger security measures such as two-step verification and biometric authentication for mobile money platforms will give users a sense of security assurance (1). Enhanced security features assure users that information regarding their financial transactions on mobile money platforms is safe and secure.

3.6.5. Provide Offline Services

35% requested solutions that do not require an Internet connection. This view supports the observation by (2) that if mobile money apps are built over the USSD architecture and do not require an Internet connection, it will improve accessibility to a broader populace.

3.6.6. Expand Customer Support

30% emphasised the need for 24/7 support through multiple channels (e.g., chat, phone, email). Expanded customer support services guarantee more usage for a particular platform (3).

4. Discussion

The findings reveal that EcoCash dominates the mobile money market among Zimbabwean youths, mainly due to its convenience and widespread availability. However, users face significant challenges related to network availability, high transaction costs, and security concerns. These issues are more pronounced in rural areas, where network infrastructure is often inadequate (2). The USSD platform is the most widely used method of transaction among the population of mobile money users for Zimbabwean youths.

The high dissatisfaction with transaction costs underscores the need for more affordable pricing models, especially for low-income users (6). Additionally, the demand for simplified USSD processes and offline services highlights the importance of designing inclusive solutions that cater to users with limited access to smartphones or data (7).

The preference for USSD, as compared to apps, suggests a need for platform diversification. Mobile money providers should consider developing hybrid solutions that combine the accessibility of USSD with the advanced features of mobile apps. For example, offline app functionality or simplified USSD menus with enhanced security could bridge the gap between the two platforms (2). Another solution could be the zero-rating of apps to allow mobile app users to access services without the cost of their Internet subscription. Zero-rating refers to a scenario whereby traffic for specific apps is cost-free against the Internet user's access subscription (14).

Finally, the recurring issue of network unavailability underscores the importance of investing in infrastructure to improve connectivity. Without reliable networks, even the most user-friendly platforms will fail to meet the needs of their users (3)

5. Conclusion

This study provides valuable insights into the preferences and challenges of Zimbabwean youths regarding mobile money platforms. While platforms like EcoCash have achieved widespread adoption, there is significant room for improvement in areas such as network reliability, affordability, and user experience. Addressing these issues will be critical for enhancing financial inclusion and ensuring that mobile money services meet the needs of all users, particularly in underserved areas.

Recommendations for Stakeholders

Mobile Money Providers

- Invest in network infrastructure to improve connectivity, especially in rural areas.
- Introduce tiered pricing models to reduce transaction costs for low-income users.
- Simplify USSD processes and develop offline solutions to enhance accessibility.

Regulators

- Implement policies to promote competition and reduce transaction fees.
- Encourage the development of interoperable platforms to improve service availability.

Users

- Provide feedback to service providers to drive continuous improvement.
- Advocate for policies that promote affordability and accessibility.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

References

[1] Munyegera GK, Matsumoto T. Mobile Money, Remittances, and Household Welfare: Panel Evidence from Rural Uganda. World Dev. 2016 Mar;79:127–37.

[2] GSMA. Sub-Saharan Africa 2020 The Mobile Economy [Internet]. 2020. Available from: https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-economy/wp-content/uploads/2020/09/GSMA_MobileEconomy2020_SSA_Eng.pdf

[3] Jack W, Suri T. Risk Sharing and Transactions Costs: Evidence from Kenya's Mobile Money Revolution. American Economic Review. 2014 Jan 1;104(1):183–223.

[4] GeeksforGeeks. USSD Full Form [Internet]. 2023. Available from: https://www.geeksforgeeks.org/ussd-full-form/

[5] Mbiti I, Weil DN. 7. Mobile Banking: The Impact of M- Pesa in Kenya. In: Edwards S, Johnson S, Weil DN, editors. Modernization and Development [Internet]. University of Chicago Press; 2016. p. 247–94. Available from: https://doi.org/10.7208/9780226315867-009

[6] Demirgüç-Kunt A, Klapper L, Singer D, Ansar S, Hess J. The Global Findex Database 2017 : Measuring Financial Inclusion and the fintech revolution [Internet]. World Bank; 2018. Available from: http://documents.worldbank.org/curated/en/332881525873182837/The-Global-Findex-Database-2017-Measuring-Financial-Inclusion-and-the-Fintech-Revolution

[7] Venkatesh, Morris, Davis, Davis. User Acceptance of Information Technology: Toward a Unified View. MIS Quarterly. 2003;27(3):425.

[8] The Impact of Mobile Money in Sub-Saharan Africa Data from the Global Findex 2021. 2022.

[9] Davis FD. Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. MIS Quarterly. 1989 Sep;13(3):319.

[10] Creswell JW, Creswell JD. Research Design: Qualitative, quantitative, and Mixed Methods Approaches. 5th ed. SAGE Publications; 2018.

[11] Evans JR, Mathur A. The value of online surveys. Internet Research. 2005 Apr 1;15(2):195–219.

[12] Dillman DA, Smyth JD, Christian LM. Internet, Phone, Mail, and Mixed-Mode Surveys: The Tailored Design Method [Internet]. Wiley; 2014. Available from: https://books.google.co.zw/books?id=fhQNBAAAQBAJ

[13] Zimbabwe Demographics 2023 (Population, Age, Sex, Trends) - Worldometer [Internet]. Available from: https://www.worldometers.info/demographics/zimbabwe-demographics/#google_vignette

[14] Howell B, Layton R. Strategic use of zero-rating of mobile data. In: Orlando B, editor. Strategy and Behaviors in the Digital Economy [Internet]. IntechOpen; 2019. Available from: https://doi.org/10.5772/intechopen.84130

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