ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

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AND FINANCE

DIGITAL LITERACY AS A MEDIATOR BETWEEN PERCEIVED USABILITY AND MOBILE BANKING ADOPTION IN ADDIS ABABA

BY

SELAM LEYKUN

JANUARY 2026

ADDIS ABABA, ETHIOPIA

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APPROVAL SHEET

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BY

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DECLARATION

I, the undersigned, declare that this thesis "DIGITAL LITERACY AS A MEDIATOR BETWEEN PERCEIVED USABILITY AND MOBILE BANKING ADOPTION IN ADDIS ABABA" is my original work, prepared under the guidance of Abebe Y. (Ph.D.). All sources of materials used for this thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or full to any other higher learning institution to earn any degree.

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Signature

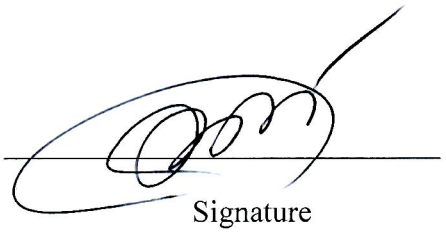
Addis Ababa University

January 2026

ENDORSEMENT

This thesis has been submitted to Addis Ababa University for examination with my approval as a university advisor.

Abebe Yitayew (Ph.D.)



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The Researcher!!

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACRONYMS AND ABBREVIATIONS

AI	– Artificial Intelligence
ANOVA	– Analysis of Variance
DLIT	– Digital Literacy
CLT	– Cognitive Load Theory
ICT	– Information and Communications Technology
NBE	– National Bank of Ethiopia
ROSCAs	– Rotating Savings and Credit Associations
TAM	– Technology Acceptance Model
TAM2	– Technology Acceptance Model 2
TAM3	– Technology Acceptance Model 3
USAB	– Application Usability
UTAUT	– Unified Theory of Acceptance and Use of Technology

ABSTRACT

Adoption of mobile banking is shaped by usability, trust, security and digital literacy. However, current studies are centered on the conventional technology acceptance models without considering digital literacy as a mediating factor in mobile banking usability and adoption. Moreover, the previous works being carried on mobile banking adoption of Ethiopia have only focused on technological infrastructure and convenient of using banking services, but not taking into account barriers from system user such as digital literacy and trust. This study, thus, investigated the mediating role of digital literacy in the relationship between customer-perceived usability and mobile banking adoption, focusing on five major banks in Addis Ababa: Commercial Bank of Ethiopia, Bank of Abyssinia, Awash Bank, Dashen Bank, and Hibret Bank. A quantitative research approach with explanatory design was employed. Primary data collected from 289 respondents through a structured questionnaire were used for analysis. Convenience sampling was applied to ensure access to diverse bank users. Data analysis involved descriptive and inferential statistics, including correlation tests and multiple linear regression. Findings revealed that digital literacy significantly mediates the relationship between usability and adoption, enabling customers to navigate mobile banking applications and conduct financial transactions with confidence. However, adoption barriers persist, particularly in areas of security transparency and fraud mitigation. The study underscores the need for banks to integrate digital literacy programs with usability enhancements to foster greater adoption.

Keywords: Digital Literacy, Digital Competency, Financial Services Innovation, Mobile Banking Adoption, Mobile Banking Usability, Security Concerns, Technology Acceptance

CHAPTER ONE: INTRODUCTION

1.1. Background of the Study

Mobile banking has become a cornerstone of financial inclusion in the digital era, offering convenience, efficiency, and expanded access to financial services. It enables individuals to bypass traditional barriers such as distance from bank branches, limited operating hours, and bureaucratic delays, thereby reshaping financial service delivery. Yet in developing economies such as Ethiopia, adoption remains uneven. While commercial banks are modernizing rapidly and investing in digital platforms, many customers continue to struggle with limited digital familiarity and essential skills. This mismatch between institutional innovation and user readiness creates a paradox: despite the availability of mobile applications, uptake is constrained by user capability gaps, infrastructural deficits, and disparate literacy levels (Policy Studies Institute, 2024). Although mobile banking accounts reached approximately 42 million by 2025, sustainability of this growth is uncertain if digital illiteracy persists (Shega, 2025). These dynamics highlight both the opportunities and challenges of digitalization, underscoring the need to examine factors beyond interface design.

The Technology Acceptance Model (TAM) has long provided a theoretical foundation for understanding technology uptake, emphasizing perceived usefulness and ease of use as critical determinants of adoption (Davis, 1989; Venkatesh et al., 2016). In mobile banking, these constructs encompass language accessibility, transaction speed, and error-prevention mechanisms, all designed to enhance user confidence. However, within Ethiopia, conventional TAM constructs demonstrate limited explanatory power. Unique contextual antecedents, such as infrastructural constraints, literacy disparities, and user capability gaps, diminish TAM's predictive strength, suggesting that adoption cannot be fully explained by usability perceptions alone. This limitation underscores the importance of examining mediating variables, particularly digital literacy, to provide a more understanding of mobile banking adoption and to capture the interplay between usability perceptions and actual acceptance outcomes (Eshet, 2024).

Digital literacy extends beyond basic technical familiarity; it requires access to digital interfaces and the ability to understand, evaluate, and confidently use financial transaction tools (van Dijk, 2020). It encompasses skills such as navigating mobile applications, interpreting digital instructions, and managing security features, all of which are essential for effective participation in digital finance.

Evidence shows that only 28 percent of adults in Addis Ababa possess the basic skills necessary to use mobile banking services (Gebremichael & Assefa, 2023), revealing a "digital usability gap" that disproportionately affects older adults, rural populations, and lower-income users. This gap raises critical questions about the adequacy of focusing solely on interface quality for promoting adoption. Even well-designed applications may fail to attract or retain users if customers lack the literacy required to engage with them meaningfully. Thus, digital literacy emerges not only as a mediator but also as a foundational determinant of sustainable adoption.

Through investigating whether digital literacy mediates the relationship between perceived usability and mobile banking adoption, this study contributes to both theory and practice. Theoretically, it extends TAM by integrating human-centered variables that enhance explanatory power in emerging economy contexts, thereby filling a gap in the literature where traditional models fall short. Practically, it provides context-bound insights for Ethiopia's commercial banking sector, informing policy responses and guiding design decisions such as tiered banking solutions, targeted literacy programs, and inclusive digital strategies. Positioned within Addis Ababa's financial ecosystem, the study supports Ethiopia's digital transformation strategy (Ministry of Innovation and Technology, 2024) and offers actionable recommendations to promote inclusive financial capabilities and scalable digital finance solutions for underserved markets.

This integrative approach strengthens the explanatory capability of earlier models by considering human-related variables often absent in technology adoption studies. It also guides pragmatic design decisions, ensuring that usability enhancements are complemented by digital literacy initiatives. Ultimately, the findings are intended to promote greater openness in mobile banking use, drive inclusive financial capabilities, and support scalable digital finance solutions for underserved markets. In doing so, the study contributes to academic knowledge and policy development, while offering practical pathways for behavioral change toward sustainable mobile banking adoption in Ethiopia. By situating the analysis within Ethiopia's unique socio-economic and technological landscape, the research not only advances theoretical discourse but also provides actionable insights for policymakers, banks, and development practitioners committed to bridging the digital divide and fostering financial inclusion.

1.2. Statement of the Problem

Commercial banks in Ethiopia have invested heavily in mobile banking platforms, incurring significant financial costs to modernize systems and improve user interfaces. Despite these investments, active and sustained usage remains low and uneven across customer segments. Registration numbers are high, yet fewer than 30 percent of registered users transact monthly at leading private banks, and many nonusers cite application difficulties as the primary barrier to engagement (Zebiba & Yimer, 2024; Shega, 2025). This mismatch between supply-side innovation and demand-side uptake reflects a persistent inefficiency in resource allocation and highlights the structural challenges of digital adoption in emerging economies.

This phenomenon creates what may be termed a Use-Value paradox: improvements in interface design and feature sets have not translated into proportional increases in meaningful use. Mobile transaction systems such as Telebirr now process trillions of birrs annually, yet usage is concentrated among urban, younger, and higher-income customers. National data show urban account ownership is roughly double rural ownership (42% vs. 18%), male account ownership exceeds female ownership (37% vs. 28%), and adoption among those under 35 is markedly higher (78%) compared with older cohorts (31%) (National Bank of Ethiopia, 2024; Tilahun & Molla, 2021). These disparities reveal that socio-demographic differences such as age, gender, education, and income, exacerbate adoption gaps and reinforce patterns of exclusion.

Traditional adoption models emphasize usability but assume baseline digital competence. The Technology Acceptance Model (TAM) highlights perceived usefulness and ease of use like language options, transaction speed, and error handling, as primary drivers of adoption (Davis, 1989; Venkatesh et al., 2016). UTAUT and Diffusion of Innovation add constructs such as social influence and facilitating conditions. However, in Ethiopia, uneven device ownership, connectivity, and digital skills weaken the causal chain from perceived usability to actual adoption. These contextual constraints reduce the predictive power of models that do not explicitly account for user skills, suggesting that usability alone cannot explain adoption behavior in low-resource settings.

Digital literacy plausibly mediates the relationship between perceived usability and adoption. Measurable indicators of this mediation include task completion rate (comprehension), self-reported confidence and perceived security (confidence), and transaction frequency or retention (behavioral

outcome). When literacy is low, users may recognize an app's usefulness but fail to complete transactions or recover from errors, producing low active use despite high registration. Framing digital literacy as a mediator shifts the policy focus from interface tuning alone to combined design-and-capacity interventions, where usability improvements are complemented by targeted literacy programs.

This study therefore examines whether digital literacy mediates the effect of perceived usability on mobile banking adoption among commercial bank customers in Addis Ababa. Extending TAM is appropriate because it isolates usability constructs central to design interventions, while digital literacy captures the human-skill pathway that UTAUT and Diffusion of Innovation address only indirectly. The single testable research gap is: to what extent does digital literacy mediate the relationship between perceived usability and active mobile banking adoption in Ethiopian commercial banks?

1.3. Research Questions

The main research question to be answered is: To what extent does digital literacy play a role as a mediating factor for the relationship between perceived usability of mobile banking application and adoption? To answer this question, the present study is guided by the following specific questions:

1 How does the perceived ease of use of mobile banking applications influence adoption behavior among customers of major commercial banks in Addis Ababa?

2 To what extent does language accessibility within mobile banking interfaces affect users' engagement and adoption rates across different demographic groups?

3 What is the relationship between perceived transaction speed and users' willingness to adopt mobile banking services in the Ethiopian commercial banking sector?

4 How does the effectiveness of error prevention and recovery mechanisms in mobile banking platforms impact adoption decisions?

5 Does digital literacy mediate the relationship between these usability dimensions and mobile banking adoption outcomes?

1.4. Objectives of the Study

1.4.1. General Objective

To investigate the mediating effect of digital literacy in the association between perceived usability and mobile banking acceptance among major commercial bank customers in Addis Ababa.

1.4.2. Specific Objectives

1. To analyze the influence of perceived ease of use on the adoption of mobile banking services.
2. To evaluate how language accessibility within mobile banking applications affects user engagement and adoption.
3. To analyze the impact of perceived transaction speed on mobile banking adoption decisions.
4. To analyze the extent to which error prevention and recovery mechanisms contribute to perceived usefulness and influence adoption behavior.
5. To investigate the mediating effect of digital literacy on the relationship between perceived usability and mobile banking adoption.

1.5. Significance of the Study

This study is significant at three levels namely academic, policy, and practice, each addressing a distinct gap. Integrating digital literacy into the Technology Acceptance Model (TAM) advances theory on technology adoption in emerging economies. Existing models emphasize usability constructs such as ease of use, language accessibility, and error handling, but they assume baseline digital competence. In Ethiopia, where smartphone penetration remains below 35% and adoption varies sharply by gender and urban–rural residence, these assumptions limit explanatory power. Positioning digital literacy as a mediator clarifies how usability perceptions translate into actual adoption, thereby extending TAM and complementing frameworks.

Regarding policy significance, the findings provide evidence for Ethiopia's Digital Transformation Strategy 2025, which prioritizes closing the digital divide. Through demonstrating that literacy gaps weaken adoption despite interface improvements, the study offers policymakers actionable insights for designing targeted interventions. These include digital skills training, gender-sensitive programs,

and rural outreach initiatives that align with national goals of equitable access to financial infrastructure.

For banks, the results highlight that investments in interface design alone are insufficient. Adoption depends on whether customers can comprehend, trust, and complete transactions. Measurable indicators such as task completion rates, confidence in security, and transaction frequency, show how literacy mediates usability. The study therefore guides banks toward combining adaptive interfaces with literacy initiatives, ensuring resources are allocated efficiently and inclusively.

In the course of filling the research gap and contribution, existing studies in Ethiopia explain behavior primarily through usability perceptions but neglect the mediating role of digital literacy. This study addresses that gap by testing the proposition that digital literacy mediates the relationship between perceived usability and mobile banking adoption in Ethiopian commercial banks, thereby contributing both theoretical refinement and practical pathways for inclusive digital finance.

1.6. Scope of the Study

The This study is geographically limited to Addis Ababa, Ethiopia, focusing on customers of five major commercial banks: Commercial Bank of Ethiopia, Bank of Abyssinia, Awash International Bank, Dashen Bank, and United Bank. Thematically, it investigates the mediating role of digital literacy in the relationship between mobile banking usability—defined by ease of use, language accessibility, transaction speed, and error management—and adoption outcomes. Methodologically, the study employs a quantitative design, using structured survey questionnaires to collect primary data from bank customers. Data collection was conducted between April and May 2025, ensuring that findings reflect current user patterns and behaviors. Temporally, the scope is restricted to this period, which captures adoption dynamics during Ethiopia's ongoing digital transformation initiatives.

Several limitations affect the validity, reliability, and generalizability of the findings. First, the geographic scope is confined to Addis Ababa, which may limit external validity: adoption behaviors in rural regions, where infrastructure and literacy levels differ significantly, may not be fully represented. Second, the reliance on self-reported survey data introduces potential biases - social desirability or recall errors, which can affect reliability. Third, the cross-sectional design captures user behavior at one point in time, limiting causal inference and the ability to generalize findings across different phases of Ethiopia's digital transformation. Fourth, the focus on five major banks enhances

relevance but excludes smaller institutions, potentially narrowing the applicability of results to the broader financial sector.

Despite these limitations, the study provides robust insights into the mediating role of digital literacy in mobile banking adoption. By acknowledging these constraints, the research clarifies the boundaries of its conclusions and highlights areas for future inquiry, such as longitudinal studies, rural-focused investigations, and comparative analyses across different financial institutions. This transparency strengthens the credibility of the findings and ensures that recommendations are interpreted within their appropriate context.

1.7. Definition of Key Terms

- Mobile Banking: The degree to which individuals register for, actively participate in and remain vigilant with mobile banking facility regarding account access, transactions and service enquiries (Venkatesh et al., requires 2016).
- Perceived Usefulness: The extent to which users are of the opinion that using mobile banking enhances their ability to achieve effective, efficient and convenient financial management (Shaikh & Karjaluoto, 2015).
- Ease of Utility: The degree to which the application is perceived as being easy to use, intuitive and easy to navigate without needing much effort (Pankomera & Van Greunen, 2018).
- Language Accessibility: The capacity to use the mobile banking user interface or interact in viewing and responding through locally pronounceable language (Tilahun & Molla, 2021).
- Transaction Speed: The speed at which individuals anticipate to accomplish financial transactions (e.g., funds transfer, balance checking) while using mobile media in general (Venkatesh et al., 2016).
- Error Prevention: The perceived reliability of the mobile banking application in preventing user errors, as well as the availability of solutions for recovering from transaction problems (World Bank, 2022).
- Digital Literacy: A complex competence including the capacity of users to find, evaluate, understand and use digital devices in financial transactions, communications and decision making (Gebremichael & Assefa, 2023; van Dijk, 2020).

1.8. Organization of the Study

This thesis consisted of five chapters. Chapter One provided the background on the study, problem statement, objectives and scope. Chapter two on literature review and theoretical framework, it was aimed to make way from the previous literatures to give room for this research. The third chapter covered the research methodology, which contains research design, sampling, gathering of data and procedures for analysis. In Chapter four, the findings and their interpretation are presented, while Chapter five offered concluding remarks including main findings, recommendations in which direction policy should be worked out and where future research should focus.

CHAPTER TWO: LITERATURE REVIEW

This chapter reviews the related literatures that are related and relevant to this study. The discussion includes concepts, evidence and theory necessary to enable a full review of the study. This literature review explores the relationship between usability and adoption, emphasizing the critical role digital literacy plays in bridging this gap.

2.1. Theoretical Background

Digital financial services have revolutionized banking relationships. The product provides users with simple and effective ways to control their money. Mobile banking technology is available, but that does not mean its use will be ubiquitous. Rather, adoption is influenced by a number of factors such as ease of use, language accessibility, transaction speed and error prevention & recovery and in addition, digital literacy (Venkatesh et al., 2016).

Mobile banking uptake in many developing countries, including Ethiopia has not been even despite advancements in technology. This inequality is caused in large part by how digital literacy affects the way users understand and engage with banking apps van Dijk (2020). Theoretical Literature The theoretical review consists of theories and concepts related the research area such as usability, digital literacy and mobile application adoption.

2.1.1. Theoretical Framework

The Technology adoption theories provide structured explanations for why individuals accept or reject innovations, but their explanatory power varies across contexts. In advanced economies, models often assume users possess baseline digital skills. In Ethiopia, however, adoption gaps are strongly tied to socio-demographic differences—urban versus rural residence, gender disparities, and generational divides—making those assumptions problematic. A critical review of theories shows both their contributions and their limitations in explaining mobile banking adoption in such settings.

The **Technology Acceptance Model (TAM)** is widely used because it isolates perceived usefulness (PU) and perceived ease of use (PEU). Its simplicity makes it powerful for design-focused interventions and has been validated across multiple domains, including e-learning, healthcare, and mobile banking (Davis, 1989; Venkatesh & Davis, 2000). Yet TAM's weakness is its assumption of digital competence: users must be able to translate perceptions of usability into actual behavior.

TAM2 and **TAM3** expand the model by adding social influence, job relevance, trust, risk, and self-efficacy (Venkatesh & Bala, 2008). These extensions improve contextual sensitivity but still treat digital skills as background conditions rather than central mechanisms.

The Unified Theory of Acceptance and Use of Technology (UTAUT) integrate TAM and other behavioral models, introducing performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). UTAUT also incorporates moderators such as age, gender, and experience, which are highly relevant in Ethiopia where adoption differs sharply across demographic groups. However, while it acknowledges demographic differences, it does not explicitly explain how digital literacy converts usability perceptions into adoption. Similarly, Diffusion of Innovation (DOI) explains how innovations spread through populations, emphasizing relative advantage (Rogers, 2003), but it lacks micro-level mechanisms for individual skill gaps.

Synthesizing across these theories, TAM provides the clearest foundation for analyzing usability perceptions, while UTAUT and DOI highlight contextual and demographic influences. Yet none adequately capture the **skill-to-action pathway** that is critical in Ethiopia. Evidence shows urban adoption rates are more than double rural rates (42% vs. 18%), men adopt more than women (37% vs. 28%), and younger users far outpace older cohorts (78% vs. 31%) (National Bank of Ethiopia, 2024; Tilahun & Molla, 2021; Policy Studies Institute, 2024). These disparities suggest that digital literacy mediates the relationship between usability perceptions and adoption outcomes.

This study therefore adopts TAM as the guiding framework, extending it with digital literacy as a mediator. TAM is chosen because it isolates usability constructs central to mobile banking design, while digital literacy explains whether those perceptions translate into confident, successful use. This extension provides theoretical refinement - addressing TAM's limitations in low-skill contexts, and practical relevance for Ethiopia's financial sector, where inclusive adoption depends on both design and user capacity.

2.1.2. Concepts of Mobile Banking

Mobile banking is an innovative and a modern concept in the world of banking where mobile: phone is used as a device providing modicum for electronic payment. It has been noted in literature as being influential to contemporary banking, underlining its importance for connecting traditional bank offers with digital reach (McGovern, 2019). With mobile banking, consumers have a secure, faster and more convenient means to perform financial transactions anywhere and anytime (Malaquias &

Hwang, 2016). In addition to increasing individual convenience, mobile banking facilitates economic growth by extending financial inclusiveness, reducing the gap between urban-rural residents and addressing socio-economic disparities (Ammar & Ahmed, 2016; Mtambalika, 2016; Van der Wansem, 2013).

More broadly, mobile banking has become a critical instrument to increasing access to banking services, especially for the underserved. By incorporating digital banking into the financial systems, it can lead to lower barriers to entry, allowing access (Chukwumah, 2017) to services that would otherwise be difficult for those constrained by geography or socioeconomics (Mago & Chitokwindo, 2014). Mobile banking also promotes economic inclusion by enabling people and businesses with convenient instruments to save, invest and conduct transactions - a means of combating poverty and accelerating economic development.

Driven by the wide availability of smart devices and tablets, mobile banking services have had a profound impact on the financial inclusion and accessibility landscape. “And this goes beyond an added convenience – it brings the institutions into the 21st century by opening up digital access to all that was before limited at a physical branch. Based on a mobile-banking framework (Compeau & Higgins, 1995), mobile banking enables users to check the balance of accounts, perform fund transfers as well as manage loans and receive instant reminders today that stakeholders can more effectively control their finances with an easy reach via SMS modality to increase their financial decisions momentum.

The ease and convenience offered by mobile banking are without doubt its main appealing factors. Forget geography and banking hours: now customers can do their own banking whenever, wherever there is a connection to the Internet. This is of particular importance given the high percentage of people living in rural and semi-urban areas, and the shortage of bank branches or agents -thus offering the “democratization” of finance space. As Venkatesh et al. (2016) emphasize, mobile banking becomes an alternative to branch counter usage eliminating the time and efficiency losses during branch visits. And this cost effectiveness is not only at the user level but also at other baking establishments. Less dependence on brick-and-mortar facilities also means less overhead, which can be passed onto consumers in the form of lower interest rates or fees.

In addition, mobile banking has become a key enabler of financial inclusion, especially in developing countries. Donner & Tellez (2008), meanwhile, highlight its potential in banking the unbanked. In

areas where brick-and-mortar banks are few or nonexistent, mobile banking offers a promising solution that can bring people into the formal financial system for the first time. This access provides opportunities such as saving money, accessing credit and engaging in secure online transactions, leading to economic empowerment and better living conditions. Mobile banking systems may permit the government to send subsides directly to constituents without corruption, and circulate more aid efficiently where it is most needed.

2.1.3. Mobile Banking Application

Curiously, the mobile banking app is the digital receptacle receiving all these services. It should take the form of software, and it should be secure, usable, and functional. Davis (1989) in his model of technology acceptance, expressed that perceived ease and perceived usefulness are two individuals' beliefs whose influence and antecedents must be considered when explaining technology adoption which encompasses mobile banking. An intuitive and easy-to-use interface with functionalities like biometric authentication, real-time notifications and transaction monitoring can make the user's response more satisfactory and confidant on the platform. The addition of AI-powered help, including chatbots that will answer simple questions and walk customers through complicated transactions, also simplifies banking for users and cuts down on the need to speak with a human customer service representative.

But amid all the headway made in mobile banking technology and its accompanying benefits, there are still obstacles preventing an across-the-board embrace of it. Digital competency, how to use digital technology in a sensible and responsible manner, also presents as an obstacle here. As van Dijk (2020) notes, unskilled individuals may experience frustration in case of digital banking applications because they may not understand how to perform specific tasks. The digital divide experienced by older adults, low-income populations and rural residents is a growing issue and it only widens the gaps already present. Solving this problem will include multiple elements working together: education/training for digital literacy on various schools of thought in creating user interfaces and the use of local languages to reach those reluctant to adopt the technology.

Yet another significant hurdle for mobile banking is security. As they are a digital platform, they also can be prone to the various forms of cyber threats like phishing attacks, malware infections and data breaches. Gefen et al. (2003) stress the necessity to establish trust in internet atmospheres, and that trust is very essential in financial service. Users want to trust their personal and financial

information is safe, as well that they are secure in the transactions. Banks will have to be both invested and equipped, in encryption technology, fraud detection systems as well as multi-factor authorizations while mitigating such exposures.

Common cyber threats should also be included in user education, so that users are provided with the means to defend themselves. This includes promoting safe practices for online banking, including strong passwords, refraining from clicking on suspicious links or attachments and monitoring your accounts regularly. The overall user experience for mobile and banking applications has transformed the way people manage their money, in a manner that is more convenient, accessible and efficient. Nowhere is the transformative value more clearly demonstrated than in emerging markets where it has driven financial inclusion and provided greater empowerment for the unbanked. But the value proposition of mobile banking will remain limited if we do not address those persistent issues around digital literacy, security and usability.

For these constraints to be overcome and to guarantee that mobile banking continues being a safe, inclusive, and empowering tool for everybody, financial institutions must invest in digital literacy training, security practices that ensure all customer data is protected, user-centered design. To succeed in this dynamic fintech environment, it is imperative for banks and bankers to design a perpetual cycle of alternating their adapting customer's needs along the dimensions of both usability and trust (Shaikh & Karjaluoto, 2015), so as to push digital banking adoption to take place and maintain its survival in the trajectory moving dynamics financial technology landscape.

2.1.4. Usability of Mobile Banking Applications

In today's digital world, the effectiveness and acceptance of mobile banking applications have depended greatly on their usability. Usability, as defined by Foley (2015), refers to the ease with which users can navigate digital interfaces to accomplish their goals. In mobile banking, it is usability that makes sure the user becomes highly engaged, and reduces friction so that banks can close more sales in a less disruptive way.

User-friendliness is a determinant factor on the level of success of all mobile banking applications. If somethings hard to use or navigate, strong security features and good function aren't worth all that much. Venkatesh and Bala (2008) emphasise that perceived ease of use is one dominant factor in use (adoption). Banking on mobile should be second and intuitive. A clean and uncluttered UI combined with easy navigation and clearly defined functionality is key in allowing users to effectively keep an

eye on their finances. In addition, banks should be doing ongoing usability testing to find breaks in transactions and improve user experience.

Usability of mobile banking applications is improved with the design by user-centered approach. Input from users combined with extensive usability testing helps developers devise interfaces that satisfy a wide range of user requirements (Verdegem & Hofman, 2013). This fosters a way to lower the barriers for all users regardless of their level of digital literacy. In mobile banking (especially in app-based usage) it is important that you are inclusive.

A repetitive design process is necessary for further optimization of mobile banking systems. Iterative prototyping, testing and feedback collection processes help developers to develop user centered improvements towards perfect usability. Solving navigation problems, improving transaction flows transparently and clarifying authentication methods are all elements that help a customer use their banking service easily. And an adaptable response to user feedback promotes trust and happiness, which leads to a long-lasting relationship with the site.

The user-friendliness of the mobile banking app is a cornerstone on which digital financial service works. As banks seek to enable more convenient and efficient banking services, the focus on user-centered design thinking and iterative approach towards building solutions is essential. By maximising usability, banks can improve financial empowerment, advance digital inclusion, and build stronger relationships with customers. At the end of the day, well-designed mobile banking apps don't just help users make and see cash movements: they cement trust in digital banking, making certain that users can easily get from start to finish when it comes to engaging with financial services in the digital age.

2.1.5. Dimensions of Digital Technology Usability

Usability of digital technology is an important factor in facilitating users' adoption, satisfaction and continued use. Theories like Davis's TAM (1989) and its extensions TAM2 (2000), TAM3, and United Theory of Acceptance and Use of Technology – UTAUT recommend theoretical foundations to evaluate usability in the scale of principal dimensions. These dimensions include perceived ease of use, perceived usefulness, perceived risk and perceived trust. These dimensions impact on how users interact with digital systems, and are related to the willingness to adopt, use or recommend a technological solution.

Perceived Ease of Use - Perceived Ease of Use is the extent to which an individual believes that using a particular system or technology is easy. Ease of use is, on the basis of Davis (1989), one of the most important factors for technology acceptance. An easy-to-use system is more likely to be adopted because users are less-likely to adopt technologies which requires a steep learning curve or technical knowledge. In usability design, the interfaces must be clean and organized with clear walkways to minimize cognitive burden. Systems which minimize error, ease of access, and provide guides such as tool-tips and user-friendly menus enhance perceived ease of use and hence making the technology more acceptable to users.

Perceived Usability - Perceived usability represents the quality of a system to support users¿ goals. Usefulness indicates the ease of use and here are two components which is Efficiency and Effectiveness. Venkatesh & Davis, 2000 extended this perspective in TAM2 and reported that perceptions of usefulness are based on a system's output quality and job relevance - that is, people need to consider not only how easy the system is to use but also its ability to provide value in meeting their needs. A good technology allows efficient task completion, minimizes frustration, and maps features to the users' expectations. Regular usability testing, combined with ongoing improvements, enable programmers to evaluate how frequently users navigate successfully and the number of mistakes they made as well as overall satisfaction.

Perceived Risk (PR) - Perceived risk relates to user's risk concerns with respect to security, privacy, financial loss and system reliability in adopting digital technology (Featherman & Pavlou, 2003). There is a perception of risk involved in digital transactions, internet communication and cloud services. Users are not always quick to embrace novel technologies if they suspect that the data can be stolen, tampered or missed. UTAUT (Venkatesh et al., 2003) emphasizes the importance of facilitating conditions, such as institutional assurance, security measures and compliance to data protection laws in reducing perceived risk. Making usability in this dimension relatively high involves developing multi-factor authentication, encryption and clear privacy policies that give consumers confidence in the safety of their interactions.

Trust Perception – Trust Perception is the belief of users in a reliable and honest technology. Trust is a major antecedent of continued use and system acceptance, especially in systems that entail sensitive transactions like financial services, health apps, e-commerce Web sites (Gefen et al., 2003). Measures of trust also involve information transparency, ease of error recovery, and a good reputation

for security and flexibility. As per UTAUT, social influence such as recommendations from trusted friends and family, government certification and positive user reviews increase perceived trust. 4 Trust A good system will generate trust by keeping bugs to a minimum, providing high level of reliability against outages and vendor communication about upgrades and security.

The constructs of perceived ease of use, perceived usefulness along with perceived risk and trust dimensions are instrumental in assessing the usability of digital technology within TAM and its subsequent extensions. Perceived usefulness and perceived ease of use are two overarching beliefs, which influence users' technology acceptance, interaction and adoption each serving a unique role. By incorporating user-centered design, iterative evolution and rigorous security considerations, developers can construct digital systems that are easy to use, safe and secure trustworthy. By focusing on usability we drive higher adoption, satisfaction and the overall success of technology, so that digital is used effectively by everyone.

2.1.6. Digital Literacy

The notion of digital literacy includes various literacies, namely computer literacy, information literacy, communication literacy critical literacy and safety awareness (Eshet 2004). These capacities help practitioners access, analyse, generate and communicate digital content in an efficient manner. As Hague & Payton (2010) argue including digital literacy in learning is essential in order to equip people for success in the digital era. Above and beyond being (technically) proficient, digital literacy means having moral awareness, critical thinking skills and understanding how to mitigate 'digital risks' so that a user is able to function responsibly when using the Internet.

Between this literacy and digital capability is a corresponding set of competences that are required to use devices effectively (Hague & Payton, 2010). This includes knowledge about networking basics, secure cyber practices and ethics relating to data privacy (Punie & Redecker, 2017). Moreover, being information literacy can also make the users either to evaluate and arrange a solid reliable source or act from misinformation (Bundy, 2004). Likewise, Media literacy is also important to understand in a digital world, where users need to be able to communicate effectively by sending and receiving information digitally using different tools (e.g., e-mails; presentations; social networks) as well as devices and applications or software (Media Smarts 2017). These (presence, keeping an audience and understanding a digital footprint) are, in turn, fundamentally important to maintaining a professional personal reputation.

Beyond technical skills, critical literacy cultivates the capacity to question suppositions, see the influence of biases and contest dominant stories (Freire, 2018). Letting people in on media and digital power dynamics helps them manage information responsibly. In addition, risk awareness help users in identifying risks of data abuse, phishing and unethical data usage (Ribble, 2015). Digital literacy plus good design = safer technology that can be used by all. With digital technologies increasingly embedded in everyday living, the need to cultivate and foster digital literacy practices continues to be essential to enable individuals to participate effectively, responsibly and safely in the digital world.

Use of digital platforms is on the rise, with individuals using mobile banking apps for secure and convenient management of their finance. Operating a banking application will involve the need for technical literate in banks' customers as it also involves understanding aspects of authentication, process of financial transaction and features on security such as encryption techniques or biometric authentications (Hague & Payton 2010). Again, financial literacy is critical to evaluate the credibility of financial alerts, detect scams from dishonest and steal verified online banking information (Bundy, 2004). Users also require communicative literacy to interact with bank support functions, interpret digital financial information and make sense of terms and conditions affecting their finances (Media Smarts, 2017).

And so critical literacy is crucial in enabling users to be able to critique financial offers, spot deceitful advertisements and make informed decisions about banking (Freire, 2018). Tons of apps you're now using on your phone make it possible to invest, borrow and try out financial products that didn't exist five or ten years ago, says Georgieva, making critical thinking more necessary than ever. Furthermore, it is also about mobilizing risky behavior awareness that allows for the recognition of dangers of (cybersecurity) like phishing activities, rogue banking apps or will-less profile infiltration (Ribble, 2015). By promoting digital literacy, financial institutions can improve accessibility and the security of mobile banking which will help users interact with digital finance in a secure manner, minimising any risks related to online transactions.

2.1.7. Technology (Mobile Banking) Adoption

Mobile banking has quickly become a game-changing development in contemporary financial services, drastically transforming how consumers interact with banks. Rapid growth in mobile devices as well choices of consumers for digital banking solutions is pushing movement towards mobile banking channel. Based on theories of technology adoption, such as the Technology

Acceptance Model (TAM) (Davis, 1989), mobile banking usage is affected by factors such as perceived ease of use, usefulness, security and trust (Venkatesh et al., 2003). This paper focuses on the drivers of mobile banking adoption, its pros and cons as well as its contributions to financial inclusion.

The escalation of smart phone and high-speed internet access is the major factor driving mobile banking acceptance (Kim et al., 2010). Smart phones are no longer just smart phones they have become extremely powerful digital devices that indeed replace the need for conventional banking institutions. Mobile phones are cheaper and internet infrastructure is growing, so that hitherto excluded population today prove to be included in digital based banking services (Donner & Tellez, 2008). Mobile banking can promote financial inclusion, resulting in a decrease of the number of people excluded from formal financial systems, especially where physical proximity to a bank is not available, enabling individuals' access to banking services without any restriction in time and place (Laukkanen, 2017).

Aside from accessibility, the convenience through mobile banking applications positively affect adoption (Shaikh & Karjaluoto, 2015). Banking in the traditional system, you have to go into a branch and that takes time, for one. Mobile banking on the other hand provides a convenient and remote way for users to make financial transactions such as transfer of funds, payment of bills, taking loans and tracking of investments. Such functionality is consistent with the demand trend of millennial and Gen Z generations, who are preferring digital-based instead of traditional banking services (Yu, 2012). Towards this, banks have created mobile-optimised interfaces and added functionalities like bio-metric login, AI powered financial insights or real-time alerts to improve user experience (Zhou, 2011).

However, the security threat is a primary impediment to the adoption of mobile banking (Khan et al., 2021). Many users often cite concerns related in one way or another to cybersecurity risks, data thefts, phishing scams and fraudulent transactions. Research shows that consumers' attitude toward perceived risk influences their adoption of mobile banking (Hanafizadeh et al., 2014). To mitigate these potential risks, banks and Fintech firms need to provide various security tools on their platforms such as encryption techniques, multi-factor authentication and fraud detection tools as well as carry out awareness programs to educate customers on how they can take actions that will protect them from the rising threat of online theft (Alalwan, et al., 2018).

In addition, the digital divide undermines the adoption of mobile banking. Despite popular diffusion of smartphones, inequalities in the international access to internet and technological skills limit access by seniors and disadvantaged populations (Poushter, 2016). Closing the divide will require public-private partnerships, such as government-initiated digital inclusion strategies and banking industry investment in infrastructure, together with educational initiatives that empower a more financially literate population (Dwivedi et al., 2020).

In general, the spread of mobile banking represents a disruptive change in financial technology, resulting from technological innovation and costumer preference for digital channels as well as incumbents' necessary investments. Accessibility and convenience are the driving forces for mobile banking's uptake, but the key to sustainable adoption is effective solutions to security concerns, digital illiteracy as well as equitable access. With technology constantly advancing, more developments may emerge that will revolutionise the mobile banking front and guarantee those users can access financial services in a secure and efficient manner within the digital world.

2.1.8. Application Usability and Digital Literacy

The connection of application usability and digital literacy has an importance for successful end users' use of digital applications. Application usability is how easy it is for end users to use the system to accomplish a goal effectively (Nielsen, 2012). In contrast, digital literacy involves the skills necessary to effectively access and interpret digital tools (Eshet, 2004). The relationship between these two factors affects the ease of application adoption and utility, in particular the areas where applications are used such as e-government service, mobile banking and communication.

A usable app promotes user engagement by reducing complexity and cognitive load (Krug, 2014). But poor digital literacy of App users, also decreases their potential to use an application. For example, suppose a well-designed mobile banking app features easy navigation, explicit instructions and security system, however in the absence of those skills (e.g. capabilities to know how to protect a privacy or properly input finance-related information) usability cannot ensure successful adoption (Venkatesh & Davis, 2000). This aspect suggests the development of usability design for user literacy level is necessary, in order to make it accessible and inclusive.

Second, digital literacy reinforces usability by making users aware of ideal ways to use the applications. Those with higher levels of digital literacy were better able to problem-solve navigation problems and decode system prompts, as well as interact with security measures in a positive manner

(Hague & Payton, 2010). Furthermore, financial literacy also associated with digital literacy is critical to the adoption of mobile banking since users need to know about secure digital transaction processing and fraud protection as well as data privacy issues (Shaikh & Karjaluoto, 2015). As a result, organisations building digital technology must concurrently focus on usability improvements and digital literacy training to achieve the best possible user experience.

2.1.9. Digital Literacy and Technology Adoption

Digital application implementation is strongly associated with users' digital literacy, involving the ability to search, evaluate and apply (Eshet, 2004) the use of digital technologies. Digital literacy enables people to understand how applications work, make choices about online risks and engage with digital services safely (Hague & Payton 2010). When we are talking about higher levels of digital literacy, there will be greater tendency that users shall use and adopt SC applications and they can themselves comprehend the interfaces of system so that these people are also able to understand the security measures such as follow instructions for entering the password or even solve usability issues.

An important part of the application adoption process includes quantity and quality of perceived ease of use and usefulness (Davis, 1989) within TAM. Users who are more digitally literate do not experience such a high cognitive load and are able to use digital applications with less hassle. Individuals who find it hard to read and write may be more likely to withdraw from testing a complex interface, experience fear related to aspects of system security or endure interaction failure, which can result in decreased usage (Venkatesh & Davis; 2000). According to Myyry and Benbasat (1992), the Unified Theory of Acceptance and Use of Technology (UTAUT) also argues that facilitating conditions, for instance, training materials or technical assistance, are important aspects influencing successful application adaptation (Venkatesh et al., 2003).

In applications including mobile banking, e-commerce and e-government services, application adoption is affected by digital literacy. Individuals who are familiar with cyber laws, privacy legislations as well payment systems online are more likely to trust and use financial applications (Shaikh & Karjaluoto, 2015). On the other hand, those with less developed digital literacies may perceive a higher level of risk that prevents them from adopting digital financial solutions. Thus, education and the design of intuitive user interfaces with a streamlined onboarding process are crucial to increase application adoption among all types of users.

2.1.10. Mobile Banking in Ethiopia

Mobile banking in Ethiopia is an important change agent of the financial sector for its inclusivity and developmental role. Ethiopia's large unbanked population and limited physical bank infrastructure combined with an increase in mobile phone usage have created a unique environment for the readoption of mobile banking. The people in rural areas are so geographically isolated from ordinary banking services, and not mere due to geographical barriers but there would also inevitably be bureaucratic obstacles and low levels of financial literacy. World Bank (2021) also reported that only 45% of adults in Ethiopia had access to a formal financial institution, evidencing high levels of financial exclusion in the country. This lack of access impedes people's ability to save, invest and participate in the formal economy driving demand for innovative financial solutions including mobile banking.

Mobile banking takes this into account and leverages the ubiquity of mobile phones to allow financial transactions so that the first problem – distance between formal finance institution and those not served can be addressed. Remittances can be made, bills paid and balances checked directly from such 2G feature phones, given the availability of financial services even in more deprived or penurious areas with lack technology infrastructure (GSMA, 2022). The government of Ethiopia is also aware about the revolutionary nature of mobile banking and designed regulations innovation, consumer protection, and financial system stability by NBE (National Bank Ethiopia) (2012). Equally, both banking and telecom industries have heavily invested in mobile banking as markets to exploit these platforms for broader market penetration- using partnerships that ensure low risk perception (Assefa, 2018). Second, the desire for safer and easier transactions in cash-based rural areas has led to mobile banking garnering attention as a way of achieving this safety.

There are, however some challenges to the mobile banking in Ethiopia. Low financial literacy is still one of the main barriers, since a considerable portion of the population does not know basic concepts about banking or people just do not trust mobile (Kebede & Manaye, 2016). Moreover, lousy network coverage especially in remote areas limits the availability of mobile banking. Security issues, such as phishing, malware and cyber attacks are also preventing users from fully embracing digital banking services. Regulatory hurdles likewise represent obstacles, since some regulations are overly prescriptive and stifle innovation and competition.

Secondly, Ethiopia has a robust system of informal financial solutions, such as rotating savings and credit associations (ROSCAs), through which individuals may access services that are less alien to users than formal mobile banking. To address these constraints, a comprehensive strategy is necessary that includes initiatives to promote financial literacy, the upgrading of infrastructure, improvements in cybersecurity procedures and regulatory flexibility to permit mobile banking to fulfill its potential as an engine for financial inclusion, economic growth and poverty reduction in Ethiopia.

2.2. Review of Empirical Studies

A 2 review of the empirical literature is an appraisal of research that has collected data through direct observation or experimentation. In this sense, the background to the research questions on focus of previous relevant studies is desk studied throughout these studies methodologies and findings, and contributions to knowledge.

2.2.1. The impact of perceived ease of use on mobile banking acceptance

The role of perceived ease of use: Studies indicates that the perceived ease of use as an antecedent factor in technology acceptance. For instance, Ramli et al. (2017) analyzed the adoption of load bearing masonry technology and found that ease of use factors has a significant impact on decision to adopt, by professionals in the industry. Also, Isaac (2016) studied use of internet among government institutions in Yemen and found that staff were most willing to accept digitized services when the interface was easy to use, effortless, and unchallenging. This notion is also backed up by early work (Davis, 1989) based on the Technology Acceptance Model (TAM), which provides evidence that increased ease of use results in greater acceptance and continued usage of a technology.

Impact of language accessibility: In addition to usability, language accessibility is a major factor influencing the perception of usefulness and acceptance of technology. Hussain et al. (2025) in their pursuit of advanced medical technologies stated, "… while the usability of an interface is critical; users learn and use to a greater extent when content and functionality is accessible in a language they understand". Similarly, Panagoulias et al. (2023) find that people have high trust of medical AI tools if they can make sense of the diagnostic evidence and this is suggestive for how linguistic clarity might affect perceived accuracy and trust. Chirchir et al. (2017) who investigated health information systems further confirmed that early usability stimulate interest, while long adaptation and adoption are largely influenced by user's skill to navigate and comprehend the features of the system in a concerned language.

The impact of transaction speed: Rate of transaction is among the most important factors challenging the creation and adoption of digital technologies. Peiris et al. (2015) reported in their assessment of e-commerce platforms that besides security and convenience, users were more likely to adopt services if transactions were executed quickly and dependably. Like Alharbi (2017), the fast responsiveness of a system in cloud computing situations inspired user confidence and thus contributes to making that users believe the system is dependable and efficient. Hamakhan (2020) which was centred on e-banking, they validated that the quicker transaction time it took reduced customer confusion and frustration leading to greater trust and acceptance towards digital financial services.

Impact of Error prevention & recovery: Perceived error prevention and recovery has significant impact on consumers risk perception as well willingness to adopt a digital conduit. Worries regarding operational dependability – specifically the worry of crashes in system, transaction failures and data loss, could discourage engagement. However, strong error behavior decreases perceived risk leading to trust and continued use.

O' Brien & Cairns (2015), investigating digital news platforms, reported that less anxiety is leading factor to drive higher retention in users when interfaces look forward to avoiding errors actively and following for the better way of recovering. Priyadarshini (2024) observed responsive diagnostics, meaningful error messages and un-dos for mobile application environments enhance the confidence of users on the app and ease their felt-security threats. Similarly, O'Brien (2016) pointed out that error-tolerant systems, but not necessarily clear ones, facilitate safe processing and ultimately sustained digital engagement.

In short, keeping error prevention and recovery smooth doesn't just make things more usable; it helps build the trust that long-term adoption is built on. According to this statement of the matter, the following hypothesis is put forward:

H1a: Perceived usability has a significant and positive relationship with intention to use mobile banking application

2.2.2. Impact of Usability on Computer Literacy

Estrada-Molina et al. (2021) investigated the usability of digital educational resources, and observed that applications with a high usability score increased the users' capability to access and make use of digital tools. Gutiérrez-Ángel et al. (2022) also explored digital literacy in higher education, where they found that users of user-friendly application possessed a higher mean score. Moreover, Durmuş

(2024) analyzed the usability of mobile health (mHealth) application which shows that people with more access to the Apps developed better digital literacy skills by using health related digital platforms.

Taken together, these studies of digital literacy stress that increased ease-of-use facilitates it by lowering cognitive barriers and increasing the confidence of users to interact with technology. Hence, application usability and intuitive design contribute heavily in building digital literacy since users can learn important digital skills using well-designed application. According to the results of these studies, the hypothesis is presented as follows:

H1b: The usability of the application positively and significantly influences digital financial literacy

2.2.3. Impact of digital literacy on technology acceptance

Adel (2024) also explored the effects of digital literacy on financial inclusiveness in emerging markets and found that an increase in average digital literacy had substantially raised the use of FinTech services such as those based on blockchain. Similarly, Yuan et al. (2025) studied low-carbon agricultural technology adoption of farmers, finding out that digital literacy could promote technology acceptance by enhancing the information acquisition and safety consciousness. Furthermore, Muammar et al. (2025) investigated the effects of digital literacy in academic performance and found that students with higher levels of digital literacies were more likely to adopt and use educational technology more efficiently.

Overall, these results highlight the importance of digital literacy in technology uptake across domains. This suggests that digital literacy plays an important role in the adoption of technology, since persons with a higher degree of digital competence are more likely to interact with new technologies. According to the results of these studies, the following hypothesis is suggested:

H1c: Digital literacy has a positive and significant influence on mobile banking app adoption

2.2.4. Mediating Role of Digital Literacy

Digital literacy is a key mediator of the association between application usability and technology adoption, shaping how users intersect with digital platforms and also making use of them. When apps are built with high usability, users experience an easier time using the app, and when they become familiar with the app's interface their digital literacy increases. Available evidence showed that those

with higher digital-literacy skills were more likely to have a higher confidence level in embracing new technologies, since they know how the system works and identify its security features and risks.

For example, Erdem et al. (2022) investigated the mediating effect of digital literacy on the relationship between media literacy and digital citizenship and found that users with higher level of digital literacy were more likely to participate in digital civic activities. Kadri Ibrahim et al. (2024) also found that students with high digital literacy abilities had lower academic stress as they were able to adapt well in the digital learning space. These results highlight the fact that digital skills are not only a factor influencing usability, but also in overcoming perceived barriers to technology use, and enabling users to interact with digital media with comfort.

The means for troubleshooting issues, grasping security procedures, critically digesting digital content can have an effect on the extent of technology adoption then one would suppose that promoting teaching the learning process aimed at fostering technological literacy clearly contributes to increasing involvement in novel technological solutions. So digital literacy acts as this intermediary factor between usability and adoption, that allows people to just make maximum use of new technology without resistance.

The studies generally show that digital literacy, as a dimension of usability, contributes to the successful implementation and use of technology. Simply said, the higher your digital literacy the less are things you will struggle learning and working with technology; it just seems less of a hassle and more familiar to you. Hypothesis Formulation Based on the above studies, we have seven observations.

H1d: Digital literacy has a mediating effect in the relationship between mobile banking app usability and adoption

2.2.5. Research Gap

Existing studies on mobile banking adoption have provided valuable insights, but several gaps remain. Most research has relied on the Technology Acceptance Model (TAM) and its extensions (TAM2, TAM3, UTAUT) to explain adoption behavior (Davis, 1989; Venkatesh & Davis, 2000; Venkatesh & Bala, 2008; Venkatesh et al., 2003). These models emphasize usability constructs such as ease of use, usefulness, and social influence. However, they generally assume baseline digital competence and do not explicitly examine how digital literacy mediates the relationship between

usability perceptions and adoption outcomes. This is a theoretical gap, as existing frameworks overlook the skill-to-action pathway that is critical in low-resource contexts.

Empirical evidence from Ethiopia highlights adoption disparities: urban usage rates are more than double rural rates (42% vs. 18%), men adopt more than women (37% vs. 28%), and younger users far outpace older cohorts (78% vs. 31%) (National Bank of Ethiopia, 2024; Tilahun & Molla, 2021; Policy Studies Institute, 2024). These differences suggest that digital literacy—not just usability—explains adoption behavior. Yet most Ethiopian studies have focused on infrastructural barriers (network coverage, device ownership) while giving limited attention to user-centered variables such as digital skills, financial knowledge, and risk perception (Gebremichael & Assefa, 2023). This constitutes a contextual and empirical gap, as rural and low-income populations remain underrepresented in adoption research.

Furthermore, while constructs such as trust and perceived risk are recognized as important drivers of technology use (Featherman & Pavlou, 2003), little has been established empirically on how digital literacy mitigates these concerns in mobile banking. Users with higher literacy may be better able to manage security features, interpret fraud warnings, and recover from errors, thereby reducing perceived risk. This is a methodological gap, as prior studies have not operationalized digital literacy as a mediating variable with measurable indicators such as task completion, confidence, and transaction frequency.

In sum, the research gap is multi-dimensional: existing models explain adoption through usability and social influence but neglect digital literacy as a mediator; Ethiopian studies emphasize infrastructure but underexplore user skills, especially in rural and low-income groups; and few studies have tested digital literacy with measurable indicators in adoption models. This study addresses these blind spots by extending TAM with digital literacy as a mediator, situating the analysis in Ethiopia's socio-demographic realities, and generating empirical evidence to inform inclusive digital finance strategies.

2.3. Conceptual Framework

There are three main components in the proposed conceptual model: mobile banking application usability as the independent variable, digital literacy as mediating variable and mobile banking adoption as the dependent variable. Usability of a mobile banking application involves factors such as perceived ease of use, usability issues, access to language, transaction speed and error prevention

and recovery which directly affect consumers‟ propensity for adopting digital banking services. The more intuitive, effective and secure an application is, it is the more likely for users to interact with it, while high perceived risk and low usability might impede its use.

But in this relationship, digital literacy is a key mediator – facilitating the effective use of banking apps, understanding financial information, interacting with security systems and addressing risks online. Users with greater digital literacy ability are less impacted by usability related barriers, thus they are more confident to use mobile banking facility. In turn, acceptance of mobile banking is also determined by usability factors and digital competences as those users who find the apps usable and also possess adequate digital skills are more likely to adopt mobile banking.

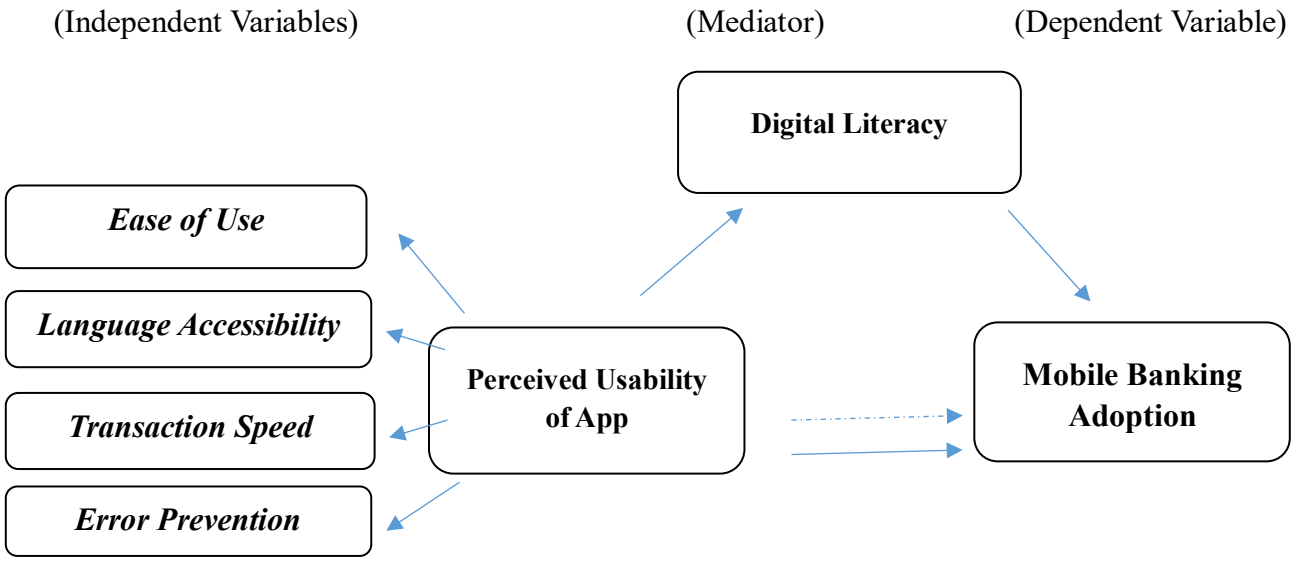


Figure 1: Conceptual Framework of the Study

(Taken from prior studies of Laukkanen, 2011; Shaikh & Karjaluoto, 2017; Sulistyowati, et al. 2021; Yousafzai, Pallister and Foxall, 2009). The framework posits that ITU usability affects adoption both directly and indirectly through the mediator, digital literacy. Resting on this model, the suggested hypotheses can be synthesized as follows:

H1a: Perceived ease of use of mobile banking app positively influences mobile banking adoption.

H1b: The ease of use of the mobile banking app has a positive effect on digital literacy.

H1c: Digital literacy has a positive effect on adoption of mobile banking.

H1d: The relationship between mobile banking usability and adoption is mediated by digital literacy.

CHAPTER THREE: RESEARCH METHODOLOGY

The research methodology provides a clear structure under which this research gap is resolved by describing the methods followed during the entire study. As a result, it conceptualizes core components like research design and approach, the identified target population, calculation of sample size and applied sampling procedure. It also lists the data sources, explains how and where the data is collected and finally provides a description of how we investigated our data.

3.1. Research Approach

A quantitative research approach is implemented to explore the effect of digital literacy on usability and adoption of mobile banking applications in commercial banks operated in Addis Ababa. Using quantitatively measured constructs such as those for digital literacy, usability and adoption rates that are all interrelated to each other will be collected using some form of numerical measurements and their relationships will then be analysed statistically. This approach provides richer insights at the relation of digital literacy and users' capacity to interact with m-banking channels (Kothari, 2004).

The application of quantitative approach provides rigor and robust results by the use of imitation devices, to ensure that results are replicable, that is, can be transferred from the case study setting to a similar context. Moreover, this method facilitates the processing of large data sets in identifying trends or specific patterns related to user groups for a mobile banking service use.

Finally, the primary objective of this study is to be used as evidence for policy designing in financial inclusion initiatives and user experience enhancements and digital literacy programs implementation even at banking industry in Ethiopia. Using a structured, empirically based approach enables the study to clarify how digital literacy and usability factors are related with adoption and can help banks fine-tune mobile services for broader and more inclusive use.

3.2. Research Design

This study employed an explanatory research design to investigate the mediating role of digital literacy in the relationship between mobile banking usability and adoption. An explanatory design was chosen because the objective is not merely to describe adoption patterns but to test causal pathways specifically, whether usability perceptions influence adoption through digital literacy. This design is appropriate for hypothesis testing and aligns with the study's aim of clarifying cause-and-effect relationships in Ethiopia's mobile banking ecosystem (Saunders et al., 2019).

The explanatory approach was operationalized through a quantitative survey method, which allowed for systematic data collection and statistical testing of mediation effects. Structured questionnaires were administered to customers of five major commercial banks in Addis Ababa, ensuring coverage of diverse user segments. The design supports validity by grounding hypotheses in established theoretical models (TAM, TAM2, TAM3, UTAUT) while extending them with digital literacy as a mediator. Reliability was enhanced through standardized instruments and consistent administration procedures.

To complement quantitative findings, qualitative insights were also gathered on user-driven issues such as confidence, error recovery, and perceived risk. These qualitative elements surfaced contextual barriers that numbers alone could not capture, thereby strengthening the explanatory power of the design. The integration of quantitative hypothesis testing with qualitative exploration ensures that findings are both statistically robust and contextually meaningful.

In sum, the explanatory design is justified because it directly addresses the study's objectives: testing mediation hypotheses, clarifying causal mechanisms, and generating actionable insights. By combining quantitative rigor with qualitative depth, the design enhances the generalizability of results within Addis Ababa's banking sector while acknowledging contextual limitations. This methodological choice provides a solid foundation for advancing theory and informing inclusive digital finance strategies in Ethiopia's rapidly evolving financial landscape.

3.3. Population

The target population of the study was the mobile banking users - clients of all commercial banks in Addis Ababa. This target population is composed of active and potential users: the former are those who interact with mobile banking services; whereas for the latter, their level of digital literacy may influence usage behavior. These users are also diverse in terms of age, education, and socioeconomic status and as such, they provide an important group for investigating the impact that digital literacy has on usability and uptake.

The Ethiopian financial center of the country, Addis Ababa is home to a large portion of the mobile banking subscribers. Mobile banking is also popular in Addis Ababa, where a number of leading banks such as Commercial Bank of Ethiopia, Bank of Abyssinia, Awash Bank, Dashen Bank and Hibret bank are offering this service and the city accounted for a significant (75 per cent or 15.4 million) share out of an estimated 22 million national mobile banking users. To be precise, the number

of registered users of mobile banking of these five renown banks was about 2.5 million users. This urban population is rich in diversity of digital activities and service expectations providing a scenario to understand the adoption trends and usability shortcomings.

The study pivots on customer databases and branch-level operational engagement measurements from a number of commercial banks to ensure data integrity and availability. These sources represent structured data fields of registered mobile banking customers, which permits rigorous sampling and analysis. Special focus will be on how digital literacies are associated with user practices in relation to the perception of usefulness in ever-changing landscape of technology-enabled urban contexts.

By looking at mobile banking users across multiple banks, the research offers more general insights into factors of utilitarian and experiential nature that drive adoption. This inclusive method not only deepens understanding, but also helps in identifying specific interventions to promote digital financial services in the capital of Ethiopia.

3.4. Sampling Size Determination

Sampling is the procedure by which some members of a defined group or population are selected to make findings" (Zinatelli et al., 2001). Where a full census is not possible, it is cost-effective to take a sample for the planned investigation. Although the size of the presumed target population (approximately 8.0 million) was available, with approximately 2.5 million (i.e., about 30%) being active mobile banking subscribers in the city, a proportionate sample size determination by Cochran (1977) for unknown populations was applied in computing representative sample sizes when a population is more than 10,000. The sample size was estimated using the formula for confidence level, proportion estimation and margin of error.

Based on the above established formula (at 95% confidence interval and maximum variability i.e., p = 0.30, q (p - 1) =.70 and a 5% margin of error), a minimum representation size of 385 was determined as a starting point to obtain adequate valid responses from participants in this study. The required sample size was therefore:

$$n = \frac{Z^2 * P * Q}{e^2} = \frac{(1.96^2)(0.30)(0.70)}{0.05^2} = 323$$

This risk-averse strategy aimed to guarantee a good coverage of the diverse population of mobile banking users and their varying digital literacy skills. Cochran's (1977) formula was particularly

suitable for the study to cater for large unbounded populations characteristic of mobile banking research and at the same time allowed for more accurate population information be obtained.

3.5. Sampling Technique

The methodology for this study involved a non-probability convenience sampling. This was justified because it is practical and has access to mobile banking users in the five selected banks. Anchoring on digital literacy in mediating usability and adoption in mobile banking, convenient sampling strategy was employed to collect data conveniently. Sample was taken from active mobile banking users, i.e. customers who were visiting head offices and branches of the selected banks at the time of data collection.

This method was chosen to balance between the cost, time and logistics saving for targeting a specific user group in a specific operating environment. Moreover, this approach was adopted in an environment where random selection of participants was not possible, as it could not be achieved in a short period of time and due to logistic complications.

Although it is recognised that this approach may not be the most appropriate to obtain a statistically representative sample which could thoroughly represent the population in general, the collected data were deemed adequate to discern meaningful trends and offer valuable insights on usability perceptions, adoption barriers, and different levels of digital literacy. These findings were then applied to feed into the conversation around ways to improve financial inclusion and mobile banking accessibility in Ethiopia.

3.6. Source of Data

Data collection was determined as a base of the empirical framework and organized gathering of information's following to research goals (Arbnor, 2014). Data sources were further divided into primary and secondary. Original information obtained by inquiry for the first time and that is inspired, directly resulting from an experimental or theoretical frame work, had a direct bearing on the relevant aspects of the case. Secondary data included all information that had been previously gathered for other purposes and would be used to offer the context or background (Saunders et al., 2019).

The current study was based entirely on original data in order to make sure the results were directly from target subjects, which can increase objectivity and specificity of the analysis. The main advantage of primary data was the time synthesis and dependability, which could be obtained from

respondents directly at a high pace, hence giving current and specific responses to the research problem (Kothari, 2004).

3.7. Data Collection Instruments

A survey method was used for the banks to gather primary data for this study on digital literacy as mediating in mobile banking usability and adoption. This approach is well reputed to be effective in eliciting respondents' opinions, behavior and experiences concerning the adoption of mobile banking (Creswell, 2015). It adopted a common questionnaire, helping to ensure consistent data and productive comparison between different types of respondents.

It was, accordingly, developed to allow the researcher structured and consistent feedback using validated instruments from prior research (Lorraine, 2020). It comprised two main sections:

- Demographic Data: This Part was designed to obtain basic demographic information of the interviewees, including their age and gender as well as the experience in using mobile banking services of respondents. Knowing this can be helpful in order to put the contribution of digital literacy in usability and adoption into context.
- Study Variables – The second part examined the main study variables:
  - Application Usability (IV) – indicated by Perceived Ease of Use, Language Accessibility, Transaction Speed and Error Prevention & Recovery.
  - Digital Literacy (Mediator) – Year of residency in school, no limits/year out of school); Knowledge on using digital technologies; Confidence to use mobile banking apps; ability to navigate online banking.
  - Mobile Banking Adoption (DV) – measured as usage frequency, user satisfaction, engagement and innovation acceptance.

Participants responses were recorded on a five-point Likert scale from - Strongly Disagree (1) to Strongly Agree (5). This scale made it possible to measure responses in terms of user experiences and opinions, allowing statistical analyses of the trends toward digital literacy, usability, and adoption.

The use of a self-administered method for the survey had several benefits in studying digital literacy as a mediator for mobile banking usability and adoption. Standardization and synchronisation deliver uniform responses that support systematic analysis of, and comparison between, results across user types. This approach also increased research efficiency of the data collection, whereby researchers

were able to obtain a large sample in a reasonable time. Furthermore, accessibility is important since the respondents were able to fill in the questionnaire easily (low response bias and reduced self-selection), thereby also leading to an increased participation rate.

The combination of these advantages means the research may draw less biased conclusions on the impact of digital literacy on mobile banking adoption, and consequently contribute to social value by enhancing financial inclusion and user satisfaction in Ethiopia's banking industry.

3.8. Scale Validity test

The validity of the scale also indicates that a scale measures it in the right way they are used to measure (Trochim, 2019). Exploring digital literacy as a mediator of mobile banking usability and adoption, the current study required that the construct be valid in order for findings to be reliable.

For this purpose, the survey tool was validated through multiple stages. It was first content validated by an IT and banking experts' panel to evaluate construct, content, criterion-related and face validity. This stage was conducted to make certain that the items of the questionnaire were logically related to these constructs (digital literacy, usability and adoption) and in order to eliminate any lack of contents in the questionnaire. The face validity of the instrument was also confirmed by the advisor of this thesis by ensuring the clarity, relevance and ease of understanding of questions to potential respondents.

This was then followed by the pre-test to check for question clarity, structure and flow before mass administration. A total of 30 questionnaires were distributed to mobile banking users of Oromia Cooperative Bank. The bank was selected as test group as its organizational structure and size is similar to the five target banks under the study. The objective of this pre-test was to identify possible ambiguities and gather pragmatic feedback, which then led to adjustments that improved the effectiveness of the questionnaire. With these rigorous validation methods, the accuracy of the data was reinforced, and the analysis of digital literacy, usability, and mobile banking adoption in Ethiopia was on a firm footing.

3.9. Reliability Test

Reliability is the extent to which an instrument measure consistently (Mugenda,2003). To examine the internal consistency of the scales included in the survey instrument, Cronbach's Alpha was

calculated based on data from pretest / 30 mobile banking subscribers of Oromia Cooperative Bank. A Cronbach's Alpha > 0.70 is generally acceptable and demonstrates that the items in a construct measure a common underlying concept.

As shown in Table 1, the reliability analysis supported the instrument. There was evidence of good internal consistency for all six constructs, as Cronbach Alpha values were higher than the 0.70 criterion (see Table 1). The scores varied from 0.706 (Perceived Trust) to 0.774 (Perceived Usability). This means that the scales are all consistent measures of their respective dimensions.

Table 1. The Outcome of Reliability Test

Dimension	Cronbach's Alpha	No of items
Ease of Use	761	5
Perceived Usability	774	5
Perceived Trust	706	5
Perceived Risk	766	5
Digital Literacy	765	5
Mobile Banking Adoption	749	5
Total Reliability	901	30

Source: SPSS data output, 2025

The general reliability for the entire 30-questionnaire items was 0.901. Although it suggests high general consistency, a value exceeding 0.90 may also point to item redundancy. Nonetheless, the large total score is probably more indicative of how broad-based and interconnected this instrument was designed to be than a tremendous shortcoming, since all single constructs were within the desired 0.70-0.90 range. Together, these findings confirm that the survey is a good instrument for data collection.

3.10. Data Collection Procedure

After the test of the instrument was completed, the questionnaires were delivered to a purposive sample of respondent. A rigorous protocol was set in place to monitor and secure all the responses that were collected. The dataset was then cleaned and validated after data collection. Answers were checked for completeness and consistency, with possible missing or ambiguous information corrected

on the basis of follow-up inquiring to these respondents, preserving the quality of the data available for analysis. The clean data were then ultimately statistically analysed in an intensive attempt to uncover emerging trends, patterns and cause-effect relationships, with a focused aim of determining the mediation effects between perceived digital literacy and mobile banking usability and ultimate adoption as theoretically espoused.

The ethical conduct of research on the subjects was rigorously followed during the implementation of this study. Except for three not willing to participate, all the participants had given their consent by signing a release form after being informed about the main objective of the study: no names or any other sensitive information were processed during data collection as per Ethical principles.

3.11. Data Analysis Techniques and Presentations

Quantitative data was analyzed using Descriptive and Inferential statistics. Descriptive statistics were used to summarise the salient features of digital literacy, mobile banking usability and adoption patterns. To explore relationships between study variables, inferential statistical procedures of correlation analysis and multiple linear regression were used. Linearity, multicollinearity and normality were checked as assumptions before performing the regression analysis. To test the effect of digital literacy on mobile banking adoption, a multiple linear regression model was employed. Such a technique enabled to quantify the relative contribution of digital literacy in transforming the influence of usability to adoption, and hence gain insight into the significant relationships.

Model Specification: The analysis is hosted on digital literacy as an independent variable, mediated by usability and the dependent variable of mobile banking adoption. This structure in place made sense as the following: it facilitated a well scrutiny of how digital literacy improve usability and subsequently mobile banking adoption among the particular five sampled commercial banks.

- Independent Variable (Application Usability) – variables by Perceived ease of use, Language Accessibility, Transaction Speed, and Error Prevention & Recovery.
- Mediator (Digital Literacy) – operationalized as digital technology familiarization, confidence to use mobile banking applications and navigating online banking platforms.
- Dependent variable (Mobile Banking Adoption):it includes frequency of use, user satisfaction, engagement and innovation acceptance.

The following model was developed to meet the specific objectives of the study:

- Objective 1 - The effect of application usability on application adoption behavior:

$$\boldsymbol{ADOP = f(USAB) = \beta_0 + \beta_1 PEOU + \beta_2 LANG + \beta_3 TRAN + \beta_4 ERPR + e}$$

- Objective 2 - The effect of application usability on digital literacy:

$$\boldsymbol{DLIT = f(USAB) = \beta_0 + \beta_1 PEOU + \beta_2 LANG + \beta_3 TRAN + \beta_4 ERPR + e}$$

- Objective 3 - The effect of digital literacy on application adoption behavior:

$$\boldsymbol{ADOP = \beta_0 + \beta_1 DLIT + e}$$

- The mediating role of digital literacy on the relationship between application usability and application adoption:

$$\boldsymbol{ADOP = \beta_0 + \beta_1 DLIT + \beta_{After} USAB + e}$$

Where:

ADOP – Overall Application Adoption Behavior
USAB – Overall Application Usability
DLIT – Digital Literacy
PEOU – Perceived Ease of Use
LANG – Language Accessibility
TRAN – Transaction Speed
ERPP – Error Prevention & Recovery
e – error term

Using the model specification described, along with R2 value, p-values from the ANOVA Test and beta coefficient are a multiple linear regression analysis was carried out to assess its association in between usability, adoption and literacy on digital mobile banking service. Accordingly, the empirical model was developed as a type of multivariate linear regression analyses of examining the separate role of each independent and mediator.

3.12. Ethical Considerations

Ethical soundness is important in business research. Thus, based on well-established ethical principles for business research, it has emphasized protection from harm, informed consent, confidentiality and no deception (taking from your Feb update). The following is a summary of its key components.

The structure of the research design protected participants from highly intimate or contentious issues that could potentially make them feel uncomfortable. Permission was obtained from all respondents through an explication of the study's aims before participation (Bryman, 2011). Their confidentiality was also ensured, as only general demographic information (e.g., age and sex) which could not identify subjects were collected, askers held the right to refuse answering any sensitive questions.

Finally, the principle of non-deception was respected by being honesty and transparent about the goals and procedures during the investigation -participants were not deceived at any stage of this study. By incorporating such safeguards, the study optimized its ethical validity and trustworthiness.

CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATIONS

The present chapter reports the analyses of portfolio data collected in order to explore the contribution that digital literacy has made towards enhancing use and adoption of mobile banking. The results are reported using a mixed-methods design, commencing with a demographic profile of the survey participants. At the heart of our analysis, inferential statistics using correlations and multiple regression techniques are used to ascertain what relationships between important factors across the five banks exist and how strong they are. The empirical findings presented in the report form the basis for interpreting factors influencing mobile banking uptake in this local setting

4.1. Response Rate

Table 2. Response Rate

Questionnaires	**Frequency**	**Percentage (%)**
Total distributed	323	100.0
Unreturned questionnaires	32	9.9
Returned questionnaires	291	90.1
Response errors	2	0.6
Total valid and usable	**289**	**89.5**

Source: Own Questionnaire, 2025

According to the information in Table 2, the return rate of this survey was high at 90.1%, where 291 filled-out questionnaires were collected out of the sent-out total of 323 questionnaires. This is above the typical benchmark for field surveys and reflects a strong respondent engagement. Two questionnaires (0.6% of the distributed material) were excluded because response pattern errors at screening for completeness could not be proved. The 289 valid and usable responses represent a high response rate (89.5%) of the overall sample that was sent out.

A non-response rate of 32 (9.9%) questionnaires are acceptable for large-scale questionnaire surveys and there was minimal non-response bias (table 3). The extremely low error rate also suggests that the wording and format of the instrument were easily understood by the participants. Investigating

289 cases, the study is above minimum sample sizes for multivariate analyses and tests of mediation. These response variables increase its statistical strength and the generalizability of results.

4.2. Demographic Characteristics of the Respondents

Table 3. Demographic Characteristics of Respondents

Category	Freq.	(%)
Gender		
Male	129	44.6%
Female	160	55.4%
Total	**289**	
Age		
21 – 30 years	131	45.3%
31 – 40 years	84	29.1%
41 – 50 years	60	20.8%
50 – 60 years	14	4.8%
Total	**289**	
Education		
No formal education	16	5.5%
Primary Education	30	10.4%
Secondary Education	71	24.6%
Diploma	39	13.5%
First Degree	107	37.0%
Masters & above	26	9.0%
Total	**289**	
Employment		
Student	17	5.9%
Employed	77	26.6%
Self-employed	108	37.4%
Unemployed	87	30.1%
Total	**289**	
Practice		
Regularly	139	48.1%
Occasionally	77	26.6%
Rarely	60	20.8%
Adopted but stopped	13	4.5%
Total	**289**	
Most Used Service		
Fund Transfer	69	23.9%
Bill Payment	44	15.2%
Account Management	10	3.5%
Withdrawal	130	45.0%

Balance Inquiry	32	11.1%
Other	4	1.4%
Total	**289**	

Source: Own Survey, 2025

Full characteristics of demographic variables in the sample of n = 289 are presented in Table 3. The respondents' profiles are presented by six major factors: gender, age class, education level, employment status, practicing frequency and preference of bank service. The sample description reveals a diverse population, providing insights to behavioral and socio-economic variety in the research setting.

Gender - 129 (44.6%) were male and 160 (55.4%). This suggests a nominally higher proportion of women in the sample. The gender balance indicative of inclusiveness could also be a reflection of general participation patterns in the context being studied. The dominance of females may also have other implications for patterns of service use, employment or education, and thus merit gender-disaggregated analysis.

Distribution of Age – The age distribution is quite young. 131(45.3%) of these were within the age of 21–30, followed by (31-40) which was (29.1%) 84. The 41-50 age group was poorly represented, with only 60 (20.8%) responses, and for the 51-60 years group this number dropped to only 14 (4.8%). This distribution indicates that almost three-quarters (74.4%) of the sample are aged under 40, and therefore one may argue the sample reflects views of a younger, relatively technologically sophisticated busy population.

Educational Status - Respondents have a wide range of educational levels. 16 (5.5%) had none or little education, 30 (10.4%) completed primary education and 71 (24.6%) secondary level of education. Thirty-nine participants (13.5%) had completed post-secondary qualifications, including: diploma 39 (13.5%), first degree 107 (37.0%)], master's degree or higher. This indicates that 59.5% of the sample have higher education credentials, reflecting a literate and potentially skilled population capable of engaging with complex services and systems.

Employment Status - Employment dataset reflects kind of mixed economic participation. Seventeen (5.9%) respondents were students, 77 (26.6%) were in formal employment, 108 (37.4%) were self-employed and 87 (30.1%) had no employment. The preponderance of self-employment reflects a

prominent informal sector, mainly due to lack of formal employment opportunities. The high rate of unemployment signals economic fragility and could affect both service uptake or financial conduct.

Use Frequency - In terms of behavioral engagement, 139 participants (48.1%) used the service or practice regularly, 77 (26.6%) occasionally and 60 (20.8%) rarely. Only 13 (4.5%) reported taking on but subsequently gave up the task. This pattern of uptake indicates substantial and continued involvement, with close to half of the sample being regular users. The low dropout suggests a satisfied or constraint-led retention.

Most Popular Service: The service is predominantly transactional. Withdrawal services were used most commonly by 130 (n=45.0%), followed in descending popularity by fund transfers with 69 (23.9%) of the sample and bill payment with 44 (15.2%). Balance inquiry was mentioned by 32 such stories (11.1%), whereas account management was the least used at 10 (3.5%) and others accounted for 4 (1.4%). Withdrawal dominance would indicate a cash- based economy or lack of trust in accommodating digital savings, while low usage of account management means that this feature is underutilized.

Taken as a whole, these results emphasize digital literacy and educational exposure as major hindrances to continued access of mobile banking and variety. Filling these gaps through targeted awareness building, user education and inclusive service design will be critical to scaling mobile banking further to reach the diverse population of Ethiopia.

4.3. Mobile Banking Application Usability, Digital Literacy and Adoption

This study sought to investigate the mediating effect of digital literacy on the relationship that exists between usability of mobile banking apps and user acceptance in a sample of people using leading commercial banks' apps in the country. A 30-item instrument was created to assess four constructs. Digital literacy was conceptualized to include three aspects (cognizance, attitude and behavior), while the applicability of use of application concentrated on five domains: ability to navigate, transaction execution speed, image about insurance transactions security, service accessibility and platform adaptability. Adoption of mobile banking (dependent variable) measured users' usage frequency, trust, transactional behavior and continued use.

All items employed a five-point Likert scale (1 = strongly disagree; 5 = strongly agree). Descriptive statistics (mean and standard deviation) summarized respondents' perceptions. Following Field (2005), mean scores were interpreted as follows: 1.01–1.80 (strongly disagree), 1.81–2.60 (disagree), 2.61–3.40 (neutral), 3.41–4.20 (agree), and 4.21–5.00 (strongly agree).

Standard deviations framed the heterogeneity of responses, representing the extent of agreement (or disagreement) on each construct. This combined analysis determined basic trends in usability, literacy, and adoption before evaluating the proposed mediation model.

4.3.1. Perceived Ease of Use

Table 4. Description of Perceived Ease of Use (n = 289)

Statements	Mean	Std.
The mobile banking app's layout is simple/ easy to understand.	4.42	1.231
I can complete transactions without needing external help.	4.18	1.582
Learning to use the app's features requires minimal effort.	4.15	1.613
The app's design makes it easy to find what I need.	3.38	1.772
I rarely get confused while navigating the app.	3.78	1.648
Grand Mean	**3.98**	**1.132**

Source: Own Survey, 2025

The descriptive statistics, table 4, reveal overall favourable perceptions towards ease of use of mobile banking application. The highest-scoring construct is layout simplicity (M = 4.42, SD = 1.23), followed by ability to independently complete transactions (M = 4.18, SD = 1.58) and effortlessness in learning features (M = 4.15, SD = 1.61), with the grand mean approaching agreement (M=3.98, SD=1.13) These central tendencies indicate that the fundamental interface and tasks are working effectively for most users.

In spite of the positive general perception, variability in response identifies certain weak areas. Findability of functions showed the lowest mean (3.38) and greatest spread in scores (SD = 1.77), while confusion during navigation did not change a lot (3.78, SD = 1.65). Taken together, these results

suggest that a non-negligible proportion of users also experience navigational friction even when other usability dimensions are reported to be positive.

In application, the pattern suggests selective improvements as opposed to complete overhauls. Enhancing findability of the information - either through better menus, labeling or searching mechanisms or context clues - might help reduce confusion when navigating and increase overall ease of use. Fixing these specific gaps should improve sustained engagement and ensure investments into layout/feature development map to higher / more consistent usage.

4.3.2. Language Accessibility

Table 5. Description of Language Accessibility (n = 289)

Statements	Mean	Std.
The app provides instructions in my preferred local language.	3.48	1.928
Technical terms are explained clearly for non-expert users.	3.45	1.945
Error messages are displayed in clear, simple language.	3.42	1.868
Customer support is available in a language I understand.	4.28	1.465
The app's language options meet my needs.	4.22	1.504
Average Mean	**3.77**	**1.274**

Source: Own Survey, 2025

In table 5, a description of respondents' rating of language accessibility is presented. Their mean scores, that is all above the neutral midpoint of 3.00 for preference response were found on availability of instructions in a user's preferred local language (M = 3.48, SD = 1.93), clarity in explanation of technical terms (M = 3.45, SD = 1.95) and presence of customer service offering an understandable language(M = 4.28, SD = 1.47). These findings indicate that although the majority of users observe some level linguistic adaptation, a significant minority continue to be shut out when it comes to key guidance and live help. In contrast, error messages are consistently rated as clear and simple (M = 3.42, SD = 1.87), and overall language-option adequacy (feedback and interface customization) is high (M = 4.22, SD = 1.50). The composite mean of 3.77 (SD = 1.27) also indicates a moderate to

high overall satisfaction with language support, while the pattern of results across items suggests mixed use experiences among different user groups.

These results suggest that the efforts to improve linguistic inclusion regarding content should concentrate on increasing local context-based instructional materials and on making domain-specific terms simpler. Banks can look to create in-app glossaries or tooltips explaining technical terms and may want to ensure that they are providing multilingual support in areas such as customer service hotlines. With clear error messages and flexible language menus shown to work, similar principles of design - conciseness, contextual clarity and user choice, could more effectively bridge understanding gaps if extended into instructional overlays and help functions. These focused enhancements are anticipated to raise total usability and promote widespread use among multilingual users.

4.3.3. Transaction Speed

Table 6. Description of Transaction Speed (n = 289)

Statements	Mean	Std.
Payments/transfers are processed instantly or within seconds.	4.20	1.473
The app responds quickly even during peak usage times.	3.09	1.949
I don't experience delays when checking my balance.	3.15	1.921
The app loads faster than traditional banking methods (e.g., ATM, branch visits).	4.06	1.608
Transaction history updates immediately after each action.	2.75	1.662
Grand Mean	3.45	1.171

Source: Own Survey, 2025

Table 6 indicates that users differentiate the transaction speed and feedback responsiveness. Payments and transfers also get good score (M = 4.20, SD = 1.47), whereas the time to access the app is highly rated when compared with other conventional channels such as ATM or appointment at the branch (M= 4.06, SD=1.61). System performance during peak hours, however, receives an ambivalent rating at best (M = 3.09, SD = 1.95), as does Checking account balance now (M = 3.15, SD = 1.92). Transaction-history updating promptness (M = 2.75, SD = 1.66) receives the lowest rating suggesting that users frequently experience slowness during recent activity checks]. The average mean of 3.45 (SD = 1.17) indicates a moderate, but variegated satisfaction representing multiple reaction times for different functions.

These findings suggest the back-end system is functioning well at transaction processing; however, the user interface's real-time feedback facilities are letting it down. Improvements like scaling server throughput, using async sync with balance as well as history data and introducing the visible progress could be a step towards this. By sending feedback immediately upon transaction execution, banks can decrease perceived friction; increase user trust in the system; and drive higher, more sustained interaction with their mobile banking portals.

4.3.4. Prevention & Recovery

Table 7. Description of Error Prevention & Recovery (n = 289)

Statements	Mean	Std.
The app warns me before making potential mistakes (e.g., wrong account number).	2.85	1.655
I can easily undo/cancel transactions if needed.	4.21	1.364
The app provides step-by-step guidance to fix errors.	3.53	1.662
Failed transactions are clearly explained with recovery options.	3.55	1.529
I trust the app to protect me from accidental financial losses.	4.29	1.332
Grand Mean	3.69	1.093

Source: Own Survey, 2025

Table 7 shows response to error in both preventing and recovering from errors; induction implied much greater anticipation of error than support once it occurs. A low mean for pre-transaction warnings (M = 2.85, SD = 1.66) suggests that users do not feel adequately warned prior to entering potentially incorrect information.

Instead, support for the option of reversing or canceling transactions is strongly supported (M = 4.21, SD = 1.36) as well as assurance that the app will protect users from accidental loss (M = 4.29, SD = 1.33). Moderate ratings for guided error correction (M = 3.53, SD = 1.66) and the clarity of recovery actions available after an unsuccessful task completion (M = 3.55, SD = 1.53) indicate that overall participants were only moderately satisfied with post-error assistance. The app's 3.69 overall score

(SD = 1.09) suggests, in the aggregate, positive attitudes towards its error-handling system across a wide range of specific error-prevention and error-correction mechanisms.

These results highlight the need to strengthen preventive measures at important interaction sites. Even simply adding validation checks in real time, such as account number formatting or confirmation dialogs when completing high-risk operations - would cover the absence of early warnings. At the same time, extending the app's corrective toolbox with context-sensitive help overlays, convenient tutorials to jump-start learning and more elaborate recovery pathways can boost users' confidence in troubleshooting on their own. By combining strong front-end error prevention with improved in-app guidance and more transparent corrective messaging, banks can lower user anxiety, waste less time on expensive missteps, and create a more dependable, user-first mobile-banking environment.

4.3.5. Digital Literacy

Table 8. Description of Digital Literacy (n = 289)

Statements	Mean	Std.
I can confidently set up or use mobile banking apps without assistance.	3.28	1.890
I understand security features like PINs, OTPs, and encryption.	4.13	1.597
I know how to identify or avoid online banking scams/fraud.	4.45	1.230
I can troubleshoot basic app issues (e.g., login problems, slow loading).	3.33	1.933
I regularly use other digital tools (e.g., email, social media) to manage tasks.	4.32	1.363
Average Mean	**3.90**	**1.164**

Source: Own Survey, 2025

Referring to the values in table 8, according to respondents are confident in general digital fields, when compared some lower confidence level estimated related mobile banking. The most endorsed (M = 4.45, SD = 1.23) skill is Confront/rejecting online banking scams, immediately prior to Engaging with other digital media tools like email and social networking sites M = 4.32(SD= 1.36).

Knowledge of security mechanisms (PINs, OTPs, encryption) also ranks high (M = 4.13, SD = 1.60), suggesting strong security literacy. In contrast, self-efficacy whereas in the usage or installation of the mobile banking application without support [M = 3.28 (SD = 1.89)] and also solving minor problems like login errors or a temporarily slow system performance ([M=3.33(SD=1.93)]) score

similarly. Such items both fall in the neutral-to-agree range and exhibit substantial scattering, indicating unbalanced confidence for application-oriented activities.

Digital literacy seems to be reasonable with a mean value of 3.90 (SD = 1.16), albeit one that is unevenly distributed across different types of skills. This contrast between high security/scam awareness compared with lower self-efficacy for app setup/troubleshooting shows that users draw on their general digital experience but feel less confident when confronted with mobile banking–specific technical problems. To account for this and improve user retention, banks need to introduce more targeted in-app guidance - like step-by-step wizards for the initial configuration, interactive troubleshooting flows, and contextual in-context help pop-ups. Building on users' existing knowledge of digital tools, such interventions can scaffold more difficult tasks, raise self-esteem, and instigate broader autonomy as well as deeper involvement in mobile banking services.

4.3.6. Mobile Banking Adoption Behaviour

Table 9. Description of Mobile Banking Adoption Behavior (n = 289)

Statements	Mean	Std.
I prefer mobile banking over visiting physical bank branches.	3.42	1.780
I use mobile banking for most of my financial transactions	3.97	1.469
I recommend my bank's mobile app to friends/family.	4.52	1.134
I plan to increase my mobile banking usage in the future.	4.45	1.230
Mobile banking saves me time compared to traditional methods.	3.45	1.274
Average Mean	3.96	.987

Source: Own Survey, 2025

The information in table 9 indicates at the kind of application use among the users. The adoption behaviors of respondents tend to be positively oriented toward mobile banking, although variations could be distinguished between the dimensions. The attitudes of willingness to recommend the app to others (M = 4.52, SD = 1.13), as well as to increase use in the future (M = 4.45, SD = 1.23) report similarly strong advocacy and commitment levels.

A strong mean (M = 3.97, SD = 1.47) is noted to using the app for most financial transactions, suggesting that many customers already depend on digital channels. The mobile banking is preferred over bank branches (M = 3.42, SD = 1.78) and time saving perception (M = 3.45, SD = 1.27) are

moderative both. The composite mean of 3.96 (SD = 0.99) indicates overall high adoption but differentiation between attitudinal endorsement and practical preference.

The patterns suggest that users are enthusiasts for promotion and hope to further engage, but they also balance between mobile services and in-person services, and ambivalence remains about efficiency gains. Banks can help translate these positive intentions into habitual behaviour by highlighting the concrete time benefits of mobile transactions in their messaging and in-app analytics (e.g. custom usage summaries). With highly recommend rates, referral incentives will accelerate to enlarge the user base of internet. At the same time, things making value more apparent such as support for (or simplified migration from) branches to app or time-tracking features can sway mild mindsets towards unchanging mobile adoption.

4.4. Inferential Analysis

Inferential statistics were employed to disclose deeper relationships within the data. These methods allow studies to draw conclusions about a broader population based on insights from a representative sample. Inferential tools are instrumental in detecting patterns that extend beyond the immediate dataset on top of estimating population parameters.

The first analytical method employed was Multiple Linear Regression, chosen because of its capacity to quantify the magnitude and direction of relationships between variables. First, a series of correlation tests were performed for examining the direction and strength between variables. Prior to regression, several assumptions (normality, linearity, multicollinearity and homoscedasticity) were thoroughly checked in order to validate and verify the model. The regression analysis was performed after these criteria were met. Intelligible representations enabled meaningful interpretations of the extent to which one set of variables could predict another, illuminating underlying relationships and supporting broader explanatory goals in the study.

4.4.1. Correlational Test

To examine the interaction effect between application usability, digital literacy and adoption behavior, this study used Pearson's correlation coefficient (r), which is a statistical approach to determine both nature and strength of a linear relationship with respect to pairs of variables. The coefficient varies between -1 and +1, when the value is towards +1 this shows a strong positive

correlation (both variables increase or decrease together), −1 indicates a perfect negative relationship (as one variable increase and another decreases) and 0 means no association at all.

According to the interpretation suggested by Field (2005) a relation from 0.01 and up to 0.29 is "low" indicating weak relationship. Between 0.30 and 0.49 indicate moderate association, above 0.50 show strong connections and good predictive values. The p-values are reported with the coefficients to give an indication of the robustness of these associations. The p-values are displayed together with the coefficients for a sense of significance and rigour of these associations. To evaluate the robustness of these associations p-values are also presented with the coefficients. A $p \leq 0.05$ indicates a statistically significant relationship, suggesting that the association observed is unlikely to be attributed to chance.

Applying this approach to the variables in question, it was able to uncover related structures that affect mobile banking adoption. The relationship between digital literacy, usability and adoption behavior As digital literacy and usability are related to reasons for adopting technology, having a better understanding of this relationship provides insights on user preferences and identifies components on which interventions such as training or improving the interface may improve the acceptance and continued use of an intervention.

Table 10. Pearson Correlation Test

	PEOU	LANG	TRAN	ERPP	DLIT	ADOP
Ease of Use	1					
Language Accessibility	.457**	1				
Transaction Speed	.505**	.303**	1			
Error Prevention & Recovery	.278**	.159**	.444**	1		
Digital Literacy	.599**	.479**	.561**	.222**	1	
Mobile Banking Adoption	.681**	.517**	.617**	.368**	.698**	1
**. Correlation is significant at the 0.01 level (2-tailed).						

Source: Own Survey, 2025

Table 10 displays Pearson r coefficients between the six core constructs (n = 289), all significant at p <. 01. There is a significant positive relationship between ease of use and the adoption of mobile banking (r =. 681) and digital literacy (r = . 599) and transaction speed (r =. 505). In middle, digital literacy is the most highly related to adoption (r =. 698), thereby indicating that a mediating position remained in the centre. Transaction speed (r =. 617) and language (r =. 517) and moderate-strong

relations with adoption, while error prevention has a weaker but still significant relationship (r =. 368). Interrelations between the antecedents are moderate (language–transaction speed, r =. 303; language–digital technology, r = . 479) to strong (ease of use–digital literacy, r =. 599).

These results highlight the importance of usability and digital literacy as having maximum predictive power on intent of usage over transaction speed and language support that also have significant roles. The relatively lower correlation for error prevention might indicate that the gains in uptake from improving proactive checks or recovery mechanisms would be more modest. Practitioners interested in facilitating adoption will stress simplified interface designs, cognitive literacy-building tutorials, easy-to-process functionality response times, and the ability to support multiple languages; they can now feel confident moving on to mediation and path analyses to untangle direct and indirect effects of mobile banking uptake.

4.4.2. Assumption Tests for Regression Model

In the course of applying multivariate statistical techniques, it is essential to examine the foundational assumptions that support their validity. As Hair (2010) stressed, failure to account for these assumptions may detriment the analysis and give false conclusions. These checks are not just for procedure - protect the integrity of your results, and make sure your grubby statistical models do what you want them to do.

A variety of assumptions have been made in multivariate analysis, and only a few can be verified using the SPSS (Statistical Package for the Social Sciences). There are many effective diagnostic tools for this purpose in SPSS; one can use them to examine whether the data satisfy the required assumptions of regression analysis. In particular, the normality, linearity, homoscedasticity and no multicollinearity assumptions were examined. Each has its specific use: normality checks that the residuals are normally distributed; linearity shows relationships between variables are linear; homoscedasticity verifies constant variance of observations; multicollinearity evaluates if predictor variables are too correlated.

It is an important model simplification to validate those assumptions. It increases not only the trust in the regression results, but also understanding of the nature of what is being captured by those relationships. By verifying that the data meets these statistical assumptions, the research builds a valid ground for meaningful and reliable inferences.

4.4.2.1. Multicollinearity Test

In regression analysis, multicollinearity is observed in regression analysis when the independent variables of a regression model have a high degree of correlation among them than with the dependent variable. The definition of multicollinearity seems to relate to a varying scope that could be case specific and study dependent.

Tolerance (range: 0-1) - The Proportion of the variance in the dependent variable that is independent from other predictors. A low tolerance value (close to 0) suggested a high collinearity while values close to one had lower collinearity. VIF statistics inform us about presence of collinearity between independent variables (Neter et al., 1996); larger value of the VIF signifies a greater degree of collinearity. Typically, VIF more than 10 would be inflation and values of 1 to 5 is indicating moderate collinearity which is fine for regression.

Table 11: Collinearity Statistics

Model		Collinearity Statistics	
		Tolerance	VIF
1	Ease of Use	.560	1.786
	Language Accessibility	.724	1.381
	Transaction Speed	.554	1.805
	Error Prevention & Recovery	.795	1.258
	Digital Literacy	.506	1.976
a. Dependent Variable: ADOP			

Source: SPSS output, 2025

Collinearity diagnostics for the five predictors in the adoption model are presented in Table 11. Tolerance values range from. 506 (digital literacy) to. 795 (error prevention & recovery), all significantly higher than the .10 threshold. VIF values range from 1.258 to 1.976, well below the often-quoted cutoff of 5. The maximum VIF is for digital literacy (1.976) and the minimum VIF is featured by the error prevention & recovery predictor (1.258), so none of two predictors fit in across all cuts as problematic since they overlap.

These results demonstrate that multicollinearity is not a concern prior to examining the effect of predictors on mobile banking adoption. Thus, regression coefficients are interpreted with assurance that mediation or structural equation analyses do not require removal of interdependent variance

inflation. To increase rigor, researchers could examine the condition indexes, or even conduct an exploratory factor analysis to see whether two sub-dimensions of usability and literacy still differentiate when indirect effects are modeled.

4.4.2.2. Test of Normality

A normality test is indispensable prior to performing a regression analysis, because it is one of the primary assumptions of this statistical technique. Skewness and kurtosis statistics are used to decide the normal distribution. According to George and Mallery (2010), both these statistics between -2 and +2 are considered acceptable, indicating mean normality. The kurtosis and skewness of all variables shown in Table 12 are mostly labor between these acceptable ranges, which means that the normality is approached. This is based on the criterion that for a range -2 to 2 both skewness and kurtosis should lie.

Table 12: Normality of Distribution Using Descriptive Statistics (Skewness and Kurtosis)

Descriptive Statistics					
	N	Skewness		Kurtosis	
	Stat.	Statistic	Error	Statistic	Error
Ease of Use	289	-.861	.143	-.204	.286
Language Accessibility	289	-.905	.143	-.202	.286
Transaction Speed	289	-.252	.143	-1.136	.286
Error Prevention & Recovery	289	-.501	.143	-.735	.286
Digital Literacy	289	-.793	.143	-.358	.286
Application Adoption	289	-1.097	.143	.902	.286

Source: SPSS output, 2025

Table 12 shows the skewness and kurtosis statistics of constructs, providing evidence for the approximate normality of all six variables. Ease of use (skewness = – 0.861; kurtosis = – 0.204) and language availability (skewness = – 0.905; kurtosis = – 0.202) show moderate negative skew and near-zero kurtoses, thus showing weak concentration of the left tail with an overall mesokurtic profile too for both constructs. The skewness (– 0.252; – 0.501) and kurtosis (– 1.136; – 0.735) are close to zero kurtosis, both for transaction speed and error prevention & recovery, suggesting a flatter distribution in these variables. The skewness (– 0.793) and kurtosis (– 0.358) of digital literacy also fall within the range of –1 to +1 for skew and –2 to +2 for kurtosis as per normative cutoff points (Weston and Gore, 2006). Lastly, application adoption has the longest left tail–skew (–1.095) along

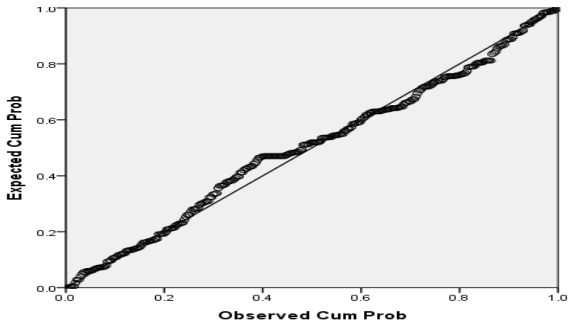
with moderate positive kurtosis (0.902), but still holds for parametric analysis This long left-tail skew indicates that from respondents' viewpoint, not a lot of emphasis is placed on having stable job in order to be successful in their work (Figure 5).

As all the negative skewness values remain ranging from −1.10 to 0.25 and negative kurtosis values range between −1.14 and 0.90, which indicate that these distributions are passed for normality assumption required in Pearson correlation, multiple regression and mediation tests. This compliance allows for the unbiased estimation of parameters as well as valid hypothesis testing without reliance on nonparametric options. Accordingly, all subsequent path analyses and structural equation models may proceed with the confidence that multivariate normality has not been significantly compromised.

4.4.2.3. Linearity Test

The assumption of linearity can be tested quite easily with scatterplots or residual plots, in which it plots the residuals versus the predicted value of the dependent variable or against one (or more) of the independent variables.

Figure 2: Frequency Distribution of Standardized Residuals

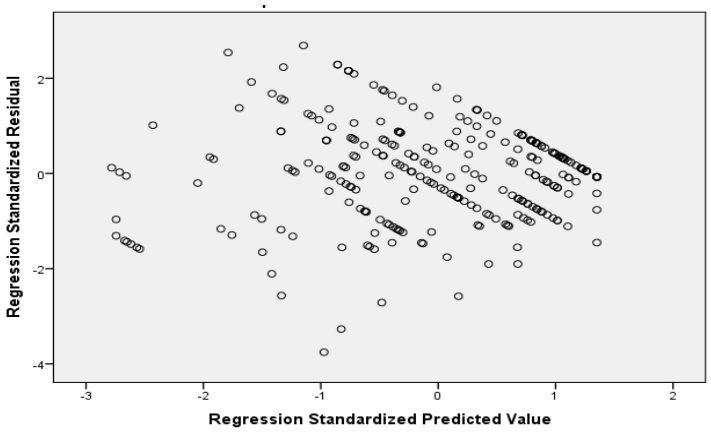


Graphically, in Figure 2 it highlights the assumption of linearity that Regression is based upon and which can be inspected through scatterplots or residual plots. These plots may show residuals against predicted values of the dependent or raw for one of the independent variables, i.e. for the variables used in this study the Q-Q plot was a straight line with some small deviations which suggests that there is an associated relationship between them but there are slight departures from linearity.

4.4.2.4. Homoscedasticity Test

The test of homoscedasticity – assumptions of equal variance: Homoscedasticity is very essential to linear regression analysis. By this model, we mean that an identical value for the error term holds at any level of the independent variables.

Figure 3: Scatter plot for Homoscedasticity Test



It is a test of the hypothesis of homoscedasticity, (error variances are constant across levels of an independent variable). While, the condition of Heteroscedasticity (violation of homoscedasticity) exists if the error term has different variables for discrete values of an independent variable.

Residual scatter plots enable the inspection of the homoscedasticity assumptions in terms of predicted dependent variable scores and prediction errors. As shown in Figure 3, there is no sign in the scatter plot that there form some funnels along the prediction line or it is widening systematically as moving from left to right (in x-axis). Rather, points are scattered randomly about zero with approximately constant variability at all levels of the predicted value. That pattern is the signal of homoscedasticity i.e., that the regression residuals have a constant spread over the range of fitted.

4.4.3. Regression Analysis

Based According to model specification, a multiple linear regression was employed to investigate usability, adoption and literacy in case of digital mobile banking service. The study further assessed the effect size of these relationships using R^2 (coefficient of determination), ANOVA test (p-values) and Beta-coefficients (regression coefficient) to examine the significance of each independent and mediator variable. The empirically used model was in a multiple linear regression analysis

framework where the ramp effects of all single determinants on stimuli acceptance and mobile banking usefulness were thus elucidated.

To address the specific objectives of the study, the relationship between the variables was tested as follows:

- ***The effect of application usability on application adoption behavior:***

Regression analysis also reveals the impact effect of Perceived Usability on Application Adoption (ADOP). The relationship is very positive as the value of R=0.751 and it implies that 75.1% variance in application adoption depends on usability. This affirms usability is an important catalyst for adoption. This is supported further by the R Square value of 0.564 which, as previously confirmed, allows to say that 56.4% of adoption is influenceable by usability (Adjusted R Square = 0.563) and it introduces no bias in terms of predictive power. With an associated standard error of 0.65236, the model's estimates are also considered to be reasonably accurate (Ref: Appendix II SPSS Output).

The ANOVA test indicates that usability is statistically significant as to determining the adoption of application (F 371.915, Sig. = 0.000). A high F-test value means there are significant contributions from the usability (in this case) to the adoption variance relationship, and this is not related by chance. The regression model is highly dependable, proving that usability is a pivotal factor in the effective introduction and mass adoption of an application (Ref: Appendix II SPSS Output).

Table 13: Coefficients (Application Usability → Adoption)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.695	.174		4.006	.000
	Perceived Usability	.880	.046	.751	19.285	.000

a. Dependent Variable: ADOP

Source: SPSS output, 2025

Looking at the regression coefficients, the unstandardized and standardized coefficients are (B = 0.880) and (Beta = 0.751, Sig. = 0.000) support the importance of ease of use in adoption decision process. Furthermore, its t-value of 19.285 attests to its statistical importance, indicating that

usability appears to be a powerful predictor of application adoption. Second, because the constant (B = 0.695, p = 0.000) means that even without usability enhancements, there is a point of adoption of lots of services and ubiquity with more usable systems strongly enhancing their acceptance. The substitution of the above listed solutions in is given by:

$$\boldsymbol{ADOP = .695 + .880\ USAB \ldots\ldots\ldots \text{ Path A}}$$

Based Accordingly, hypothesis H1 - "Application Usability has a positive and significant effect on Application Adoption Behavior" is accepted. The findings suggest that, in order to increase application adoption rate, a bank should pay attention to improving the experience of the user, ease of use and accessibility. Incorporation of trust building features, such transparency and user-friendly navigation process ensures high degree of adoption potential. The magnitude of the effect of usability highlights the significance of design and functionality in encouraging user engagement. It follows that giving more attention to usability improvements could improve acceptance, use or effective deployment of application.

- ***The effect of application perceived usability on digital literacy:***

In the regression analysis, the effect of Application Usability on (DLIT) is examined, a significant relation between these two variables was observed. Model Summary There is a significant positive sigma = 0.644 correlation between usability and digital literacy is indicative in the Model Summary Table VI. The R Square value (0.415) indicates that approximately 41.5% of digital literacy variance is accounted for application usability. The Adjusted R Square (0.413) indicates the stability of model and it verifies that usability is a significant determinant for digital literacy enhancement. The Moderate Standard Error of Estimate (0.89227) signifies moderate variability, thereby the model's predictions in other words can be considered fairly accurate. (Ref: Appendix II SPSS Output)

The ANOVA test results add to the credibility of the statistical correlation as well and show a high value for F (203.275, Sig. = 0.000). This indicates that software usability significantly influences digital literacy, supporting claims that more user-friendly applications facilitate effective engagement with digital tools. (Ref: Appendix II SPSS Output).

Table 14: Coefficients (Perceived Usability → Digital Literacy)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.601	.237		2.530	.012
	Perceived Usability	.890	.062	.644	14.257	.000

a. Dependent Variable: DLIT

Source: SPSS output, 2025

The regression weights can give us further implications about the impact of usability on digital literacy. The coefficient (B = 0.890) and Beta value (Beta = -=.644, Sig. = 0.000) suggest that usability has a substantial and direct positive impact on digital literacy. The t-value (14.257) indicates that usability is a very significant predictor which means that enhanced usability also leads to increased digital literacy levels. Moreover, the intercept (B = 0.601, p = 0.012) suggests that when not considering usability improvements, there is a minimum level of digital literacy aside from which people are engaged to engage with this type of tools; however, optimising their attributes helps people to engage more strongly. Replacing the obtained values in the proposed model is given as:

$$\boldsymbol{DLIT = .601 + .890\, USAB \ldots\ldots\ldots \text{Path B}}$$

Accordingly, the generated hypothesis H2 – "The usability of applications has a positive significant impact on digital literacy" is also confirmed. These results emphasize the fact that greater 'software usability' can result on more digital literacy users. User-centric interface design, easy-to-navigate pathways and enhanced accessibility should take precedence to optimize the expansion of digital literacy and efficacy.

- ***The effect of digital literacy on application adoption behavior:***

The regression analysis reveals that DLIT has a significant influence on ADOP. As shown in the Model Summary there is a significant relationship (R = 0.698) between digital literacy and application adoption indicating that higher levels of digital ability led to more effective applications usage. R Square = 0.487 meaning digital literacy explains 48.7% variance in the application adoption, which highlights its importance as an antecedent to user engagement. The Adjusted R Square (0.485) again reinforces the robustness of the model indicating very low degradation in predictive power due to less space variables. (Ref: Appendix II SPSS Output).

The ANOVA results indicate the covariation of this relationship to be highly significant (F = 272.746, Sig. = 0.000) indicating that digital literacy is the major determinant influencing application adoption. Such a high sum of square for regression (136.637) to residual variance, indicating that the model has great opportunity in explaining adoption behavior. (Ref: Appendix III SPSS Output).

Table 15: Coefficients (Digital Literacy → Application Adoption)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.651	.146		11.323	.000
	Digital Literacy	.592	.036	.698	16.515	.000

a. Dependent Variable: ADOP

Source: SPSS output, 2025

Considering the regression coefficients, the unstandardized coefficient (B= 0.592) and standardized coefficient (Beta = 0.698, Sig. = 0.000) suggest a robust and direct positive impact of digital literacy on application adoption. Its statistical significance is also confirmed with t-value (16.515) value that reveals it one of the most significant predictors to bring adoption (Table 6). Furthermore, the coefficient (B = 1.651, p = 0.000) reflects that a basic level of adoption occurs in brute without improvements in digital literacy; however, an improved level in digital proficiency increases users' engagement significantly. The replacement of the solutions in the model is expressed as:

$$\boldsymbol{ADOP = 1.651 + .592\ USAB} \text{ ..... Path C}$$

Accordingly, the proposed hypothesis H3 – "Digital literacy has a positive significant impact on adoption behavior", is also accepted. These results underline the need for developing digital literacy to increase application uptake. Educational programs, user interfaces that are easy to use, and simple tutorials should be encouraged in organizations to enhance digital skills. Fostering more digitally fluent population, helps organizations to achieve high levels of user adoption, engagement and technical efficiency.

- ***The mediating role of digital literacy on the relationship between application usability and application adoption***

The regression analysis shows that Application Usability and Digital Literacy (DLIT) together affect Application Adoption (ADOP), and is a significant predictor for ADOP. The Model Summary reveals

that usability and digital literacy as well as Usability and application adoption have a strong correlation with each other, with R value equal to 0.802. The R Square value (0.643) indicates that 64.3% of variance in application adoption is accounted for by usability and digital literacy, underpinning the role of these determinants in predicting successful application engagement. Adjusted R Square value (0.640) keeps small loss of variance and shows model reliability and the Standard Error value (0.59173) portrays that prediction accuracy is fairly low. (Ref: Appendix II SPSS Output).

The statistical significance of the model is supported by the results of the ANOVA test (F = 257.422, Sig. = 0.000), indicating that the influence of usability and digital literacy on application adoption is significant. Comparison of the Sums of Squares (180.272) to the error sum of squares (100.142) again illustrates how well these predictors can explain and drive adoption. (Ref: Appendix II SPSS Output).

The regression coefficients demonstrate the impact of each predictor on adoption of applications. Usability of Application (Beta = 0.516, t = 11.163; Sig. = 0.000) has the largest effect, which means people with less time or patience more likely to adopt an intuitive and usable application. Digital Literacy (Beta = 0.366, t = 7.926, Sig. = 0.000) also has a dominant effect, demonstrating that the higher digital skill level leads to better user engagement and adoption success.

Table 16: Coefficients (Application Usability + Digital Literacy → Application Adoption)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.509	.159		3.197	.002
	Digital Literacy	.310	.039	.366	7.926	.000
	Perceived Usability	.604	.054	.516	11.163	.000

a. Dependent Variable: ADB

Source: SPSS output, 2025

A constant based on an average value of the interaction (B = 0.509, p = 0.002) indicates the presence of a baseline level of adoption even when usability and digital literacy are not improved while both improvements advance considerably user interaction. Rewriting the final results in model as: Substitute is then written as:

$$\boldsymbol{ADOP = .509 + .310\ DLIT + .604\ USAB} \text{ ..... Path D}$$

These results indicate the significance of user-friendly interfaces, digital literacy education to promote application utilization. Provisions for the design simplicity, accessibility of the feature and digital literacy programs to enhance usage should become a priority by organizations.

Analysis of Mediation and Significance – (Sobel Test)

The findings of the Sobel Test statistically show that digital literacy plays a mediating effect on the relationship between application usability and behavior adoption. The results, thus confirm the mediating role of digital literacy in the relationship between application usability and adoption behavior thereby suggesting that it is instrumental in influencing user's intention.

According to Baron & Kenny fact that the reduction of the B-coefficient for application usability (Path A → Path D = B_{Before} = 0.880 to B_{After} = 0.604, a decrease of 0.274 units) suggests that part of application usability's effect application adoption behavior is transmitted through digital literacy. But the significance of the model needs to be tested to affirm that this finding happened by chance.

Significance of the Model - To calculate the Sobel test for the significance of the mediator variable (digital literacy) in the relationship between usability and adoption, follow these steps:

- Path B: Application Usability → Digital Literacy
  - B = 0.890, SE_B = 0.062
- Path C: Digital Literacy → Adoption Behavior
  - B = 0.592, SE_C = 0.038

Using an online Sobel test calculator to verify the results, it was found that the Sobel test statistics equates Z = 10.56, which is Z > 2.58, the mediation effect is highly significant at the 99% confidence level. Therefore, the proposed hypothesis H3 (digital competency has a mediating role in the relationship between application usability and adoption behavior) is supported.

In conclusion, Finally, such mediation implies that the higher digital literacy of users could easily transfer them to use new applications smoothly or less learning barrier, as it can contribute to improve the adoption behaviors. This supports the argument that even if an app is well designed it may not be accessible and properly used by some users if those are not digital literate as they must possess appropriate technical skills to fully exploit all of the features offered." The mediating role also

suggests that the supplement of usability should be supported by a digital literacy bundled package in which users have acquired knowledge and skills for full utilization of advanced technology. For the banks, all bank systems/codes need to be focussed on increasing fast adoption rates and not just making it easier/simpler but education / digital literacy building. These opportunities of development will increase the acceptance, trust and involvement users base as well as their technical knowledge.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In this chapter, the summary of major findings, their respective conclusions and workable suggestions are presented.

5.1. Summary of Major Findings

The study underscores the role of digital literacy on the relationship between application usability and adoption behavior, highlighting strengths and areas for improvement across key areas. The results from descriptive, correlation, and regression analyses provide insights into how digital literacy transforms the influence of application usability to adoption behavior.

- Among usability factors, ease of navigation for first-time users received the highest rating (mean 4.42), indicating a general agreement that the app is accessible. In contrast, minimal effort required to learn/operate the app was the lowest-rated item (mean 3.38), suggesting that some users face challenges in mastering its functionalities.

- Regarding perceived usefulness of the apps, users strongly agreed with the app's ability to meet their expectations for functionality and performance (mean 4.28), while guidance provided to users received the lowest rating (mean 3.42), indicating a need for better instructional support.
- Mobile banking users were least confident in the clarity of security measures provided by the app (mean 2.75) despite trust in transaction accuracy (mean 4.20) was the most positively perceived security-related aspect, reflecting concerns about transparency.
- Users felt least reassured by the security measures in mobile banking (mean 4.29) but were less worried about transactional errors (2.85), suggesting that while they trust the system's accuracy, broader security risks remain a concern.
- Digital literacy showed strong comprehension of security measures like two-factor authentication (mean 4.45) nonetheless, lower proficiency in troubleshooting banking issues (mean 3.28).
- Lastly, mobile banking's ability to enhance financial management scored the highest (mean 4.52) under adoption, while general usage frequency (mean 3.42) was the lowest-rated aspect, indicating variability in user engagement levels.
- The correlation values revealed strong relationships among key variables influencing mobile banking adoption.
    - Digital literacy showed the strongest relation with application adoption ($r = 0.698$). Ease of use was also highly related with adoption ($r = 0.681$). Additionally, trust emerged as a significant factor ($r = 0.617$).
    - Moderate relations, such as perceived usability and adoption ($r = 0.517$) and trust with ease of use ($r = 0.505$).
    - However, perceived risk showed weak relations, particularly with usability ($r = 0.159$) and digital literacy ($r = 0.222$).
- The multiple linear regression model predicting usability, examined as an effect of adoption behavior indicated a very strong impact ($\beta = 0.751$). Likewise, there was a significant alignment of usability and digital literacy ($\beta = 0.644$). Digital literacy was also robust as a direct positive predictor of adoption ($\beta = 0.698$).

- In addition, the mediation effect of digital literacy was also significantly supported by the Sobel test ($Z = 10.86$, $p < 0.01$), which means that digital literacy accounts for some effect of usability on adoption. Decreased direct impact of usability on adoption ($\beta = 0.880$ to $\beta = 0.604$) implies that digital literacy is a significant mediator in allowing users to realize the full potential of usability elements for adoption.

5.2. Conclusion

The development of mobile banking has changed the way in which users access financial services, providing ease of use and efficiency. However, its implementation is deterred by a multitude of issues such as ease of use, trust, security anxiety and digital competency. The purpose of this study was to investigate the relationship between digital literacy as a mediator for the usability and adoption of mobile banking, in order to understand how users make sense and use these financial technologies. Based on users' experience evaluation, perceived risk assessment, trust degree and usability feature provisions the study reveals the dominant factors influencing mobile banking usage.

The usability (perceived ease-of-use, perceived usefulness, perceived trust and perceived risk) of mobile banking as well digital literacy are the predictor for mobile banking adoption. General usability is also important – Users like to be able to easily find their way around and complete transactions. Despite this, there is still a poor offer regarding intuitive controls and learning difficulties. Trust is a second central issue, as application user may trust in transaction correctness as he does not trust so much in security transparency. This is further highlighted when you also consider

concerns of fraud, access and cyber threats - all of which serve to emphasise the need for clear communication around security. Furthermore, digital literacy is a significant factor for adoption and users with better digital ability tend to be more engaged in mobile banking. The analysis also supports that digital literacy serves as a mediator between usability awareness and actual use adoption.

In conclusion, usability, digital literacy and mobile banking adoption behavior are interrelated. Usability does increase engagement, but adoption is strongly enhanced when literacy levels are higher leading to users being able to maximize available capabilities. Trust specifically with protecting against fraud and security is the critical issue showing the more explicit clarification of concerns and embracing user-centric security models as a focus area. The study implies that banks and financial institutions should concentrate on developing simple interfaces, increasing security awareness, and delivering digital literacy programmes to enhance adoption. Through such user-friendly designs, transparent security practices and educational aids mobile banking providers can help to narrow the gulf between utility and usage: secure digital financial services that are accessible and embraced by all.

5.3. Recommendations

The following potential recommendations can be made based on the key findings and conclusions:

- Challenges of usability in mobile banking for better user experience. Users need assistance with navigation and learning how to work the app. Overcoming these barriers will enable greater mobile banking penetration. Banks and mobile operators need to develop user-friendly interfaces, streamline workflows, provide tutorials and otherwise help users.
- Fraud and data security are top-of-mind for users so your brand must bolster trust. Ambiguity of security practices can impair trust and adoption. There is a necessity for financial services organizations and providers of mobile banking applications to enhance the quality of communication around security, clearly define protection strategies, and educate users so as to make digital banking trusted.
- The digital literacy has a significant impact on mobile banking adoption users but there are also others users that do not have the ability to utilize full potential of these services. Engagement is restricted without a reasonable level of technical capability. Banks, fintech players and

government agencies need to develop easy-to-understand digital literacy programmes, offering guides and workshops that enable them.

- Trust and credibility are the decisive factor in the acceptance of mobile banking. Reliability of services and problem resolution are approached with caution but transactions themselves are trusted. Solid customer service and responsiveness, and that will build confidence. Banks need to improve their systems to deal with complaints and be more proactive in addressing issues.
- Lastly, ease of use and fear of security also causes differences in mobile banking adoption. Solving these problems will increase engagement and retention. Banks, regulators and service providers should adopt methods that build trust, educate and ease the transition to mobile banking.

Implications, Limitations, and Future Research Directions

Theoretical and Practical Implications

Theoretically, this research extends the literature on digital banking adoption by introducing the mediation role of digital literacy between usability and engagement. It provides support for theories that emphasize the role of cognitive and behavior facets in technology acceptance, further strengthening the significance of user knowledge towards shaping adoption behaviors. The results also are consistent with the TAM and UTAUT, thereby providing empirical evidence for the impact of usability and trust on adoption of financial technology. Future theoretical developments could examine other psychological and socio-economic factors that could have an impact on the adoption behavior.

The results of this study offer significant implications to the financial industry, mobile banking companies and policymakers in elevating acceptance of mobile banking. Boost usability by improving UI, streamlining process and providing better help which will contribute to larger access for users on multiple digital skill levels. Also, good security communication and an appropriate fraud

prevention program that counters privacy fear will help build trust in the mobile banking service. Banks must also focus on digital literacy programmes to enable users to effectively use financial technology. These attempts will result in increased adoption, better customer retention and a more inclusive financial world.

Limitations and Suggestions for Future Study

The study was not without limitations, however. First, the studies are based on self-report data which involves response bias because users could over- or under-estimate their perceptions of usability, risk and trust). Furthermore, this study is limited to the particular population and therefore may not be generalizable to other populations who have different levels of experience with technologies. External factors like institutions and management policy, and economic environment were not thoroughly investigated in the current study but may exert an important impact on mobile banking adoption. Future studies should be more holistic, combining behavioral analytics and real-world use data to give a better understanding of adoption patterns.

Future studies should explore the long-term impact of digital literacy on mobile banking adoption, assessing whether improvements in technological proficiency led to sustained engagement. Additionally, examining the role of emerging technologies, such as AI-driven financial services and biometric security measures, could provide insights into evolving user preferences. Comparative studies across different regions and financial systems would also enhance understanding of how cultural and economic factors shape adoption behavior. Finally, research focusing on user motivation and behavioral psychology could offer deeper insights into how trust, security, and usability perceptions influence mobile banking engagement over time.

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Appendices

Appendix I - Survey Questionnaire

ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS DEPARTMENT OF ACCOUNTING & FINANCE

Survey Questionnaire to be filled by Mobile Banking Users of Commercial Banks

Subject: Invitation to Participate in Research on Mobile Banking Usability and Adoption

Dear Participant,

I am conducting a research study as part of my academic work at College of Business and Economics Department of Accounting and Finance, Addis Ababa University. The survey focuses on digital literacy as a moderator in mobile banking usability and adoption at Ethiopia commercial banks in Addis Ababa. This study aims to explore how digital literacy influences user experience and adoption rates of mobile banking services, contributing valuable insights into improving financial inclusion and accessibility.

Your participation in this study is highly valuable, as your experiences and perceptions will help shape recommendations for enhancing digital banking usability and literacy. The enclosed questionnaire is designed to collect your views, experiences, and opinions regarding mobile banking usage. The survey is structured and will take approximately 15 - 20 minutes to complete.

Please rest assured that your responses will remain confidential and will only be used for research purposes. Participation is entirely voluntary, and you are free to skip any questions you find sensitive or withdraw at any stage. If you have any questions or require further clarification, feel free to contact me at 0911605825 or selam.salvat@gmail.com.

I sincerely appreciate your time and contribution to this research, and I look forward to your valuable insights. Thank you for your cooperation!

Selam Leykun

Prospect Graduate of Addis Ababa University

General Information

Your Participation is Voluntary.

Do not write your name on the Questionnaire.

I. Demographic Profile of Respondents

Direction: The following statements are about your personal information. Please write the necessary information on the blank space provided and, in the optional items, indicate your answer by putting a tick mark (x) in the box.

1. Sex ☐ Female ☐ Male

2. Age (years old) ☐ 21 - 30 ☐ 31 – 40 ☐ 41 - 50 ☐ 51 - 60

3. Education
☐ No formal education ☐ Primary education
☐ Secondary education ☐ Diploma
☐ Degree ☐ Masters & above
☐ Other, please specify_____

4. Employment ☐ Employed ☐ Self-employed ☐ Student ☐ Unemployed

5. Usage
☐ I use mobile banking regularly
☐ I use mobile banking occasionally
☐ I have used mobile banking but stopped
☐ I have never used mobile banking

6. Service
☐ Fund Transfer
☐ Bill Payment
☐ Account Management
☐ Withdrawal
☐ Balance Inquiry
☐ Other, please specify_____

Part II. Study Questions related to Application Usability, Digital Literacy and Adoption Behavior

A. Application Usability

Please read each statement carefully and show your level of agreement on the statements by putting the "X" mark in the boxes using the following Key:

Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)

Aspect	Statement	(1)	(2)	(3)	(4)	(5)
Ease of Use	The mobile banking app's layout is simple/ easy to understand.					
	I can complete transactions without needing external help.					
	Learning to use the app's features requires minimal effort.					
	The app's design makes it easy to find what I need.					
	I rarely get confused while navigating the app.					
Language Accessibility	The app provides instructions in my preferred local language.					
	Technical terms are explained clearly for non-expert users.					
	Customer support is available in a language I understand.					
	Error messages are displayed in clear, simple language.					
	The app's language options meet my needs.					
Transaction Speed	Payments/transfers are processed instantly or within seconds.					
	The app responds quickly even during peak usage times.					
	I don't experience delays when checking my balance.					
	The app loads faster than traditional banking methods (e.g., ATM, branch visits).					
	Transaction history updates immediately after each action.					
Error Prevention & Recovery	The app warns me before making potential mistakes (e.g., wrong account number).					
	I can easily undo/cancel transactions if needed.					
	The app provides step-by-step guidance to fix errors.					
	Failed transactions are clearly explained with recovery options.					
	I trust the app to protect me from accidental financial losses.					

B. Digital Literacy

Please read each statement carefully and show your level of agreement on the statements by putting the "X" mark in the boxes using the following Key:

Strongly Disagree (1)	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly Agree (5)**

Digital Literacy	**I can confidently set up and use mobile banking apps without assistance.**					
	I understand security features like PINs, OTPs, and encryption.					
	I know how to identify and avoid online banking scams/fraud.					
	I can troubleshoot basic app issues (e.g., login problems, slow loading).					
	I regularly use other digital tools (e.g., email, social media) to manage tasks.					

C. Adoption Behavior

Please read each statement carefully and show your level of agreement on the statements by putting the "X" mark in the boxes using the following Key:

Strongly Disagree (1)	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly Agree (5)**

Adoption Behavior	I prefer mobile banking over visiting physical bank branches.					
	I use mobile banking for most of my financial transactions					
	I recommend my bank's mobile app to friends/family.					
	I plan to increase my mobile banking usage in the future.					
	Mobile banking saves me time compared to traditional methods.					

Appendix II: SPSP output

The effect of application usability on application adoption behavior:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.751[a]	.564	.563	.65236

a. Predictors: (Constant), USAB

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	158.276	1	158.276	371.915	.000[b]
	Residual	122.139	287	.426		
	Total	280.414	288			

a. Dependent Variable: ADOP

b. Predictors: (Constant), USAB

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.695	.174		4.006	.000
	USAB	.880	.046	.751	19.285	.000

a. Dependent Variable: ADOP

The effect of application perceived usability on digital literacy:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.644[a]	.415	.413	.89227

a. Predictors: (Constant), USAB

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	161.836	1	161.836	203.275	.000[b]
	Residual	228.493	287	.796		
	Total	390.329	288			

a. Dependent Variable: DLIT

b. Predictors: (Constant), USAB

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.601	.237		2.530	.012
	USAB	.890	.062	.644	14.257	.000

a. Dependent Variable: DLIT

The effect of digital literacy on application adoption behavior:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.698[a]	.487	.485	.70779

a. Predictors: (Constant), DLIT

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	136.637	1	136.637	272.746	.000[b]
	Residual	143.778	287	.501		
	Total	280.414	288			

a. Dependent Variable: ADOP

b. Predictors: (Constant), DLIT

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.651	.146		11.323	.000
	DLIT	.592	.036	.698	16.515	.000

a. Dependent Variable: ADOP

The mediating role of digital literacy on the relationship between application usability and application adoption

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.802[a]	.643	.640	.59173

a. Predictors: (Constant), USAB, DLIT

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	180.272	2	90.136	257.422	.000[b]
	Residual	100.142	286	.350		
	Total	280.414	288			

a. Dependent Variable: ADOP

b. Predictors: (Constant), USAB, DLIT

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.509	.159		3.197	.002
	DLIT	.310	.039	.366	7.926	.000
	USAB	.604	.054	.516	11.163	.000

a. Dependent Variable: ADOP

DECLARATION

I, the undersigned, declare that this thesis "DIGITAL LITERACY AS A MEDIATOR BETWEEN PERCEIVED USABILITY AND MOBILE BANKING ADOPTION IN ADDIS ABABA" is my original work, prepared under the guidance of Abebe Y. (Ph.D.). All sources of materials used for this thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or full to any other higher learning institution to earn any degree.

Selam Leykun

Name

Signature

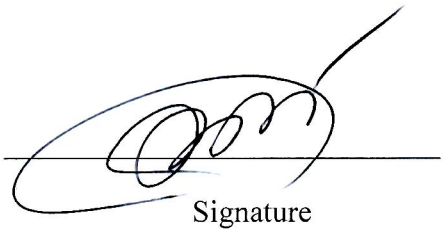
Addis Ababa University

January 2026

ENDORSEMENT

This thesis has been submitted to Addis Ababa University for examination with my approval as a university advisor.

Abebe Yitayew (Ph.D.)



Advisor

Signature

Addis Ababa University

January 2026

ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF ACCOUNTING AND FINANCE

APPROVAL SHEET

DIGITAL LITERACY AS A MEDIATOR BETWEEN PERCEIVED USABILITY AND MOBILE BANKING ADOPTION IN ADDIS ABABA

BY

SELAM LEYKUN

APPROVED BY BOARD OF EXAMINERS

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