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Digital Financial Literacy: The Necessary Ingredient for Digital Financial Inclusion and Bridging the Digital Divide in Liberia: An Empirical Review

David Hope Kanu. ACCA(UK); CPA(US); CPA(Liberia), MSc. Financial Management (UK); MSc. Accounting (US).
Doctor of Business Administration (DBA) Research Student, Wilmington University, College of Business, Newcastle, Delaware, USA
dkanu001@my.wilmu.edu/davidkanu40@gmail.com

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Abstract

In Liberia, as in many developing economies in sub-Saharan Africa, the rapid evolution and adoption of digital financial services such as MTN MoMo, Orange Money, Tip Me, BNB, Kola Cash, and digital banking applications have surpassed the development of a comprehensive nationwide digital financial literacy awareness campaigns and educational programs. This gap lowers Liberia's digital financial inclusion rate and impedes initiatives to bridge the country's digital divide. As digital financial services expands in Liberia, assessing the impact of digital financial literacy on both digital financial inclusion and the digital inclusion becomes increasingly important. This study examines the influence of digital financial literacy on digital financial inclusion and digital inclusion in Liberia using a quantitative methodology. Data were collected from 650 respondents across Montserrado, Margibi, Grand Bassa, and Bomi counties utilizing a customized OECD-structured digital financial literacy questionnaire. The digital financial literacy index score, digital financial inclusion rate, and digital inclusion rate for all four counties were constructed using the OECD digital financial literacy measurement tool and a 3–7-point Likert scale adapted from the Australian Digital Inclusion Index, the World Bank, and the World Food Program (WFP) digital financial inclusion measurement scale. Results demonstrate that digital financial literacy is directly and positively associated with digital financial inclusion and digital inclusion in Montserrado, Margibi, Grand Bassa, and Bomi counties. Montserrado County recorded above-average digital financial literacy index mean scores, while Margibi, Grand Bassa, and Bomi counties reported moderate mean index scores. Digital financial inclusion rates were 56.39% in Montserrado, 50.44% in Margibi, 35.11% in Grand Bassa, and 34.56% in Bomi. Digital inclusion rates were 58.58% in Montserrado, 48.37% in Margibi, 36.74% in Grand Bassa, and 37.89% in Bomi. These findings highlight digital financial literacy as a critical enabling factor for promoting nationwide digital financial inclusion and narrowing digital divide gaps in Liberia. The study recommends that the Government of Liberia, through the Central Bank of Liberia establish a national digital financial literacy index score, develop a comprehensive digital financial literacy roadmap, design a legal, regulatory, and policy framework for digital financial literacy, and introduce systematic evaluation, impact assessment, and institutional incentive programs to advance digital financial literacy in Liberia.

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Keywords: Liberia, digital financial literacy, digital financial inclusion, Digital inclusion, digital divide, financial literacy, digital literacy, Theory of Vulnerable Inclusion, Theory of digital divide, Human capital theory, Amartya Capability model, measurement of digital financial inclusion, measurement of digital inclusion, Liberia digital financial literacy, Liberia digital inclusion, measurement of digital financial literacy index.

1. Introduction

Digital financial innovation is fundamentally transforming how individuals and businesses worldwide manage money, credit, and investments. The proliferation of mobile phones, internet connectivity, and other digital devices has enabled fintech companies to remove traditional barriers to financial services and develop novel digital financial products that significantly expand access to essential financial services (Ripla, 2025; Lal et al., 2025). From mobile money accounts accessible on basic button phones to bank account-linked wallets used on smart devices, digital financial services are bringing billions of previously unbanked and underserved people worldwide into the formal financial system (Lai et al., 2025; Ripla, 2025; GAO, 2025; Norris et al., 2025). Consequently, this paradigm shift in the global financial landscape presents a substantial opportunity to promote financial inclusion through digital financial services, known as digital financial inclusion, and to address existing digital disparities.

Nevertheless, despite the overall positive impact of digital financial services on digital financial inclusion, the increasing reliance on digital financial services has led most users to experience digital financial exclusion vis-à-vis the digital divide, thereby stimulating vulnerable financial inclusion rather than true digital financial inclusion (OECD, 2025). These events underscore the critical importance of enhancing digital literacy and financial competencies among users of digital financial services to prevent them from falling further behind in the expanding digital economy (Mamuti et al., 2025; Chibesa et al., 2025).

Prihandini (2025) argues that giving underserved and unbanked populations access to mobile money accounts and digital wallets linked to commercial bank accounts does not automatically lead to digital financial inclusion. True digital financial inclusion requires the knowledge and skills to actively participate in the digital economy (Prihandini, 2025; Women World Bank, 2026). Therefore, for digital financial services adoption to have positive influence of digital financial inclusion and digital inclusion, users of digital financial services need to be equipped with the necessary digital skills, financial knowledge and capabilities (digital financial literacy) to safely and responsibly navigate digital financial services in the digital era for a positive influence on digital financial inclusion and digital inclusion rate (Lyons et al., 2021; Haung et al., 2019;AFI, 2021).

Digital financial literacy, a multidimensional concept that encompasses financial literacy, financial capability, and digital literacy, is an essential set of skills and knowledge for increasing the digital financial inclusion rate and bridging the digital divide in the digital economy (Loke et al., 2025; AFI, 2021; OECD, 2025). Without effective digital financial literacy education programs, users of digital financial services will struggle to maximize the full benefits of these

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services, which, in turn, will have negative implications for digital financial inclusion and digital inclusion (Tulcanaza-Prieto et al., 2025). Consequently, digital financial literacy educational program is an important ingredient for stimulating full-scale digital financial inclusion and digital inclusion for sustainable economic growth and poverty alleviation in developing economies like Liberia (Tulcanaza-Prieto et al., 2025; Loke et al., 2025; AFI, 2021).

In Liberia, the growth of digital financial services over the last decade has significantly broadened the nation's financial system, with a range of digital financial products and services (Michael, 2025; Prihandini, 2025). Nonetheless, whiles this positive development in the digitalization of Liberia financial system has strengthen the country digital payments system and enhance digital financial inclusion opportunities somehow, it has also introduces new impediments related to users digital skills and financial knowledge to understand the risk, security, financial acumen and digital financial competences and related digital financial services outcomes that has implications for the country's digital financial inclusion and digital inclusion rate (Micheal, 2025;Prihandini, 2025).

Accordingly, although the Central Bank of Liberia has made tremendous efforts to increase Liberia's digital financial inclusion rate through its 2013- 2024 National Financial Inclusion Strategy(NFIS) , Liberia's digital financial inclusion rate remains low when compared to other countries in Sub-Saharan Africa (SSA), mainly due to the country's low digital financial literacy rate (Chibesa et al., 2025; Kanu, 2025). Therefore, one can safely state that the successful and wider adoption of digital financial inclusion in Liberia depends not only on the availability of digital financial services and digital public infrastructures but also on users' digital financial literacy expertise, especially for the poor and vulnerable demographics living in semi-urban and rural communities in Monsterrado, Margibi, Grand Bassa and Bomi counties in Liberia (Xo'sinboy o'g'li et al.,2025; Ripla, 2025; AFI, 2021; Chibesa et al., 2025).

Additionally, the mismatch between the growth of Liberia's digital economy and the lack of digital financial literacy programs in Liberia has created a nation of digital haves and have-nots, leaving millions of Liberians across the country digitally excluded from Liberia's rising digital economy (Tempany, 2024; Mohan, 2024). Low digital financial literacy educational programs in Liberia has created a new form of digital divide that exacerbates rather than alleviates economic and social disparities (Ripla, 2025 ;Richter, 2023). The digital divide has become a new reality in Liberia's expanding digital economy; thus, bridging it is no longer merely a social aspiration but a critical driver of the nation's economic competitiveness and achievements of the country's ARREST Agenda (Tempany, 2024; Mohan, 2024; Kanu, 2025).

As Liberia's digital financial innovations expand, the growing complexity of digital financial services and the evolving digital economy necessitate that consumers, especially vulnerable and marginalized groups in semi-urban and rural areas, acquire sufficient digital skills and financial competencies to positively impact the country's digital financial inclusion and overall digital inclusion rate (Loke et al., 2025; Fintech Times, 2025).

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Therefore, there is an urgent need for the government of Liberia, through the Central Bank of Liberia and the Ministry of Education, to collaborate with international development organizations, the private sector, and digital financial services providers to foster a nationwide digital financial literacy educational programs and development of institutional frameworks for a county-wide digital financial inclusion and closing the digital disparities gap in Liberia (Jacketeh, 2024; Micheal, 2025).

1.1 Research Motivation

Technological advancement has brought many digital financial service providers into global financial systems, creating immense opportunities to advance digital financial inclusion by expanding access to financial services for previously excluded and underserved groups (Abbas et al., 2024; AFRI, 2021; Gulati et al., 2025). Digital financial innovations, however, comes at a price: consumers and small and medium size (SMEs) business faces a plethora of demand side challenges that impact the adoption and safe use of digital financial services such as limited awareness of digital financial services, poor perceptions, perceived complexity of digital financial services and lack of trust in digital financial services due to low digital financial literacy (Mwange et al., 2025; Norris et al., 2025; Gudipati et al., 2025).

Addressing these barriers from the consumer perspective is imperious to drive the adoption and safe use of digital financial services to deepening responsible digital financial inclusion and narrowing the digital divide gap in developing economies (AFI, 2021).

Consequently, in pursuing financial inclusion, most low- to mid-income countries including Liberia, have focused on accelerating access to digital financial services rather than providing consumers with the requisite digital and financial education for a positive economic outcomes. For instance, in Liberia, mobile money providers like MTN Momo and Orange Liberia continue to enhance their product development by giving their users new tools, such ATM to access their digital financial services, but other important aspects, such as digital financial literacy education campaigns and training for customers, are neglected in their marketing outreach budgets (Augustine,2023).

Granting Liberians access to digital financial services (account ownership) without providing them with the necessary digital and financial education to empower them to access, use, and benefit positively from them exposes them to vulnerable financial inclusion rather than true digital financial inclusion (OECD, 2025;Augustine,2023; Huang et al., 2019). Without digital financial literacy, in Liberia cash-heavy economy, simply owning a mobile money account means little because, digital financial literacy not only improves digital financial inclusion and digital inclusion rate but also provides consumers with the digital and financial skills needed to safely navigate the digital financial services platforms, mitigate cybercrime-related risks, and empowers them to embrace a cashless economy (Mishra et al., 2024; Adel, 2024; Augustine, 2023).

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Building on this background, the present study empirically investigates the influence of digital financial literacy on digital financial inclusion and digital inclusion within Liberia's evolving digital economy.

1.2 Gap and Related Work

Along with digital innovation and COVID-19-related disruptions in 2020, access to and use of financial services have shifted dramatically towards digital financial services (Widyastuti et al., 2024; Tut, 2023). However, wider adoption of digital financial services, which has a positive impact on both digital financial inclusion and digital inclusion, requires users to have digital and financial literacy (Lyons et al., 2021). Studies (Prihandini, 2025; Bongomim et al., 2023; Widyastuti et al., 2024; Astuti et al., 2025; Gumilar et al., 2024;Chibesa et al.,2025) have documented that low digital financial literacy has been the leading cause of vulnerable financial inclusion and digital exclusion in the digital era, as opposed to momentous digital financial inclusion and digital inclusion.

Thus, as the number of individuals and businesses in Liberia with mobile money wallets increases, this study aims to assess the influence of digital financial literacy on digital financial inclusion and the digital divide in Montserrado, Margibi, Grand Bassa, and Bomi in Liberia.

Previous studies on digital financial literacy have been conducted in numerous countries, including South Korea (Pak et al., 2026; Choung et al., 2023), Indonesia (Widyastuti et al., 2024), Japan (Lal et al., 2025), Sri Lanka (Hanshika et al., 2024), India (Kumar et al., 2024; Ravikumar et al., 2022), Zambia (Chibhesa et al., 2025), and the United Kingdom (Vik et al., 2023). These studies examined digital financial literacy using diverse units of analysis, such as financial well-being (Choung et al., 2023), adults (Ravikumar et al., 2022), digital financial inclusion and demographic factors (Widyastuti et al., 2024), influence on digital financial services (Pak et al., 2026), financial inclusion (Kumar et al., 2024), and perceived trust and digital financial inclusion (Chibhesa et al., 2025).

Although researchers have studied digital financial literacy, the prior literature fails to provide a comprehensive picture linking digital financial literacy, digital financial inclusion, and the digital divide.

Consequently, based on the above logical and rational claims, a research gap remains in exploring the influence of digital financial literacy on digital financial inclusion and the digital divide, linking the three concepts' theoretical and practical implications. Also, although existing research on digital financial literacy has focused on different countries' contexts, a contextual research gap exists regarding the influence of digital financial literacy on digital financial inclusion and bridging the digital divide in the Liberia context. Furthermore, the current literature emphasizes statistical software for data analysis rather than existing developed and tested measures of digital financial literacy, digital financial inclusion, and digital inclusion, as used by international development organizations, including the OECD, World Bank, and World Food Program, to discuss the research phenomenon. Therefore, there are methodological gaps in

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the current literature on measurement tools used by the OECD, World Bank, World Food Program, and Australian national digital inclusion frameworks for the digital financial literacy index, digital financial inclusion rate, and digital inclusion rate.

To address these gaps, this study systematically investigates the impact of digital financial literacy on both digital financial inclusion and digital inclusion in Liberia. It examines the relationships among digital financial literacy, digital financial inclusion, and the digital divide within Liberia's expanding digital economy. Data were collected through a structured face-to-face survey conducted in Montserrado, Bomi, Kakata, and Grand Bassa counties, with a sample of 650 participants. The OECD digital financial literacy measurement tool was used to calculate the digital financial literacy rate, while a 3-10 Likert scale was adopted to determine digital financial inclusion and digital inclusion rates for the study analysis.

1.3 Research Questions and Hypothesis

This study aims to explore the potential association of digital financial literacy with digital financial inclusion and digital inclusion. Through consideration of existing literature on digital financial literacy as it relates to digital financial services, digital financial inclusion, and the digital divide, the following research questions (**RQ)** and associated Hypotheses**(H)** were formulated to guide the study.

RQ1: How does digital financial literacy promote full-scale digital financial inclusion in Montserrado, Bomi, Kakata, and Grand Bassa counties in Liberia

Hypothesis(H) 1: Digital financial literacy index metrics: digitization, Digital financial competencies, financial competencies, and digital financial services outcomes.
H1o: Digital financial literacy does not influence full-scale digital financial inclusion amongst demographics in Bomi, Margibi, Grand Bassa, and Montserrado counties in Liberia
H1a: Digital financial literacy influences full-scale digital financial inclusion amongst demographics in Bomi, Margibi, Grand Bassa, and Montserrado counties in Liberia
RQ1: Do digital financial literacy programs impact prevailing digital divides in Montserrado, Bomi, Kakata, and Grand Bassa counties in Liberia

Hypothesis(H) 2: Digital divide index metrics: digital technology access, Digital technology usage, digital skills, and acceptance.
H2o: There is no mediating effect of digital financial literacy on bridging the digital divide gap in Bomi, Margibi, Grand Bassa, and Montserrado counties in Liberia.
H2a: There is a mediating effect of digital financial literacy on bridging the digital divide gap in Bomi, Margibi, Grand Bassa, and Montserrado counties in Liberia.

1.4 Significance of the Study

This study addresses a significant gap in the literature regarding the role of digital financial literacy in enabling digitally excluded populations to participate fully in the digital economy. The

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research expands current understanding of how digital financial literacy promotes digital financial inclusion and helps bridge the digital divide in developing economies.

Consequently, this study makes three significant contributions. First, it addresses a gap in the literature by demonstrating how digital financial literacy can transform vulnerable forms of inclusion into responsible and sustainable digital financial inclusion. The study also highlights the broader socio-economic implications for bridging the digital divide in Liberia, offering valuable insights for the Government of Liberia, researchers, policymakers, GSM mobile money providers, fintech companies, financial institutions, and international development organizations. Second, the study offers a significant theoretical contribution to the field of development finance within the expanding digital ecosystem. The research provides a deeper understanding of how digital financial literacy serves as a transformative force to improve accessibility, efficiency, and use of digital financial services, which directly influences digital financial inclusion and overall inclusion rates.

Third, the study presents practical implications for the Central Bank of Liberia, policymakers, digital financial service providers, and commercial banks. The findings offer a practical model and data-driven intervention tools to support the Central Bank of Liberia and its development partners in formulating policy and regulatory frameworks for nationwide digital financial literacy education programs, a digital financial literacy roadmap, and establishing a legal, regulatory, and policy framework for digital financial literacy.

1.5 Research Paper Structure

The structure of this paper is as follows. Section 1 introduces the study. Section 2 reviews the literature and theoretical framework. Section 3 examines the status of digital financial literacy and its relationship to digital financial inclusion and current digital inclusion within Liberia's digital economy. Section 4 outlines the methodology. Section 5 presents the study results, while Section 6 discusses them. Section 7 provides the conclusion. Section 8 offers policy recommendations, and Section 9 identifies the study's limitations.

2.0 Literature Review and Theoretical Framework

This section discusses the theoretical framework and literature review that form the rational basis for examining the effect of digital financial literacy on digital financial inclusion and digital inclusion within Liberia's digital economy. The section is subdivided into four subsections: theoretical background, conceptual review, the literature review of the core theme, and an empirical review of digital financial literacy as a driver of digital financial inclusion and a moderating variable for digital inclusion in Liberia.

2.1. Theoretical Background

Driven by the Technology Acceptance Model, Human Capital Theory, Amartya's Capability Model, the Theory of Vulnerable Inclusion, and Digital Divide Theory, the review explores how digital financial literacy functions as both an enabler and a defence for users of digital financial

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services, digital financial inclusion, and bridging the digital divide in Liberia (Davis, 1987; Khan et al., 2025; Van Dijk, 2013, 2006; Barnoyevna, 2025; Ozili, 2024; Norris et al., 2025). These theoretical frameworks collectively show that digital financial literacy is a critical ingredient that translates access to and use of digital financial services into meaningful digital financial inclusion and digital inclusion in the digital era (Khan et al., 2025; Van Dijk, 2013, 2006; Barnoyevna, 2025; Ozili, 2024; Norris et al., 2025).

2.1.1. Technology acceptance model(TAM)

In the context of ongoing digital transformation, understanding the determinants of user acceptance of technology remains a central issue. The continued rise of digital financial innovation is profoundly transforming the global financial system, social engagement, and organizational dynamics; thus, understanding the factors that determine its adoption and appropriation by individuals and businesses is crucial (Davis, 1987; Mark, 2020; Badda, 2025; Nurfaidah et al., 2024). Against this background, the technology acceptance model (TAM), proposed by Davis in 1989, has emerged as a major theoretical framework for analysing technology acceptance and use as it relates to digital financial services, digital financial literacy, digital financial inclusion, and digital inclusion (Mark, 2020; Badda, 2025; Davis, 1987).

TAM posits that the features of a digital innovation influence users' motivation to adopt it, and that this motivation is primarily determined by two core belief systems: perceived usefulness and perceived ease of use (Davis, 1987; Mark, 2020; Badda, 2025). Perceived ease of use refers to how easy potential users believe the technology will be to operate, while perceived usefulness assesses whether they think the technology will help them accomplish desired tasks (Mark, 2020; Badda, 2025; Davis, 1987). Together, these factors shape users' attitudes toward using digital financial innovations and digital devices, thereby predicting whether they will accept and use them for social engagement and their financial well-being in the digital era (Nurjaidah et al., 2024).

Consequently, though policy maker, international development organizations and central banks of Liberia perceive digital financial services as a useful tool for promoting digital financial inclusion for an all-inclusive financial system, poverty reduction and sustainable economic growt, there exist consumer side challenges including trust, security issues, regulatory and privacy concerns due to low digital financial literacy rates that impedes the perceive ease of use and usefulness of these digital financial services (Nurfaidah et al., 2024; Davis, 1987; Chhillar et al., 2025; Khatri et al., 2025).

Therefore, users of Momo money, orange money, Tip me, BNB, Kola cash and commercial digital banking apps, in Liberia have to be armed with digital financial literacy education programs to be able to competently use digital financial services as well as digital devices in order to embrace their tremendous potential to increase access and usage of digital financial products that will lower the digital divide and increase the digital financial inclusion rate.

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2.1.2. Human Capital Theory

In the digital era, access to and actual use of fintech products are often hindered by digital financial illiteracy, which limits individuals' and small businesses' ability to engage with the formal financial system (Adel, 2024). Thus, the widespread adoption of digital financial services, and it impact on digital financial inclusion and digital inclusion, rely heavily on consumers' human capital (Adel, 2024; Adekoya, 2025). Human Capital theory, as developed by economist Theodore Shultz in 1961, argued that education should be seen as an investment, both for individuals and for society as a whole (Al-Shami et al., 2024; Barnoyevna, 2025; Holden et al., 2017). As with investments in roads and digital public infrastructure, governments and businesses should invest in education to create a more skilled, adaptable, and efficient workforce (Al-Shami et al., 2024; Barnoyevna, 2025). Therefore, in the context of digital financial literacy, human capital plays a critical role in driving digital financial inclusion and bridging the digital divide in Liberia (Al-Shami et al., 2024 ; Holden et al., 2017).

Accordingly, while digital financial services have increased access to finance and enhanced digital financial inclusion somewhat in Liberia, they have also introduced new risks related to information asymmetry, behavioral biases, and digital fraud, necessitating extensive digital financial literacy educational programs(Al-Shami et al., 2024; Adekoya, 2025; AFI, 2021b). Thus, drawing on human capital theory, digital financial literacy educational programs are an important economic asset. Just as the government of Liberia, through the Central Bank of Liberia, invested in an inclusive digital payments system, investing resources and time in developing country-wide digital financial literacy educational programs will have a significant influence on the country's digital financial inclusion and digital inclusion rate (Al-Shami et al., 2024; Adekoya, 2025). Without targeted investments in digital financial literacy education programs, the nation will face a widening digital divide, leaving vulnerable and marginalized populations excluded from a growing digital economy(Al-Shami et al., 2024; CBL, 2025; Adel, 2024; Adekoya, 2025).

Therefore, one can infer that digital financial literacy is a necessary body of human capital knowledge and skills for users of digital financial services, with corresponding implications for digital financial inclusion and digital inclusion in Liberia.

2.1.3. Amartya Capability Model

The integration of digital financial services within financial systems has placed greater demands on individuals to understand online security measures, digital payment platforms, cash management, insurance, and investment opportunities in order to make informed and responsible financial decisions for their well-being and social engagement in the digital era (Rajapake, 2016; Alvarez-Espino et al., 2026).

The Amartya capability model, as developed by Amartya Sen in the 1980s, measures poverty, inequality, and human development based on what the populace is actually free to do and be (Garces, 2025; Gopinath, 2018). The model states that economic growth and prosperity have

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conventionally been viewed as the end goal in development and welfare economics (Garces, 2025). However, this is not the case, because the ultimate end of economic development, including digital transformation (digital financial access), must be seen as enriching people's lives, from access to digital financial services to actual usage that impacts their financial decision-making, financial well-being, and social engagement (Alvarez-Espino et al., 2026).

Amartya's capability model centre's on two core concepts, namely functioning and capabilities (Garces, 2025; Gopinath, 2018). Functioning is based on the various things a person achieves in their life, such as being digitally and financially literate, while capabilities hinge on a person's real freedom to achieve comprehensive digital financial literacy educational programs for their financial well-being. Thus, together, Amartya's capability model core concepts of functioning and capabilities focus on transitioning from just access to digital financial services to whether consumers possess the digital and financial capabilities to actual usage of fintech products and services to effective engagement in the formal financial systems(Garces, 2025; Gopinath, 2018; Alvarez-Espino et al., 2026).

Therefore, as digital financial innovations continue to transform the global financial landscape, digital financial literacy becomes a necessary individual capability that influences how well individuals choose, use, and manage digital financial products in the digital age (Kagalwala, 2017; Nourallah et al., 2024; Kumar et al., 2025). Thus, in the sense of digital financial inclusion and digital inclusion, for example, the availability and access to digital financial services are functioning. However, financial accessibility for meaningful digital financial inclusion goes a step further by focusing on whether people can effectively utilize these digital financial services once they have access (Garces, 2025; Nourallah et al., 2024; Kumar et al., 2025).

Therefore, one can safely conclude that the Amartya capability model provides a robust theoretical framework for understanding digital financial literacy not only as technical knowledge and skill, but as a crucial factor in expanding digital financial services to poor and vulnerable groups living in rural and semi-rural communities, for a positive influence on digital financial inclusion and a reduction in the digital divide knowledge gap (Ahman et al., 2025; Prihandini, 2025).

2.1.4. Theory of Vulnerable Inclusion

The rapid development of digital inclusive finance has profoundly impacted economic development and poverty reduction in developing economies (Mashoene et al., 2026; Basnayake et al., 2024). Thus, over the last few decades, governments, through their Central Banks, have increasingly focused on expanding digital financial services owing to their potential to enhance overall financial inclusion and, ultimately, to reduce the digital divide (Basnayake et al., 2024). However, vulnerable demographics suffer disproportionately due to a lack of digital skills and financial competence to access and use these fintech products; thus, they are at high risk of exclusion from formal financial services (Mayrhofer, 2025; Koefer et al., 2024).

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Peterson K. Ozili's theory of vulnerable financial inclusion proposes that financial inclusion efforts should target all vulnerable people and groups in society(Ozili, 2024). The theory further states that while digital financial services increase access to financial services and bring vulnerable people into the formal financial sector, without digital and financial literacy education programs, these populations face higher risks of exploitation and fraud, which worsens their financial vulnerability (Ozili, 2024; Koefer et al., 2024; Alvarez-Espino et al., 2026).

In the context of digital financial literacy, digital financial services, digital financial inclusion, and digital inclusion (2025), in an extension of Ozili (2024), vulnerable inclusion theory emphasizes that while the digitalization of payment systems has offered broad-based opportunities to enhance financial inclusion in developed economies, it simultaneously creates new barriers and risks for vulnerable groups, necessitating tailored digital financial education and literacy initiatives.

Thus, on the above premise of the importance of digital financial literacy education initiatives for vulnerable groups, the OECD defines vulnerable inclusion as the deliberate effort to empower, protect, and include vulnerable groups at risk of digital financial exclusion, ensuring they can safely and effectively navigate digital financial services for comprehensive financial inclusion (OECD, 2025).

2.1.5. Theory of Digital Divide

Unequal access to technology and digital skills perpetuates socioeconomic inequalities, thus widening the gap between those who can build financial resilience and those excluded from the formal digital economy (Bandura, 2022). Yet, in the absence of digital skills and financial capabilities, marginalized groups struggle to navigate modern fintech products and digital devices, thus exacerbating the digital divide gap (Bandura, 2022; Adel, 2024).

Jan van Dijk’s digital divide theory argues that digital inequality is not just about physical access to information and communication technologies, but it is a multi-step process reflecting broader societal inequalities in wealth, education, and geography that are replicated and often amplified by disparities in access to and the use of information and communication technologies (ICTs)(Dijks, 2013; Dijks, 2006).

Jan van Dijk's digital divide theory provides one of the most comprehensive frameworks for understanding the digital divide. Rather than viewing it simply as a technological issue of "haves and have-nots," his research categorizes digital inequality into three levels, namely: access, skills, and outcomes (Dijks, 2013; Dijks, 2006). The first level, access, focused on physical and material access to digital devices and basic means to get online. The second-level skills referred to individuals' and businesses' digital literacy and ability to operate digital devices, search for information online, and navigate apps and software effectively. The third level measures whether social engagement with digital technologies and the internet improves a person’s social, cultural, and economic positions)(Pukdeewut et al., 2024; Dijks, 2013; Guo et al., 2025; Liao et al., 2022).

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Applied to digital financial literacy, this theory suggests that simply providing physical access to a mobile money wallet or banking app, or owning a digital device, is not enough to bridge the digital divide (Yu et al., 2025; Guo et al., 2025; Kanungo, 2025). True digital inclusion requires the capability, rooted in both digital skills and financial knowledge, to translate access to digital devices into meaningful digital inclusion and socio-economic benefits (Yu et al., 2025; Guo et al., 2025; Kanungo, 2025).

Thus, in this context, digital financial literacy acts as a critical mediator in the theory of the digital divide, transitioning the focus from mere access to technology, the first level of Dijk digital divide model to the skills needed to effectively utilize digital tools for a positive economic and social outcome- the second and third level of the model (Yu et al., 2025; Guo et al.,2025; Kanungo, 2025; Dijks, 2013). Therefore, digital financial literacy in the context of the digital divide theory will enable individuals and businesses to move beyond access to digital devices and the internet to usage and economic outcomes that will have positive implications on bridging the divide gaps (Yu et al., 2025; Guo et al.,2025; Kanungo, 2025; Dijks, 2013).

Therefore, by integrating these theoretical models with a conceptual review of the literature, coupled with empirical findings from global and sub-Saharan Africa (SSA) studies, this section positions digital financial literacy as a necessary ingredient for achieving safe, equitable, and sustainable digital financial inclusion and closing the digital divide in Liberia. Consequently, strengthening digital financial literacy is not merely an educational initiative but a strategic foundation for building public trust, promoting ethical financial behaviours, and ensuring digital financial services contribute to poverty reduction, economic well-being, and an inclusive financial system and economic development in Liberia.

2.2. Conceptual Review

In this subsection of the literature review, three themes, namely digital financial literacy, digital financial inclusion, and the digital divide, will be explored with a corresponding empirical review of literature on the influence and relationship between digital financial literacy, digital financial inclusion, and bridging the digital divide.

2.2.1. Digital Financial Literacy

Whether it’s civil servant payments in Africa, B2B settlements in Europe, or retail checkouts in Latin America and Asia, digital financial innovations are fundamentally transforming how governments, businesses, and consumers interact globally, driving unprecedented financial market efficiency and an inclusive financial system (Prihandini, 2025; Singh et al.,2025; Resendiz, 2018). Indeed, digital payment adoption has surged globally across both emerging and developed markets; data from the OECD and WorldPay digital payment study reveals that62% of adults in low- and middle-income economies and 96% of adults in developed economies make or receive a digital payment in 2024 (OECD, 2025; WorldPay, 2025). Hence, this paradigm shift in the global digital payments system demands new forms of digital and financial literacy

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capabilities for users of digital financial services to effectively participate in the global digital economy (Lee, 2025; Golden et al., 2022; Huang et al., 2019).

However, according to the OECD 2023 International Survey on Adult Financial Literacy, 71% of OECD participating countries and economies lack basic digital financial literacy skills (OECD 2023). Thus, as postulated by Vlaicu et al.(2025) and Yadav et al.(2023), low digital financial literacy amongst digital financial services users creates mistrust and exposes them to a wide range of risks, including phishing, pharming, and SIM card swapping (Vlaicu et al., 2025; Yadav et al., 2023; Rahaya et al., 2022). Thus, this underscores the urgency of developing digital financial literacy educational programs globally to translate access to digital financial services into actual usage (Xo'sinboy o'g'li et al., 2025).

Digital financial literacy is a multifaceted competency that merges traditional financial knowledge with digital skills, a core competency in the digital era that plays a significant role in the adoption and use of digital financial services (Ravikumar et al., 2022; Huang et al., 2019; Dandi). Digital financial literacy empowers users of digital payment platforms with digital skills, financial knowledge, competence, and awareness of digital financial services, to safely navigate fintech products and services and make informed financial decisions that stimulate an all-inclusive financial system (Ravikumar et al., 2022; Huang et al., 2019).

Thus, as an important competency in the digital age, numerous scholars in academia as well as developmental finance experts in international organizations have made attempts to define the digital financial Literacy concepts (OECD, 2025; AFI, 2021;Choung et al., 2023;Ravikumar et al., 2022;Gumilar et al., 2024;Shylaja, 2024).

Digital financial literacy is defined by OECD(2025) as the combination of knowledge, attitudes, skills, and behaviour's that enables users of digital financial services to make sound financial decisions and engage in the digital economy safely, efficiently, and responsibly. AFI (2021) referred to digital financial literacy as a multidimensional concept that integrates financial literacy, financial capability, and digital literacy to equip consumers in the gig economy with the competence for positive digital financial outcomes. Ravikumar et al. (2022), on the other hand, argue that digital financial literacy is financial literacy on digital platforms that combines digital and financial literacy. Next, Shylaja (2024) believes that digital financial literacy is familiarity with digital tools and payment platforms, as well as awareness of potential risks such as cyber fraud and data breaches. Finally, the current study defines digital financial literacy as the digital and financial education and skilled use of digital financial services to effectively navigate the complexities of digital devices, online activities, and payment platforms in the gig economy.

While the above definitions of digital financial literacy vary slightly, across all definitions, digital and financial literacy stood out as the most prevalent components of digital financial literacy. Therefore, the study will next undertake a conceptual literature review on financial and digital literacy.

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2.2.1.1 Financial Literacy

Financial illiteracy carries high costs for users of digital financial services (Lach et al., 2023). Therefore, in an era where financial transactions are conducted effortlessly through digital payments platforms, people need a solid grasp of financial principles and concepts to utilize fintech products to avoid the associated costs of financial illiteracy, such as massive financial loss, financial fragility, and digital traps (iFAST, 2024; Klapper et al., 2015;Barnoyevna,2025). Thus, as digital payments platforms and decentralized finance apps reshape how we manage money, financial literacy is no longer an option but a critical financial education for the digital age (GAO, 2025; Ripla, 2025). Thus, in the digital era where financial products are easily available with a quick tap on a smartphone or a stroke on a laptop, financial literacy becomes the foundation for sound financial decision-making and financial well-being (Klapper et al., 2015; Yadav et al., 2025;Ripla, 2025). It enables individuals and SMEs to understand and navigate traditional and digital financial products, thereby empowering them to make decisions that align with their short- and long-term financial needs and goals (Ripla, 2025).

However, despite the critical importance of financial literacy in driving consumer engagement, financial decision-making, financial well-being, and ultimately financial inclusion, globally financial literacy rates remain very low (OECD, 2023; OECD, 2025). Financial literacy is an essential concept in personal and corporate finance as it aligns with the competence, skills, knowledge, and attitude that individuals need to make wiser financial decisions on budgeting, savings, investment planning, inflation, interest rates, borrowing, and risk mitigation in a growing digital financial landscape (UNESCO, 2025;Tulcanaza-Prieto et al., 2025; Astuti et al., 2025).

Financial literacy is defined by Koefer et al. (2024) as the knowledge, skills, and abilities needed to make independent, informed financial decisions related to financial and pension planning, debt management, and wealth accumulation, ultimately leading to financial well-being. From a different perspective than that of Koefer et al. (2024), Tulcanaza-Prieto et al. (2025) describe financial literacy as the behavioural skills, competences, attitudes, and beliefs related to making financial decisions, self-control, and risk management. With a view similar to that of Koefer et al. (2024), the OECD defines financial literacy as a blend of awareness, skills, knowledge, attitudes, and behaviour that empowers individuals and small- and medium-sized businesses to make well-informed and enhanced financial decisions to ultimately achieve financial well-being (OECD, 2025).

Financial literacy definitions indicate that financial literacy is a must-have competency for individuals and firms to make sound financial decisions, achieve financial well-being, and safely navigate the complex digital financial landscape. The definition also shows that financially literate users of digital financial services are well equipped with the knowledge, skills, and attitudes crucial to make prudent financial decisions, manage their finances effectively, and augment their social engagement. Also, individuals with low financial literacy face profound economic and social consequences, including underutilization of formal financial services,

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distrust of the financial system, poor financial decisions, and adverse effects on financial inclusion.

Therefore, financial literacy education programs are important for empowering underserved and financially excluded populations in rural and semi-urban areas to secure basic financial services, make informed financial decisions, improve their economic resilience, and ultimately transform access to digital financial services into actual usage, thereby increasing financial inclusion.

Notwithstanding the importance of financial literacy, in the digital era, growth in digital financial inclusion and digital inclusion rates depend not only on financial literacy but also on digital skills and one's ability to manage financial matters on digital financial platforms (Pak et al., 2023).

2.2.1.2 Digital Literacy

In today's tech-based world, where digital technologies are an integral part of everyone's life, digital literacy is considered a necessary skill for actively engaging in an ever-growing digital economy (UNESCO, 2025; Malotiya et al., 2023). Beyond financial literacy, digital literacy is the modern cornerstone of social and economic participation, empowering individuals to navigate digital devices confidently and safely. Digital literacy lays the groundwork for digital inclusion, modern employment, and lifelong learning by bridging the gap between basic access to technology and the internet and the cognitive abilities needed to use digital devices safely in today's interconnected digital ecosystem (Goswami, 2025; Malotiya et al., 2023; UNESCO, 2025; Thelma et al., 2024).

According to Al-Afeef et al. (2025), digital literacy enhances an individual's ability to access, use, and benefit from digital financial innovations, which is integral to digital financial inclusion. Hence, in the absence of digital literacy education programs, many people will be excluded from opportunities in financial markets, education, healthcare, employment, and social connections in the digital era (Goswami, 2025; Bandura, 2022).On the other hand, high digital literacy will create a more inclusive environment for everyone, thus bridging the digital divide (Goswami, 2025; Setha et al., 2023).

However, while the speed of digital financial innovation in the last couple of decades has hastened digital financial inclusion and improved the standard of living in a variety of geographies across the globe, a large number of underserved, disadvantage and financially excluded people, especially in Sub-Shara Africa(SSA) including Liberia are left outside of the current wave of digital financial innovation(Jaeger et al., 2011). As put forward by Jaeger et al. (2011), these gaps in access to and use of digital financial products and their ramifications are often due to a lack of digital literacy. Digital literacy educational programs will equip the digitally excluded population with the requisite digital skills to compare different digital financial products available in the market to ensure they suit their needs in terms of cost and reliability, thereby lessening the digital divide (Bongomin et al., 2023).

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The term "digital literacy" was first introduced and defined in 1997 by historian and technology educator Paul Gilster in his influential book, Digital Literacy. Gilster (1997) defines digital literacy as "the ability to understand and critically evaluate digitized information presented via computers," emphasizing that it concerns "mastering ideas, not computer keystrokes. Since then, the definition of digital literacy has continuously evolved alongside emerging technologies and societal needs over the last two decades(Koefer et al., 2024; Jaeger et al., 2011; Astuti et al., 2025; Al-Afeef et al., 2025; Malotiya et al., 2023).

According to Astuti et al. (2025), digital literacy is the set of skills needed to effectively use digital devices and platforms, including mobile phones, computers, and the internet, to utilize and manage information and communication technology. In their study on digital divides, digital literacy, digital inclusion and public libraries, Jaeger et al.(2011) define digital literacy as an individual's ability to locate, evaluate and use digital platforms and information, and also their capacity to navigate digital devices, recognized when digital information is needed, find and evaluate this information to make sense of the amount of information they received effectively. Koefer et al. (2024) describe digital financial literacy as the necessary skill to access, manage, understand, integrate, evaluate, and create information safely and appropriately through digital devices and network technologies for social and economic inclusion in the digital marketplace.
The above definitions depict that digital literacy goes beyond the basic skills and know-how to operate a computer and smartphones but involves understanding how to access, use, and navigate digital platforms and tools, evaluate the credibility and accuracy of digital information , communicate effectively and ethically, and manage cybercrime risk and protect personal data online in the digital ecosystem.

Hence, in an era of artificial intelligence, decentralized finance, digital banking, and mobile money, the populace must not only know how to make financial decisions, but it is a must for them to have digital awareness, knowledge, and fluency to access and use digital devices to survive and live fruitfully in the digital ecosystem. Thus, it is imperative to redefine digital financial literacy as the essential combination of financial literacy and digital literacy needed to navigate innovative digital financial platforms safely in the digital era.

2.2.1.3 Measuring Digital Financial Literacy

Digital financial services alone exert minimal influence on digital financial inclusion and broader digital inclusion when baseline digital financial literacy indicators are lacking to design effective educational programs and institutional frameworks (Zaimovic et al., 2023; Lyons et al., 2021; Segoviano et al., 2025). To close the gap between access to digital financial literacy and actual digital financial inclusion, policymakers use digital financial literacy indicator frameworks that assess both traditional financial knowledge and digital proficiency (Lyons et al., 2021; Chhillar et al., 2023).

Digital financial literacy measurement continues to evolve, shifting from traditional financial metrics to frameworks that capture core digital competencies alongside traditional financial skills (Prete, 2022; Lyons et al., 2022). Researchers assess this multidimensional concept across

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several key dimensions, examining how users of digital financial services combine digital capability and financial competence to make safe, informed decisions in the digital economy (OECD, 2024; OECD, 2023; Prete, 2022; Lyons et al., 2022; Morgan et al., 2021). Hence, common practices for measuring digital financial literacy are built around interconnected domains such as knowledge of digital financial services, awareness of associated risks, financial decision-making, financial outcomes, and knowledge of consumer rights (OECD, 2024; OECD, 2025; Prete, 2022; Lyon et al., 2022; Chhillar et al., 2024; Zaimovic et al., 2024; Massie et al., 2024).

For instance, Prete (2022) assessed digital financial literacy using the 2014 Standard & Poor's Global Financial Literacy Survey and the OECD 2019 Survey of Adult Skills metrics. Lyon et al. (2022) measured digital financial literacy using 15 items focused on financial and digital literacy. Their study uses interest rates, compound interest, inflation, and risk diversification to measure financial literacy; respondents' ability to manage their finances well to measure financial capability; and mobile phone usage, internet browsing, downloading of music and videos, and capacity to conduct financial transactions online to measure digital literacy (Lyon et al., 2022). On the other hand, Chhillar et al. (2024) adopted Churchill's (1979) scale development to measure digital financial literacy. In their research title, “Measuring Digital Financial Literacy.” While Zaimovic et al. (2024) used the OECD 2022 survey questionnaire. Their study uses digital financial knowledge (0-3 scale), digital financial behavior (0-4 scale), and digital financial attitudes (0-3 scale) to measure the digital financial literacy index. Finally, the OECD (2024) framework measures the digital financial literacy index score by evaluating four distinct areas, namely: digitalization, digital financial competencies, financial competencies, and digital financial services outcomes. The OECD (2023) framework is considered the most prominent measurement framework for digital financial literacy, providing internationally comparable items that evaluate the intersection of digital literacy and digital financial services.

Therefore, to ensure a more comprehensive assessment of digital financial literacy in Margibi, Montserrado, Bomi, and Grand Bassa counties in Liberia and its influence on digital financial inclusion and the digital divide in Liberia, the current study uses the OECD (2023) digital financial literacy measurement tool (OECD, 2023) to assess digital financial literacy in Liberia.

2.2.2 Digital Financial Inclusion

For decades, microfinance and village savings and loans have struggled to reach the underserved and financially excluded population due to relatively small loan sizes, high costs, and uncertainty around credit risk (Tempany, 2024). Then came digital financial services, a promising revolution to provide access to financial services to those who were once left behind in the formal financial system (Kanu, 2025b; Chibesa et al., 2025; Verma et al., 2025). According to the 2025 Financial Access Survey (FAS) conducted by the International Monetary Fund (IMF), digital financial services transactions in emerging and developing economies increased from 55 transactions per adult in 2017 to 251 transactions per adult in 2024, integrating millions of unbanked and financially excluded individuals into the formal financial system known as digital financial inclusion (Fareed et al., 2025).

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Indeed, digital financial services are fundamentally reshaping digital financial inclusion by making access to and use of financial services attainable for many underserved and unbanked populations worldwide (Blaney, 2025; Khera, 2022b). Digital financial inclusion, the use of digital financial services to deliver and expand access to and use of formal financial services for unbanked and underserved populations, over the years has aided the integration of individuals and businesses into the global financial system (Kanu, 2025b; Blaney, 2025; Chibesa et al., 2025).

However, while digital financial services are significantly reshaping access and usage within the financial sector, a critical question remains: Can digital financial services alone reach the most underserved, remote, and vulnerable segments of society who are excluded from or have limited access to formal financial services (Ripla, 2025; Tetteh et al., 2026)? Although the digitization of financial services has positively influenced financial inclusion, it is overly optimistic to assume that providing digital access alone will automatically result in comprehensive digital financial inclusion (Kanu, 2025a; CGAP, 2024; Ripla, 2025).

A fundamental challenge remains unaddressed by digital financial services alone: low levels of digital financial literacy (Ripla, 2025; Tetteh et al., 2026). Although the evolution of these services offers opportunities to reach previously excluded and underserved populations with more tailored access, digital financial services impose significant demands on users, particularly those in last-mile communities, who must quickly adapt to increasing sophistication and complexity (Loke et al., 2025; AFI, 2021; Ripla, 2025; Vlaicu et al., 2025; CGAP, 2024).

Thus, in recent years, there has been significant activity focused on digital financial literacy. Governments and development partners increasingly recognize the importance of digital financial literacy in promoting the adoption and use of digital financial services, which positively influences the digital financial inclusion rate (Loke et al., 2025; AFI, 2021). Therefore, users require digital financial literacy competencies and proficiencies for comprehensive digital financial inclusion (Loke et al., 2025; AFI, 2021).

2.2.2.1 Measuring Digital Financial Inclusion

Fintech products delivered through digital financial tools provide rapid and user-friendly access to financial services, positioning them as a transformative force for digital financial inclusion (Banik et al., 2025). By offering essential financial services such as mobile money, savings, credit, and investment to unbanked and financially excluded populations at reduced costs and overcoming geographical barriers, digital financial services have substantially advanced digital financial inclusion in Sub-Saharan Africa, including Liberia (Tetteh et al., 2026). Consequently, measuring digital financial inclusion is essential for policymakers to identify gaps in digital financial literacy and to design economic policies that ensure digital financial innovation reduces poverty rather than exacerbating the digital divide (Tugba et al., 2023; Banik et al., 2025).

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Previous studies (Khera et al., 2022; Banik et al., 2023; Idrees et al., 2024; Mapurita et al., 2024; Demirgüç-Kunt et al., 2021; Stage, 2019) have primarily measured digital financial inclusion through three dimensions: access, usage, and quality of products and services.

Khera et al. (2022b), in an IMF working paper, assess digital financial inclusion in emerging markets and developing economies. The study employs access and ownership metrics such as the number of ATMs per 100,000 adults, the number of bank branches, mobile money subscriptions per 100 people, and the percentage of the population with internet access. For usage, the authors consider the percentage of adults with commercial bank accounts, adults with mobile money accounts, adults who use the internet to pay for goods and services, adults who receive salaries through mobile money, and adults who use commercial bank accounts to receive salaries and pay for goods and services with debit cards.

Banik et al. (2023) use measures similar to those of Khera et al. (2022), but substitute penetration and availability for access indicators and include mobile money agent outlets as additional access indicators. Mapurita et al. (2024), on the other hand, include the quality of digital financial products, such as ICT regulation and internet service security, in addition to access and usage indicators to measure digital financial inclusion. In contrast to the above measures, Stage (2019), using China as a research location, measures digital financial inclusion using breadth of coverage, depth of usage, and level of digitalization as indicators.

Following established principles in the literature, such as those outlined in the World Bank Global Findex Database 2021 report and measures from international organizations including the World Food Program (WFP) and the Global Partnership for Financial Inclusion (GPFI), this study will categorize survey statements for each county into three core dimensions of digital financial inclusion: access, usage, and quality and security of digital financial services. These dimensions will be used to calculate a composite digital financial inclusion index score for Montserrado, Bomi, Margibi, and Grand Bassa Counties (GPI, 2016; Klapper et al., 2025; WFP(nd); Khera et al., 2022; Banik et al., 2023; Idrees et al., 2024).

Access and ownership metrics will include the proportion of the surveyed population with an account (bank, mobile money, or digital wallet) and the number of financial access points, such as commercial bank branches, ATMs, mobile money agents, and internet access. Usage metrics will assess the proportion of individuals making digital payments for utility bills, entertainment, and groceries, as well as savings behaviour on mobile money and in commercial banks, credit utilization, insurance ownership, and investment activity. Quality and security metrics will address network downtime, security, and the overall quality and security of digital financial services, including website security, financial losses due to scams, concerns about online fraud, trust in financial service providers, and the regulatory environment for digital financial services.

2.2.3 Digital Divide

Teachers now email assignments after hours, medical offices schedule appointments online, supervisors require employees to complete training modules remotely, government portals

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mandate digital verification for subsidy access, and utility bills are paid through mobile money. These practices represent the new normal in the global digital economy (Ireland et al., 2025; Sophie et al., 2021). Digital technologies, the Internet of Things (IoT), digital financial innovations, artificial intelligence, and big data are reshaping modern society and transforming the quality of daily life in the digital era (Ajai, 2026; Ireland et al., 2025).

Additionally, Internet connectivity and social media have enabled the maintenance of virtual yet meaningful human connections, facilitating the sharing of grief, collective uncertainty, and aspirations for solidarity on digital platforms (Amankwah-Amoah et al., 2021; Nawaz et al., 2023). Moreover, the COVID-19 pandemic has further highlighted the significant role of digital technology platforms in sustaining human connection and fundamentally altering modes of communication and experience sharing (Amankwah-Amoah et al., 2021; Nawaz et al., 2023). Indeed, digital transformation is a game changer for efficiency and innovation in both the public and private sector (Fotokun, 2024).

Unfortunately, a significant portion of the global population remains excluded from the digital economy and its associated benefits (Mustapha, 2026; Mohan, 2024). Vulnerable communities in many developing economies with limited literacy or digital access are frequently left behind, thus unable to benefit from daily interactions and online activities designed with more privileged demographics in mind (Thomas et al., 20; Fotokun, 2024). Digital inclusion is highly uneven, with 2.6 billion people globally lacking the digital skills, knowledge, attitude, and internet connection required to participate effectively in the global digital economy (UNESCO, 2025; ISPI, 2025). According to ISPI (2025), only 27% of individuals in low-income countries have access to the internet and digital devices, compared to 93% in high-income economies.

Therefore, as digital access increasingly determines opportunity, bridging the digital divide is not solely a technological challenge but also a fundamental driver of economic equality, social inclusion, and political participation (Mohan, 2024; Mustapha, 2026). Closing the digital divide is therefore an urgent socioeconomic priority, as systemic exclusion limits access to essential services and restricts participation in the global digital economy for excluded demographics in developing economies (UNESCO, 2025; ISPI, 2025; Mustapha, 2026; Mohan, 2024).

The origin of the digital divide concept dates back to a 1999 report by the US Department of Commerce's National Telecommunications and Information Administration (NTIA), titled "Falling through the Net" (Epstein, 2011; Bynner et al., 2008). The NTIA report defines the digital divide as "the divide between those with access to new technology and those without" (Epstein, 2011).

However, with the advancement of digital financial innovation, Artificial Intelligence (AI), big data, and the Internet of Things (IoT), researchers and experts in international development organizations have expanded the definition to include social engagement, behaviour, and attitudes with demographic factors such as age, education, gender, race, ethnicity, and disability

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considered key predictors of digital inclusion (Epstein, 2011; Parson et al., 2008; Hollimon et al., 2025; Dasgupta, 2013; UN-Habitat, 2021; OECD, 2001).

Accordingly, the UN-Habitat (2021) defines the digital divide as the gap between those who have access to and use internet connectivity and internet-enabled devices and those who do not. The OECD (2001) frames the digital divide from the perspective of businesses, households, and individuals, emphasizing disparities among these groups and across geographical locations and socio-economic levels in both access to technologies and use of the internet for various activities. Hollimon et al. (2025) describe the digital divide as the inequality among individuals and communities in their ability to access and engage with digital technologies, which arises from differences in digital skills and infrastructure support. Dasgupta (2013) refers to the digital divide as any inequalities between groups or countries, measured by access to, use of, or knowledge of digital technologies and internet connection.

The definitions of the digital divide (Hollimon et al., 2025; Dasgupta, 2013; UN-Habitat, 2021; OECD, 2001) indicate that digital inclusion extends beyond physical access to digital devices or proximity to internet access but also encompasses the digital capacity and knowledge required to use digital devices and internet connection. In addition to access, digital literacy is essential for critical thinking and for steering an information-rich society safely and responsibly (UNESCO, 2025). Consequently, insufficient digital skills and knowledge hinder digital inclusion by restricting individuals' ability to access resources and connect with others within the digital ecosystem (Elatt, 2024).

Digital literacy mitigates the digital divide by enabling individuals to access and use digital tools and the internet to engage effectively in social life in the digital era (Elatt, 2024; Jaeger et al., 2011). In an information-driven, internet-enabled environment, digital literacy encompasses the ability to confidently navigate the internet, perform online tasks, send emails, create documents, shop online, create and edit photos and videos, and understand basic coding and design (Hollimon et al., 2025; Jaeger et al., 2011; Elatt, 2024). Thus, social and economic participation lies at the heart of digital inclusion, and digital inclusion is all about bridging the digital divide (Thomas et al., 2018)

2.2.3.1 Measuring Digital Inclusion.

As digital transformation becomes increasingly central to economic development and social engagement, measuring digital inclusion should be prioritized alongside traditional infrastructure such as roads and bridges, as digital inclusion is essential for bridging the digital divide (WBMA, 2020; Sharp, 2022; Chetty et al., 2017). Developing digital skills programs based on standardized baseline data collection is critical for accurately assessing digital inclusion rates at a specific point in time and location (WBMA, 2020; Sharp, 2022; Chetty et al., 2017; RMIT, 2026; Sharp, 2024). In the absence of precise baselines for digital inclusion indicators, digital literacy initiatives may fail to reach marginalized communities, thereby impeding equitable economic and social development (Kim et al., 2025; Sharp, 2024). Thus, establishing consistent and accurate measures of digital inclusion is therefore increasingly important. Recent efforts by

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international development organizations and researchers have aggregated data on access, usage, affordability, attitudes, skills, acceptance, impact, and the availability of mobile and fixed broadband infrastructure to assess digital inclusion (Sharp, 2022; Alamelu, 2013; Jia et al., 2026; Thomas et al., 2018; Jia et al., 2024; Prescod, 2023; Nielsen, 2019).

For instance, the Australian Digital Inclusion Index (AUS-DII) evaluates digital inclusion across the Australian population using three primary dimensions: access (including computers, mobile phones, broadband connectivity, and frequency of internet and device use), affordability (cost and expenditure on internet usage), and digital ability (basic digital skills, attitudes, and digital activities) (Thomas et al., 2018; RMIT, 2026). Thomas et al. (2018) integrate these variables into a composite score ranging from 0 to 100 to determine the national digital inclusion rate. Alamelu (2013) introduced a conceptual framework for digital inclusion that encompasses access (connectivity, end-user equipment, and technical support), technology literacy (use of digital devices and the internet for essential services), and relevant online content and services. In contrast, Sharp (2022), in his study "Revisiting digital inclusion: A survey of theory, measurement and recent research," categorizes digital inclusion measurement into supply-side components (access and its quality) and demand-side components (digital skills and affordability). However, Sharp (2024) later contends that metrics for access quality and digital skills remain underdeveloped.

Although the Australian Digital Inclusion Index (AUS-DII) and Sharp (2022) provide prominent benchmarks for measuring digital inclusion, these frameworks exhibit limitations that hinder the reliability and consistency of digital inclusion assessments. Consequently, research by Jia et al. (2026) and reports by Prescod (2023) and Nielsen (2019) recommend incorporating additional measures such as cybersecurity and trust, sustainability, quality of services, usage, acceptance, and impact, alongside the AUS-DII and Sharp (2022) core dimensions of access, affordability, and digital skills.

Accordingly, this study will integrate the three components of Australia's Digital Inclusion Index—access, affordability, and digital ability—with usage, acceptance, and impact to measure the digital inclusion rate in all four counties in Liberia, taking into consideration Jia et al. (2026) and reports by Prescod (2023) and Nielsen (2019). Hence, based on available survey data, the study will assess access, digital skills, usage, and acceptance of digital inclusion metrics components using a 3-10 Likert scale to determine the digital inclusion rate in Montserrado, Bomi, Grand Bassa, and Margibi Counties.

2.2.4. Digital Financial Literacy as a Driver of Digital Financial Inclusion

Mobile money, digital banking wallets, cryptocurrencies, stablecoins, and digital payments platforms such as Cash App, BNB, and Tip Me have become standard mechanisms for conducting basic transactions in the digital era (Lyons et al., 2021). They facilitate instantaneous, borderless transactions and reduce dependence on traditional commercial bank branches (Lyons et al., 2021). Hence, by default, they are currently thought to be the most promising method for

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facilitating financial inclusion amongst the last-mile demographics globally (Lyons et al., 2021; Chhillar et al., 2024; Zaimovic et al., 2023; LoPrete, 2022).

Undeniably, digital financial innovations are fundamentally revolutionizing global financial inclusion, transforming how billions of people access and use financial services worldwide (Kanu, 2025; Kamboj et al., 2025; Norris et al., 2025; LoPrete, 2021). According to the 2025 World Bank Global Findex report, 79% of the world's adults now have a mobile money account or a bank account with commercial banks (Norris et al., 2025). However, while account ownership has reached 79% globally, a significant portion of these accounts remain dormant or are used only for basic, one-way mobile money cash receipts rather than engaging with the broader digital financial system due to low digital financial literacy(Norris et al., 2025; Prihandini, 2025; YoungPak et al., 2026). As explained by Kumar(2026), without digital financial literacy educational programs and an institutional framework, widespread access to digital financial services cannot automatically translate into digital financial inclusion.

Digital financial literacy serves as a fundamental driver for nationwide digital financial inclusion. Providing consumers of digital financial services with essential digital and financial skills, knowledge, and capabilities effectively boosts usage and adoption of digital financial services, which in turn broadens digital financial inclusion (Al-Afeef et al., 2025; Malombe, 2025). This view is emphasized by Patra et al. (2025), who assert that digital financial literacy empowers individuals to access, use, and benefit from digital financial services. Additionally, Al-Afeef et al. (2025) state that digital financial literacy equips individuals and businesses with the necessary competencies to navigate and utilize digital financial services, thus facilitating a transition from vulnerable financial inclusion to authentic digital financial inclusion.

Digital financial literacy is a necessary ingredient for full-scale digital financial inclusion. It affords the underserved and vulnerable populations with the digital financial competencies, financial competencies, and digital skills required to benefit from digital financial products and services that reduce their exposure to online fraud and heighten their trust in digital financial service providers (Gumilar et al., 2024; Bongomin et al., 2023; Tulcanaza-Prieto et al., 2025). Educational programs focused on digital financial literacy also contribute to safer digital financial environments and significantly increase the adoption and use of digital financial services, thereby promoting digital financial inclusion (Bongomin et al., 2023; Tulcanaza-Prieto et al., 2025). Moreover, digital financial literacy enables consumers to effectively process financial information prior to engaging with digital financial products (Gumilar et al., 2024; Young-Pak et al., 2026).

Accordingly, existing empirical research consistently demonstrates that digital financial literacy has a positive effect on digital financial inclusion (Kumar et al., 2024; Normawati et al., 2024; Kulkarni et al., 2025; Mwange et al., 2025; Widyastuti et al., 2024; Kanungo, 2026; Choung et al., 2026; Hanshika et al., 2024).

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For example, Kumar et al. (2024) conducted a quantitative study and found that digital financial literacy increases adoption of digital financial services, thus improving financial inclusion. Similarly, Normawati et al. (2024) surveyed 400 Micro, Small, and Medium Enterprises (MSMEs) in Indonesia and found that digital financial literacy significantly influences digital finance adoption, which has a positive impact on the digital financial inclusion rate. Kulkarni et al. (2025), in a quantitative study with 248 respondents, also identified a positive relationship between digital financial literacy and financial inclusion. Also, Young-Pak et al. (2026) analysed data from 1,552 adults in South Korea and found that digital financial literacy is associated with a higher likelihood of adopting digital financial services, thereby promoting digital financial inclusion. Hanshika et al. (2024) reported a significant relationship between digital financial literacy and financial inclusion in their quantitative study of 372 Small and Medium Enterprises (SMEs) in Sri Lanka.

The synthesis of empirical evidence presented above supports the view that digital financial literacy is a critical factor in expanding digital financial inclusion. Equipping individuals, businesses, and nations with relevant digital skills and financial knowledge improves a nation's digital financial inclusion rate. Accordingly, this study posits:

H1: Digital financial literacy is a necessary ingredient for full-scale digital financial inclusion in Liberia

2.2.5. Digital Financial Literacy as a Moderating Variable in Bridging the Digital Divide Gap.

Digital inclusion is based on the premise that everyone, no matter their socioeconomic status, should have equitable access to digital devices, reliable internet, and the digital skills needed to thrive in the digital economy (Poggi, 2025; Wei et al., 2020; Velma et al., 2025). However, when vulnerable and marginalized communities lack the foundational digital literacy skills and knowledge to make full use of digital innovation, they are sidelined from the digital economy, thus restricting their ability to access finance, education, and healthcare for an inclusive ecosystem that stimulates economic growth (Velma et al., 2025; Wei et al., 2020). Hence, ensuring everyone has the essential digital skills and knowledge to access and use digital technology is not just about creating a more inclusive society, but also about bridging the digital divide between the haves and the have-nots (Poggi, 2025; Wei et al.,2020).

Social cohesion, digital inclusion, and exclusion are serious dilemmas arising from differences in opportunities to access and use digital technology and the internet depending based on social status (Stoilova et al., 2025; Vassilakopoulou et al., 2023). The digital divide, the disparity in access and usage of digital technologies, the internet, and information and communication infrastructures, remains a hindrance to global digital inclusion (Sktes, 2023; Wei et al., 2020). With all essential services moving online, the benefits of the digital economy cannot be shared equally when some members of the community are still facing real barriers to digital devices, internet, and information and communication infrastructures for effective online participation(Sktes,2023; Weisman-Pitts, 2024; Lepeshev et al., 2026).

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Consequently, as explained by Vassilakopoulou et al.(2023), the benefits derived from digital technologies depend first on access to the internet and to the devices used to connect, and second on digital financial literacy. Therefore, the capacity and ability to access digital technologies and the internet successfully goes beyond just having a connection; it necessitates a certain level of digital and financial literacy for the digital illiterate to exploit the full potential and benefits of the digital economy (Sktes, 2023; Lepeshev et al., 2026). Digital financial literacy is critical in closing the digital divide gaps between the “haves and the " have-nots,” thus acting as a mediator that transforms access to technology into effective usage that translates into digital inclusion (Chetty et al., 2017; Sktes, 2023).

The digital divide is driven by a mix of economic, geographic, and societal barriers, but a major divide arises from a lack of trust and fear of technology among underserved demographics(Kumar, 2024b; Stoilova et al., 2025). Digital financial literacy builds the necessary confidence for the populace living in economically disadvantaged areas to transition from access to mobile phones, internet, computers, and tablets to actual digital engagement, thereby empowering them to protect themselves from being manipulated into money laundering and cybercrimes, which often target individuals with lower digital and financial proficiency(Stoilova et al., 2025; Vassilakopoulou et al., 2023). Moreover, digital financial literacy enables people to make many tasks easier, simpler, and more convenient by providing opportunities for individuals to conduct business, attend school, make medical appointments, connect with friends, colleagues, and family, and much more in the digital economy(Chetty et al., 2017; Sktes, 2023).

Empirical and qualitative studies revealed that digital financial literacy bridges the digital divide between the digital haves and the have-nots (eLee, 2015; Guo et al., 2026; Mwaseba et al., 2026; Paude, 2025).

In their qualitative research titled “digital literacy education for digital inclusion”, Lee(2015) found that digital financial literacy has an intense impact on bridging the digital divide. The study results further explain that digital financial literacy is an important means to help the poor, marginalized, and vulnerable segment improve their knowledge and skills in the use of digital technologies to enable them to gain extensive benefits from the digital economy and participate effectively in social activities online. Mwaseba et al. (2026) quantitative research results emphasize that digital inclusion depends not only on access to digital devices but also on people's capacity to use financial technologies effectively. Their research highlights the importance of digital financial literacy in bridging the digital divide amongst lower-income users of digital devices. Also, Stoilova et al.(2025) revealed in a qualitative research study that the digital divide and money laundering are interrelated. The study outcome further illustrates that as vulnerable groups face low digital financial literacy, they become more vulnerable to being used by money laundering and cybercrime schemes.

Research(Lee,2015; Guo et al.,2026;Mwaseba et al., 2026; Paudel,2025) shows that a lack of digital financial literacy limits the ability of individuals to fully participate in and benefit from

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the digital economy thus, worsening the digital inclusion rate while on the other hand, a comprehensive digital financial literacy education and institutional framework heighten the digital inclusion rate for an all-inclusive social engagement in the digital economy. Therefore, this current research posits:

H1: Digital financial literacy has a significant mediating effect on bridging the digital divide gap in Liberia.

3.0. Liberia context

Davida, an SME businesswoman, owns a Printing and mobile accessories shop between Carey and Randall Street intersection in Montserrado County. She has a smartphone, and she mostly uses it to access social media and do online shopping through her Orange MMoney account or her Ecobank Liberia Visa Card. She also owns a laptop computer that she uses to access government portals, check her emails, and make payments for goods and services through e-commerce platforms.

Davielle, a grocery shop owner in rural Grand Bassa County, owns a button press phone. Her use of the phone is limited to talking to her family and friends, sending and receiving text messages, and occasionally using Momo money to receive payments only. She cannot use Momo money herself and relies on mobile money agents to withdraw her remittances received from friends and family through mobile money. Also, she cannot afford a smartphone.

The above examples of Davida and Davielle illustrate how people in Liberia are divided in terms of access to and usage of digital devices and fintech products such as mobile money, digital banking, online shopping, WhatsApp, social media, and YouTube videos. Davida and Davielle's experiences are representative of digital and financial literacy disparities that exist between the “ haves and the " have-nots” in terms of affordability, access, and the digital skills to use digital devices as well as digital financial services in Liberia (Chatterjee et al., 2024; Mwaseba et al., 2026) . The two women's journeys differ in terms of their access to and use of smartphones to engage in the digital economy as a result of their digital financial literacy capabilities(Chatterjee et al., 2024).

In Liberia, as in other developing economies in Sub-Saharan Africa, the rapid adoption of digital financial services has outpaced the development of nationwide digital financial literacy education programs, thereby limiting comprehensive digital financial inclusion and closing the digital divide (Santosdiaz, 2026). Although the Central Bank of Liberia has enhanced the national digital payment platform—most notably through the launch of the Liberia Inclusive Instant Payments System (IIPS) on December 16, 2025—to expand access and participation in the fintech ecosystem, a formal digital financial literacy education program and instructional framework are still absent from the country’s digital transformation agenda (Santosdiaz, 2026; Central Bank of Liberia, 2025; Hecht, 2021).

Moreover, despite the recent initiatives by the Government of Liberia and international development partners—including the Central Bank of Liberia’s national financial education

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campaign, UN Women's platform-based digital financial literacy training, Edu Care's basic digital skills programs, the Ministry of Post and Telecommunication's national digital strategy, youth participation programs by the Ministry of Youth and Sport (MYS), Liberia Telecommunication Authority (LTA) and MYS nationwide digital skills initiatives, and the World Bank's technical assistance for digital skills development in high schools—the country's digital financial inclusion and digital inclusion metrics remain below expectations. Persistently low digital financial literacy rates continue to impede comprehensive digital financial inclusion and efforts to bridge the digital divide in Liberia.

Furthermore, although the adoption of digital financial services has advanced financial inclusion in Liberia somehow, a substantial gap persists between national digital transformation objectives and the implementation of comprehensive digital financial literacy educational programs (GDC, 2025; LTA, 2026; MOPT, 2025; Liberia Observer, 2026; Waz, 2025). Without the deliberate integration of digital financial literacy education into the digital transformation agenda, the development of digital public infrastructure will continue to outpace users' digital financial literacy, which has negative implications for both digital financial inclusion and digital inclusion rates in Liberia (Kanu, 2025a).

3.1 Liberia Digital Financial Literacy

Digital financial literacy in Liberia is developing but remains in its early stages(WA2, 2025). The Central Bank of Liberia, with support from development partners such as the World Bank and United Nations Women, is leading current initiatives (WA2, 2025; Hussein, 2026; Monibah, 2025). These efforts primarily target underserved and excluded communities, particularly women, by providing education on mobile money usage, savings management, and business platform operations (WA2, 2025; Hussein, 2026; Monibah, 2025).

Currently, the Central Bank of Liberia is conducting its second nationwide financial literacy campaign, focusing on training community mobilizers and citizens in money management, savings, and debt planning (FPA, 2026; Carinah, 2026). Also, the campaign promotes the Pull-and-Push Inclusive Instant Payments System (IIPS) to address low baseline financial literacy, with the goal of improving consumer protection and advancing digital financial inclusion(CBL, 2025; Fuhnwi, 2026). Additionally, in collaboration with GMS mobile money providers, such as Orange Money and Lonestar MTN Mobile Money, the Central Bank of Liberia tracks national targets for financial education in unbanked communities(FPA, 2026; Carinah, 2026). Furthermore, among Liberia's development partners, UN Women in Liberia, in partnership with the Central Bank, developed the Buy from Women Platform, which connects rural women farmers to markets and provides training in secure mobile money transactions and business development (Monibah, 2025). Also, the UN Women financial literacy training program supports the transition of rural women's savings into formal, secure mobile money accounts, thereby enabling digital transactions and expanding market access(Monibah, 2025).

Nonetheless, these fragmented approaches among the Central Bank of Liberia and development partners pose a significant challenge to nationwide digital financial literacy. This view is further

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supported by Yates (2025), who states that a substantial gap persists between access to financial services and digital financial literacy in Liberia, hindering nationwide digital financial inclusion and efforts to close the digital divide in Montserrado, Margibi, Grand Bassa, and Bomi counties. Therefore, momentous progress requires coordinated digital financial literacy training programs and institutional frameworks that reach all 15 counties in Liberia.

3.2. Liberia Digital Financial Inclusion

Digital financial services, primarily supported by MoMo and Orange Money, allow individuals and businesses to send and receive cash and make online payments for goods and services in Liberia. Mobile money has expanded access to financial services for millions of Liberians, especially those residing in remote communities across all 15 counties (Mwaseba et al., 2025). As a result, Liberia's financial inclusion rate has risen to 52.21% from 18.8% in 2011; however, this figure remains comparatively low relative to other Sub-Saharan African (SSA) countries (Kanu, 2025). Moreover, a significant proportion of Liberia's youthful population remains unbanked, underserved, or entirely excluded from the financial system, primarily due to low levels of digital and financial literacy education nationwide (Astuti et al., 2025).

For instance, although the number of registered mobile money account holders reached 11.5 million as of December 31, 2024, this growth has not significantly improved Liberia's financial inclusion. One prominent constraint is low digital and financial literacy among the country's youthful population, which hinders the transition from basic digital access to financial services to impactful digital financial inclusion (Kanu, 2025; Central Bank of Liberia, 2025). Since digital financial services significantly impact financial inclusion in Liberia, users' ability to navigate and understand digital financial platforms, including Orange Money, MTN Momo, TipMe, Kola Cash, and digital banking apps, is essential to increase the country's digital financial inclusion rate.

Accordingly, as postulated by Kassouwi(2026), Liberia continues to lag behind regional peers in the digital financial literacy index, despite the Central Bank of Liberia's and development partners' fragmented financial literacy initiatives, which exclude digital literacy as a component of digital financial literacy. Thus, this shortfall directly affects digital financial inclusion. Digital financial literacy encompasses the knowledge, skills, and attitudes required to utilize the opportunities of the digital economy to promote an inclusive financial system that supports economic growth, bridges the digital divide, and enhances Liberia's digital financial inclusion rate(Mwaseba et al., 2026; Chatterjee et al., 2024). Thus, developing digital financial literacy educational programs and an institutional framework should be considered a national priority by the government of Liberia (Santosdiaz, 2026).

3.3. Liberia Digital Inclusion

Digital inclusion in Liberia remains limited, with more than 67% of the population offline. High costs of internet access and digital devices, combined with widespread digital illiteracy, have significantly contributed to the digital divide in the country (ZTE, 2024; Kennedy, 2025). For

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instance, as explained by ZTE(2024), most students in Liberia complete high school without any experience using a computer, thus restricting Liberia's youthful population from active participation in the country's expanding digital economy. Also, these barriers disproportionately impact rural and marginalized communities, further limiting access to digital financial services and economic opportunities due to the absence of comprehensive nationwide digital financial literacy education programs (Kanu, 2025a; ZTE, 2024; OGP, 2026).

Though digital technologies are transforming how Liberians live, work, and access essential services, bridging the digital divide requires more than technological innovation or the expansion of digital financial services (Chatterjee et al., 2024). Addressing this divide requires more access to affordable digital devices and internet, the development of trust in the digital economy, and the engagement of poor, vulnerable, and marginalized communities through digital and financial literacy programs (Chatterjee et al., 2024). Liotta (2023) echoes this view, stating that achieving digital inclusivity depends on comprehensive digitalization and government-led social inclusion initiatives that prioritize digital proficiencies and behavioral change. Hence, targeted, nationwide digital financial literacy training and awareness campaigns can equip Liberians with the trust, digital skills, and financial competencies needed to use digital devices and financial services safely, fostering broader participation in the digital economy and enhancing digital inclusion (Fatokun, 2024).

Therefore, as digital transformation reshapes Liberia's financial landscape, critical questions arise for the government and its development partners. Specifically, how does the digital divide affect individuals at the bottom of the economic pyramid, and how can effective digital financial literacy education programs facilitate the adoption of digital technologies and promote broader financial inclusion?

4.0 Methodology

The primary aim of this paper is to investigate the influence of digital financial literacy on digital financial inclusion and digital inclusion in Montserrado, Margibi, Grand Bassa, and Bomi counties across different demographic and socioeconomic groups. The study examines the following research questions:

RQ1: How does digital financial literacy promote full-scale digital financial inclusion in Montserrado, Bomi, Margibi, and Grand Bassa counties in Liberia?

RQ2: Do digital financial literacy programs impact prevailing digital divides in Montserrado, Bomi, Margibi, and Grand Bassa counties in Liberia

4.1 Research Methodology

A quantitative research design relies on numerical data collection and analysis to answer the research question and hypothesis, achieved through objective, systematic, and thorough processes to generate knowledge (Ghanad, 2023; Slater et al., 2025). The selection and suitability of quantitative research methodology for this study were informed by the study

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research questions, hypothesis testing, cross-sectional data needed to ask questions such as “how long,” “how many,” and the “degree to which” to permit replication of the methodology by other researchers (Ghanad, 2023; Slater et al., 2025).

4.2 Research Design

The study adopted a descriptive quantitative research design. A descriptive quantitative research design is a non-experimental type of quantitative research that collects data through surveys, case studies, and observations in order to describe, explain, predict, and control the research problem statement, research questions, and hypothesis (Ghanad, 2023; Purba, 2021). Also, a descriptive quantitative research design describes the phenomenon of the study population and does not try to establish causal relationships. Though descriptive quantitative research may establish temporal relationships, it does not establish causal relationships (Slater et al., 2025).

A descriptive quantitative research design was used for this paper because it allows for the study to be performed in the respondent's natural context, which not only certifies the validity and quality of the dataset but also represents data collection from the population as a whole (Ghanad, 2023; Purba, 2021; Slater et al., 2025). The study research design follows Previous research on digital financial literacy by Frimpong et al.(2022), Indrawati(2021), and Bon(2025), who also employed a descriptive quantitative research design to assess digital financial literacy amongst college students, financial technology, and access to digital finance and performance of SMEs, respectively.

4.3 Population of Study

A research population is central to quantitative research. It includes individuals sharing characteristics within a defined demographic(Hu, 2023; Willie, 2024). Thus, selecting an appropriate study population is a key step in study design.

The population for this study was selected from four counties in Liberia, namely Montserrado, Grand Bassa, Margibi, and Bomi, in Liberia, using the Liberia Institute of Statistics and Geo-Information Services (LISGIS) 2022 census as a guide to determine the sample size to answer the research question and test the study hypothesis. The 2022 Census shows that the Montserrado County population stood at 1,920,965, Margibi County at 304,946, Grand Bassa County at 293,689, and Bomi County at 133,705. Consequently, a total population of 2,359,616 was selected to determine the appropriate sample size in this study. The four counties were chosen for their proximity to one another.

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Figure 1: Represent extract of the study population: Source- Researcher designed

4.4 Sample Size and Sampling Techniques

According to Lakens (2022), one essential component in a quantitative research design is the sample size and the techniques used to arrive at the study sample size from the population. The sample size explains how the data collected is projected to the study population to provide valuable information given the inferential and data analysis goals of the current study (Lakens, 2022).

The sampling for this study was done in two phases. In phase one, a non-probability sampling technique, which relies on the researcher's judgment in identifying, targeting, and selecting a sample size that best achieves the study objective, was used to select all four counties in Liberia(Tajik et al., 2025). Then, in phase two, a random sampling technique, a probability-based technique that gives every member of a target population in each county an exactly equal chance of being selected, was used to select individuals for this study (Tajik et al., 2025). Overall, the study sample consists of 300 people from Montserrado County, 150 from Margibi County, 150 from Grand Bassa County, and 100 from Bomi County, between the ages of 15 and 75.

The study survey sample has a margin of error of +/- 3.95% at a 95% confidence level in interpreting the survey results. Hence, this implies that if a study reports a digital financial literacy index, for example, for Montserrado County of 48%, we can be 95% confident that the true digital financial literacy index for Montserrado County falls between 3.95 percentage points, or from 46.1 to 49.9%. Therefore, the margin of error decreases the nearer the percent distributions are to 0 and 100.

4.5 Data Source and Collection

Data are set values of quantitative variables, facts and figures from which a researcher derives the study results, discussion and conclusion to achieve the study objective (Ajayi, 2017). Hence, the data sourcing and collection process is a must for all quantitative research designs. As

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explained by Hox et al.(2005), data can be sourced from either primary or secondary sources based on the study's planned purpose and objectives. This study used primary sources, that is, data gathered through surveys, questionnaires, and observations for the presentation, analysis, and interpretation of the study results.

The study applied a customized OECD(2023) well-structured digital financial literacy questionnaire to collect data on the components of the digital financial literacy index, including digitalization, digital financial competencies, financial competencies, and digital financial literacy outcomes in each county. The study dataset was collected through a face-to-face survey conducted amongst the randomly selected study participants in Montserrado, Margibi, Grand Bassa, and Bomi counties. The study survey questionnaire was structured to capture detailed information on digital devices, digital activities performed, internet access, online activities, fraud awareness, digital financial services, digital financial services behaviour's, financial safeguards, budgeting, saving behaviour's, basic understanding of inflation, borrowings, MSME profitability, current financial circumstances, and the impact of digital financial services on financial wellbeing.

Six different research assistants located in the four counties were employed to collect the data for this study. The interviewers (research assistants) were directed by the researcher to different parts of each county to recruit respondents and ensure an unbiased and representative sample of the study population. Thus, the study sample includes both male and female respondents between the ages of 15 and 75. Aside from the demographics, the interviewers were also directed to select a wide range of diverse locations, including urban, rural, villages, and marginalized communities. The survey was conducted in one shot from January 2026 to May 2026. At the end of the survey, the final sample consisted of 646 respondents. 100 in Bomi County,149 from Grand Bassa County, 1547 from Margibi County, and 250 from Montserrado County.

4.6. Measurements- Digital Financial Literacy Index

The study uses the OECD (2023) digital financial literacy tool to measure the digital financial literacy index, the study's core variable (Lal et al., 2025). The OECD (2023) measurement tool for the digital financial literacy index was applied to the surveyed questionnaires to describe, analyse, interpret, and discuss the research questions and hypotheses to attain the study objectives. The OECD (2023) digital financial literacy measurement tool provides a baseline digital financial literacy index for future follow-up surveys and also facilitates the comparison of digital financial competencies between geographic and demographic subgroups and measuring changes in levels of digital financial literacy over time

Based on the OECD (2023) digital financial literacy measuring tool, each surveyed respondent could achieve a maximum of 52 points, centred on their responses to survey questions. The digital financial literacy index maximum of 52 points is derived from the summation of the four subsections of the OECD digital financial literacy measurement tool, namely, digitalization 18 points, digital financial competencies 9 points, financial competencies 13 points and digital

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financial services outcomes 12 points. The content areas that comprise the digital financial literacy index and the framework for the scoring system are shown below in Figure 2.

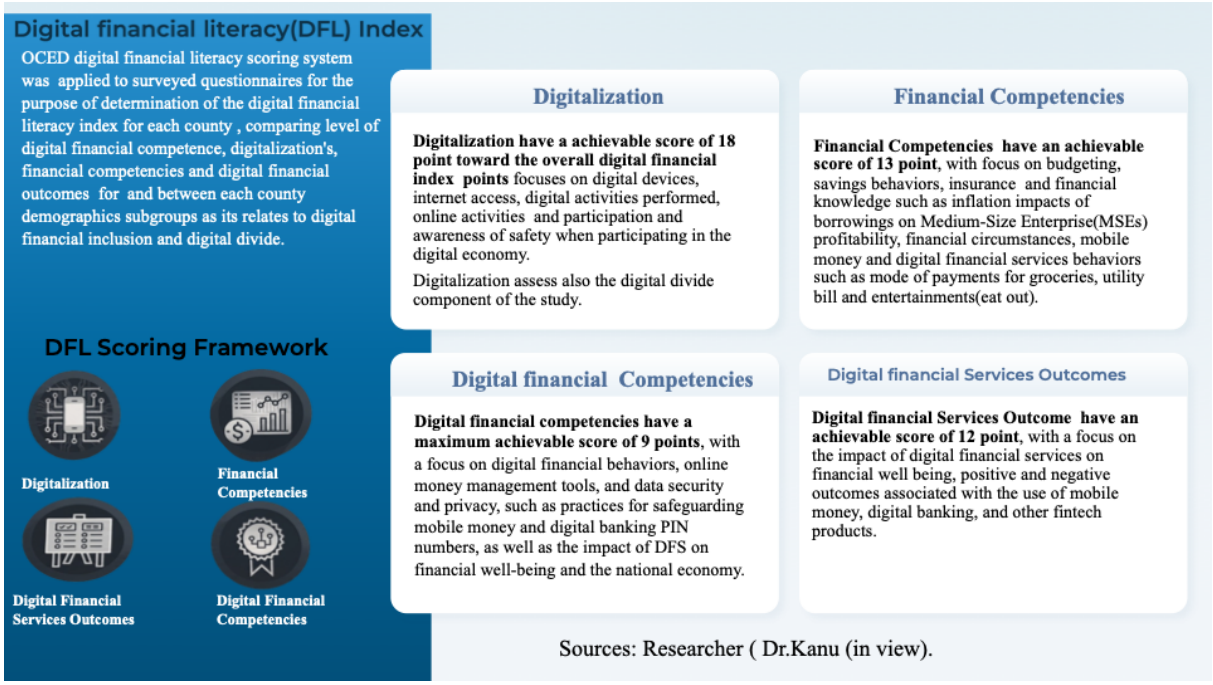

Figure 2: Digital financial Literacy index and scoring framework.

4.6 Measurements- Digital Financial Inclusion Index

The Digital financial inclusion rate for the four counties was quantified using a Likert scale to convert ordinal survey responses into numerical values. The Likert scale, as defined by Wu et al. (2017), is an ordinal variable that measures the intensity of respondents' answers. This method is widely utilized in the social sciences and other survey-based research disciplines, such as nursing, social work, and public health (Wu et al., 2017; Huh et al., 2025). However, because Likert scales are ordinal, they cannot be directly incorporated into a rate formula without first calculating a composite index score or converting the data into categorical rates.

For each respondent, a standard score was assigned to each dimension of digital financial inclusion: access, usage, and quality, with each dimension measured on a 3-7-point Likert scale. The maximum possible score was 18 points, reflecting the sum of the three measurement dimensions: access and ownership (5 points), usage (6 points), and the quality and affordability of digital financial services (7 points). A composite index score was then calculated for Montserrado, Bomi, Margibi, and Grand Bassa Counties to determine the digital financial inclusion rate, facilitating interpretation of the results and discussion of outcomes. Figure 3 presents the framework for the scoring system.

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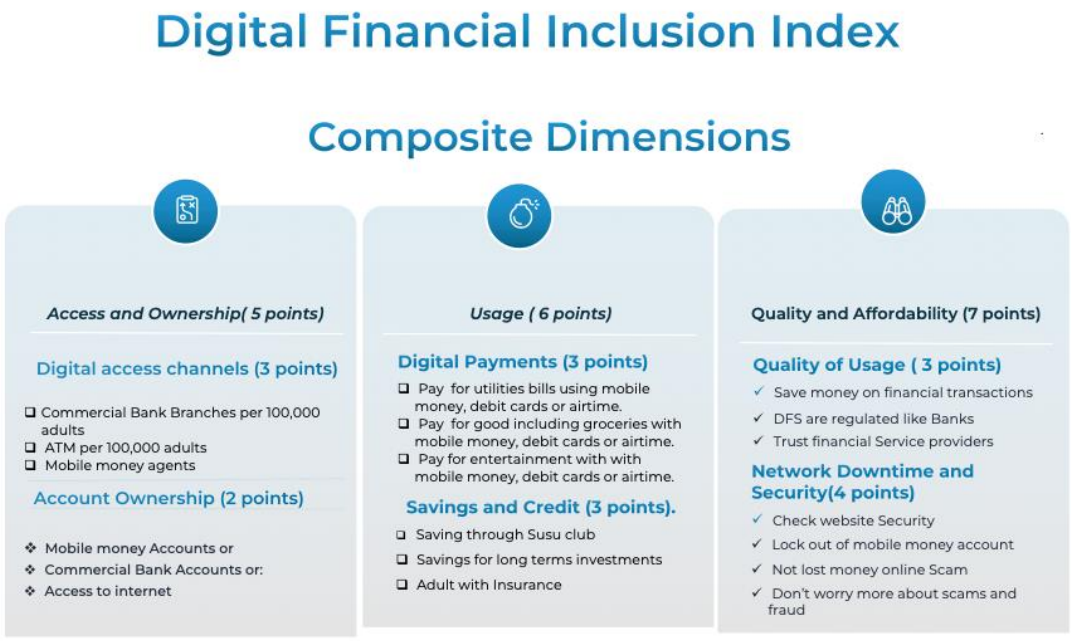

Figure 3: Digital financial Inclusion index and scoring framework.

4.7. Measurements- Digital Inclusion Index

Assessing digital inclusion in Liberia presents significant methodological challenges. Therefore, this study selected established national-level digital inclusion metrics, such as the Australian Digital Inclusion Index (AUS-DII), and relevant literature reviewed (Jia et al., 2024; Prescod, 2023; Sharp, 2022; Nielsen, 2019) to compare their consistencies and differences. Based on this analysis, a comprehensive measurement framework was developed to calculate the digital inclusion rate in Montserrado, Bomi, Grand Bassa, and Margibi counties in Liberia. The final framework incorporated five composite digital inclusion indicators and their sub-metrics: access (including affordability), digital device ownership, usage, digital skills, and acceptance.

Subsequently, the digital inclusion rate for the four counties was quantified by applying a Likert scale to convert ordinal survey responses into numerical values. Each respondent received a standardized score for each digital inclusion indicator: access, usage, digital device ownership, digital skills, and acceptance. Each dimension was measured on a 3- to 7-point Likert scale. The maximum attainable score was 19 points, representing the sum of the five measurement dimensions: access (6 points), usage (6 points), digital skills (4 points), and acceptance (3 points). A composite index score was calculated for Montserrado, Bomi, Margibi, and Grand Bassa counties to determine the digital financial inclusion rate and facilitate interpretation of the results. Figure 4 illustrates the scoring framework.

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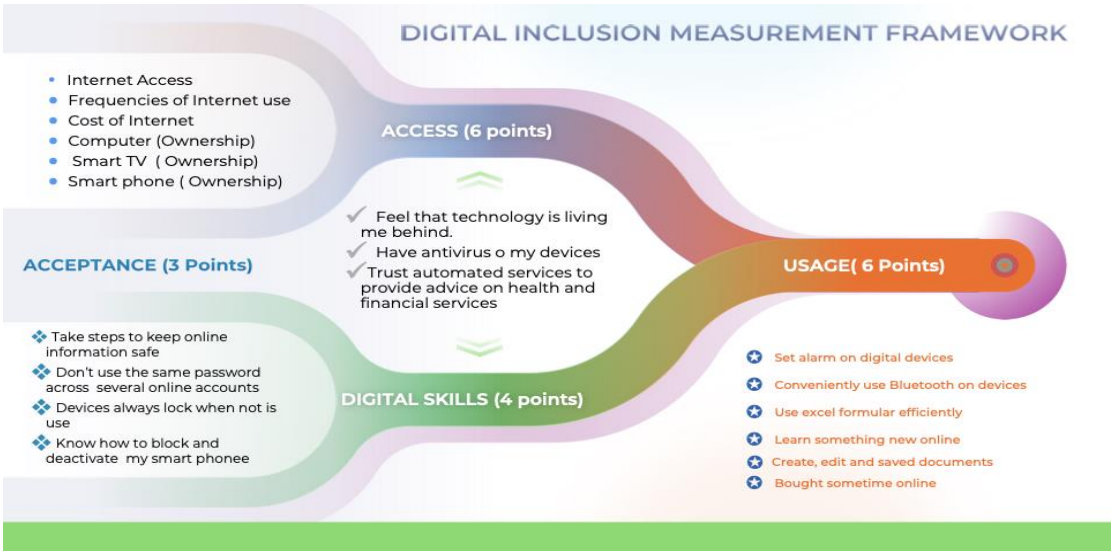

Figure 4: Digital Inclusion index and scoring framework

4.8. Data Analysis Method

To test the hypothesis and answer the research questions, collected data were analyzed using descriptive statistical methods, including descriptions of data features, computation of means, percentages to determine digital financial inclusion and digital inclusion rate for each county, as well as analysis of the subdivision of digital financial literacy.

Morgenthaler(2009) states that exploratory data analysis describes the act of looking at data to see what it seems to say, that is, investigating the datasets to summarize their main characteristics, spot anomalies, and uncover underlying patterns. Therefore, data Visualization tools such as bar charts, pie charts, histograms, and box plots were also used to explore and summarize patterns and trends across the study demographics and various counties in digital financial literacy, digital financial inclusion, and digital inclusion.

Thus, as put forward by Siregar (2025), while descriptive statistics summarize data characteristics and exploratory data analysis spot anomalies and uncover underlying data patterns, inferential statistics enable predictions and generalizations about populations based on sample data. Hence, inferential statistics were also used to draw conclusions, test hypotheses, and make predictions about the influence of the digital financial literacy index on digital financial inclusion and digital inclusion rate in the larger population. Statistical analyses were conducted using an Excel worksheet.

5.0 Results

5.1. Descriptive Statistics

The survey was administered in four counties in Liberia: Montserrado, Grand Bassa, Margibi, and Bomi. Of the 700 printed questionnaires distributed for face-to-face interviews, 54 (7.7%)

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were not returned, resulting in 646 (92.3%) completed questionnaires included in the final data set. Respondents were excluded if they did not meet the demographic eligibility criteria for participation. Table 1 summarizes the demographic characteristics of the study participants. The majority of respondents were female (49.38%) and under 44 years of age (67.1%). Furthermore, 64.9% resided in rural communities. The largest educational group held university degrees (36.1%), followed by those with a high school education (28%). Most participants were from Montserrado County (38.7%).

Table 1:*Demographic Data of Digital Financial Literacy Survey Respondents*

Variable	Respondents	
	n = 646	%
Gender		
Female	319	49.38
Male	303	46.90
Do not answer	24	3.72
Age		
15-24	227	35.1
25-34	207	32.0
35-44	111	17.2
45-54	40	6.2
55-64	25	3.9
65-74	16	2.5
75+	5	0.8
Do not answer	15	2.3
Population geographic density		
Urban	227	35.1
Rural	419	64.9
Counties		
Montserrado County	250	38.7
Margibi County	147	22.8
Bomi County	100	15.4
Grand Bassa County	149	23.1
Educational levels		
Postgraduate	50	7.7
University/degree-level	233	36.1
High School	181	28.1
Middle School	50	7.7
No formal Education	88	13.6
Do not answer	44	6.8

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5.2. Digital Financial Literacy Measurements (Index scores)

Statistical significance was assessed using a two-tailed Z-test at the 95% confidence level. However, statistical significance does not inherently indicate practical relevance. For comparison of overall scores, "low" was defined as 0-12 points, "moderate" as 13-26 points, "above average" as 27-39 points, and "high" as 40-50 points, based on a maximum of 52 points according to OECD digital financial literacy measurement metrics.

Table 2 below presents the mean overall scores for each county across four digital financial literacy metrics: digitalization, financial competencies, digital financial competencies, and digital financial services (DFS) outcomes, based on post-survey analysis. Montserrado County achieved the highest overall score, with 30.38 out of 52 points, indicating an above-average performance. Adults in Montserrado County demonstrated above-average digital financial literacy, with financial competencies and digital financial outcomes scores of 62% and 60%, respectively.

Margibi County recorded the second-highest score, with a moderate mean of 26.76 index points, followed closely by Bomi County at 24.43 index points. Grand Bassa County had the lowest overall score, with a moderate mean of 21.44. While Margibi, Bomi, and Grand Bassa counties fall within the moderate range, Montserrado County, situated in the capital Monrovia, exhibited an above-average mean score, likely attributable to the presence of university-educated working adults and students in the survey sample. These findings suggest considerable potential for increased adoption of digital financial services and enhanced awareness of associated safeguards.

Table 2: Digital Financial Literacy index scores in Four Areas for Counties Surveyed

County	Digitalization	Financial competencies	Digital financial competencies	Digital financial Services Outcomes	Total points	Index scores
Possible points	**18**	**13**	**9**	**12**	**52**	
Montserrado County	9.77	8.02	5.34	7.25	30.38	**Above-Average**
Margibi County	7.07	7.43	4.5	7.76	26.76	**Moderate**
Grand Bassa County	6.46	6.36	4.35	7.25	24.42	**Moderate**
Bomi County	6.17	6.44	3.4	5.43	21.44	**Moderate**

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Table 3 presents the differences in overall mean scores by gender and locality across the four counties. Urban communities generally exhibited higher mean index scores in all counties except Margibi, where rural areas demonstrated a higher mean index score than urban residents. The mean scores for the urban digital financial literacy metric in Margibi, Grand Bassa, and Bomi counties were moderate, while Montserrado County recorded an above-average mean score of 30.38 out of 52. Gender disparities were observed in all four counties, with men consistently achieving higher digital financial literacy mean index scores than women. Grand Bassa exhibited the largest gender gap in mean index scores. These findings indicate that urban residents have greater access to digital financial services, digital financial literacy education, and affordable internet connectivity than rural residents.

Table 3: ***Mean Total Scores by Gender and Locality***

County	Men	Women	Urban	Rural
Montserrado	30.83	29.93	30.38	-
Margibi	25.49	23	24.11	24.54
Grand Bassa	23.7	20.57	26.78	20.62
Bomi	27.41	26.4	26.93	27.63

The mean digital financial literacy index is higher among individuals possessing a university degree or higher, as well as among employed and self-employed respondents. **Table 4** summarizes these findings. Montserrado County records the highest mean scores for university and upper education levels (31.92), high school (29.23), and formally employed individuals (32.47). However, for middle schoolers, Margibi County achieved the highest digital financial literacy mean index score. The results presented in Table 4 can be attributed to the fact that formally employed individuals and those with postgraduate, university, or high school education generally have greater and more consistent access to formal digital financial services. This is due to factors such as proximity to mobile money agents, possession of salary accounts with commercial banks, educational level, access to free office Wi-Fi, increased opportunities to own digital devices, and frequent use of digital platforms.

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Table 4: Overall Mean Scores by Educational Attainment and Employment Status

County	University and Upper	High School	Middle school	Self employed	Employed
Montserrado	31.92	29.23	23.35	32.19	32.47
Margibi	28.48	27	25.13	26.41	27.74
Grand Bassa	25.43	25.22	22.28	23.8	28.08
Bomi	29.48	24.36	21	23.22	30.18

5.3. Digital Financial Inclusion Measurements (Metrics)

According to the digital financial inclusion index scores presented in **Table 5**, Montserrado County recorded a digital financial inclusion rate of 56.36%, which is 4.15% higher than the national average of 52.21%. Margibi County reported the second-highest rate at 50.44%, followed by Grand Bassa and Bomi Counties at 35.11% and 34.56%, respectively. The data further indicate that access and ownership scores in all four counties exceed their respective usage scores, highlighting the necessity for comprehensive digital financial literacy programs to improve Liberia's digital financial inclusion rate. Also, as illustrated in Table 7, mobile money access and ownership far exceed the digital financial usage, thus leading to higher vulnerable financial inclusion as opposed to actual meaningful digital financial inclusion in each county surveyed.

Table 5: Digital financial Inclusion rate (%) in Three Areas per Counties Surveyed

County	Access and ownership	Usage of Digital Financial Services	Quality and Security	Total points	Percentage % (Rate)
Possible points	5	6	7	18	***100%***
Montserrado County	4.17	2.3	3.68	10.15	56.39
Margibi County	3.18	2.2	3.7	9.08	50.44
Grand Bassa County	1.99	1.62	2.71	6.32	35.11
Bomi County	2	0.71	3.51	6.22	34.56

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Table 6 indicates digital and financial inclusion across the four counties by location and gender. Respondents residing in urban areas, particularly urban men, men aged 25 to 44 years, individuals with higher education, and those with higher incomes, particularly in Montserrado County, demonstrate higher digital financial inclusion rates when compared to women of the same socioeconomic class in all counties, except Bomi County, where women surpass men by 0.6%. These findings further demonstrate that marginalized and vulnerable groups are excluded from active participation in the digital economy due to limited digital financial literacy, as shown in **Tables 1 and 2** above.

Table 6: Digital financial Inclusion rate (%) by Locality and Gender

Variable	Urban	Rural	Men	Women
Montserrado	56.6	-	57.83	55.75
Margibi	52.6	44.72	51.55	49.40
Grand Bassa	50.48	32.40	41.46	31.24
Bomi	37.1	33.60	34.4	35.00

Table 7 demonstrates that access to and ownership of mobile money wallets in the four counties is generally high, enabling financial transactions and participation in the digital economy. However, relatively few individuals use these services regularly, which limits the overall rate of digital financial inclusion. Both individuals and businesses continue to rely primarily on cash for routine transactions, including groceries, dining, utility payments, and procurement of goods and services. Although current usage of digital financial services remains limited, digital financial literacy education programs are game changers for improving digital financial inclusion and creating both short- and long-term savings opportunities for Liberians.

Table 7: Digital Financial Products and Services ownership by County (%)

	Bank Accounts	Payment Card	Mobile Money
Montserrado	21.2	20.8	99.6
Margibi	6.1	5.44	94.6
Grand Bassa	18	8	61
Bomi	8	7	83

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5.4 Digital Inclusion Measurements (Rate).

Table 8 below presents the digital inclusion rates for Montserrado, Margibi, Grand Bassa, and Bomi counties in Liberia. Respondents answered three to six questions on a six-point Likert scale measuring access, digital skills, usage of digital devices, and acceptance. The maximum possible scores for access, digital skills, usage, and acceptance were 6, 4, 6, and 3, respectively. Montserrado County exhibited a digital inclusion rate of 58.61% (medium), with a total score of 11.13 out of 19 points. Despite this relatively high rate, most respondents in Montserrado indicated that technology is leaving them behind, resulting in a digital technology acceptance score of 33%, which is below average. Nevertheless, Montserrado's technology access and usage scores surpassed those of the other counties. Margibi County achieved the highest technology acceptance rate at 46%, followed by Bomi County. Grand Bassa County reported the lowest digital skills rate at 44% (low), while the other counties demonstrated above-average (medium) digital skills rates.

Table 8: Digital Inclusion rates (%) in Four Areas for Counties Surveyed

County	Access	Usage of Digital devices	Digital Skills	Acceptance	Total points	Percentage %
Possible points	6	6	4	3	19	100%
Montserrado County	3.82	3.77	2.56	0.98	11.13	58.58
Margibi County	3.19	2.15	2.46	1.39	9.19	48.37
Grand Bassa County	2.21	2.5	1.71	0.63	6.98	36.74
Bomi County	1.81	1.95	2.06	1.38	7.2	37.89

Across all four counties surveyed, as illustrated below in **Table 9**, rural areas demonstrate lower adoption rates of digital technologies, highlighting the need for digital financial literacy support programs in rural and semi-urban areas in Liberia. Margibi County is an exception, serving as an outlier in the data analysis. Respondents from rural areas in Bomi County report the lowest digital inclusion rate (29.2%), compared to Grand Bassa (31.92%) and Margibi (51.58%). Urban participants in Montserrado County exhibit a 58.6% rate of digital inclusion. In contrast, Bomi County participants report a 32.83% digital inclusion rate, underscoring a regional disparity in access to digital technologies, usage, skills, and acceptance.

Male respondents exhibit higher digital inclusion rates in Montserrado (59.25%), Margibi (51.57%), Grand Bassa (41.79%), and Bomi (34.26%) compared to female respondents,

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suggesting greater digital literacy among men across all four counties. Notably, female respondents in Montserrado County report a digital inclusion rate of 58.34%, which surpasses the rates observed among male respondents in Margibi, Grand Bassa, and Bomi Counties, depicting that the "haves" in urban areas in Liberia have higher digital financial literacy levels.

Table 9: Digital Inclusion Rate by Locality and Gender (%)

	Urban	Rural	Men	Women
Montserrado	58.58	-	59.25	58.34
Margibi	48.06	51.58	51.57	46.5
Grand Bassa	51.49	31.96	41.79	28.68
Bomi	32.83	29.2	34.3	26.44

Table 10 indicates a substantial disparity in digital inclusion rates across age groups. Young adults aged 15–34 exhibit the highest inclusion scores, ranging from 54.3% to 37.65%. Prime-age adults demonstrate consistently high usage. In contrast, older adults aged 65 and over show markedly lower rates in Grand Bassa (16.92%) and Bomi County (17.54%), but significantly higher rates in Montserrado (63%) and Margibi County (52.63%). Montserrado County, which encompasses the capital city, Monrovia, reports higher digital inclusion rates across all age groups (15–75) than the other three counties.

Table 10: *Digital Inclusion metrics in Four Areas by Age categories*

County	15-24	25-34	35-44	45-54	55-64	65-75
Montserrado	54.3	52.45	54.43	56.14	44.73	63.00
Margibi	52.53	50.57	47.37	36.36	49.12	52.63
Grand Bassa	48.01	32.16	45.2	28.51	17.81	16.92
Bomi	37.65	31.29	22.37	26.15	35	17.54

Table 11 below demonstrates that digital inclusion rates are closely associated with educational attainment and employment status, increasing with higher levels of education and active employment across all four counties. Individuals possessing university degrees or formal employment exhibit elevated digital inclusion rates in Montserrado, Margibi, Grand Bassa, and Bomi counties. Conversely, individuals with limited education or who are unemployed

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experience significant disparities. Employed individuals in Montserrado (61.55%), Margibi (54.05%), Grand Bassa (58.33%), and Bomi (43.06%) display high digital inclusion rates, likely due to factors such as workplace access, digital communication requirements, and higher income levels facilitating digital connectivity and higher income levels to own smartphones, computers, smart TVs, and tablets.

Table 11*: Digital Inclusion rate (%) by educational attainment and Work Status*

Variable	Middle School	High School	University/ Postgraduates	Self employed	Formally Employed
Montserrado	38.6	52.30	62.77	59.67	61.55
Margibi	40.84	52.53	55.91	43.42	54.05
Grand Bassa	31.87	40.16	54	43.76	58.33
Bomi	15.78	33.08	38.01	22.42	43.06

6.0. Discussion of Results.

This paper investigates the influence of digital financial literacy on digital financial inclusion and the existing digital divides in Montserrado, Margibi, Grand Bassa, and Bomi counties in Liberia. The study underscores the increasing significance of digital financial literacy within Liberia's digital financial sector. By analysing the relationships among digital financial literacy, digital financial inclusion, and digital inclusion, this research provides empirical evidence demonstrating that digital financial literacy positively influences both digital financial inclusion and digital inclusion in Liberia.

The study hypothesizes that digital financial literacy influences comprehensive digital financial inclusion and serves as a mediating factor in bridging the digital divide among demographic groups in Bomi, Margibi, Grand Bassa, and Montserrado counties in Liberia. These hypotheses were tested using data collected from survey questionnaires and applying the OECD digital financial literacy measurement tool, a 3- to 7-point Likert scale adapted from the Australian Digital Inclusion Index (AUS-DII), and the WFP digital financial inclusion measurement scale to determine the digital financial literacy index, digital financial inclusion rate, and digital inclusion rate across all four counties.

Discussion of the study results is subdivided into two main sections: The first examines the results for RQ1 and H1: digital Financial Literacy as a driver of comprehensive digital financial

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Inclusion in Liberia, and the second investigates RQ2 and H2: digital financial literacy as a moderating variable in bridging the digital divide gap in Liberia.

6.1 Digital Financial Literacy as a driver of comprehensive digital financial Inclusion in Liberia.

The results presented in **Table 2-7** indicate that digital financial literacy is directly and positively associated with digital financial inclusion in Montserrado, Margibi, Grand Bassa, and Bomi counties in Liberia, enhancing adoption, trust, and secure use of mobile and online financial tools. The findings revealed that individuals in all four counties who demonstrate digital and financial literacy are more likely to understand digital platforms, manage finances effectively, and avoid cyber scams, thus heightening Liberia's overall digital financial inclusion. Moreover, Tables 2-7 suggest that increases in the digital financial literacy index within each county correspond to higher levels of the digital financial inclusion rate (see Figure 3 below). For instance, in Montserrado County, an above-average level of digital financial literacy corresponds to an above-average level of the digital financial inclusion rate. Similarly, Bomi County exhibits both a moderate level of digital financial literacy mean index scores and a moderate rate of digital financial inclusion, as illustrated in Figure 5 below.

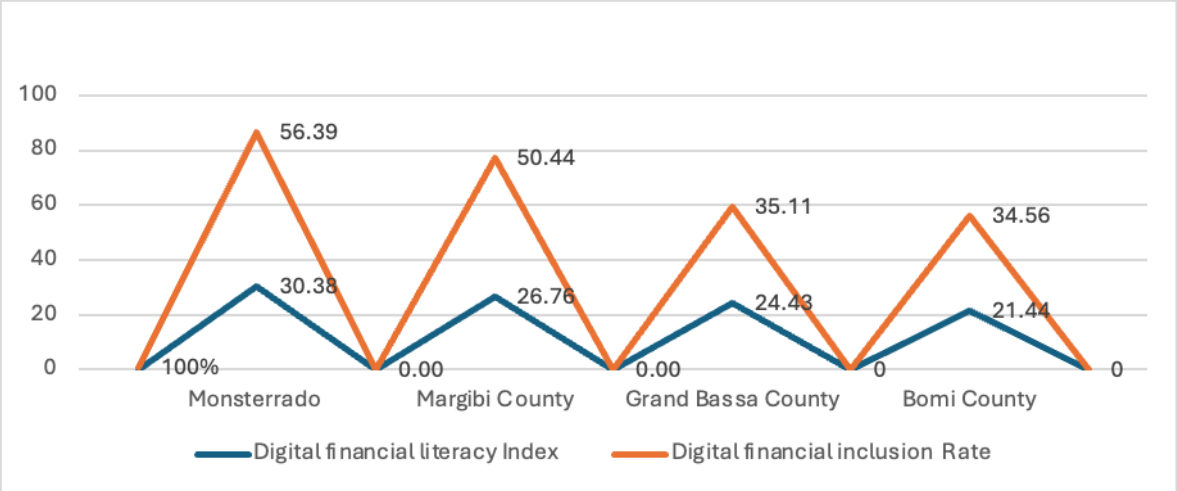

Figure 5: Association between digital financial literacy index and Digital financial inclusion rate

The study results confirm that mobile account ownership does not necessarily lead to the use of digital financial services without digital financial literacy educational programs. Although 84.55% of respondents (Table 7) possess MTN Momo and Orange Money accounts, only 28.5% (Table 5) utilize these accounts for transfers, grocery purchases, utility bill payments, or entertainment. This demonstrates that accessibility alone is insufficient for achieving comprehensive digital financial inclusion in Liberia. The effectiveness of digital financial inclusion in Liberia is therefore contingent on users' digital financial literacy and educational level.

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Additionally, the findings indicate that digital financial inclusion rates in the four counties are strongly correlated with educational attainment and employment status, with higher rates observed among individuals with secondary or higher education and those in wage employment, particularly in Montserrado and Margibi counties. Conversely, individuals with only primary education or those who are unemployed experience significant gaps in digital financial inclusion in the surveyed counties. Finally, the findings reveal that marginalized groups in rural areas, such as Bomi and Grand Bassa counties, exhibit lower digital financial inclusion compared to the more privileged cohort residing in urban areas of Montserrado and Margibi counties, as a result of low digital financial literacy in these areas.

6.2 Digital Financial Literacy as a Moderating Variable in Bridging the Digital Divide Gap in Liberia.

The study identified substantial new insights regarding digital inclusion in Liberia. Results presented in **Tables 2, 8, 9, 10, and 11** indicate that digital financial literacy is directly and positively associated with digital inclusion in Montserrado, Margibi, Grand Bassa, and Bomi counties. This association improves adoption and serves as a critical moderating variable in bridging the digital divide in Liberia. The findings further indicate that counties with an above-average level of digital financial literacy mean index score, such as Montserrado, exhibit above-average levels of digital inclusion. This pattern suggests a positive correlation between digital financial literacy and digital inclusion. Higher digital financial literacy is associated with enhanced digital skills, which increase acceptance of and trust in digital platforms and help narrow the digital divide in Liberia. In contrast, individuals in Bomi and Grand Bassa, where the digital financial literacy mean index score is moderate, demonstrate correspondingly moderate rates of digital inclusion, as shown in Figure 6 below.

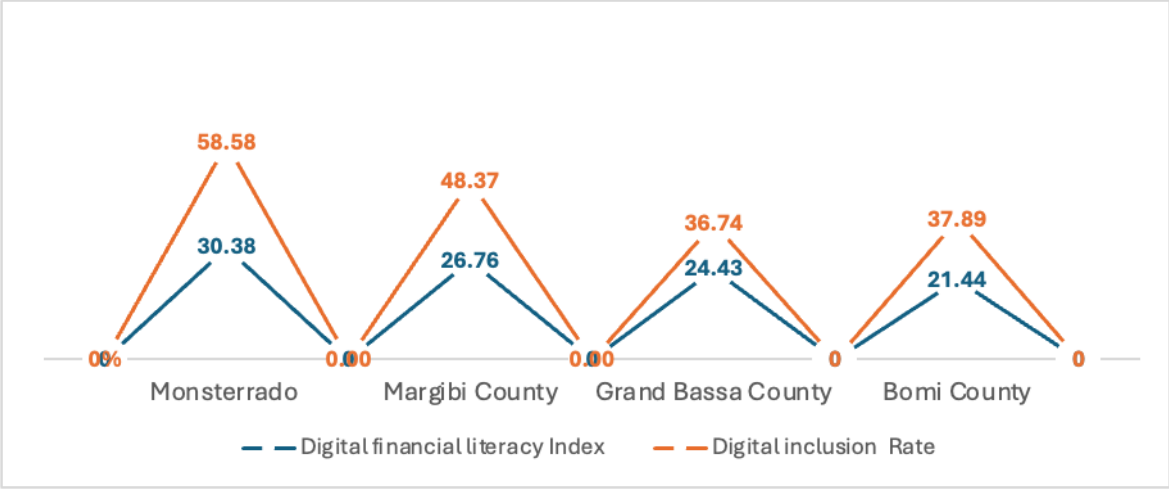

Figure 6: Shows the correlation between digital financial literacy index and Digital inclusion rate in Montserrado, Margibi, Grand Bassa and Bomi counties in Liberia.

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The results presented in Tables 8-11 demonstrate that digital inclusion is unevenly distributed across Montserrado, Margibi, Grand Bassa, and Bomi counties in Liberia. Marked disparities are evident in digital skills, access, and technology use among underprivileged communities. Wealthier, younger, more educated, employed, and urban populations exhibit significantly higher levels of digital inclusion. In all four counties, digital inclusion is primarily determined by educational attainment, income level, and the geographic concentration of socioeconomic disadvantage, with Montserrado County being particularly affected. In contrast, rural residents in Bomi and Grand Bassa counties face increasing marginalization within the expanding Liberian digital economy due to low digital financial literacy indices. Enhancing digital financial literacy is therefore critical for bridging the digital divide and improving access to and use of digital technologies throughout Liberia.

6.3 Summary of the Research Hypothesis and findings

6.3.1 Research Hypothesis **(H1)**

H1o: Digital financial literacy does not influence full-scale digital financial inclusion amongst demographics in Bomi, Margibi, Grand Bassa, and Montserrado counties in Liberia

H1a: Digital financial literacy influences full-scale digital financial inclusion amongst demographics in Bomi, Margibi, Grand Bassa, and Montserrado counties in Liberia

The study demonstrates that digital financial literacy is directly and positively associated with digital financial inclusion in Montserrado, Margibi, Grand Bassa, and Bomi counties in Liberia. An increase in the digital financial literacy index within each county corresponds to higher levels of digital financial inclusion. Hence,the study findings fully support H1a, indicating that digital financial literacy is directly and positively associated with digital financial inclusion in Montserrado, Margibi, Grand Bassa, and Bomi counties in Liberia. Therefore, digital financial literacy is identified as a necessary factor for comprehensive digital financial inclusion in Liberia. Accordingly, the alternative hypothesis **(H1a)** is accepted, and the null hypothesis **(H1o)** is rejected.

6.3.2 Research Hypothesis **(H2)**

H2o: There is no mediating effect of digital financial literacy on bridging the digital divide gap in Bomi, Margibi, Grand Bassa, and Montserrado counties in Liberia.

H2a: Digital financial literacy mediates the relationship between digital inclusion and the digital divide gap in Bomi, Margibi, Grand Bassa, and Montserrado counties in Liberia.

The research findings indicate that digital financial literacy is directly and positively associated with the digital inclusion rate in Montserrado, Margibi, Grand Bassa, and Bomi counties, Liberia. An increase in the digital financial literacy index within each county corresponds to higher levels of digital financial inclusion. These results fully support **H2a**, demonstrating that digital financial literacy serves as a mediating variable in bridging the digital divide gap in

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Liberia. Consequently, the alternative hypothesis **(H2a)** is accepted, while the null hypothesis **(H2o)** is rejected.

7.0. Conclusion.

This study examined the impact of digital financial literacy on digital financial inclusion and digital inclusion in Liberia. The digital financial literacy index, digital financial inclusion, and digital inclusion rate were calculated using the OECD digital financial literacy measurement tool and a 3-7 Likert scale to assess whether digital financial literacy is a critical enabling factor for digital financial inclusion and digital inclusion in Montserrado, Margibi, Grand Bassa, and Bomi counties. Data were collected through a face-to-face survey, resulting in a final sample of 646 participants.

The findings indicate that digital financial literacy significantly influences both digital financial inclusion and digital inclusion in the four surveyed counties. Results demonstrate a direct and positive association between digital financial literacy and these inclusion measures. The study results also show that education level, employment status, geographical location, and gender significantly affect the digital financial literacy index. These results underscore the importance of digital financial literacy educational programs in shaping Liberia's digital financial inclusion rate and addressing digital divide gaps.

Therefore, the outcomes of this study suggest that the government of Liberia, in collaboration with development partners and digital financial services providers, should implement nationwide digital financial literacy awareness campaigns, educational programs, and institutional frameworks to enhance the country's digital financial inclusion rate and reduce digital divide gaps.

8.0. Policy Recommendations.

Based on study analysis, results discussion, literature synthesis, theoretical frameworks, and policy findings, this research presents strategic policy recommendations to strengthen nationwide digital financial literacy education, awareness campaigns, and institutional programs in Liberia. These recommendations are intended to enhance digital financial inclusion, reduce digital divide gaps, and promote an inclusive financial system that supports Liberia's economic growth, poverty reduction, and the achievement of the Government of Liberia's ARREST AGENDA 2026-2030.

8.1. Development of a National Digital Financial Literacy Index

Variations in scores across target demographics, gender, and urban and rural locations indicate the necessity for targeted, nationwide interventions informed by data that can be readily disaggregated and collected.

Therefore, it is recommended that the Government of Liberia, through the Central Bank of Liberia, conduct a nationwide digital financial literacy survey utilizing the OECD (2022)

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methodology. This survey should measure digital financial literacy across all demographics in all fifteen counties to establish a dedicated Digital Financial Literacy Index for Liberia. The index would provide a baseline and serve as a key tool for monitoring and evaluating policy interventions, national performance indicators, and progress in digital financial literacy educational programs, awareness campaigns, and institutional framework development.

8.2 National Digital Financial Literacy Educational Road Map

The Central Bank of Liberia has prioritized financial inclusion through national financial education programs as a strategic objective. In collaboration with various development partners, the Central Bank has implemented a range of digital and financial literacy initiatives targeting unbanked and underserved populations in vulnerable regions. However, given the evolving dynamics of the Liberian financial system, the government's digital transformation agenda under the ARREST AGENDA, and the expansion of digital financial services, it is essential to revitalize existing fragmented programs and integrate recent advancements in the digital economy.

Accordingly, this study recommends that the government of Liberia, through the Central Bank of Liberia, develop a national digital financial literacy roadmap to address the limitations of current fragmented interventions, including generic content, restricted outreach, and isolated implementation. The proposed roadmap should focus on diversification, institutionalization, and sustainability, as explained below.

8.2.1 Diversification

The diversification strategy should employ both digital and in-person channels to promote digital financial literacy campaigns in rural and low-income communities across all 15 counties in Liberia, ensuring that content is tailored to the specific needs of various target groups.

8.2.2. Institutionalization

A digital financial literacy collaborative government structure should be institutionalized, involving the Central Bank of Liberia, the Ministry of Education, the Telecommunications Authority (LTA), digital financial services providers, international development partners, NGOs, civil organizations, and media. This ecosystem approach will foster both inclusivity and accountability in digital financial literacy educational programs, awareness campaigns, and the institutional framework.

Accordingly, a dedicated centre for digital financial literacy should be established, serving as a centralized hub to consolidate all related activities and prevent fragmentation. This centre would collaborate with digital financial service providers and the Liberia Telecommunications Authority to design user-friendly platforms accessible to individuals with limited digital experience, offering localized support and language options to enhance trust and usability.

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Additionally, commercial banks should use data analytics to develop customized financial products for marginalized and unbanked populations and invest in mobile banking infrastructure to expand nationwide reach and affordability. The center should also coordinate with NGOs and international development partners to minimize duplication of efforts.

8.2.3 Sustainability.

For long-term sustainability, the roadmap should integrate digital financial literacy content into curricula at the primary, secondary, and tertiary education levels. The Ministry of Education, in coordination with the Central Bank of Liberia, should develop detailed digital financial literacy student learning outcomes from first grade to sophomore level to be used as guidelines for preparing model chapters and supplementary learning materials.

8.3. Legal. Regulatory and Policy Environment

Despite the expansion of the digital financial services market and the associated consumer protection risks in Liberia, existing frameworks, policies, and interventions in Liberia's digital economy remain outside the institutional mandates and operational focus of regulatory and supervisory authorities. The legal, regulatory, and policy environment remains underdeveloped, primarily due to inadequate consumer protection laws, ineffective redress mechanisms for holding digital financial services providers accountable, the lack of a regulatory and policy framework targeting digital financial literacy initiatives, limited supervisory capacity, and overlapping regulatory and policy responsibilities.

Consequently, this study recommends establishing a comprehensive legal, regulatory, and policy framework for digital financial literacy that integrates digital financial literacy with digital security, consumer protection, digital financial inclusion, and broader digital inclusion strategies. Embedding digital financial literacy within a national legal, regulatory, and policy framework would facilitate the prioritization of digital financial literacy, enable effective resource allocation, enhance stakeholder coordination, and support the integration of cross-institutional policies.

8.4 Digital Financial Literacy Evaluation Impact and Institutional Incentives Programs

Digital financial literacy indicators should be integrated into national digital financial inclusion dashboards to evaluate the impact of digital financial literacy educational initiatives on economic growth, poverty reduction, and financial system stability. Institutions that improve these indicators should be incentivized through policy measures, corporate social responsibility support, or public-private partnerships to sustain investment in digital financial literacy educational programs, awareness campaigns, and institutional frameworks.

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9.0. Research Limitations

The present study demonstrates a direct and positive association between digital financial literacy, digital financial inclusion, and digital inclusion among individuals in Montserrado, Margibi, Grand Bassa, and Bomi counties. However, the extent to which these findings can be generalized to the broader populations of these counties or to Liberia as a whole remains uncertain. Therefore, several limitations of the research must be acknowledged.

First, the sample size and the specific data collection locations may limit the generalizability of the results, as additional patterns could emerge with a more diverse respondent pool. Second, reliance on self-reported data introduces the possibility of bias due to social desirability or subjective perceptions related to the constructs measured. Finally, manual data entry and calculation of the digital financial index, digital financial inclusion, and digital inclusion rate using a Microsoft Excel worksheet may have introduced human error, including typographical mistakes and mathematical inaccuracies.

Conflict of Interest Statement

The authors declare that there are no conflicts of interest regarding the research, authorship, or publication of this article.

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This research paper is affectionately dedicated to my *daughter*, **Davida Davonie Hope Kanu,** on the occasion of her *fifteenth birthday*, March 5, 2026, a milestone I was unable to attend. May this occasion mark the beginning of a lifetime characterized by godliness, purity, holiness, intellectual curiosity, resilience, and a continual pursuit of the knowledge of God. As you enter this new chapter, may you always have the courage to ask important questions, the patience to seek answers, and the strength to pursue the will of God for your life. D-Baby #1, Daddy loves you always and forever.

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References

Abbas, J., Balsalobre-Lorente, D., Amjid, M. A., Al-Sulaiti, K., Al-Sulaiti, I., & Aldereai, O. (2024). Financial innovation and digitalization promote business growth: The interplay of green technology innovation, product market competition and firm performance. Innovation and Green Development, 3(1), 100111. https://doi.org/10.1016/j.igd.2023.100111Get rights and content

Adekoya, O. D. (2025). Reframing Human Capital: The Strategic Role of Digital Literacy in 21st Century Workforce Development. Electronic Journal of Business and Management, 10(3), 15–22. https://doi.org/10.65136/ejbm.v10i3.18

Adel, N.(2024).The impact of digital literacy and technology adoption on financial inclusion in Africa, Asia, and Latin America. . Heliyon, 10(24). https://doi.org/10.1016/j.heliyon.2024.e40951Get rights and content

Ahman, M.M., Sadik, N.(2025). Nexus of digital financial service adoption, decent work and environmental sustainability: results from SEM-NCA approaches. Discov Sustain 6, 164 (2025). https://doi.org/10.1007/s43621-025-00972-w

Ajai, O.O. (2025). Bridging the Financial Inclusion and Digital Divide in Africa: Insights and Reflections on Business and Human Rights. In: Ashukem, JC.N. (eds) Handbook on Business, Human Rights, and the Environment in Africa. Springer, Cham. https://doi.org/10.1007/978-3-032-03261-4_6

Al-Afeef, M.A., Alsmadi, A.A. Digital empowerment: unraveling the impact of digital literacy on financial mastery. Discov Sustain 6, 311 (2025). https://doi.org/10.1007/s43621-025-01137-5

Alamelu, K. (2013). Digital inclusion-a conceptual framework. International Journal of Advanced Research in Management and Social Sciences, 2(12), 228-248.https://www.garph.co.uk/IJARMSS/Dec2013/17.pdf

Al-Shami, S. A., Damayanti, R., Adil, H., & Farhi, F. (2024). Financial and digital financial literacy through social media use towards financial inclusion among batik small enterprises in Indonesia. Heliyon, 10(15). https://doi.org/10.1016/j.heliyon.2024.e34902

Alliance for Financial Inclusion(AFI).(2021(a).Digital Financial Literacy Tool Kit.AFI's Guidance Note on Digital Financial Literacy. Available online- https://afi-global.org/wp-content/uploads/2024/10/AFI_DFS_Literacy_Toolkit_V5_29July.pdf Access June 15, 2026.

Alliance for Financial Inclusion(AFI(b).(2021, May).Digital Financial Literacy Guideline Note. Retrieved online. https://afi-global.org/publication/digital-financial-literacy/ (access on January 5, 2026).

Alliance for Financial Inclusion(AFI(c).(2014, October 14).Digital Financial Services: Promoting Financial Inclusion. Available online :https://afi-global.org/event/digital-financial-services-promoting-financial-inclusion/ access February 14, 2026.

Álvarez-Espiño, M., Fernández-López, S., Rey-Ares, L., & Rodríguez-Gulías, M. J. (2026). Digital Financial Inclusion and Financial Vulnerability: An Exploratory Analysis of Spanish Households. Journal of Risk and Financial Management, 19(3), 175. https://doi.org/10.3390/jrfm19030175

American Psychological Association. (1972). Ethical standards of psychologists. Washington, DC: American Psychological Association.

Amirul, S.R., Amirul, S.M., Mail, R.,& Abu Bakar, M.A.A.(2025, January 8).Financial Literacy Beyond Numbers: Human Capital Intervention for Micro-enterprise Sustainability. Faculty of Business, Economic and Accountancy, Universiti Malaysia Sabah. https://dx.doi.org/10.47772/IJRISS.2024.8120162

Amankwah-Amoah J, Khan Z, Wood G, Knight G.(2021). COVID-19 and digitalization: The great acceleration. J Bus Res. 2021 Nov;136:602-611. doi: 10.1016/j.jbusres.2021.08.011. Epub 2021 Aug 11. PMID: 34538980; PMCID: PMC8437806. https://pmc.ncbi.nlm.nih.gov/articles/PMC8437806/

Anakpo, G., Xhate, Z., & Mishi, S. (2023). The Policies, Practices, and Challenges of Digital Financial Inclusion for Sustainable Development: The Case of the Developing Economy. FinTech, 2(2), 327-343. https://doi.org/10.3390/fintech2020019

Ananzeh,E.A., Khalaf,L.& Khalawi, D. (2025). The role of Fintech and financial inclusion in the economic development of countries: A comparative analysis. Banks and Bank Systems, 20(1), 248-258. doi:10.21511/bbs.20(1).2025.20

Arendse, E., & Van Den Berg, C. (2024, May). Exploring the barriers to digital financial inclusion amongst businesses in the informal sector. In 2024 IST-Africa Conference (IST-Africa) (pp. 1-11). IEEE.DOI: 10.23919/IST-Africa63983.2024.10569289

Augustine,A.(2023, July 13).The Limits of Accelerating Digital-Only Financial Inclusion. Available online:https://carnegieendowment.org/research/2023/07/the-limits-of-accelerating-digital-only-financial-inclusion access June 24 . Access on April 13, 2026.

Atkinson, A. (2021). Measuring digital and financial literacy globally: Questionnaire and Implementation Guidance. Social Policy, Sociology and Criminology. https://research.birmingham.ac.uk/en/publications/measuring-digital-and-financial-literacy-globally-questionnaire-a/

Astuti, S., Hamied, F. A., & Muslim, A. B. (2025). The digital reading literacy of Indonesian pre-service English teachers: What do lecturers say?. Journal of Research in Instructional, 5(1), 323-337. https://doi.org/10.30862/jri.v5i1.622.

Badda, A. (2025). Technology Acceptance Model (TAM): Literature Review. International Journal of Accounting Finance Auditing Management and Economics, 6(11), 459-492.https://doi.org/10.5281/zenodo.17450768.

Bandura, R.(2022, July 18).The Digital Literacy Imperative. Available online-
https://www.csis.org/analysis/digital-literacy-imperative Access on July 1, 2026.

Banik, B., & Roy, C. K. (2023). Measuring fintech-driven financial inclusion for developing countries: Comprehensive Digital Financial Inclusion Index (CDFII). Economic Journal of Emerging Markets, 143-159.https://doi.org/10.20885/ejem.vol15.iss2.art3

Barnoyevna, E. M. (2025). Human Capital approach to developing finnacila literacy in the digital era. TADQIQOTLAR, 76(6), 62-65. https://journalss.org/index.php/tad/article/view/11966

Basnayake, D., Naranpanawa, A., Selvanathan, S., & Bandara, J. S. (2024). Financial inclusion through digitalization and economic growth in Asia-Pacific countries. International Review of Financial Analysis, 96, 103596. https://doi.org/10.1016/j.irfa.2024.103596.

Vol. 10, No.08; 2026

ISSN: 2456-7760

Blaney,B.(2025, August 11).2024 Digital Financial Inclusion Statistics Report. Available online-https://tipalti.com/blog/digital-financial-inclusion/ Access date April 10, 2026.

Bongomin,O.C., Akol Malinga, C., Manzi Amani, A., & Balinda, R. (2025). Recalibrating the scope of financial inclusion through financial technologies in the digital age: the role of digital literacy as a moderator in rural Uganda. Information Technology & People, 38(3), 1178-1207. https://doi.org/10.1108/ITP-09-2022-0732

Bynner, J., Reder, S., Parsons, S., & Strawn, C. (2008). The Digital Divide: Computer Use, Basic Skills and Employment. A Comparative Study in Portland, USA and London, England. Research Summary. http://dera.ioe.ac.uk/22500/.

Carinah, R.(2026,July 5). Monrovia: Central Bank of Liberia consults stakeholders on phase two of the National Financial Education Program. Available online: https://www.capmad.com/post/monrovia-central-bank-of-liberia-consults-stakeholders-on-phase-two-of-the-national-financial-education-program. Access on July 17, 2026

Central Bank of Liberia(CBL).(2025, December 16).Liberia Advances Toward Cashless Future with Launch of Inclusive Instant Payment System (IIPS). Available online:https://www.cbl.org.lr/index.php/media/features-articles/liberia-advances-toward-cashless-future-launch-inclusive-instant-payment Access on April 15, 2026

CGAP.(2024, December). G20 Policy Options for Financial Inclusion at the Last Mile. Available online-https://www.cgap.org/research/publication/g20-policy-options-for-financial-inclusion-last-mile Access date April 16, 2026.

Chetty , K., Liu, Q., Wenwei, L., Josie, J.,Gcora, N., & Shenglin, B.(2017).Bridging the Digital Divide: Measuring Digital Literacy. 2017 G20 POLICY BRIEF. Available online https://www.global-solutions-initiative.org/wp-content/uploads/2025/03/Digital_Bridging-the-Digital-Divide-Measuring-Digital-LiteracyII.pdf Access on July 7, 2026

Chhillar, N., Arora, S., & Chawla, P. (2024). Measuring digital financial literacy: Scale development and validation. Thailand and The World Economy, 42(1), 110-145. retrieved from https://so05.tci-thaijo.org/index.php/TER/article/view/270077

Chibesa, K., & Mwange, A. (2025). The Role of Digital Financial Literacy in Enhancing Financial Inclusion Among Informal Entrepreneurs in Zambia. East African Finance Journal, 4(1), 141-146. https://ideas.repec.org/a/cwk/eafjke/2025-08.html

Choung, Y., Pak, T. Y., & Chatterjee, S. (2025). Digital financial literacy and life satisfaction: Evidence from South Korea. Behavioral Sciences, 15(1), 94.

Dandi, M. (2026). Digital financial literacy in the FinTech era: A PRISMA-guided systematic literature review. Journal of Financial Literacy, 1(1), 33-56. https://journal.privietlab.org/index.php/JFL/article/view/1868

Dasgupta, S. S. (2013). Cyber capability framework: A tool to evaluate ICT for development projects. In Handbook of Research on ICTs for Human-Centered Healthcare and Social Care Services (pp. 399-406). IGI Global Scientific Publishing. https://www.igi-global.com/dictionary/digital-divide/7600

Davis, F. D. (1987). User acceptance of information systems: the technology acceptance model (TAM) (Vol. 529). University of Mich., School of Business Administration, Division of Research.https://www.researchgate.net/publication/30838394_User_acceptance_of_information_systems_the_technology_acceptance_model_TAM

Demirgüç-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2022). The Global Findex Database 2021: Financial inclusion, digital payments, and resilience in the age of COVID-19. World Bank Publications. https://doi.org/10.1596/978-1-4648-1897-4.

Elatt.(2024, February 13). Digital Literacy in Today's World: How ELATT is Bridging the Gap. Available online https://elatt.org.uk/news/digital-literacy-today/ Access date April 20, 2026.

Epstein, D. (2011). The analog history of the "digital divide.". The long history of new media: Technology, historiography and contextualizing newness, 127-144. http://www.thinkmacro.org/wp-content/uploads/2015/10/Epstein-DigDivHistories-2009.pdf

Fatokun, A.(2024, December).Inclusive digital transformation: Ensuring no one is left behind. Available online - https://public.digital/pd-insights/blog/2024/12/inclusive-digital-transformation-ensuring-no-one-is-left-behind. Access on July 4, 2026

Fareed, F., Huayta-Zapata, K., Nguyen-Xuan, D., & Segoviano, M. (2025). Financial access survey: Fintech, a Catalyst for Financial Services Access. Innovation, and Growth. International Monetary Fund. https://data.imf.org/en/datasets/IMF.STA:FAS

Fintech Times.(2025, December 21).Central Bank of Liberia Launches Inclusive Instant Payments System Powered by Mojaloop.Available online . https://thefintechtimes.com/central-bank-of-liberia-launches-inclusive-instant-payments-system-powered-by-mojaloop/ (Access on February 11, 2026).

Frimpong, S. E., Agyapong, G., & Agyapong, D. (2022). Financial literacy, access to digital finance and performance of SMEs: Evidence From Central region of Ghana. Cogent Economics & Finance, 10(1). https://doi.org/10.1080/23322039.2022.2121356

Front Page Africa(FPA).(2026, July 3). Liberia: CBL Holds Engagement With Stakeholders On Plan for Second Phase of National Financial Education. Available online: https://allafrica.com/stories/202607030346.html Access on July 17, 2026

Fuhnwi, J.(2026, June 24).Seventy-three days changed how money moves in Liberia. Available online:https://africanenda.org/seventy-three-days-change-how-money-moves-in-liberia/ Access on July 17, 2026.

Garces, P. (2022). Modelling Amartya Sen's Capability Approach: an interdisciplinary and contemporary account. Philosophical Readings-Online Journal of Philosophy–ISSN 2036-4989, 14(2). https://doi.org/10.5281/zenodo.7030271

Ghanad, A. (2023). An Overview of Quantitative Research Methods. International Journal of Multidisciplinary Research and Analysis, 6, 3794-3803.
https://doi.org/10.47191/ijmra/v6-i8-52

Global Democracy Coalition(GDC).(2025, March 26).Media and Digital Literacy Training in Kakata, Margibi County, Liberia. Available online-https://globaldemocracycoalition.org/media-and-digital-literacy-training-in-kakata-margibi-county-liberia/ Access on July 5, 2026.

Gopinath, M. (2018). Thinking about later life: insights from the capability approach. Ageing international, 43(2), 254-264.International Journal of Political Science (IJPS).Volume 3, Issue 2, 2017, PP 47-53:ISSN 2454-9452. https://doi.org/10.1007/s12126-018-9323-0

Vol. 10, No.08; 2026

ISSN: 2456-7760

Goswami,M.(2025, January 30). What is Digital Literacy and Why is it Essential for Today's Youth? Available online: https://asanteafrica.org/what-is-digital-literacy/ Access on April 20, 2026.

Global Partnerships for financial inclusions (GPFI). (2016).G20 Financial Inclusion indicators. Available online: https://www.gpfi.org/sites/default/files/documents/G20%20Financial%20Inclusion%20Indicators%20%282016%20Update%29.pdf. Access on July 19, 2026.

Gudipati, K., Kaur, G., Ji, C., Mokashi, M. K., Bhoite, S. P., & Ingole, P. K. (2025). FinTech-Enabled Microfinance for Last-Mile Communities: A Pathway Toward SDG 1 and SDG 8. Enterprise Development and Microfinance, 35(2), 113-125. https://doi.org/10.3362/edm.v35i2.562

Gulati, M. T., Singla, A., & Saini, P. (2025). Digital financial literacy and digital finance usage: A systematic literature review and bibliometric analysis. Journal of Informatics Education and Research, 5.

Gumilar, D. W. A., Sangka, K. B., & Totalia, S. A. (2024). Digital financial literacy and digital financial inclusion in the era of digital disruption: Systematic literature review. Formosa Journal of Multidisciplinary Research, 3(5), 1563 1576. https://doi.org/10.55927/fjmr.v3i5.9213

Guo, D., Ogbodo, J.N.(2026). Bridging the digital divide: a comparative study of digital literacy and access in rural communities in China and Nigeria. Humanit Soc Sci Commun 13, 243 (2026). https://doi.org/10.1057/s41599-026-06553-0

Guo, B & Guo, J.(2025).The digital divide and household risky financial investments in China, International Review of Economics & Finance, Volume 104, 2025, 104565, ISSN 1059-0560,https://doi.org/10.1016/j.iref.2025.104565. (https://www.sciencedirect.com/science/article/pii/S1059056025007282)

Holden, L., & Biddle, J. (2017). The introduction of human capital theory into education policy in the United States. History of Political Economy, 49(4), 537-574. https://doi.org/10.1215/00182702-4296305

Hollimon, L. A., Taylor, K. V., Fiegenbaum, R., Carrasco, M., Garchitorena Gomez, L., Chung, D., & Seixas, A. A. (2025). Redefining and solving the digital divide and exclusion to improve healthcare: going beyond access to include availability, adequacy, acceptability, and affordability. Frontiers in digital health, 7, 1508686. https://doi.org/10.3389/fdgth.2025.1508686

Hox, J. J., & Boeije, H. R. (2005). Data collection, primary vs. secondary. In Encyclopedia of social measurement (Vol. 1). Elsevier. Available at https://docs.edtechhub.org/lib/JHLNYE8U.

Hu, S. (2023). Study Population. In: Maggino, F. (eds) Encyclopedia of Quality of Life and Well-Being Research. Springer, Cham. https://doi.org/10.1007/978-3-031-17299-1_2893

Huang, B., & Morgan, P.J. (2019). The Need to Promote Digital Financial Literacy for the Digital Age. https://www.semanticscholar.org/paper/The-Need-to-Promote-Digital-Financial-Literacy-for-Huang-Morgan/b127e06d2c46ccf536f658a1313930608e92e983

Huh, I., & Gim, J. (2025). Exploration of Likert scale in terms of continuous variable with parametric statistical methods. BMC Medical Research Methodology, 25(1), 218. https://doi.org/10.1186/s12874-025-02668-1

Hussein,G.W.B.(2026, March6). UN in Liberia Applauds Government's Ambitious 2026–2030 Economic Governance Reforms. Aviailable online:https://liberia.un.org/en/311349-un-liberia-applauds-government's-ambitious-2026–2030-economic-governance-reforms Access July 17, 2026.

iFAST Global Bank(2024, March 2).The Importance of Financial Literacy in Modern Digital Banking. Available online.https://www.ifastgb.com/en/personal-banking/article-details/288881. Access March 30, 2025.

Idrees, M., Tahir, M., & Afridi, M. A. (2024). Measuring digital financial inclusion across the globe: a new multidimensional index. Qlantic Journal of Social Sciences and Humanities, 5(4), 272-288. https://doi.org/10.55737/qjssh.v-iv.24276

Indrawati, A. (2021). Digital financial literacy, and financial technology: Case studies of faculty of economics university 17 August 1945 Samarinda. DiE: Jurnal Ilmu Ekonomi Dan Manajemen, 12(1), 1-10. https://doi.org/10.30996/die.v12i1.5102

Ireland, J.& Lestari, S.(2025, October 31).Digital divide: a literature review. Cambridge University Press & Assessment. Available online. https://www.cambridgeassessment.org.uk/Images/745788-digital-divide-a-literature-review.pdf#:~:text=The%20digital%20divide%20is%20a,(ICT).%20The%20aim%20of%20this . (Access on March 7, 2026).

ISPI.(2025, April 5).The Digital Divide: A Barrier to Social, Economic and Political Equity. Available online https://www.ispionline.it/en/publication/the-digital-divide-a-barrier-to-social-economic-and-political-equity-204564 Access on July 16, 2026.

Jaeger, P. T., Bertot, J. C., Thompson, K. M., Katz, S. M., & DeCoster, E. J. (2012). Digital divides, digital literacy, digital inclusion, and public libraries. Public Library Quarterly, 31(1), 1-20. ISSN: 0161-6846 1541-1540. http://dx.doi.org/10.1080/01616846.2012.654728

Jia S, Du JT, Yan H (2026), "Towards a comprehensive framework for digital inclusion: a comparison of international measurements". Aslib Journal of Information Management, Vol. 78 No. 3 pp. 740–755, https://doi.org/10.1108/AJIM-06-2024-0494

Kagalwala, M.(The User, Capability and Technology in the Microfinance. International Journal of Political Science (IJPS),Volume 3, Issue 2, 2017, PP 47-53, ISSN 2454-9452http://dx.doi.org/10.20431/2454-9452.0302005

Kamboj, V., Sharma, D. Mapping the landscape of digital financial inclusion and proposing integrative framework: trends, influential works, and future directions. Humanit Soc Sci Commun 12, 1082 (2025). https://doi.org/10.1057/s41599-025-05500-9.

Kanu, D. H. (2025). Financial Inclusion Through Digital Financial Services (DFS). A Case of Liberia. (September 13, 2025).https://dx.doi.org/10.2139/ssrn.5480306.

Kanu, D. H. (2025). Digital Public Infrastructure, the Building Blocks for Digital Financial Inclusion and Taxation of the Digital Economy in Liberia. Available at SSRN 5738263.

Kanungo E (2026), "Determinants of digital financial literacy and its impact on digital financial inclusion in Odisha, India – a study on the mediating role of digital operations". Journal of Science and Technology Policy Management, Vol. 17 No. 2 pp. 417–436, doi: https://doi.org/10.1108/JSTPM-04-2024-0135

Kassouwi, I.K.(2026, June 26).Liberia Launches Digital Skills Initiative to Prepare Youth for Tech Jobs. Available online: https://www.wearetech.africa/en/fils-uk/news/tech/liberia-launches-digital-skills-initiative-to-prepare-youth-for-tech-jobs- Access on July 18, 2026.

Kennedy, G. M. (2025). Digital inclusion in Liberia's education sector: review of barriers, policy gaps, and strategic interventions. Am J Educ Res, 13(3), 102-10.

Khan, A.A., Hidthiir, M.H.B., Ahmad, Z. et al.(2025). Impact of human capital and governance in enhancing financial reachability in selected developing countries. Discov Sustain 6, 492 (2025). https://doi.org/10.1007/s43621-025-01360-0

Khera, P., Ng, S., Ogawa, S., & Sahay, R. (2022(a). Measuring digital financial inclusion in emerging market and developing economies: A new index. Asian Economic Policy Review, 17(2), 213-230.https://doi.org/10.1111/aepr.12377

Khera, P., Ng, S., Ogawa, S., & Sahay, R. (2022(b). Digital financial inclusion in emerging and developing economies: A new index. eISBN: 9781513574196. https://www.elibrary.imf.org/view/journals/001/2021/090/article-A001-en.xml

Klapper, Leora F., Annamaria Lusardi, and Peter Van Oudheusden. Financial literacy around the world: Insights from the Standard & Poor's ratings services global financial literacy survey. 2015.https://gflec.org/wp-content/uploads/2015/11/Finlit_paper_16_F2_singles.pdf

Kim, Y., Jang, CY. Evaluating Digital Inclusion: A Framework for Indexing Inclusive Progress. Public Organiz Rev 25, 1315–1332 (2025). https://doi.org/10.1007/s11115-025-00857-6

Koefer, F., Bokkens, A., Preziuso, M., & Ehrenhard, M. (2024). Addressing financial and digital literacy challenges for inclusive finance: insights from microfinance institutions and fintech organisations (No. 2024/97). EIF Working Paper. https://www.econstor.eu/handle/10419/283601

Kulkarni, M. S., D. Pramod and K. P. Patil, "Digital Financial Literacy and Its Impact on Financial Inclusion and Financial Well-Being," 2025 IEEE 4th World Conference on Applied Intelligence and Computing (AIC), GB Nagar, Gwalior, India, 2025, pp. 390-395, doi: 10.1109/AIC66080.2025.11211919.

Kumar, U.(2026(a). Bridging the Gap: Digital Payments and Financial Inclusion in India (November 26, 2025). Available at SSRN: https://ssrn.com/abstract=5812142 or http://dx.doi.org/10.2139/ssrn.5812142

Kumar, G., Murty, A., Ratna, D. R., & Ranjan, D. A. (2024, March(b). Impact of Digital Financial Literacy on Financial Inclusion–The Role Fintech Services. In 2nd International Conference on Women in Multifaceted Research, Gopal Narayan Singh University, Jamuhar, Sasaram, Bihar, India.http://dx.doi.org/10.2139/ssrn.4954800

Kumar, P.(2024, September 27(c)).Examining the Causes and Consequences of the Digital Divide(s). https://unu.edu/merit/blog-post/examining-causes-and-consequences-digital-divides

Kumar, P., Pillai, R., Kumar, N., & Tabash, M. I. (2023(d). The interplay of skills, digital financial literacy, capability, and autonomy in financial decision making and well-being. Borsa Istanbul Review, 23(1), 169-183. https://doi.org/10.1016/j.bir.2022.09.012

Lach, L., & Nzorubara, D.(2023, April 17).The Cost of Financial Illiteracy. Available online.https://www.ifac.org/knowledge-gateway/discussion/cost-financial-illiteracy extracted Access on July 1, 2026.

Lal, S., Bawalle, A. A., Khan, M. S. R., & Kadoya, Y. (2025). What Determines Digital Financial Literacy? Evidence from a Large-Scale Investor Study in Japan. Risks, 13(8), 149. https://doi.org/10.3390/risks13080149

Lee, S.(2015)Digital Literacy Education for Digital Inclusion. Available online: DOI: 10.4018/978-1-4666-5888-2.ch208. Access on April 19, 2026.

Lepeshev, D., Kalymova, A., Stukalenko, N., Doskenova, D., & Shubayeva, N. (2026). Formation of digital inclusion in the educational system of Kazakhstan in a system of equal access. Periodicals of Engineering and Natural Sciences, 14(1), 67-82. https://doi.org/10.21533/pen.v14.i1.1537

Liberia Telecommunications Authority (LTA).(2026, June 26).LTA, Ministry of Youth & Sports Launch Nationwide Digital Skills Initiative for Liberian Youth Access July 5, 2026.https://lta.gov.lr/lta-ministry-of-youth-sports-launch-nationwide-digital-skills-initiative-for-liberian-youth/

Liberian Observer(2026).CBL Engages Stakeholders on Second Phase of Nat'l Financial Education. Available online -https://www.liberianobserver.com/business/cbl-engages-stakeholders-on-second-phase-of-nat-l-financial-education/article_4a95aeb0-457f-4cb5-8f41-a4fb4b631a11.html. Access on July 5, 2026.

Liao, S. C., Chou, T. C., & Huang, C. H. (2022). Revisiting the development trajectory of the digital divide: A main path analysis approach. Technological Forecasting and Social Change, 179, 121607. https://doi.org/10.1016/j.techfore.2022.121607

Liotta, L. A. (2023). Digitalization and social inclusion: bridging the digital divide in underprivileged communities. Global international journal of innovative research, 1(1), 7-14. .https//doi.org/ 10.59613/global.v1i1.2

Loke, Y.J., Lee, H.S.H, & Chin,P.N.(2025), "Bridging the digital divide in the adoption of digital financial services". Journal of Asian Business and Economic Studies, Vol. 32 No. 2 pp. 82–92, doi: https://doi.org/10.1108/JABES-04-2024-0183

Lyons, A. C., & Kass-Hanna, J. (2021(a). A methodological overview to defining and measuring "digital" financial literacy. Financial planning review, 4(2), e1113. https://doi.org/10.1002/cfp2.1113

Lyons, A. C., Kass-Hanna, J., Liu, F., Greenlee, A. J., & Zeng, L. (2020(b). Building financial resilience through financial and digital literacy in South Asia and Sub-Saharan Africa (No. 1098). ADBI Working Paper Series. https://www.econstor.eu/handle/10419/238455

Malombe, H. (2025). Digital Financial Literacy and Financial Inclusion among Rural Tanzanian Women: A PLS-SEM Mediated Moderated Model. Eminent Journal of Business and Management, 1(2), 12-34. DOI: https://doi.org/10.70582/242c2h93

Malotiya, R., Setha, S., Dhillon, S. S., & Padmanabhan, J. (2023). Exploring the conceptual understanding of digital literacy: A framework for promoting digital literacy in the digital era. Humanities and Social Science Studies, 12(2), 65-74.

Mamuti, A., Frimpong, V., & Grima, S. (2025). Financial inclusion in the digital age: A literature review on expanding access to financial services for underserved populations. Oppor Chall. Sustain, 4(4), 289-304. https://doi.org/10.56578/ocs040404

Mark, D.(2020).Technology acceptance model (TAM). Available online:https://www.ebsco.com/research-starters/technology/technology-acceptance-model-tam access on June 25, 2026

Mashoene, M. K., & Schaling, E. (2026). The Effect of Digital Financial Inclusion on Inclusive Growth and Poverty in Emerging and Developing Economies: A System-Generalized Method of Moments Model. Journal of Risk and Financial Management, 19(4), 236. https://doi.org/10.3390/jrfm19040236

Massie, J., Tebbutt, C., Atkinson, A., & Boateng, Y. A. (2024). Towards Better Data for Better Development Outcomes: A "lean" DFL survey tool to measure digital and financial literacy globally. International Review of Financial Consumers, 9(2), 45-56. https://doi.org/10.2478/irfc-2024-0008.

Mayrhofer, M. (2025). The concept of vulnerability and its relation to the concepts of inequality and discrimination – a review article. The International Journal of Human Rights, 29(9), 1589–1618. https://doi.org/10.1080/13642987.2025.2488938

Mapurita, C. K., & Mayoukou, C. (2024). Contribution to the measurement of digital financial inclusion in Sub-Saharan Africa. Borsa Istanbul Review, 24(6), 1227-1247. https://doi.org/10.1016/j.bir.2024.07.007

Monibah,J.(2025, July 1). Empowering Women, Enhancing Lives: The Digital Shift in Liberia's Agriculture. Available online: https://africa.unwomen.org/en/stories/feature-story/2025/07/empowering-women-enhancing-lives-the-digital-shift-in-liberias-agriculture- Access July 17, 2026.

Mustapha, A.(2026).The Global Tech Divide: How the Digital Revolution is Leaving Some of Us in the Digital Dark Ages. Available online

https://gssr.georgetown.edu/the-forum/topics/technology/the-global-tech-divide-how-the-digital-revolution-is-leaving-some-of-us-in-the-digital-dark-ages/ Access on July 16, 2026.

Nawaz, S., Linden, T., Mitchell, M., & Bhowmik, J. (2023, December). Examining the effects of the COVID-19 pandemic on technology-enabled social interactions. In Proceedings of the 35th Australian Computer-Human Interaction Conference (pp. 128-139). https://doi.org/10.1145/3638380.3638444

Micheal.(2025, January 17).ARREST Agenda for Inclusive Development (AAID) finally launched. Available online https://www.insightsliberia.com/post/arrest-agenda-for-inclusive-development-aaid-finally-launched (Access on February 11, 2026).

Mishra, D., Agarwal, N., Sharahiley, S., & Kandpal, V. (2024). Digital Financial Literacy and Its Impact on Financial Decision-Making of Women: Evidence from India. Journal of Risk and Financial Management, 17(10), 468. https://doi.org/10.3390/jrfm17100468

Mohan,R.(2024, September).The Key to Economic Development in the Modern Era Lies in Digital Inclusion. Available online https://www.identity.digital/newsroom/the-key-to-

economic-development-in-the-modern-era-lies-in-digital-inclusion. Access on February 8, 2026.

MOPT(2025).Whole of Government" National Digital Strategy (2025 – 2029). Available online-https://mopt.gov.lr/wp-content/uploads/2025/09/Liberia-National-Digital-Strategy.pdf Access on July 5, 2026.

Morgenthaler, S. (2009). Exploratory data analysis. Wiley Interdisciplinary Reviews: Computational Statistics, 1(1), 33-44. https://doi.org/10.1002/wics.2

Mwaseba, S. L., Mwang'onda, E. S., & Donald, W. R. (2026). Bridging the digital financial divide: the role of financial literacy in rural–urban disparities in mobile money account ownership in Tanzania. Cogent Economics & Finance, 14(1), 2624866. https://doi.org/10.1080/23322039.2026.2624866

Nafukho, F. M., Hairston, N., & Brooks, K. (2004). Human capital theory: implications for human resource development. Human Resource Development International, 7(4), 545–551. https://doi.org/10.1080/1367886042000299843

Nizam, K.& Rashidi ,M.Z. (2025), "Barriers to digital financial inclusion and digital financial services (DFS) in Pakistan: a phenomenological approach". Qualitative Research in Financial Markets, Vol. 17 No. 2 pp. 251–274, doi: https://doi.org/10.1108/QRFM-11-2023-0271

Noor, S., Tajik, O., & Golzar, J. (2022). Simple random sampling. International Journal of Education & Language Studies, 1(2), 78-82.https:/doi.org/10.22034/ijels.2022.162982 \

Normawati, R. A., Santoso, E. E., & Latifah, N. (2025). Digital Financial Literacy As an Antecedent to Financial Inclusion and MSME Performance. SENTRALISASI, 14(1), 45-70. https://doi.org/10.33506/sl.v14i1.3761

Norris, A.& Singer,D.(2025, July 17).Digital technology is unlocking financial inclusion. Available online:https://blogs.worldbank.org/en/developmenttalk/digital-technology-is-unlocking-financial-inclusion. Access on February 14, 2026.

Nourallah, M., Öhman, P., & Hamati, S. (2024). Financial technology and financial capability: Study of the European Union. Global Finance Journal, 62, 101008. https://doi.org/10.1016/j.gfj.2024.101008

Nurfaidah, G. A. U., Bunyamin, Rusdiah, Hadidu, A., & Sudirman. (2024). The Effect of Financial Literacy and Technology Acceptance model on Student Interest in Using Pay later. Moneta : Journal of Economics and Finance, 2(3), 171–182. https://doi.org/10.61978/moneta.v2i3.345

Ocharive, A., Iworiso, J.(2024, May).The Impact of Digital Financial Services on Financial Inclusion: A Panel Data Regression Method. International Journal of Data Science and Analysis 10(2):20-32.DOI: 10.11648/j.ijdsa.20241002.11.

OECD (2025), "Supporting informed and safe use of digital payments through digital financial literacy", OECD Publishing, Paris, https://doi.org/10.1787/21de47d1-en.

OCED.(2025, November).OECD/INFE International Survey of Adult Financial Literacy, Inclusion & Well-Being 2026. Available online: https://www.oecd.org/content/dam/oecd/en/topics/policy-sub-issues/financial-education/OECD-INFE-adult-survey-flyer.pdf.Access on December 20, 2026

OECD (2024), OECD/INFE survey instrument to measure digital financial literacy, OECD Publishing, Paris, https://doi.org/10.1787/548de821-en.

OECD (2023), "OECD/INFE 2023 International Survey of Adult Financial Literacy", OECD Business and Finance Policy Papers, No. 39, OECD Publishing, Paris, https://doi.org/10.1787/56003a32-en(access on January 14, 2026).

OECD (2001), "Understanding the Digital Divide", OECD Digital Economy Papers, No. 49, OECD Publishing, Paris, https://doi.org/10.1787/236405667766.

Open Government Partnership(OGP).(2026).Liberia Increase Youth Participation through Digital Inclusion. Available online-https://www.opengovpartnership.org/the-open-gov-challenge/liberia-increase-youth-participation-through-digital-inclusion/ Acces on July 2026.

Ozili,P.K.(2024, June).Vulnerable Group Theory of Financial Inclusion.Perspectives on Global Development and Technology 22:396-414.DOI:10.1163/15691497-12341667
https://www.researchgate.net/publication/377532231_Vulnerable_group_theory_of_financial_inclusion.

Pajuste T. The Digital Divide: Reinforcing Vulnerabilities. In: Pajuste T, ed. Human Rights in the Digital Domain: Core Questions. Cambridge University Press; 2025:361-380.https://www.cambridge.org/core/books/human-rights-in-the-digital-domain/digital-divide-reinforcing-vulnerabilities/47E78CC6B90581776811CCDE2D0210CF

Pak, TY., Chatterjee, S. & Choung, Y. Navigating digital finance: how digital financial literacy influences digital financial services use and benefits in Korea. Financ Innov 12, 42 (2026). https://doi.org/10.1186/s40854-025-00820-

Patra, B., Tudu, M., & Pareek, A. (2025). Digital Literacy and Its Role in Enhancing Financial Access for Sustainable Economic Growth. Cureus Journals of Business and Economics, 2(1). https://doi.org/10.7759/s44404-025-04651-x

Paudel, R. (2025). Bridging the digital divide: the role of digital literacy in e-banking service quality and trust in Nepal. Fórum Empresarial, 30(1), 1-34. https://dialnet.unirioja.es/servlet/articulo?codigo=10540664

Poggi, A.(2025, April).The Digital Divide: A Barrier to Social, Economic and Political Equity :Digital technologies are advancing fast, but 2.6 billion people remain offline, highlighting a growing global digital divide.https://www.ispionline.it/en/publication/the-digital-divide-a-barrier-to-social-economic-and-political-equity-204564

Prete, A. L. (2022). Digital and financial literacy as determinants of digital payments and personal finance. Economics Letters, 213, 110378. http://dx.doi.org/10.2139/ssrn.3948927

Prihandini, W. (2025). Digital Financial Literacy and Financial Inclusion in Indonesia's Digital Economy. International Journal of Economics, Business and Accounting Research (IJEBAR), 9(3). https://doi.org/10.29040/ijebar.v9i3.18500.

Pukdeewut, A., & Setthasuravich, P. (2024). Bridging the Third-Level Digital Divide: Socio-Demographic Determinants of the Digital Outcomes in Thailand. FWU Journal of Social Sciences, 18(4). https://www.sbbwu.edu.pk/journal/Winter%202024,%20Vol.%2018,%20No.%204/2%20Bridging%20the%20Third-Level%20Digital%20Divide.pdf

Purba, N. (2021). A descriptive quantitative study of students' anxiety in reading and writing in learning English at the eighth grade of MTs Hadharatul Islamiyah Sipispis. JADEs Journal of Academia in English Education.https://doi.org/10.32505/jades.v2i1.3262

Rajapakse, N. (2016). Amartya Sen's capability approach and education: Enhancing social justice. Revue LISA/LISA e-journal. Littératures, Histoire des Idées, Images, Sociétés du Monde Anglophone–Literature, History of Ideas, Images and Societies of the English-speaking World, 14(1). https://doi.org/10.4000/lisa.8913

Rahayu, R., Ali, S., Aulia, A., & Hidayah, R. (2022). The current digital financial literacy and financial behavior in Indonesian millennial generation. Journal of Accounting and Investment, 23(1), 78-94. https://pdfs.semanticscholar.org/3842/7712d28683b76cb68bb465f201db34ed6791.pdf

Ravikumar, T., Suresha, B., Prakash, N., Vazirani, K., & Krishna, T. A. (2022). Digital financial literacy among adults in India: Measurement and validation. Cogent Economics & Finance, 10(1), 2132631. https://doi.org/10.1080/23322039.2022.2132631

Ray, S. (2022). Digital financial inclusion and literacy from a G20 perspective. https://doi.org/10.56506/UXOQ1249

Resendiz, R. M. (2018). The role of payment systems and services in financial inclusion-the Latin American and Caribbean perspective. IFC Bulletins chapters, 47. https://www.bis.org/ifc/publ/ifcb47l.pdf.

Richter, F.J.(2023, September 22).Bridging the Digital Divide: For a Sustainable, Innovative Economy. Available online. https://horasis.org/bridging-the-digital-divide-for-a-sustainable-innovative-economy/.(Access on February 8, 2026).

Ripla,A.(2025, February).Digital banking without financial Literacy: Why tech alone can't solve economic inequality. Available on https://www.linkedin.com/pulse/digital-banking-without-financial-literacy-why-tech-ripla-pgcert-fmpbe/ (access date, January 5, 2026).

RMIT University(2026).Measuring digital inclusion to increase equitable access for all. Available online:https://www.rmit.edu.au/research/impact/digital-inclusion-equitable-access Access date June 10, 2026.

Santosdiaz, R.(2026, April 20).The Fintech Ecosystem of West African Nation of Liberia in 2026. Available online:https://thefintechtimes.com/the-fintech-ecosystem-of-west-african-nation-of-liberia-in-2026/ Access on April 26, 2026.

Segoviano, M., Fareed,F., Huayta-Zapata, K., & Nguyen-Xuan,D.(2025, October).Financial Access Survey: Fintech, a Catalyst for Financial Services Access, Innovation, and Growth. Financial and monetary sector; Statistics Department (STA);Publisher by International Monetary Fund (IMF).https://data.imf.org/en/datasets/IMF.STA:FAS.

Shakeel, J., Munir, S., Mirza, S., & Abdullah, K. (2024). Impact of Digital Literacy on Financial Outcomes–A Cross-Country Analysis. Lahore University of Management Sciences. Online at https://mpra.ub.uni-muenchen.de/123374/

Sharp, M. (2022). Revisiting digital inclusion: A survey of theory, measurement and recent research. Digital Pathways at Oxford, 1, 2022-04. Available online:https://www.bsg.ox.ac.uk/research/publications/revisiting-digital-inclusion-survey-theory-measurement-and-recent-research. Access on July 3, 2026.

Sharp,M.(2024). Revisiting the Measurement of Digital Inclusion, The World Bank Research Observer, Volume 39, Issue 2, August 2024, Pages 289–318, https://doi.org/10.1093/wbro/lkad007

Sktes.(2023, November 11).Bridging the Digital Divide: Access, Usage, and Skills for All. Available online : https://www.sktes.com/news/digital-divide. Access on April 15, 2026.

Slater, P., & Hasson, F. (2025). Quantitative research designs, hierarchy of evidence and validity. Journal of Psychiatric and Mental Health Nursing, 32(3), 656-660. https://doi.org/10.1111/jpm.13135

Sophie Lythreatis, Sanjay Kumar Singh, Abdul-Nasser El-Kassar, The digital divide: A review and future research agenda, Technological Forecasting and Social Change, Volume 175,2022,121359,ISSN 0040-1625,https://doi.org/10.1016/j.techfore.2021.121359. (https://www.sciencedirect.com/science/article/pii/S0040162521007903)

Singh, K., & Jain, S.(2025, May). The Role of Digital Payment Systems in Economic Growth in Developing Economy. https://doi.org/10.35629/8028-1405144148.

Siregar, T. (2025). Descriptive statistics: Concepts, data collection methods, and sampling techniques in quantitative research. Jurnal Aplikasi Matematika Dan Statistik, 1-43. https://www.researchgate.net/publication/396983535_Descriptive_Statistics_Concepts_Data_Collection_Methods_and_Sampling_Techniques_in_Quantitative_Research

Stage, I. I. (2019). The Peking University Digital Financial Inclusion Index of China.https://en.idf.pku.edu.cn/docs/20190610145822397835.pdf

Stoilova, R., Petkova, K., & Hristova, M. (2025).Digital divide: Inequality and inclusion in the 21st century. https://iztok-zapad.eu/image/catalog/materials/digital-divide-3.pdf.

Tajik, O., Golzar, J., & Noor, S. (2025). Purposive sampling. International Journal of Education & Language Studies, 1-9.https://doi.org/ 10.22034/ijels.2025.490681.1029

Tandilino, C., Pontoh, G. T., Darmawati, D., & Indrijawati, A. (2025). Digital financial inclusion as a mediator of digital financial literacy and government support in MSME performance. International Journal of Financial Studies, 13(4), 199. https://doi.org/10.3390/ijfs13040199.

Tay LY, Tai HT, Tan GS. (2022, June 22).Digital financial inclusion: A gateway to sustainable development. Heliyon. 2022 Jun 22;8(6):e09766. doi: 10.1016/j.heliyon.2022.e09766.

Tetteh, F.K., Kwateng, K.O. The pathways from digital financial literacy to sustained engagement with mobile financial services: a technology continuance theory perspective. J Financ Serv Mark 31, 7 (2026). https://doi.org/10.1057/s41264-025-00335-6

Tempany,T.(2024, August 28).Bridging the digital divide for inclusive financial empowerment. Available online -https://www.bond.org.uk/news/2024/08/bridging-the-digital-divide-for-inclusive-financial-empowerment/(access on January 13, 2026).

Thelma, C. C., Sain, Z. H., Shogbesan, Y. O., Phiri, E. V., & Akpan, W. M. (2024). Digital literacy in education: Preparing students for the future workforce. International Journal of Research, 11(8), 327-343. https://doi.org/10.5281/ZENODO.13347718.

Thomas, Julian; Barraket, Josephine; Wilson, Chris; Cook, Kay; Louie, Yee Man; Holcombe-James, Indigo; et al. (2018). Measuring Australia's digital divide: the Australian digital inclusion index 2018. Swinburne. Report. https://doi.org/10.25916/sut.26279578.v1

Tugba, G. U. Z., & Poyraz, G. (2023). The Digital Financial Inclusion Index: A Cross-Country Comparison. Journal of Economic Policy Researches, 10(1), 157-180.https://doi.org/10.26650/JEPR1180972

Tulcanaza-Prieto, A. B., Cortez-Ordoñez, A., Rivera, J., & Lee, C. W. (2025). Is Digital Literacy a Moderator Variable in the Relationship Between Financial Literacy, Financial Inclusion, and Financial Well-Being in the Ecuadorian Context? Sustainability, 17(6), 2476. https://doi.org/10.3390/su17062476

Tut D. FinTech and the COVID-19 pandemic.(2023). Evidence from electronic payment systems. Emerging Markets Review. 2023 Mar;54:100999. doi: 10.1016/j.ememar.2023.100999. Epub 2023 Jan 4. PMCID: PMC9811919.

UNDCDF(2025, March) Sierra Leone National Digital and Financial Literacy Survey. Available online. online:https://www.uncdf.org/Download/AdminFileWithFilename?id=21521&cultureId=127&filename=national-digital-and-financial-literacy-survey-sierra-leonerevisedpdf Access on March 30, 2026.

UNESCO.(2025). International Literacy Day 2025 Promoting literacy in the digital era. Available online:https://www.unesco.org/sites/default/files/medias/fichiers/2025/09/ild-2025-factsheet.pdf . Access on April 10, 2026.

UN-Habitat.(2021).Addressing the Digital Divide Taking action towards digital inclusion Addressing the Digital Divide. Available online: https://unhabitat.org/sites/default/files/2021/11/addressing_the_digital_divide.pdf Access on April 25, 2026.

U.S.Government Accounting Office(GAO).(2025, April).Financial Literacy in a Digital Age. Available online https://www.gao.gov/blog/financial-literacy-digital-age (access on January 5, 2026).

Van Dijk, J. A. (2013). A theory of the digital divide 1. In The digital divide (pp. 29-51). Routledge. https://www.taylorfrancis.com/chapters/edit/10.4324/9780203069769-4/theory-digital-divide-1-jan-van-dijk

Van Dijk, J. A. (2006). Digital divide research, achievements and shortcomings. Poetics, 34(4-5), 221-235. https://doi.org/10.1016/j.poetic.2006.05.004

Vassilakopoulou, P., & Hustad, E. (2023). Bridging digital divides: A literature review and research agenda for information systems research. Information systems frontiers, 25(3), 955-969.https://doi.org/10.1007/s10796-020-10096-3

Verma, R., & Chatterjee, D. (2025). Relative impact of digital and traditional financial inclusion on financial resilience: Evidence from 13 emerging countries. Journal of Economics and Business, 133, 106233. https://doi.org/10.1016/j.jeconbus.2025.106233

Vlaicu,R.& Barash, J.(2025, September).Financial literacy for the digital age. Retrieved online https://etradeforall.org/news/financial-literacy-digital-age (access on January 8, 2026).

Watson, E.(2026, June 30).MYS Expands Youth Employment, Digital Skills Drive with New Partnerships. Available online: https://www.liberianobserver.com/news/youth/mys-expands-youth-employment-digital-skills-drive-with-new-partnerships/article_b357a9d6-3944-4213-90f7-8f94efd372ad.html- Access on July 18, 2026.

WA2.(2025, March 28). Liberia launches financial literacy program to boost economic inclusion.https://wadr.org/liberia-launches-financial-literacy-program-to-boost-economic-inclusion/ . Access on July 5, 2026.

Wei, L., Di, J. & Zhou, Q. What is the role of digital divide between digital inclusive finance and common prosperity? Evidence from 245 cities in China. Humanit Soc Sci Commun12, 1764 (2025). https://doi.org/10.1057/s41599-025-06053-7

Weisman-Pitts, J.(2024, May 13).Addressing the Digital Divide in Access to Banking and Financial Services. Available online: https://www.globalbankingandfinance.com/addressing-the-digital-divide-in-access-to-banking-and-financial-services/ Access on June 28, 2026.

WFP.(nd).Measuring progress for digital and financial inclusion. Available online

https://responsiblecash.org/wp-content/uploads/Resp-Cash_p49-measuring.pdf Access on July 15, 2026.

Widyastuti, U., Respati, D. K., Dewi, V. I., & Soma, A. M. (2024). The nexus of digital financial inclusion, digital financial literacy and demographic factors: lesson from Indonesia. Cogent Business & Management, 11(1), 2322778. https://doi.org/10.1080/23311975.2024.2322778

Willie, M. M. (2024). Population and target population in research methodology. Golden Ratio of Social Science and Education, 4(1), 75-79. https://doi.org/10.52970/grsse.v4i1.405

Women World Bank(2026, February 18).Have we truly reached the last mile in access to finance? Available online https://www.womensworldbanking.org/insights/have-we-truly-reached-the-last-mile-in-access tofinance/#:~:text=When%20women%20can't%20afford,meets%20women%20where%20they%20are. (Access on March 7, 2026).

World Bench Making Alliance(WBMA).(2020, April). Digital Inclusion Benchmark Methodology report. Available online https://assets.worldbenchmarkingalliance.org/app/uploads/2020/09/Digital-Inclusion-Benchmark_Methodology-report_2020.pdf Access on July 3, 2026.Bottom of Form

Wotoe, J.(2025, December 17).Liberia Launches National Digital Learning Platform to Strengthen Early Grade Learning. Available online: https://moe.gov.lr/liberia-launches-national-digital-learning-platform-to-strengthen-early-grade-learning/-Access on July 18, 2026.

Wu, H., & Leung, S. O. (2017). Can Likert scales be treated as interval scales?—A simulation study. Journal of social service research, 43(4), 527-532. https://doi.org/10.1080/01488376.2017.1329775

Xo'sinboy o'g'li, P.J & Dalabaev.U.(2025). Digital Financial Literacy as a Driver of Economic Inclusion in emerging economies. (2025): International Journal of Multidisciplinary research, 2(4), 527-531. https://universalpublishings.com/index.php/aijmr/article/view/11352

Yadav M, & Banerji P (2023), "A bibliometric analysis of digital financial literacy". American Journal of Business, Vol. 38 No. 3 pp. 91–111, doi: https://doi.org/10.1108/AJB-11-2022-0186

Yates, D.A.(2025, March 31).Most Liberians Lack Financial Education. Available online

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ISSN: 2456-7760

https://www.liberianobserver.com/business/most-liberians-lack-financial-education/article_9c3d3692-b9f3-4356-8b47-6c4023d66025.html Access on April 21, 2026.

Yu, Y., Li, W., Li, H., Luo, S., & Liu, Y. (2025). Exploring the Dynamic Impact of Digital Financial Literacy on Rural Household Income: New Evidence from China. Sustainability, 17(8), 3385. https://doi.org/10.3390/su17083385

Zaimovic, A., Meskovic, M. N., Dedovic, L., Arnaut-Berilo, A., Zaimovic, T., & Torlakovic, A. (2024). Measuring digital financial literacy. Procedia Computer Science, 236, 574-581. https://doi.org/10.1016/j.procs.2024.05.068.

ZTE.(2024, November 14).Building a Network Bridge Over the Digital Divide in Liberia. Available online -https://www.zte.com.cn/global/about/magazine/zte-technologies/2024/6-en/success-stories-/building-a-network-bridge-over-the-digital-divide-in-liberia.html Access on July 2, 2026.