

What Works to Advance Women's Digital Literacy?

A Review of Good Practices and Programs



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Acknowledgments

The What Works to Advance Women's Digital Literacy report is an output of the G2Px Initiative of the World Bank Group. It was authored by Rim Melake, Danielle Robinson, Sarah Danman, Harmonie Kobanghe Langazo and Alicia Hammond under the leadership of Peter Kusek. Our appreciation also goes to Inmaculada Macias Alonso, who provided technical and editorial contributions to the report. We would also like to extend our gratitude to the following World Bank colleagues and peer reviewers for their thoughtful feedback and technical advice: Buddy Buruku, Aditi Kadam, Siddhartha Raja, Clara Stinshoff, Georgina Marin, and Minita Varghese.



About G2Px

As we move into an increasingly digitalized world, governments across the globe are leveraging new technologies to deliver services better, faster, and more transparently. As of 2021, over a quarter of adults are receiving payments from their governments—whether through public sector wages, pensions, sectoral subsidies, or social protection programs—an increase of 400 million from just four years earlier (Demirgüç-Kunt et al. 2022). The increasing scale of these government-to-person (G2P) payments offers a huge opportunity to improve financial inclusion, advance women’s economic empowerment, and kickstart the digital service ecosystem. Through the G2Px Initiative (“G2Px”), the World Bank brings together global knowledge and cross-sectoral expertise on the core elements of a modern G2P architecture. A thought leader and knowledge hub in the field, G2Px has developed a framework outlining the building blocks and design principles needed for a recipient-centric G2P architecture, along with guidance on implementation. G2Px also supports countries across different stages of their G2P modernization journey, from assessing and developing a roadmap, to implementing the various building blocks needed to achieve efficient, inclusive, and empowering digital G2P payments. G2Px is a collaboration across the World Bank, including global practices and units working on digital development, social protection, agriculture, health, financial inclusion, payment systems, social inclusion, governance, gender, data protection, and research, among others. The work of G2Px is made possible through the contributions and partnership with the Bill & Melinda Gates Foundation and Norad.

Abbreviations

2G	Second generation of broadband cellular network technology, preceding 3G
3G	Third generation of broadband cellular network technology, succeeding 2G and preceding 4G
4G	Fourth generation of broadband cellular network technology, succeeding 3G and preceding 5G
A4AI	Alliance for Affordable Internet
AFR	Africa Region
App	Application, a software program downloaded by a user to a mobile device
AWEF	Arab Women’s Enterprise Fund
CARE	Cooperative for Assistance and Relief Everywhere
DFS	Digital Financial Services
DigComp	The Digital Competence Framework for Citizens
EAP	East Asia Pacific Region
ECA	Europe and Central Asia Region
G2P	Government-to-person (payment)
G2Px	A World Bank initiative improving government-to-person payments
GDP	Gross Domestic Product
GSMA	Global System for Mobile Communications Association
ICT(s)	Information and Communication Technolog(y/ies)
IFC	International Finance Corporation
ITU	International Telecommunication Union
IVR	Interactive Voice Response
LAC	Latin America and the Caribbean Region
LMICs	Low- and Middle-Income Countries
Mbps	Megabytes per second
MENA	Middle East and North Africa Region
MISTT	Mobile Internet Skills Training Toolkit

MSME	Micro, Small, and Medium Enterprises
NGO	Nongovernmental Organization
OECD	Organisation for Economic Co-operation and Development
P2P	Person-to-person (payment)
PIAP(s)	Public Internet Access Point(s)
PoP App	Package of Practice App, an application designed to develop users' digital financial services skills
RUDI	Rural Distribution Network, program in India
SAR	South Asia Region
SDG(s)	Sustainable Development Goal(s)
SEWA	Self-Employed Women's Association of India
SIM	Subscriber Identity Module
SMS	Short Messaging Service
STEM	Four closely connected areas of study: Science, Technology, Engineering, and Mathematics
UN	United Nations
UNCDF	United Nations Capital Development Fund
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development

Executive Summary

Women face many barriers to accessing and using the Internet. As a result, despite the rapid global spread of mobile Internet, women all over the world are less likely to participate in the digital economy than men. In fact, women are 15 percent less likely than men to use mobile Internet, leaving 265 million fewer women connected. This digital gender gap is even more pronounced in low-income countries, where only 30 percent of women use the Internet compared to 41 percent of men (GSMA 2024a). This digital gender gap shuts women out of the economic opportunities offered by the Internet. It is estimated that closing the gender gap in mobile Internet adoption across low- and middle-income countries (LMICs) could lead to over US\$1.3 trillion in total additional gross domestic product (GDP) over the period of 2023-2030 (GSMA 2024b).

The *What Works to Advance Women's Digital Literacy* report provides insights into the key barriers and promising approaches related to women's digital literacy and digital financial capability. It explores the challenges hindering women's adoption of digital literacy, ranging from insufficient broadband connectivity and affordability issues to restrictive social and gender norms. The paper provides practical guide to operational teams, programs designers and policy makers for developing basic digital literacy programs tailored for women in low- and middle-income countries. By showcasing emerging strategies and initiatives, it presents actionable solutions for advancing women's digital literacy.

KEY BARRIERS TO WOMEN'S DIGITAL LITERACY

This paper identifies seven fundamental barriers that hinder women's digital literacy. These fundamental barriers are: insufficient digital connectivity; affordability constraints; low levels of education; restrictive gender and social norms; limited awareness and low levels of digital confidence; lack of appropriate design and relevant content; and concerns around online safety and security.

Insufficient digital connectivity and affordability constraints are substantial obstacles to women's digital inclusion. Many areas, particularly conflict-affected or rural regions, remain unconnected despite rapid expansion in some places. This barrier constitutes two key elements: access to end user equipment (computers, tablets, smartphones, etc.), and supporting connectivity infrastructure (electricity services, broadband, mobile network coverage). Affordability constraints further exacerbate this disparity, especially for those living in rural areas or

low-income households. For the poorest 20 percent of the population, it is estimated that handset costs make up to 51 percent of their monthly income (GSMA 2024b). Globally, women have fewer economic opportunities and often engage in low-productivity work, which limits their ability to purchase and use sophisticated digital devices.

Additional barriers include low levels of education, restrictive gender and social norms, and concerns around online safety and security. Gender gaps in education manifest in disparities in adult literacy—this educational gap results in women lacking the necessary foundations to acquire digital skills and use digital technologies. Social norms often restrict women’s access to technology, influencing their ability to earn income, make financial decisions and access technology. Limited digital awareness and low levels of digital confidence also hinder women’s use of digital devices. Furthermore, lack of appropriate design and relevant content, combined with online safety and security concerns, considerably restrict women’s online engagement.

WHAT WORKS TO ADDRESS THESE BARRIERS?

Strategies to address the seven barriers can be categorized into two main areas: strategies aimed at improving and expanding inclusive digital connectivity, and initiatives focused on implementing gender-smart digital skills training programs. This paper presents experimental research and case studies of these strategies, offering guidance to policymakers and program designers seeking to reduce these barriers.

Expand Inclusive Digital Connectivity

Increasing access to public internet points and end-user devices, such as affordable smartphones, can meaningfully enhance women’s digital connectivity. For instance, creating inclusive Public Internet Access Points (PIAPs) that cater to women’s needs, like setting convenient operating hours and having female staff, can help more women feel comfortable using these facilities. End-user devices—such as desktop computers, laptops, tablets, mobiles, and smartphones—are key to access the Internet. In LMICs, mobile phones are the primary method by which most people access the Internet, and having a mobile phone or a personal computer at home increases the likelihood of having Internet access (Satari 2021; Mhlanga and Beneke 2021). In Kenya, initiatives like the introduction of the affordable Neon Ray smartphone by Safaricom and Google have proven effective, with women making up 54 percent of purchasers—95 percent of users increased their Internet use (GSMA 2021a). Additionally, addressing ICT affordability by lowering mobile data costs and providing innovative and trusted financing

schemes for purchasing devices can further reduce barriers and encourage more women, especially in rural areas, to connect to the Internet.

Implement Gender-Smart Digital Skills Training Programs

When designing digital skills training programs for women, it is important to consider their learning preferences and challenges, create relevant content, and address safety concerns. Programs like Mexico's Prospera Digital and Telecentre Foundation have linked technology adoption to health information and tailored curriculum based on local women's feedback. Engaging men and gatekeepers, as seen in India's TEQtogether and Project Sampark, can foster community support and reduce cultural barriers.

Addressing restrictive gender stereotypes and social norms, as demonstrated by Rwanda's Bandebereho program, requires extensive resources and time but can improve health-related behavioral outcomes, though challenges like intimate partner violence persisted. Early support for girls' access to digital devices is crucial, and involving policy stakeholders, private companies, and male gatekeepers can enhance program success.

Facilitating women's digital literacy also involves providing role models and mentors, accommodating needs such as transportation, childcare, and flexible schedules, and improving online safety and security. Programs like iSocial Kallyani, Internet Saathi, Tech Needs Girls, and Gina Mata, Gina AI-Umma highlight the importance of female mentors, while initiatives like Ideário Hub and Banglalink offer flexible learning opportunities.

Considering risks related to online violence is also key. Enhancing women's digital literacy and sharing information about safety measures, could help mitigate these risks. Furthermore, engaging gatekeepers and policymakers is essential to improve both offline and online safety. Vodafone's India Sakhi Sakhi Mobile-Based Safety Service is highlighted as a good practice.

DESIGNING DIGITAL LITERACY PROGRAMS

This report presents an overview of good practices for designing basic digital literacy and financial capability training programs for women. Based on analysis of over 100 initiatives specifically targeting women's digital literacy and digital financial capability—including programs, case studies, toolkits, and design guidelines—the proposed framework presents design categories that highlight the most promising elements for practitioners and policymakers implementing digital literacy and digital financial capability training programs for women.

Table 1: Program Design Framework

Design Category	Program Features
DIGITAL LITERACY PROGRAMS	
<p>Delivery Channels: The different channels through which content or learning experiences are delivered to learners.</p>	<ul style="list-style-type: none"> • Print Media (books, articles, handouts, flyers, newspapers) • Broadcast Channels (television or radio) • Digital Channels (web, video, interactive voice response (IVR), multimedia, mobile applications (apps), short message service (SMS))
<p>Instructional Approaches: The manner by which instructors and learners interact with one another to enhance the learning process.</p>	<ul style="list-style-type: none"> • Classroom-based • Group-based • Peer-based • Training-of-Trainers
<p>Learning Models: The types of pedagogical methods and strategies that facilitate the actual learning process.</p>	<ul style="list-style-type: none"> • Learning-by-Doing • Bite-sized Learning • Gamification and Edutainment • Personalized Content • Nudges and Behavioral Design
<p>Wraparound Features: The holistic program design features and logistical mechanisms that support and facilitate the learning process.</p>	<ul style="list-style-type: none"> • Mentoring • Community-Based Interventions • Engaging Gatekeepers • Providing Transportation, Childcare, and Meals
DIGITAL FINANCIAL CAPABILITY PROGRAMS	
<p>Sector-Specific Use Cases</p>	<ul style="list-style-type: none"> • Entrepreneurship and Business Skills Development Programs • Social Assistance Programs
<p>Gender-Inclusive Digital Financial Services</p>	<ul style="list-style-type: none"> • Women-Centered Product and Service Design • Women Agents

In addition to reviewing basic digital literacy and financial capability programs and developing the framework presented above, the analysis sought to determine whether the design categories are supported by research, rigorous studies, and credible evidence. Where possible, the identified studies and highlighted gaps in the evidence base are provided and areas where further research is needed are emphasized.

It is important to note that these findings should not be viewed in isolation. Rather, they should be considered as part of a broader framework of interventions aimed at improving women’s access to and utilization of digital technology. By situating these results within a larger context, stakeholders can better understand the multifaceted challenges and opportunities associated

with promoting women’s digital inclusion. Detailed information on the studies identified, including study descriptions and further insights, can be found in Appendix C: Evidence Summary Table.

Delivery Channels

A training delivery channel refers to the medium through which training content or a learning experience is delivered to beneficiaries. Training programs that aim to enhance digital literacy and digital financial capability among women should leverage a variety of delivery channels, such as: Print media, including books, articles, handouts, flyers, or newspapers; Broadcast channels, including television or radio; and Digital channels, including websites, videos, interactive voice response (IVR), multimedia, short message service (SMS), and mobile applications. By integrating multiple delivery channels, training programs can accommodate women with varying literacy levels, promoting greater access and effective learning outcomes.

Instructional Approaches

Instructional approaches refer to how instructors and learners interact, communicate, and/or engage with one another to enhance the learning process. Digital literacy and digital financial capability training programs targeting women have incorporated several similar but distinct types of instructional approaches models: Classroom-based; Group-based; Peer-based; and Training-of-Trainers.

Learning Models

Learning models refer to the types of pedagogical methods and strategies that facilitate the actual learning process. This includes specific elements integrated into the design of a program, service, or product to achieve particular goals or enhance the user experience. For the purposes of this report, these approaches are discussed as intentional components that aim to improve program effectiveness, increase engagement, and maximize impact for learners. Examples include gamifying learning content or breaking lessons into smaller, digestible segments for bite-sized learning. Depending on the program’s goals, these approaches can be carefully selected and tailored to meet the needs of the learners.

Wraparound Features

Integrating wraparound features that address social and gender norms is essential for designing inclusive programs that support all participants, particularly women. Mentors play a pivotal role in enhancing women’s interest, confidence, and aspirations to pursue various fields of study or professional development opportunities. They also help strengthen women’s social, emotional, and behavioral skills, which are critical for success in training programs.

Key strategies to overcome cultural and social barriers that may prevent women from participating in digital literacy programs include providing transportation, childcare, and meals at training sites. Programs should also be designed to accommodate women’s schedules, acknowledging their household, family, and caregiving responsibilities (both paid and unpaid). Moreover, creating women-only classes and employing female trainers can help establish supportive, culturally sensitive learning environments where women feel safe, respected, and empowered.

AVAILABLE EVIDENCE SUPPORTING PROGRAM DESIGN

This review highlights critical insights into the evidence base underpinning each design category, highlighting credible evidence and emphasizing research gaps where they exist.

Under the first design category, *Delivery Channels*, one study provided credible evidence: a large-scale randomized controlled trial in Kenya assessing automated SMS-based business training through the ARIFU platform (Fuchs et al., 2022).

The *Instructional Approaches* category is supported by two pilot evaluations emphasizing group-based digital training combined with face-to-face facilitator support. This method significantly improved device ownership, confidence, and employment outcomes (Mboob et al., 2022). Similarly, an Indian study demonstrated that peer effects—attending business counseling with a friend—enhanced women’s entrepreneurship outcomes, particularly for those constrained by restrictive norms (Field et al., 2016).

For *Learning Models*, one field experiment explored experiential learning in financial decision-making, underscoring the importance of practical experience in overcoming biases (Giné and Goldberg, 2023). Another study explored the potential of edutainment, through an educational soap opera (Berg and Zia, 2013). Three behavioral science studies covering Kenya, Tanzania, Madagascar, Nigeria, and Pakistan showed that interventions such as customized SMS campaigns, behavioral design packages, and nudges

increased productive goals, savings, debt repayment, and mobile account usage, particularly among women (ideas42, 2019). However, more research on alternative learning models in digital literacy and financial capability is needed.

The *Wraparound Features* design category shows promise in related domains. In Uganda, female entrepreneurs with male mentors succeeded more often in male-dominated sectors due to role models providing critical support (Campos et al., 2015). Similarly, exposure to non-stereotypical or same-sex role models improved women's sense of belonging and aspirations in STEM fields (Cheryan et al., 2013; Dasgupta, 2011; Stout et al., 2011).

Programs targeting gatekeepers also demonstrated impact, such as Rwanda's *Bandebereho* intervention, which challenged gender norms, improved caregiving, and reduced intimate partner violence (Doyle et al., 2018). Wraparound services in Pakistan and Nigeria, including childcare and spousal involvement, enhanced women's entrepreneurial success (World Bank, 2019).

LOOKING AHEAD

Overall, the *What Works to Advance Women's Digital Literacy* report contributes to the nascent research on advancing women's digital literacy and digital financial capability. By shedding light on current programs and disseminating valuable evidence, this report aims to empower practitioners and policymakers alike. However, it is evident that there remains a critical need for robust evidence to determine the most effective strategies for improving women's digital literacy, particularly in low- and middle-income countries.

We issue a call to action to rigorously evaluate a diverse array of approaches, including Delivery Channels (print, broadcast, or digital), Instructional Approaches (classroom-based; group-based; peer-based; and training-of-trainers); Learning Models (learning-by-doing, bite-sized learning, gamification and edutainment, personalized content, nudges & behavioral design); and Wraparound Features (mentoring, community-based interventions, engaging gatekeepers, providing transportation, childcare, and meals).

It is our hope that this classification of design approaches and the highlighted gaps in evidence will galvanize researchers and practitioners. We urge the community to share more publicly released results on the efficacy of digital literacy programs, regardless of their success or failure. Such transparency is vital to refine program designs and drive impactful progress.

Together, with stronger programs and compelling evidence, we can make strides in equipping women with the digital skills they need to thrive and contribute fully to the digital economy.

1. Introduction



Digital literacy is crucial in our tech-driven world. However, there is a sizeable gap in research and resources for fostering basic digital literacy, especially among women. Many people still lack access to digital tools, mobile Internet, and the skills needed to engage in the digital economy.

Notably, women face considerable inequalities in accessing the Internet compared to men. In fact, women are 15 percent less likely to use mobile Internet than men, resulting in 265 million fewer women having access, according to GSMA (2024a). This digital gender gap is most pronounced in low-income countries, where only 30 percent of women use the Internet, compared to 41 percent of men (ITU 2023). Women in low- and middle-income countries are 15 percent less likely than men to use mobile internet, leaving 787 million women offline (GSMA 2024a).

This digital gender gap has real economic consequences for individuals, communities, and economies. On an individual level, women's digital connectivity increases labor force participation (Chiplunkar and Goldberg 2022), helps them access flexible jobs (Ho et al. 2024), and with sustained use, results in greater financial inclusion (Roessler et. al. 2023). There are also consequences for economies and communities: digital connectivity contributes to economic growth, poverty reduction, and job creation in LMICs (Hjort and Tian 2024). The Alliance for Affordable Internet estimates that in 2020, 32 LMICs experienced an estimated loss of US\$126 billion in GDP due to the gender gap in internet use (A4AI 2021). As there are over 130 LMICs globally, the potential for global economic growth with greater digital inclusion can well be imagined. It is estimated that closing the gender gap in mobile Internet adoption across LMICs could lead to over US\$1.3 trillion in total additional gross domestic product (GDP) over the period of 2023-2030 (GSMA 2024b).

The digital disadvantage that women experience in many societies reflects both economic, social, and political inequalities. It is increasingly clear that women's education, work, and responsibilities (paid and unpaid), and the digital gender gap are closely related. Furthermore, due to disparities in economic opportunity,

women often struggle with affording digital devices, data, and services. Restrictive social and gender norms—i.e. the social rules that guide women’s behavior and shape expectations about what women should or should not do in a given context—also constrain their participation in the digital economy (Muñoz Boudet et al. 2023; GSMA 2024a).

This report is driven by the need to bridge this gap by providing a comprehensive resource tailored for operational teams tasked with designing and delivering basic digital literacy training programs. Women face unique challenges in accessing and benefiting from digital literacy training, often due to social, cultural, and systemic barriers that limit their participation and engagement. To address these challenges, operational teams need evidence-based insights, practical recommendations, and adaptable strategies that empower women on their digital learning journeys. This study aims to fulfill these needs by consolidating a wealth of knowledge, tools, and examples to serve as a valuable reference for these teams.

While numerous initiatives and programs exist globally to promote intermediate and advanced digital literacy, there is a distinct lack of consolidated evidence and clear guidance on effective practices for basic digital literacy. This fragmentation creates obstacles for operational teams in identifying proven approaches, leveraging existing research, and implementing scalable solutions. By synthesizing available and experimental research, showcasing successful case studies, and outlining actionable strategies, this report seeks to close that gap and provide a practical roadmap for teams. The intended audience includes World Bank operational teams, policymakers, and external program designers working to develop basic digital literacy programs.

To World Bank Group teams, policymakers, and other stakeholders, this report emphasizes the urgent need to prioritize and drive digital inclusion by supporting research into scalable and impactful approaches. By championing these efforts, stakeholders can play a pivotal role in empowering women and advancing digital equity. A distinctive feature of this report is its emphasis on showcasing diverse examples from various organizations, institutions, and operational teams. Through these examples, we aim to highlight the breadth of existing knowledge and practices, spark creativity, and encourage cross-sharing of ideas among teams.

Ultimately, this report serves as a starting point. It provides operational teams with a solid foundation for their work while also identifying areas requiring further attention and research. By doing so, it seeks to contribute to a broader movement toward empowering women with improved access to basic digital literacy skills and advancing inclusive growth in the digital economy.

1.1 METHODOLOGY

The *What Works to Advance Women's Digital Literacy* report aims to guide the development of basic digital literacy programs for women in LMICs. This report adopts a structured approach to understanding the challenges and gaps in basic digital literacy, digital financial capability, and related areas. The methodology consists of two main phases: 1. literature review and data analysis; and 2. program analysis.

Literature Review and Data Analysis

The first phase consisted of a literature review to understand the existing landscape of basic digital literacy and digital financial capability research. This review focused on identifying key challenges, gaps, and emerging trends in these areas, with particular attention to women's inclusion. The analysis explored a range of interconnected topics, including digital skills, digital inclusion, and the digital gender divide more broadly, which are critical to understanding the barriers women face in developing digital literacy. The review also extended to factors influencing women's access to and proficiency in digital tools, such as connectivity challenges, lower smartphone ownership, social and gender norms, gender gaps in economy opportunity, and lower education levels. By synthesizing this body of work, we aimed to map out the current state of knowledge and identify areas where further research or action is needed.

Building upon the insights from the literature review, several key data sources were identified and analyzed that provided valuable quantitative and qualitative information relevant to the study. These sources included data provided by the International Telecommunication Union (ITU), the United Nations Women's Sustainable Development Goals (SDG) Gender Dashboard, the World Bank Gender Data Portal, the Findex database, and other databases from organizations such as the United Nations Children's Fund (UNICEF), and the GSMA. These datasets and resources offered critical evidence on women's digital literacy, gender disparities in digital access, and socio-economic factors influencing digital skills development. The data analysis helped us identify patterns and trends, providing a robust foundation for understanding the global context of gender gaps in digital skills.

Based on the findings from the literature review and data analysis, the following chapters of this report were developed:

- Chapter 2, *Key Concepts and Definitions*, presents and defines the key terms and concepts that frame the discussion on digital literacy and financial capability, setting the stage for the analysis of the barriers that affect women in subsequent chapters.

- Chapter 3, *Global Context*, provides an overview of the global digital divide, highlights the gender gap in basic digital skills, and explores its implications for women worldwide.
- Chapter 4, *Key Barriers to Women's Digital Literacy*, identifies the major obstacles preventing women from attaining digital literacy, drawing from both literature and data sources to highlight critical factors such as gender norms, socio-economic constraints, and access to technology.
- Chapter 5, *What Works to Address these Barriers*, examines interventions and strategies that successfully remove barriers to women's digital literacy, as evidenced by available studies and research.

Program Analysis: Designing Digital Literacy Programs

The second phase included analysis of over 100 programs designed and implemented by international organizations, governments, foundations, non-profits, and other entities aimed at closing the gender gaps in basic digital literacy and financial capability. This phase also included the in-depth review of toolkits, guidelines, and case studies aimed at supporting digital literacy and financial training programs for women.

Drawing from the best practices and promising approaches identified, this report presents a framework to categorize distinct elements of program design, referred to as *design categories*. It is important to note that this framework is not exhaustive and reflects the resources available during the research phase (2023–2024). The programs and resources were identified through a key search of publicly available materials, including reports, websites, and publications. However, a considerable limitation is that detailed program curricula are rarely shared publicly, making it especially challenging to gather granular details on program design.

Moreover, only a small proportion of these programs engage in rigorous monitoring and evaluation beyond basic program assessments. Very few programs have conducted randomized controlled trials, or employed other research methodologies that meet rigorous scientific standards. This underscores the need for more robust research to guide the selection of design elements, ultimately improving program effectiveness and enhancing participants' learning outcomes. Additionally, many of the programs included in this analysis feature small sample sizes, which limits the extent to which findings can be generalized. This limitation further emphasizes the need for larger-scale studies to strengthen the evidence base for basic digital literacy and financial capability programs, particularly those focused on women.

Consequently, this report aims to identify the evidence base for the identified *design categories*. This involved searching for rigorous studies, explorative research, and credible evidence. The report continues with the following chapters:

- Chapter 6, *Designing Digital Literacy Programs*, analyzes over 100 digital literacy and financial capability programs, as well as programs, toolkits, guidelines, and case studies on digital literacy and financial training for women, presents findings according to the '*design category*' framework described above.
- Chapter 7, *Conclusion* summarizes the evidence supporting the identified design categories, emphasizes current gaps, and underscores the need for further research.

Scope and Limitations

This report provides a comprehensive analysis of the issues surrounding women's basic digital literacy, with a primary focus on a global overview of the gender gap in basic digital skills. However, due to constraints in available data, the analysis may not fully represent all geographic regions or socio-economic groups, particularly in low-resource settings where data are limited or scarce.

While the report addresses research on basic digital literacy, it does not explore in-depth case studies or the analysis of intermediate or advanced digital skills. These areas are critical to addressing the needs of women in the digital age, however this report aims to fulfill a specific gap in the existing oeuvre of studies into the digital skills gender gap: engaging women in digital skills at foundational entry level, often for the first time.

Furthermore, this analysis acknowledges the limited availability of rigorous evidence, including experimental or quasi-experimental studies, in the field of women's basic digital literacy. This gap underscores the need for further research to better understand the specific challenges and effective strategies for improving digital literacy among women. While the insights presented in this report are valuable, the absence of robust evidence highlights the ongoing need for more targeted studies to guide the development of effective interventions and address the barriers women face in acquiring digital literacy skills.

2. Key Concepts and Definitions



This section explores the evolving definitions of *digital literacy*, *digital financial literacy*, and a range of related terms. It offers an overview of how these definitions have shifted from a focus on technical skills to encompass the cognitive and socio-emotional aspects of digital engagement. Additionally, we introduce two frameworks: the European Commission’s widely used Digital Competence Framework for Citizens (DigComp) for assessing citizens’ digital competencies, and a multidimensional digital financial literacy framework aiming to clarify the intersection between financial and digital literacy.

2.1 DIGITAL LITERACY

There are multiple definitions for the terms and concepts of *digital literacy*, which is sometimes used interchangeably with *digital competence*. The various methodologies to classify and define digital literacy often overlap or are non-exhaustive, leading to conceptual ambiguity (Van Deursen et al. 2015). It is a challenge to establish a single definition for digital literacy and digital competence because of the rapidly changing technological, cultural, and societal contexts that are continuously reshaping the ways in which digital technologies are utilized in personal and professional settings (Helsper 2008; Huvila 2012). The lack of consensus related to these terms makes it harder to measure them. We present and discuss the various definitions below.

Digital literacy is derived from the traditional concept of literacy, which primarily involves the ability to read and write. The term emerged in the 1990s with the increasing use of technology in education and across society. The writer Paul Gilster published a seminal book in 1997 about the concept of digital literacy. According to Gilster, digital literacy is “the ability to access networked computers and use them.” Furthermore, he notes that digital literacy involves a set of core competencies, including the ability to make informed judgments about what one finds online and the ability to search the Internet. With these skills, one can expand their education, pursue hobbies, and join online communities.

Gilster’s definition built on the concept of traditional literacy. Literacy means more than the ability to read but instead to read with meaning and understanding. Digital literacy extends beyond accessing information on the Internet, but rather includes the cognition of what is found online (Gilster 1997). While this definition was widely accepted by researchers and practitioners, in later years, this definition was called into question due to its links to traditional literacy, which was considered limiting (Rheingold 2009).

The definition for digital literacy evolved into categories and classifications beyond the technical skills to perform a specific task. In recent definitions, there is an increased emphasis on critical thinking, communication skills, and problem-solving. For example, a 2018 UNESCO definition, describes digital literacy as: “the ability to access, manage, understand, integrate, communicate, evaluate and create information safely and appropriately through digital technologies for employment, decent jobs and entrepreneurship. It includes competences that are variously referred to as computer literacy, ICT literacy, information literacy and media literacy” (Law et al. 2018).

The concept of digital competence is derived from the broader concept of competence, which pertains to the constellation of abilities and/or capacities embodied in successful activities (tasks) and outcomes. Therefore, this approach emphasizes a person’s social and cultural context in performing a task, rather than reducing it to a list of abilities and capabilities (Hager and Beckett 1995).

The European Commission uses the term digital competence, proposing the following definition:

“Digital competence involves the confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society. It includes information and data literacy, communication and collaboration media literacy, digital content creation (including programming), safety (including digital well-being and competences related to cybersecurity), intellectual property related questions, problem solving and critical thinking” (European Commission Directorate-General for Education, Youth, Sport and Culture 2019).

In this and other definitions, the concept of competence is understood as a combination of knowledge, skills, and attitudes.¹ This emphasizes that the concept of digital competence tends to be more focused on cognitive and social emotional aspects of working and living in a digital environment beyond simply having technical skills.

¹ UNCTAD (2018) defines digital competence as “encompasses the knowledge and skills required for an individual to be able to use ICT to accomplish goals in his or her personal or professional life.”

Relevant Digital Skills Frameworks

European Commission's Digital Competence Framework for Citizens

The European Commission's Digital Competence Framework for Citizens (DigComp) has been widely adopted by many OECD countries and some Asian and Latin American countries and institutions as a benchmark for enhancing and assessing digital competences (the Africa region lacks a comprehensive framework for digital skills). It has also been used in various research investigations and policy papers and is periodically updated. The next iteration, DigComp 2.0 is the most comprehensive, best-known, and widely used digital literacy framework. The framework describes which competencies are needed by citizens to use digital technologies in a confident, critical, collaborative, and creative way to achieve goals related to work, learning, leisure, inclusion, and participation in the digital society (Vuorikari, Kluzer, and Punie 2022). The most current version, DigComp 2.2 was released in 2021 and expands the framework by offering more than 250 examples of the skills, knowledge, and attitudes that contribute to each competence (Table 2) (Vuorikari, Kluzer, and Punie 2022).

Table 2: DigComp 2.2 Conceptual Model

	Competence Areas	Dimensions
1.	Information and data literacy	1.1 Browsing, searching and filtering data, information, and digital content 1.2 Evaluating data, information, and digital content 1.3 Managing data, information, and digital content
2.	Communication and Collaboration	2.1 Interacting through digital technologies 2.2 Sharing information and content through digital technologies 2.3 Engaging in citizenship through digital technologies 2.4 Collaborating through digital technologies 2.5 Netiquette 2.6 Managing digital identity
3.	Digital Content Creation	3.1 Developing digital content 3.2 Integrating and re-elaborating digital content 3.3 Copyright and licenses 3.4 Programming
4.	Safety	4.1 Protecting devices 4.2 Protecting personal data and privacy 4.3 Protecting health and well-being 4.4 Protecting the environment

Competence Areas	Dimensions
5. Problem Solving	5.1 Solving technical problems 5.2 Identifying needs and technological responses 5.3 Creatively using digital technologies 5.4 Identifying digital competence gaps

Source: DigComp conceptual reference model. Vuorikari, R., Kluzer, S. and Punie, Y., 2022. DigComp 2.2: The Digital Competence Framework for Citizens - With new examples of knowledge, skills and attitudes, EUR 31006 EN, Publications Office of the European Union, Luxembourg, 2022, ISBN 978-92-76-48882-8, doi:10.2760/115376, JRC128415.

UNESCO's Digital Literacy Framework

In 2018, the UNESCO's Institute of Statistics refined the EU DigComp to make it more appropriate for low and middle-income countries and developed the UNESCO Digital Literacy Global Framework. The UNESCO framework is identical to the DigComp in the competence areas 1 to 5; however, it has added two critical areas: (i) fundamentals of hardware and software (level zero) and (ii) career-related competencies (level six):

Table 3: UNESCO Supplementary Competence Areas to DigiComp

Competence Areas	Dimensions
0. Fundamentals of hardware and software	0.1 Basic knowledge of hardware such as turning on/off as well as charging and locking devices 0.2 Basic knowledge of software such as user accounts, password management, logins, and how to adjust privacy settings
6. Career-related competences	6.1 Career-related competences refer to the knowledge and skills required to operate specialized hardware/software for a particular field, such as engineering design software and hardware tools, or the use of learning management systems to deliver fully online or blended courses.

Source: UNESCO and Unesco's Institute of Statistics. 2018. A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2.

2.2 DIGITAL FINANCIAL LITERACY

In an increasingly digital world, the ability to access and use digital financial services and products has become important to achieve financial goals and economic wellbeing. While there is no standardized definition of digital financial literacy, prior research has underscored that digital financial literacy is specifically

focused on the use and application of digital technology for financial services and products, and risks (Morgan, Huang, and Long 2019).

A range of definitions exist, for example, the Alliance for Financial Inclusion (2021) defines digital financial literacy as encompassing three areas: (1) Awareness and knowledge of DFS and the competency to use relevant DFS independently; (2) Awareness/ knowledge of relevant DFS-related risks and the competency to prevent these risks when using DFS; and (3) Awareness/ knowledge of related consumer protection and redress mechanisms, and the competency to seek the same when needed.

The OECD (2022) defines digital financial literacy as: “a combination of financial awareness, knowledge, skills, attitudes and behaviors necessary to make sound financial decisions and ultimately achieve individual financial well-being” (See Table 4 for a full list of definitions).

2.3 DIGITAL FINANCIAL CAPABILITY

A person’s digital financial capability sits at the intersection of financial literacy and digital literacy and enables users to take full advantage of digital financial services. While the terms digital financial literacy and digital financial capability are often used interchangeably, the term digital financial literacy is often associated with (technical) financial knowledge, such as understanding how to use digital platforms, tools and services. On the other hand, digital financial capability is considered a broader term, going beyond knowledge and understanding, also including behavior and the interaction of knowledge, skills and attitudes, such as the ability to apply that knowledge and use digital financial tools effectively. Specifically, it is defined as: “an individual’s competencies in financial knowledge, skills and behaviors needed to undertake informed, confident and relevant decisions and action about personal and household finances to improve one’s financial well-being” (Alliance for Financial Inclusion 2021).

2.4 THE LANDSCAPE OF DEFINITIONS

Overall, while there may not be a one-size-fits-all definition for these terms, it is clear that both digital financial literacy and digital financial capability are critical components of financial literacy in the digital age. The table below provides a landscape of definitions related to digital literacy, digital competence, financial literacy, digital financial literacy, and digital financial capability.

Table 4: The Landscape of Definitions

Theme	Definitions	Source
Digital literacy	“Digital literacy is the ability to access networked computers and use them...”	Gilster (1997)
Digital literacy	“Digital literacy refers to the assortment of cognitive-thinking strategies that consumers of digital information utilize.”	Eshet-Alkalai (2004)
Digital literacy	“Digital literacy is associated with the ability to use computers, social media, and the Internet.”	Hobbs (2010)
Digital literacy	[Digital literacy is]...“the ability to access, manage, understand, integrate, communicate, evaluate and create information safely and appropriately through digital technologies for employment, decent jobs and entrepreneurship. It includes competences that are variously referred to as computer literacy, ICT literacy, information literacy and media literacy.”	UNESCO (Law et al. 2018)
Digital literacy	The competence and knowledge of how to access and use digital products and services, such as tablets, mobile phones, web browsers, and the Internet.	FinEquity (2021)
Digital competence	“Digital Competence can be broadly defined as the confident, critical and creative use of ICT to achieve goals related to work, employability, learning, leisure, inclusion and/or participation in society. Digital competence is a transversal key competence which, as such, enables us to acquire other key competences (e.g. language, mathematics, learning to learn, cultural awareness). It is related to many of the 21st Century skills which should be acquired by all citizens, to ensure their active participation in society and the economy”.	European Commission (Punie, Brecko, and Ferrari 2013)
Digital competence	Digital competence involves the confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society. It includes information and data literacy, communication and collaboration media literacy, digital content creation (including programming), safety (including digital well-being and competences related to cybersecurity), intellectual property related questions, problem solving and critical thinking.	European Commission (European Commission: Directorate-General for Education, Youth, Sport and Culture 2019)
Financial literacy	Financial literacy represents the level of aptitude in understanding personal finance. It often refers to awareness and knowledge of key financial concepts required for managing personal finances and is generally used more narrowly than financial capability.	World Bank (Zottel and Gradstein 2018)
Financial literacy	The competence and knowledge to carry out financial behaviors and financial services that support beneficial practices, such as savings, borrowing and repaying	FinEquity (2021)

Theme	Definitions	Source
Digital financial literacy	[Digital financial literacy encompasses:] (1) Awareness and knowledge of DFS and the competency to use relevant DFS independently; (2) Awareness/ knowledge of relevant DFS-related risks and the competency to prevent these risks when using DFS and (3) Awareness/ knowledge of related consumer protection and redress mechanisms, and the competency to seek the same when needed.	Alliance for Financial Inclusion (2021)
Digital financial literacy	A combination of financial awareness, knowledge, skills, attitudes and behaviors necessary to make sound financial decisions and ultimately achieve individual financial well-being.	OECD (2022)
Digital financial literacy	The application of digital literacy and financial literacy to enable the use of digital financial services	FinEquity (2021)
Digital financial capability	[Digital financial capability refers to] “an individual’s competencies in financial knowledge, skills and behaviors needed to undertake informed, confident and relevant decisions and action about personal and household finances to improve one’s financial well-being.”	Alliance for Financial Inclusion (2021)
Digital financial capability	Digital financial capability is having the knowledge, skills, behaviors, and understanding to access financial services delivered through digital technologies.	Center for Financial Inclusion (Arnold and Stark 2022)



3. The State of Women's Digital Literacy



3.1 WHERE DO WE STAND GLOBALLY ON DIGITAL LITERACY?

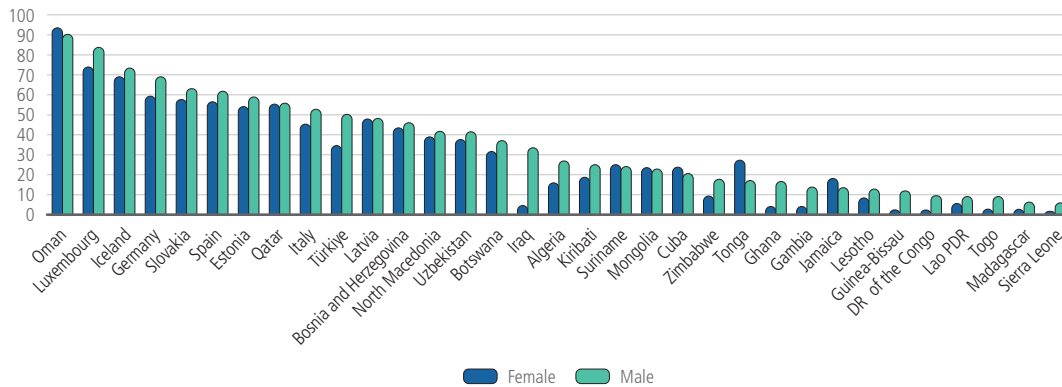
Despite some progress, gender gaps in basic digital skills persist globally, limiting women's participation in the digital economy. Data from the ITU show that men are generally more proficient in ICT skills such as moving files, sending email attachments, and installing devices, with particularly low proficiency levels in certain African and Middle Eastern countries. As digital literacy becomes increasingly essential, addressing these disparities is critical to ensuring equitable access to technology and economic opportunities.

While available data from the ITU (below) indicate progress towards closing the global gender gap in basic digital skills, it also shows that work remains to ensure everyone can participate in the digital economy. To assess digital literacy and skills among women and men, SDG indicator 4.4.1 (proportion of youth and adults with information and communication technology (ICT) skills) under the goal of quality education is used. Figures 1-3 illustrate the basic information and communications technology (ICT) skills of women and men in various countries, specifically their ability to move or copy a file; send emails with attachments; and connect and install devices.² Notably, these indicators are based on digital skills associated with laptops or personal computers rather than mobile phones, despite phones being the primary device that people in LMICs use to access the Internet, due mainly to affordability (Satari 2021; Mhlanga and Beneke 2021).

In most countries, though not all, men are more likely to have these skills than women. Certain African countries have particularly low levels of digital skills, for example in Sierra Leone only 1.7 percent of women and 5.9 percent of men can copy or move a file or folder. In Iraq, 4.6 percent of women can copy or move a file or folder compared to 33.5 percent of men.

² *Note:* This indicator is defined as the percentage of youth (aged 15-24 years) and adults (aged 15 years and above) that have undertaken certain computer-related activities in a given time period (e.g. last three months).

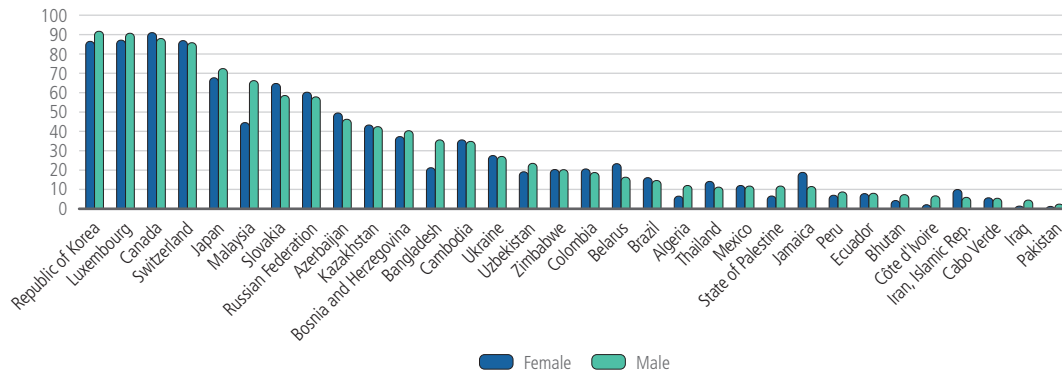
Figure 1: Youth and adults who can copy or move a file or folder, by sex (percentage)



Source: ITU/UN Women SDG Indicator Dashboard, <https://data.unwomen.org/data-portal/sdg>.

Slightly more advanced (although still relatively basic) digital skills see less people claiming they have these capabilities. Figure 2 shows that in a half of the countries surveyed, less than 30 percent of both men and women are able to send emails with attached files.

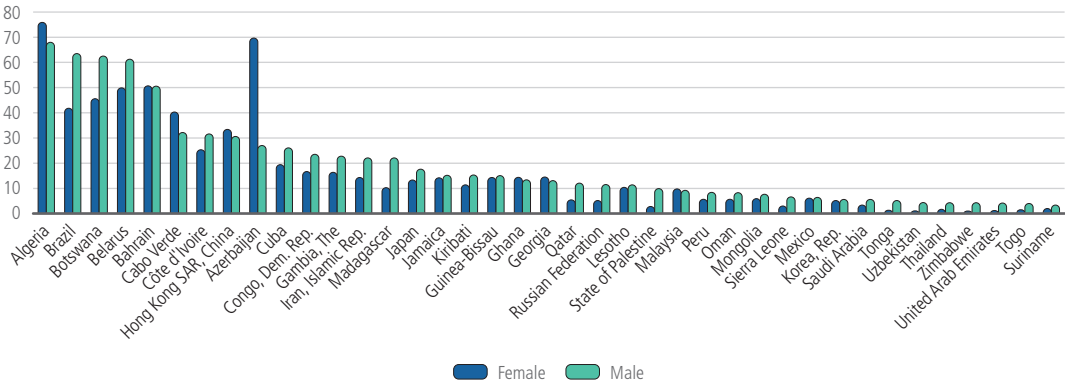
Figure 2: Proportion of youth and adults who can send emails with attached files, by sex (percentage)



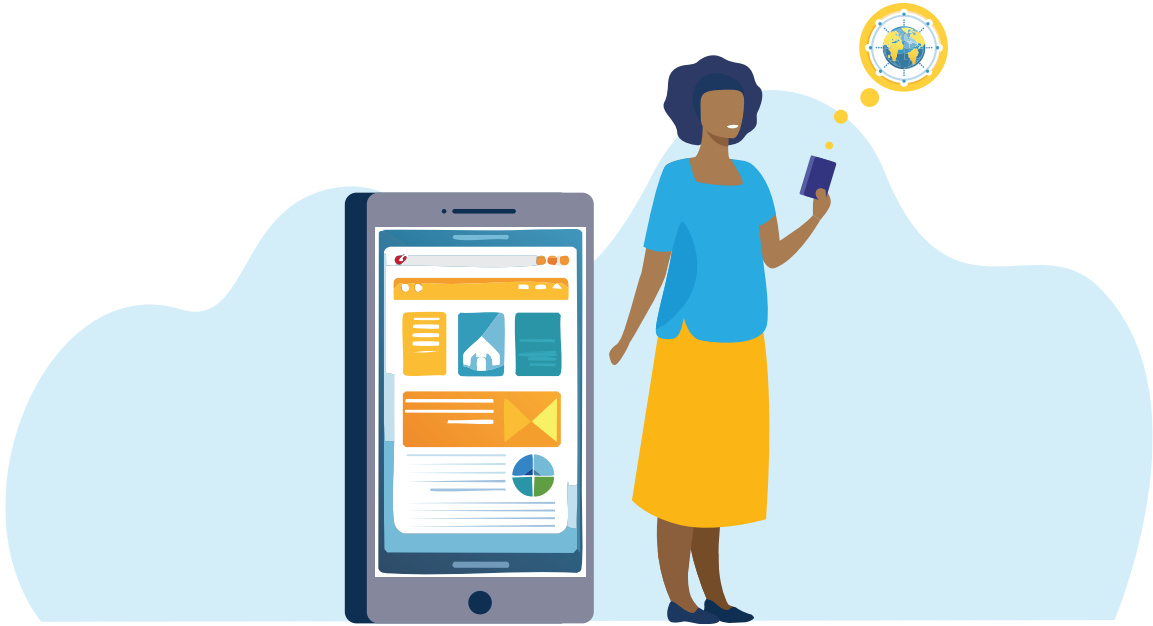
Source: ITU/UN Women SDG Indicator Dashboard, <https://data.unwomen.org/data-portal/sdg>.

Figure 3 shows that in most countries surveyed, less than 15 percent of both men and women can connect and install devices. As digital literacy becomes increasingly vital, understanding and narrowing these gaps is crucial for fostering inclusive and equitable technological access worldwide.

Figure 3: Proportion of youth and adults who can connect and install devices, by sex (percentage)



Source: ITU/UN Women SDG Indicator Dashboard, <https://data.unwomen.org/data-portal/sdg>.



4. Key Barriers to Women's Digital Literacy



Social and economic inequalities affect all aspects of women's lives and make it more difficult for them to take advantage of the resources and the opportunities that the Internet and digital devices provide. The digital disadvantage that women experience in many societies reflects these existing disparities (Van der Spuy and Souter 2018). As a result, ICTs are influenced by the social and political environments in which they are created and used, therefore, they are not gender neutral (Huyer, Ertl and Dryburgh 2006).

This section examines the fundamental barriers that hinder women's digital literacy, exploring the evidence to gauge their significance and impact. These fundamental barriers are: 1. Insufficient digital connectivity; 2. Affordability constraints; 3. Low levels of education; 4. Restrictive gender and social norms; 5. Limited awareness and low levels of digital confidence; 6. Lack of appropriate design and relevant content; and 7. Concerns around online safety and security. This report provides an overview of each barrier and highlights available evidence and studies.

4.1 INSUFFICIENT DIGITAL CONNECTIVITY

Insufficient digital and supporting connectivity infrastructure presents a considerable obstacle to digital inclusion. While access is expanding rapidly in some regions, many areas, particularly those regions affected by conflict or located in rural and remote settings, remain unconnected (Geyer 2008). Even where digital infrastructure is available, usage may remain limited (Sipior, Ward and Connolly 2011).

Even in areas with mobile Internet coverage, connectivity challenges persist due to various factors. Connectivity experience is often more of a barrier to increased mobile Internet use than to initial adoption. This challenge was identified as one of the top three barriers for male mobile Internet users in all surveyed countries of the GSMA report (except those in South Asia) and for women in Egypt, Senegal, Guatemala, Mexico, Ethiopia, and Uganda (GSMA 2024a).

For instance, in countries where connectivity experience is reported as one of the top three barriers, 4G coverage averages around 90 percent, yet many users

continue to rely on 3G. In Senegal, 91 percent of the population has access to 4G, but 58 percent of mobile broadband connections are still on 3G. This disparity is likely due to the prevalence of 3G-only handsets, which limits users' connectivity experiences. Network performance also plays a role; while network quality has improved globally, a significant gap remains between high-income countries and low- and middle-income countries. In 2022, the average download speed was 71 Mbps in high-income countries compared to just 17 Mbps in low- and middle-income countries (GSMA 2024a).

4.2 AFFORDABILITY CONSTRAINTS

Limited financial resources hinder women's access to mobile Internet, especially in rural areas and low-income households, posing a major challenge to digital inclusion. Reports from 2024 highlight affordability and digital skills as the two greatest barriers to individuals' mobile adoption (GSMA 2024b). Affordability, encompassing data costs and Internet-enabled devices, remains a critical factor, disproportionately affecting women in lower-income communities (GSMA 2015a, 2024b).

Globally, women face fewer economic opportunities than men, with labor force participation rates at 48.7 percent for women compared to 73.1 percent for men (World Bank 2015). Women are more likely to work in low-productivity roles, informal employment, or transition between informal work and being out of the workforce. They also have fewer opportunities for business expansion and career progression (World Bank 2022). As a result, women often have less disposable income, making mobile phones and Internet-enabled devices unaffordable.

For the poorest 20 percent, handset costs can consume up to 51 percent of monthly income, a burden disproportionately affecting women (GSMA 2024b). Due to their lower incomes, women often purchase less sophisticated devices, limiting their ability to fully leverage mobile Internet (GSMA 2024a). High costs for data, SIM cards, and digital services further exacerbate these barriers, particularly for women and girls in low-resource settings.

This issue is even more pronounced in rural regions, where lower income levels make mobile Internet access less affordable. A study found that 35 percent of rural respondents in Colombia, Ghana and Uganda cite the high cost of mobile data as the main obstacle to increasing Internet use, while one third of people in these countries, along with Indonesia, pointed to device costs as a primary reason for not accessing the Internet (Brudvid and Cameron 2020). Therefore, affordable entry-level Internet-enabled devices are key to providing meaningful Internet access. These devices fall into two categories: smart feature phones and low-cost smartphones (See Box 1).



Box 1 Feature vs. Smartphone Usage

Smart feature phones are a 4G-enabled hybrid of feature phones and smartphones. They look like basic feature phones, have a small screen and enable via a 12-button keyboard rather than a touch screen. However, unlike basic feature phones, smart feature phones connect to the Internet and offer access to applications from the online app stores (with several hundreds of apps available).

Overall, these hybrid devices have lower cost structures than entry-level smartphones and are available in the market at lower price points to target lower income customer segments, particularly in low- and middle-income markets.

Low-cost smartphones have larger touch screens to enable advanced access to Internet services and apps. These handsets have the functionalities of higher-end smartphone models, but optimize technical specifications, components, and materials to lower costs, including operating system (OS), memory, batteries, and cameras. These devices can access a large ecosystem of applications predominantly from the Google Play Store,³ as well as from application stores such as Aptooid or SlideMe.

Source: Amin, Rami and Doyle Gallegos. 2023. Affordable Devices for All: Innovative Financing Solutions and Policy Options to Bridge Global Digital Divides. Washington, DC: World Bank. <http://documents.worldbank.org/curated/en/099080723143031193/P1737510ac79240b90aaa10>.

Smartphone ownership is a key driver of Internet access and usage. Smartphone users are far more likely to adopt mobile Internet, use it frequently, and engage with its various applications. Research indicates that when women own smartphones, their mobile Internet awareness and usage closely mirror those of men (GSMA 2024a). In most survey countries of GSMA's report, smartphone ownership strongly correlates with mobile Internet adoption. For instance, in Egypt, 65 percent of men and 54 percent of women use mobile Internet, matching the rates of smartphone ownership at 64 percent for men and 54 percent for women. This highlights how owning a smartphone significantly boosts awareness and regular use of mobile Internet, with women achieving usage levels nearly equal to men once they have access to these devices (GSMA 2024a).

³ Over 3.55 million applications were available as of October 2022. "Google Play: number of available apps as of Q3 2022." *Statista*. Accessed November 27, 2024: <https://www.statista.com/statistics/289418/number-of-available-apps-in-the-google-play-store-quarter/#:~:text=Between%20the%20beginning%20of%202019,the%20last%20quarter%20of%202021>.

Notably many people, especially women, access mobile Internet through someone else’s device, which can limit or even restrict their opportunities to fully utilize it. Additionally, in some countries, a considerable proportion of smartphone owners do not use mobile Internet, particularly women. This indicates other barriers at play hindering their use of mobile internet In Kenya, for instance, 18 percent of women who own a smartphone do not use mobile Internet compared to 9 percent of men (GSMA 2024a).

Despite overall growth in mobile Internet adoption, a widening and persistent gap remains in women’s meaningful use of it. The Alliance for Affordable Internet (A4AI) introduced the framework of meaningful connectivity in 2020 to start tracking the depth of different mobile phone experiences beyond access, highlighting the necessary standards to enable someone to work, live and participate in the online world. The framework focuses on four pillars: 4G internet speed, smartphone ownership, an unlimited broadband connection at home, work or place of study and daily use. Compounding the issue of meaningful connectivity, the digital gender gap and urban-rural divide disproportionately disadvantage women and those in rural or remote areas, further reducing their access to and use of the Internet.

4.3 LOW LEVELS OF EDUCATION

Women’s lack of access to education acts as a barrier to using and benefiting from the digital devices and services. Despite good progress in achieving gender parity in education, several barriers persist. At the primary and secondary school levels, girls and boys complete these grades at roughly the same rate.⁴ According to UNESCO (2023), 250 million children and youth are out of school globally, of which 122 million are girls and 128 million are boys. In countries affected by conflict, girls are more than twice as likely to be out of school than girls living in non-affected countries.⁵

There are myriad barriers to girls’ education, including poverty, early and forced marriage, sex-based discrimination, and safety concerns (for example, when traveling long distances to attend school). Poor families often face challenging decisions when it comes to providing their children with an education and sending them to school. These decisions typically relay on a complex cost-benefit analysis that involves comparing the direct expenses associated with schooling to the potential value of their child’s time in both the labor market and the marriage

4 Female primary completion rate: 89.6 percent (2019, latest available), male primary completion rate: 90.1 (2019, latest available); Female lower secondary completion rate: 76.8 percent (2019, latest available), male lower secondary: 75.8 percent (2019, latest available). Source: Gender Data Portal (database), World Bank, Washington DC, (accessed 2023), <https://genderdata.worldbank.org/topics/education>.

5 “Girls’ Education.” n.d. UNICEF.org (web page), (accessed 2023), <https://www.unicef.org/education/girls-education>.

“market.” Consequently, parents may be less willing to invest in girls’ education due to their underestimation of the long-term benefits it can offer (World Bank 2017). This decision-making process frequently results in additional hardships for girls, as families tend to prioritize investing in education for boys over girls.⁶

These barriers can reinforce each other and are interconnected, making it even more difficult for girls to access educational opportunities (UNESCO 2015). With limited access to formal education and lower levels of basic skills acquired such as reading, writing, and performing basic mathematics, girls are disadvantaged in building or growing their digital skills.

One’s sex can exacerbate and amplify pre-existing disadvantages, frequently intersecting with factors such as socioeconomic status, ethnicity, geographical location, religion, sexual orientation, disability, age, and race. The World Bank’s *World Development Report 2018: Learning to Realize Education’s Promise* (2017) found that across 44 economies boys from the lower-income half of the population were nearly 75 percent more likely to successfully complete grade 5 when compared to their female counterparts. However, this advantage diminished appreciably in wealthier segments, with boys holding only a marginal 20 percent advantage. Moreover, a staggering 70 percent of girls who were not enrolled in primary school in 2006 belonged to socially marginalized groups.

During the COVID pandemic many educational institutions shifted to online and remote learning. However, this has exposed existing inequalities in device and Internet access, particularly in rural and low-income areas. While digital and remote learning has expanded, limited access to electricity and the Internet prevents many young people from taking advantage of these services. A joint United Nations Children’s Fund (UNICEF) and ITU report (2020) identified that 2.2 billion—or two-thirds of all children and young people aged 25 years or less—do not have Internet access at home. Moreover, the report finds statistically significant differences in Internet access between countries, regions, wealth groups and urban-rural settings. In West and Central Africa, for example, only 5 per cent of children and young people have Internet access at home compared to the 33 percent global average. Without the ability to read and write, accessing digital resources and e-learning platforms becomes increasingly challenging and thus presents a challenge to achieving digital literacy.

Gender gaps in education manifest in disparities in adult literacy between women and men, because women are lacking necessary foundations to acquire digital skills and use digital technologies. For example, across low-income economies, the adult literacy rate for women stands at 53.3 percent versus 68.7 percent for men.⁷

6 “Girls’ Education.” n.d. UNICEF.org (web page), (accessed 2023), <https://www.unicef.org/education/girls-education>.

7 Gender Data Portal (database), World Bank, Washington DC, (accessed November 11, 2024), <https://genderdata.worldbank.org/topics/education>.

The link between women's lower levels of education and income and the digital gender divide is becoming more evident. A study conducted by Research ICT Africa confirms that education and income have a positive impact on ownership and use of ICTs. When statistically controlling for income and education, the gender digital divide is eliminated in most African countries (Deen-Swarray et al. 2014). The study finds that it is mainly this underlying gender gap, in income and education, that contributes to the exclusion of women in the ICT domain. Other studies, such as the After Access studies conducted by Research ICT Africa (Gillwald and Chair 2019) and LIRNEAsia (2019) support these research outcomes.

A UNESCO (2015) analysis across nine rural communities in Sub-Saharan Africa found that to have a greater impact, mobile phone-based literacy projects should go beyond the traditional illiterate/literate binary and take into account the socio-economic and cultural contexts of learners. This includes facilitating opportunities for education and rural livelihoods among women, as well as opportunities to amplify their voice and participation in their communities.

According to an empirical study that examined 12 Latin American and 13 African countries between 2005 and 2008, women tend to have lower access to employment, education, and income, which results in fewer women accessing and using ICTs. However, the study found that when these variables are controlled for, women exhibit an increased usage of digital tools than men (Hillbert 2011).

Even when women can access the Internet, they tend to limit their use to fewer applications and available services (GSMA 2024a). A GSMA report shows that women who do not use mobile phones at all, as well as women who are reliant on borrowing others' phones, tend to have a lower level of education than women who have their own phones. Women with lower levels of education are more likely to report difficulties in using mobile phones, the Internet generally, and have more challenges with technical literacy, content understanding and confidence (GSMA 2024a). Often poorly designed handsets, irrelevant content and a lack of regional languages on mobile phones create more barriers for women than for men (Girl Effect and Vodafone 2018).

A study conducted by the Web Foundation found that women across nine low-income countries in Africa and Asia who have a secondary education or have completed secondary school are six times more likely to be online than women with only primary education or less (The Web Foundation 2015).

Considering the increasing importance of digital skills for employment, the digital literacy barrier for women hinders them from taking advantage of job opportunities with digital tasks and excludes them further from the digital workforce.

4.4 RESTRICTIVE GENDER AND SOCIAL NORMS

Social norms refer to the unwritten rules and accompanying behaviors that govern social behavior, perceptions, and conduct. They shape how people behave and how people expect others to behave (Burjorjee, El-Zoghbi, and Meyers 2017). These informal rules are often highly gendered in that different norms apply to men, women, boys, and girls, and they impact individuals' lives to resonate in varying ways. In many countries, social norms determine women's education level, their ability to earn income, make financial decisions, and their access to technology. These social norms also influence the access, usage and benefits of financial services and products (Koning, Ledgerwood, and Singh 2021).

A study conducted in India found that even when women were permitted to use smartphones, they were restricted to only speak with family members. In contrast, men used their smartphones for socializing, work and entertainment (Scott et al. 2021). Despite women being online or having a mobile device, social norms can lead to a situation where using technology and owning a mobile device might be perceived as engaging in a negative behavior (Barboni et al. 2018). One of the few studies focusing on the digital lives of adolescent girls by Vodafone Foundation and Girl Effect identified that girls have often internalized negative ideas that mobile devices and the Internet are unsafe spaces for and the use might socially isolate them from their families and peers (Girl Effect and Vodafone 2018).

Men might act as gatekeepers of women's decision-making and of technology, whereby they forbid women to use mobile phones, controlling and restricting their access and use (Girl Effect and Vodafone 2018). Particularly in South Asia, women often report that male family members forbid them the use of mobile or the Internet (Tyers et al. 2021). The lack of family approval plays a considerable role in preventing women's use of mobile Internet and devices.

In a study by GSMA, lack of family approval ranked in the top three barriers to mobile ownership for women in Nigeria, Bangladesh and Pakistan. In Pakistan, it was the most frequently cited individual barrier, reported by 35 per cent of women who do not own a phone compared to just three per cent of men (GSMA 2022b). Across India, "women risk damaging their reputation if they use or own a mobile phone" because their families fear that women's use of mobile phones could encourage promiscuity or challenge traditional societal norms (Laghaei, Meltzer, and Ondili 2021).

In contrast, other studies suggest that owning a mobile phone, as well as knowing how to operate it, can increase the social and community status of women. This is especially the case in the context of women running a business or engaged in entrepreneurship activities (Cummings and O'Neil 2015).

4.5 LIMITED DIGITAL AWARENESS AND LOW LEVELS OF DIGITAL CONFIDENCE

Women tend to have a lower level of understanding of the potential of the Internet than men, and therefore perceive it as lacking value to them personally (Sey and Hafkin 2019). Low levels of digital confidence also inhibit the use of digital devices and services for women and girls. Underpinned by social norms, women tend to perceive that the Internet and associated content is not relevant to them. This likely contributes to fewer women aspiring to use digital technologies and obtain digital skills. Additionally, a lack of self-confidence in using mobile phones acts as a barrier for women (GSMA and LIRNEasia 2016). GSMA has found that women who have limited skills tend to limit their use of applications on mobile devices to so-called “applications islands,” due to their inability to transfer their skills to new applications.

A 2023 GSMA report highlighted the barriers that micro-entrepreneurs face when using digital products and services. Women micro-entrepreneurs often lack confidence and familiarity with mobile services, such as mobile Internet and mobile money. Even if they are aware of these services, they may not grasp how these tools can benefit their businesses, and they may hesitate to use them independently. For instance, 30 percent of Indonesian women and 28 percent of Senegalese women who know about mobile Internet but do not use it cited difficulty in accessing it on a mobile device as a major barrier. Similarly, 41 percent of Senegalese women who have heard of mobile money but do not have an account mentioned challenges in using a phone or fear of making mistakes as reasons for not having an account (GSMA 2023).

4.6 LACK OF APPROPRIATE DESIGN AND RELEVANT CONTENT

The lack of appropriate design, relevant content, and diverse local languages on end-user devices hinder women from engaging with technology and the Internet. Lower access to smartphones and different usage preferences creates additional barriers for women to understand and interact with content.

Often, poorly designed handsets combined with irrelevant content and a lack of diverse local languages on end-user devices creates more barriers for women than for men (Girl Effect and Vodafone Foundation 2018). Due to limited experience and less expensive and sophisticated handsets, many women use a narrower range of digital services—primarily voice and text messaging functions. Women also tend to use digital services less often and less intensively than men (The Web Foundation 2015).

Arifu, a Nairobi-based social enterprise, found through its research that women generally spend more time completing modules and revisiting content than men. Analyzing women’s learning and engagement behaviors with digital content can provide valuable insights for enhancing content appeal and relevance, ultimately improving digital skills materials (Arnold and Venhatesan 2021).

According to the GSMA, women who do not use mobile phones and those who do not borrow mobile devices generally have lower levels of education. Less educated women are more likely to express difficulties in using mobile phones and the Internet, facing challenges related to technical literacy, understanding content, and self-confidence (GSMA 2024a).

4.7 CONCERNS AROUND ONLINE SAFETY AND SECURITY

Women and girls face a higher safety and security risks than men associated with online and mobile access. These concerns hinder women’s and girls’ use of technology and create an additional burden and barrier.

No standard definition of online violence exists. Several international and non-governmental actors have attempted to create definitions and related terminology (See Table 5). For example, the International Center for Research uses *technology-facilitated gender-based violence* to refer to an action carried out using the Internet and/or mobile technology that harms someone because of their sexual or gender identity (Hinson et al. 2018). This definition aims to capture the broad spectrum of violence that shifts from online spaces into physical ones and vice versa. *Cyber violence* is another commonly used term, referring to gender-based violence perpetuated through electronic communication and the Internet (Hammond et al. 2022).

Table 5: Common Definitions for Online Violence

Term	Definition	Related Terminology
Technology-facilitated gender-based violence	An action by one or more people that harms others based on their sexual or gender identity or by enforcing harmful gender norms. This action is carried out using the Internet and/or mobile technology and includes stalking, bullying, sexual harassment, defamation, hate speech and exploitation (Hinson et al. 2018).	
Cyber violence	Gender-based violence that is perpetuated through electronic communication and the Internet (Becke, Lilleston, and McCleary-Sills 2018; European Agency for Fundamental Rights 2015).	Online violence, digital violence, digital abuse, cyber violence against women and girls, cyber abuse, cyber aggression, technology-related violence.

There are also several overlapping behaviors commonly associated with online violence, such as cyber harassment, cyber stalking, cyberbullying, doxing and non-consensual dissemination of intimate images (See Table 6).

Table 6: Behaviors Commonly Associated with Online Violence

Term	Definition	Related Terminology
Cyber harassment	Unwanted offensive and sexually explicit emails or text messages; inappropriate advances on social networking sites; threats of physical or sexual violence by email or text message; Hate speech, meaning language that denigrates, insults, threatens or targets an individual based on her identity (gender) and other traits (such as sexual orientation or disability).	Electronic harassment, Internet harassment, cyber gender harassment, cyber / online sexual harassment, technology-related / cyber violence against women and girls
Cyber stalking	Cyber stalking is stalking through email, text (or online) messages or the Internet. Stalking involves repeated incidents, which may or may not individually be innocuous acts, but combined undermine the victim's sense of safety and cause distress, fear, or alarm. Sending emails, text messages or instant messages that are offensive or threatening; posting offensive comments about the respondent on the Internet; sharing intimate photos or videos of the respondent, on the Internet or by mobile phone.	Online stalking, digital stalking
Cyber bullying	An aggressive intentional act carried out by a group or individual, using mobile phones or the Internet, repeatedly and over time against a victim who cannot easily defend him or herself.	Electronic bullying, Internet bullying, cyber aggression, online bullying
Doxing	The publication on-line of personal information from the victim without any consent.	
Non-consensual dissemination of intimate images	The online distribution of sexually graphic images or videos without the consent of the individual appearing in the images. The perpetrator is often an ex-partner posting intimate relationship pictures in retaliation for conflict or breakup. In other cases, images are obtained by hacking into the victim's computer, social media accounts or phone. The term includes the action of publishing the images online and threats to the victim regarding the publication of intimate material.	Revenge porn ⁸ , non-consensual pornography

Sources: Hinson L, Mueller J, O'Brien-Milne L, Wandera N. (2018). *Technology-facilitated gender-based violence: What is it, and how do we measure it?* Washington, DC: International Center for Research on Women; European Institute for Gender Equality (EIGE). *Cyber violence*. <https://eige.europa.eu/thesaurus>; Backe, Emma Louise, Pamela Lilleston, and Jennifer McCleary-Sills (2018). "Networked Individuals, Gendered Violence: A Literature Review of Cyberviolence." *Violence and Gender* 5, no. 3: 135-146; European Agency for Fundamental Rights (2015) *Violence Against Women: An EU wide survey*. Luxembourg: Publications Office of the European Union; Cassidy, Wanda, Chantal Faucher, and Margaret Jackson (2013). "Cyberbullying among youth: A comprehensive review of current international research and its implications and application to policy and practice." *School Psychology International* 34, no. 6: 575-612.; European Institute for Gender Equality (EIGE). *Revenge porn*. <https://eige.europa.eu/thesaurus/terms/1488>.

⁸ As defined in European Institute for Gender Equality's Thesaurus, s.v. "Revenge porn." <https://eige.europa.eu/publications-resources/thesaurus/terms/1488>.

Additionally, a term closely related to gender-based online violence is “gendered disinformation.” Although there is no universally accepted definition, several working definitions have emerged. A widely used definition characterizes gendered disinformation as an umbrella term for “information activities (creating, sharing, disseminating content), which attacks or undermines people on the basis of their gender; weaponizes gendered narratives to promote political, social or economic objectives” (Judson et al. 2020). A recent UN report by the Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression highlights gendered disinformation as a targeted strategy against women and gender nonconforming individuals. Like other forms of disinformation, it spreads false or misleading information with the intent to harm both individuals and society. Gendered disinformation is characterized by falsity, malign intent, and coordinated efforts. It not only undermines free expression but also reinforces systemic barriers to gender equality, posing threats to the safety and health of those affected (Khan 2023).

Online violence, particularly in LMICs, is under-researched. However, available data from high-income countries indicate that this form of violence is prevalent. A survey of over 40,000 women from 28 countries across the European Union finds that 11 percent of women have experienced cyber harassment, specifically receiving offensive, unwanted or explicit emails or text messages since the age of 15. Women between 18 and 29 years are found to have the highest risk of online violence in Europe with 4 percent reporting experiences of cyberstalking a year before the survey; this figure was less than 1 percent for women over 60 years old (European Agency for Fundamental Rights 2015).

Other studies have also provided deeper insights. An innovative web-based study across 15 low- and middle-income countries with responses from over 40,000 Internet users found that nearly 40 percent of all respondents reported that they do not feel safe from harassment and violence while they are online, and 22 percent indicated that they have personally experienced some form of online violence. Women were more likely to report that online violence perpetrated against them was linked to their sex. The respondents from the MENA region felt the least safe (American Bar Association Rule of Law Initiative, RIWI Corp, and USAID 2019).

A 2017 study from Pakistan measured women’s experiences of online violence and found that 40 percent of women have faced various forms of harassment on the Internet, and most were related to harassments on Facebook. Due to the issue of under-reporting in these studies, the figures reported are likely to be underestimated. The same study in Pakistan found that when women were asked why they did not report harassment, 45 percent suggested that it was embarrassing to do so, 47 percent thought that it was because they thought

their complaints would not be taken seriously, and 9 percent thought that it would be a waste of time (Digital Rights Foundation 2017). Although there is limited available evidence regarding the effects of actions like online harassment and cyberstalking, smaller research efforts are beginning to contribute to our understanding. These initiatives suggest a variety of consequences, including self-censorship, which results in the suppression of women's voices and their reduced involvement in public discourse (Hammond et al. 2022). The Web Foundation found that 59 percent of young women who experienced online abuse say that it has affected their emotional and/or physical well-being and their relationships, reduced their confidence in using the Internet, and made them less capable than others (The Web Foundation 2020).

The risks around safety, security and harassment are especially acute for social media use, harassment from strangers via unsolicited calls, online messages, text messages and cyberbullying. Sixty-eight percent of reported online abuse of women and girls takes place on social media platforms, making social media especially unsafe for women. This is especially the case for countries and regions where gendered social norms prescribe what women should and should not do (The Web Foundation 2020).

Since many women have lower levels of literacy, a smaller social circle and less access to external information sources than men, they often face an increased risk of misinformation when online. This problem is particularly prevalent in areas with lower literacy levels where misinformation can spread rapidly online and offline. In India, for example, the use of social media platforms like Facebook and WhatsApp to disseminate false information has become a trend that misleads people and threatens the safety and security of individuals and entire communities. This deliberate targeting through false propaganda can have severe consequences (Krishnan 2017). Deliberate targeting through false propaganda can have far-reaching consequences. We witnessed this during the COVID-19 pandemic, where false information spread on social media undermined institutional trust and leading to misinformation about the virus, treatment and vaccines (Ennab et al. 2022). The impact also goes beyond institutions and extends to the lives of individuals (Krishnan 2017). For example, in 2018, misinformation shared on WhatsApp led to a fatal mob attack that killed a young man and injured two others in Southern India (Samuels 2020).

In recent years, various initiatives to combat misinformation and the spread of false narratives have been established. One meaningful step was the establishment of the International Fact-Checking Network in 2015. The network monitors trends in the fact-checking field, sharing best-practices, and providing support to more than 100 fact-checking all over the world.⁹ In response to the

⁹ For more information about the International Fact-Checking Network, see Poynter's website at <https://www.poynter.org/ifcn/about-ifcn/>.

fatal incidents in India in 2018, WhatsApp restricted the message forwarding option by limiting it to five chats and labeling these messages as a “forwarded message”. The company also launched an information and awareness campaign and has been working together with the Network to continue monitoring its platform for misinformation (WhatsApp 2018).

While it becomes increasingly difficult to verify information for individuals with basic education levels in urban areas, women in rural regions might be at an even greater disadvantage when wanting to verify and access reliable information first-hand due to lack of other information sources.



5. What Works to Address These Barriers?



This chapter provides a review of the evidence on what works to address the barriers that likely hinder women's digital literacy. By drawing on available studies and research, this chapter takes a broad view in analyzing general strategies that have successfully improved women's digital literacy and highlighting actionable insights for policymakers and practitioners. These strategies aim to enhance inclusive digital connectivity and implementing gender-smart digital skills training programs, specifically for low-income women. Key approaches include increasing access to public Internet points, providing end-user equipment, enhancing technology skills training with information and content relevant to women's lives, engaging gatekeepers, countering gender stereotypes, facilitating access to role models and mentors, considering barriers such as transportation, childcare and time constraints, prioritizing mobile literacy, and improving online safety and security. In-depth assessment of the efficacy of distinct program design elements is later presented in Chapter 6.

5.1 EXPAND INCLUSIVE DIGITAL CONNECTIVITY

Increase Access to Public Internet Access Points (PIAPs)

Many countries have tried to reduce the financial barriers to access the Internet by providing PIAPs in public and/or community settings (Alonso 2023). Globally, 53.4 percent of countries in 2022 provided free Internet access through kiosks, community centers, post offices, libraries, public spaces or free Wi-Fi (UN-DESA 2022). Understanding and reaping the benefits of digital technologies often start with collective use at an Internet cafe or in a community center, library, school, or university, and progresses towards private use in the home. Therefore, PIAPs serve as a key entry point to introduce people to ICTs (Lopez-Sintas, Lamberti, and Sukphan 2020). In Nicaragua, Pro Mujer provides connectivity in Pro Mujer centers to allow their beneficiaries, mostly women, to access the Internet (EQUALS and GSMA 2019).

However, there are also some constraints to consider. For instance, women might not feel these spaces are designed for them. A study in South Africa and Tanzania found that although community telecenters are conceptualized by development agencies and governments as spaces that all community members can go to and access ICTs, women in rural communities viewed the telecenters as places for “other” people—mostly students and educated people. This preconception prevented the women from using and benefiting from the telecenters (Chigona, Mudavanhu, and Lwoga 2016).

Consequently, practitioners need to design spaces that enhance women’s and girls’ access to and use of the Internet with their needs and preferences in mind. Considering women’s time constraints when setting opening hours and ensuring the presence of female staff during peak times when women use these spaces is also key. This approach aims to enhance women’s comfort and use of these facilities (World Bank 2018).

Enable Access to End-User Equipment and Devices

End-user devices—such as desktop computers, laptops, tablets, mobiles, and smartphones—are key to access the Internet. In LMICs, mobile phones are the primary method by which most people access the Internet, and having a mobile phone or a personal computer at home increases the likelihood of having Internet access (Satari 2021; Mhlanga and Beneke 2021).

Several projects have sought to bridge the digital divide in LMICs by providing access to free devices, such as laptops, tablet computers, or phones. The One Laptop per Child project aimed to make low-cost computers accessible to the world’s poorest children, presuming that the gadgets would support their empowerment via education. However, the project’s success globally was mixed, with many countries terminating their purchases due to negative side effects. A study examined the results in two pilot schools in Ghana, one urban and one rural, showed how the existing digital gender divide was exacerbated by the project. Interviews with the teachers and students revealed an enormous disparity in ICT capabilities between the boys and girls, particularly in the urban pilot school. The difference related primarily to norms around leisure time and café use, as boys had more free time after school and visited Internet cafés, allowing more boys than girls to acquire experience and fluency in using a computer and the Internet. It is considered inappropriate for urban girls to visit cafés and they are expected to contribute to household chores and to the family income to a much greater extent than boys. In contrast, in the rural school, none of the students had ever used a computer before and the gender divide in use during the program was less pronounced than in the urban community, as many of the boys worked in cocoa farming and illegal mining and do not have free time either. Additionally, because

of the Millennium Villages Project, the rural school was served by a gender education specialist, who worked in the community to promote respect for women and girls and for girls' education (Steeves and Kwami 2017).

In Thailand, the Government launched the One Tablet PC Per Child policy and distributed 800,000 tablet computers to grade-one students nationwide in 2012. A study examining its impact found that both girls and boys had similar technology experience and positive attitudes towards tablet computer use. Recent efforts, such as the Maisha Ni Digital initiative launched by Safaricom and Google in Kenya highlight innovative approaches to increasing access to affordable smartphones, including with a focus on women (see 2).



Box 2 Maisha Ni Digital Campaign

In 2019, the mobile operator Safaricom launched the Maisha Ni Digital campaign in partnership with Google. The aim of the campaign is to address barriers to using mobile Internet adoption and use in Kenya, especially among women. The three main identified barriers are affordability of mobile Internet enabled handsets, lack of digital skills and relevance of content.

The initiative provides an affordable 4G handset for less than US\$40 smartphone, simplified Internet activation, customer support and relevant content and use cases. The Neon Ray smartphone became the cheapest 4G smartphone on the African market. Over a period of 12 month, the 4 G Neon Ray handsets were sold over 500,000 times, 54 percent of the customers were women.

The campaign uses a holistic approach to address the barriers preventing Kenyan women from using mobile Internet. The commercial interest of Safaricom focuses on the priority the target group in rural and low-income areas, particularly women. 93 percent of Neon ray adopters have upgraded from 2G or 3G and 95 percent have increased their mobile Internet use, indicating that the improved affordability increases mobile participation.

Source: GSMA. 2021a. Safaricom's Maisha Ni Digital Campaign: A Holistic Approach to Address the Barriers Preventing Kenyan Women from Using Mobile Internet. London, United Kingdom: GSMA. <https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/wp-content/uploads/2021/03/Safaricom-Maisha-Ni-Digital-Case-Study.pdf>.

Improve Affordability through Demand- and Supply-side Measures

ICT affordability issues in different parts of the world are now more evident thanks to improved data collection and measurement tools. Efforts are being taken to bring the costs down and support the expansion of access to

the Internet. The focus in many low-income countries is on the goal of bringing down the cost of 1GB of mobile broadband to equal two percent or less of the average monthly income (A4AI 2022). Lowering the costs of mobile data will allow more users, especially in rural areas, to connect to the Internet and also reduce one of the main barriers for women to connect to the Internet (Alonso 2023). The Alliance for Affordable Internet found that in 32 low and lower-middle income countries they studied, just over one third of women were connected to the Internet compared to almost half of the men (A4AI 2021).

A 2023 World Bank report covering the countries Colombia, Nigeria, Pakistan, and Rwanda conducted a demand-side survey which indicated that in these specified countries, people prefer to use their personal savings to buy expensive items like smartphones, as opposed to relying on financing options. This consumer choice is influenced by trusted practices and institutions, including established retailers and mobile network operators, which facilitate access to these major purchases. Integrating these established practices and institutions into new financing strategies can enhance the credibility of such options from the consumer's point of view. However, it is important to note that financing schemes face a challenge in these target markets, as they generally have a poor reputation. Consumers in these regions prioritize trust in their purchasing decisions, and financing options are seen as unfamiliar and potentially unstable compared to the more conventional methods of saving and managing finances. To succeed, financing schemes must work to change this perception, ensuring that consumers perceive them as beneficial rather than merely an added cost over time (Amin and Gallegos 2023).

The report highlights research and stakeholder interviews that identified five types of financing schemes and assessed that the pay-as-you-go financing model allows users to lease a device with flexible payments tied to use, which is more suitable for low-income individuals. Pay-as-you-go offers lower interest rates than other schemes, has relatively low operational costs, and mitigates the risk of default by incentivizing end-user compliance through other factors (e.g., device locking mechanisms, up-front payments).

The report discusses and presents a set of policy recommendations for policy makers designing programs for affordable entry-level devices, such as considering tax exemptions as a direct supply-side intervention. Specifically, value-added tax and similar tax exemptions can lower the cost of these devices, with the savings passed on to consumers. Direct financing interventions such as credit and risk guarantees, debt and equity funding, and financial scheme subsidization are additional initiatives that could reduce financing barriers and promote entry-level device affordability in low- and middle-income markets.

From a demand perspective, the report suggests targeted subsidies to lower the cost of devices and services for consumers. However, such subsidies are

not always feasible or ideal and should supplement other direct interventions (e.g., tax relief, credit guarantees) to address remaining demand gaps. The success of these subsidies depends on market conditions and specific design requirements to ensure they are effective, scalable, and sustainable.

Beyond direct interventions, policymakers should consider broader policies affecting device affordability, such as business-friendly regulations, targeted support for disadvantaged groups (e.g., women, rural populations), streamlined financial and mobile money rules, and consumer protection measures. While the suitability of these strategies varies by country, they offer key options for policymakers to consider when developing programs. Interventions should fit within a framework addressing supply, demand, and financing barriers to steadily move toward the goal of universal access to entry-level devices (Amin and Gallegos 2023).

5.2 IMPLEMENT GENDER-SMART DIGITAL SKILLS TRAINING PROGRAMS

Provide Information and Develop Content Relevant to Women's Lives

When designing digital skills training for women, it is crucial to consider their unique learning preferences and challenges. Training materials should align with how women use digital services and address critical safety and security concerns (McDougall et al. 2022). Programs that link technology adoption to practical, relatable benefits—such as health information—have been particularly effective in motivating women to enhance their digital skills. For instance, the Prospera Digital program in Mexico encouraged women to learn how to use text messaging by providing access to information on having a healthy pregnancy (Mariscal et al. 2019). Similarly, the Telecentre Foundation collaborated with women's organizations to design ICT training curricula based on women's expressed interests, gathered through surveys, local workshops, and data collected from women telecenter users in various countries (GSMA 2015b).

Historically, insufficient attention has been given to creating and distributing digital content that resonates with women and girls, especially those in rural areas or with lower education levels. Utilizing local languages and culturally relevant examples is essential for reaching these audiences effectively. Investing in research to understand women's mobile usage patterns, learning preferences, and engagement behaviors can provide valuable insights into what motivates them to improve their digital literacy. Women's aspirations and interaction with digital content often differ from men's and must be better identified and monitored to develop material that appeals to and benefits them. Consumer insights research is invaluable for exploring how specific use

cases for mobile technology can address women's unmet needs and aspirations (Lindsey et al. 2020).

For example, research in South Africa highlights that use cases offering both personal appeal and practical benefits, such as agricultural tips, children's educational content, or video calling family overseas, are particularly compelling for women who do not yet use mobile Internet (Lindsey et al. 2020). Such use cases can also persuade male gatekeepers of the household benefits of mobile Internet access (Alonso 2023, Lindsey et al. 2020).

Mobile money services also demonstrate the value of relevant and appealing content for women. Safaricom's *M-PESA* service in Kenya not only reduced the gender gap in mobile phone ownership but also increased mobile access for both women and men. Women justified the cost of owning a mobile phone through savings achieved by eliminating middlemen, transport costs, and physical transaction fees. Additionally, the *M-PESA* digital financial services succeed in empowering women to be largely autonomous users: more than 80 percent of women users reported being able to receive and send money and top-up credit through mobile money without any help (Alonso 2023, Santosham and Lindsey 2015). In Kenya, Arifu also provides women with relevant content and information (See Box 3).



Box 3 Arifu Digital Learning and Training Content

Arifu is a Nairobi-based social enterprise providing digital learning and training campaigns for international organizations and companies operating in the agriculture, financial services and consumer goods sector. The company leverages text messages, chatbots and WhatsApp videos to deliver their training curriculum and content to the users. For example, their financial information, such as how to practice safe borrowing and information about debt management and how to use different financial tools, is shared through storytelling formats. The firm tracks users' engagement to identify the differences between how men and women users engage with their content. While the firm did not customize their content towards women or apply a gender lens, their recent partnership has allowed them to collect sex-disaggregated insights from female customers. For instance, Arifu found that women tend to take longer to complete the modules, and spend more time with the content, returning to the information more frequently than men.

Source: Arifu (2024). Website: <https://www.arifu.com/>; and Arnold, Julia and Jayshree Venkatesan. 2021. Building Women's financial capability: A path toward transformation. Washington, DC: Center for Financial Inclusion. <https://www.centerforfinancialinclusion.org/building-womens-financial-capability-a-path-toward-transformation/>.

Engage Gatekeepers

Addressing the structural and underlying social and cultural barriers that prevent women from accessing the digital space is a crucial dimension to improving women's access to digital skills and therefore narrowing the gender digital gap (Sey and Hafkin 2019). This includes addressing "gatekeepers" who might hinder women from accessing digital skills and technology.

In many cases, men, (in their societal roles as husbands, brothers, or fathers) are the primary gatekeepers in women's lives. To address this, a common approach is to engage with couples to better understand household decision-making, budgeting, and communication dynamics (Glinski et al. 2018). This has proven to be an effective way to not only change gatekeeping behavior but also to prevent unintended consequences of women's economic participation, such as women being perceived to be acting outside "appropriate" cultural boundaries.

Engaging men as a part of improving women's digital literacy efforts can help to mitigate backlash (Sey and Hafkin 2019). An example of a male advocacy campaigns targeting the digital gender divide is TEQtogether, a global coalition launched in 2018 by the UNESCO Chair in ICT for Development at Royal Holloway, University of London. The coalition focuses on four main areas of intervention through campaigning and training workshops: informing men of how their actions impact digital gender inequality, identifying actions that men can take to enhance gender equality in the tech workplace, recommending actions that men can take to reduce digital violence against women, and encouraging reverse mentoring, through which women mentor men at all levels in tech organizations (West, Kraut, and Chew 2019).

Uninor, Telenor Group's subsidiary in India, launched Project Sampark to bridge the mobile gender gap in India. As part of this initiative, Uninor piloted a product concept called the Bandhan SIM Plan, a pack of two paired SIMs sold together, one of which was to be used by a woman and the other by a male household member. Paired SIMs offered free calls between them, with the additional benefit that adding credit to one SIM would automatically credit the other. With this product, they wished to overcome the cultural barriers keeping women from owning a mobile phone and encourage men to see the value of it for women in their household. The pilot was both socially and commercially successful. Five months after launch in 2015, sales from the Bandhan SIM Plan already accounted for over 30 percent of new Uninor subscribers in the pilot area and average minutes of usage for Bandhan SIM Plan users were higher than for other subscribers in the pilot area. The GSMA Connected Women worked with Uninor to scale up the project. In terms of social impact, data from qualitative and quantitative interviews suggested that the project was successful in breaking

the cultural barriers that prevented women from owning a mobile handset (GSMA 2015c).

Engaging men can foster the necessary community support to enhance women's participation in digital literacy programs. This approach also helps mitigate the risk of intrahousehold conflict and gender-based violence that may arise from women's smartphone ownership and usage. The World Bank, EQUALS Global Partnership, and GSMA collaborated to launch a mobile digital skills training pilot in Uganda that aimed to improve women's digital literacy and inclusion by increasing their agency, ownership, and usage of smartphones. Focus group discussions identified several risk factors, including men reporting discomfort and suspicion with women using mobile phones and the potential for violence against women in the household to increase with the actual or perceived increase in women's agency associated with smartphone access and ownership. (Mboob, Osam, and Robinson 2022). To prioritize women's safety and reduce potential risk of conflict associated with ownership and use of ICT device, the pilot held sensitization sessions with female beneficiaries alongside their male household members prior to the launch of the training. During these sessions, the project teams shared the scope of the project, project milestones, as well as the roles and responsibilities of the facilitators and the participants. They also provided an opportunity for facilitators to address concerns of participants' spouses and/or male family members. Field staff conducted individual sensitization sessions at those households whose male members were unable to attend the group session. By the end of these sessions, the pilot developed widespread community buy-in. Female beneficiaries reported feeling more comfortable participating in the pilot. Male household members were not only more accepting of the idea of women owning and using smartphones, but were actively encouraging female beneficiaries to participate in the pilot and share what they learned with other women.

A study conducted in Rwanda adds evidence on male engagement approaches; however, it also highlights the limitations of such approaches. The aim of this study was to evaluate the influence of the *Bandebereho* program's couples' intervention on various behavioral and health-related outcomes affected by gender norms and power dynamics. Although the study demonstrates significant positive effects, it is important to acknowledge that high levels of inequality and gender-based violence persisted. Approximately, one in three women from the intervention group reported experiencing intimate partner violence within the past year. Men also maintained dominance in household decision-making. The study underscores the potential of the *Bandebereho* intervention, which specifically targets the transition into fatherhood and parenting and equips couples with skills to foster stronger and more equitable relationships (Doyle et al. 2018). Box 4 highlights another intervention in the Democratic Republic of Congo.



Box 4 Social Norms Intervention in the Democratic Republic of Congo

The findings of a study conducted in the Democratic Republic of Congo indicates that the ability to challenge gender norms through interaction depends on how power is shared in those interactions and the smaller dynamics surrounding them. The original idea behind the intervention was to promote the concept of men being accountable to women in their community as a way to achieve equality. However, it became clear that while men were open to changing their day-to-day practices like participating in household tasks such as fetching water or childcare, they strongly resisted the idea of being equal or accountable to women in a broader sense. For example, men refused to discuss the behaviors they want to change with their wives in order to avoid being held accountable should they not follow through. The study found that simply performing behaviors that do not conform to traditional gender roles is not enough to dismantle entrenched gender norms. For genuine change, it is important to include women in the process of transformation. Without actively involving women and addressing power imbalances, even considerable changes in behavior only serve to maintain male dominance and perpetuate gender inequality.

Source: Vaillant J., Estelle Koussoubé, Danielle Roth, Rachael Pierotti, Mazedra Hossain, Kathryn L. Falb. 2020. "Engaging men to transform inequitable gender attitudes and prevent intimate partner violence: a cluster randomised controlled trial in North and South Kivu, Democratic Republic of Congo." *BMJ Global Health* 5(5): e002223. <https://gh.bmj.com/content/5/5/e002223.info>.

Combat Restrictive Gender Stereotypes and Social Norms

Gender stereotypes linking men to increased digital skills and ICT proficiency have been shown to negatively affect women's self-perceptions of their ability (Alonso 2023). A study among teenagers in Spain showed that there was a prevalence of gender stereotypes regarding differences in computer skills. Additionally, teenagers also had a stereotyped image of their mothers' and fathers' digital skills (Cussó-Calabuig, Farran, and Bosch-Capblanch 2017). Similarly, a study in Taiwan showed that of the eighteen informants who discussed their parents' digital knowledge, thirteen reported that their fathers had better computer skills and were more interested in computers than their mothers (Hsu 2018).

Linked to gender stereotypes, social norms and gendered roles can prevent women from acquiring digital skills. For example, a study in Jordan showed that even university-educated men felt uncomfortable with the thought of allowing women equal access to the Internet and computers (Al-Jamal and Abu-Shanab 2015). An ICT skills training in Mexico aimed at closing the gender

digital divide provides another example. The training was provided to sixty-eight men and women. However, while post-test results indicated that women improved their ICT skills, they continued to score lower than men. Focus group interviews with the women identified that the gendered roles of men and women in the community were influencing their access to and use of technology: men typically used computers and cell phones, while women only used cell phones, and spent less time overall using technology. The report explained that this difference was because men earn an income while women typically did not (Dominguez Castillo, Cisneros Cohernour, and Barberà 2018).

One way to counteract stereotypes is to link digital skills to feminine or neutrally stereotyped fields, such as creativity. A United Kingdom study found that digitally skilled teenagers expressed traditional gender stereotypes about technical skills but not about digital technology linked to creative uses when discussing their digital career aspirations. As a result, few young women were interested in technical-oriented computing, but creative-oriented computing careers were popular for both young women and men (Wong and Kemp 2018). In this same line, UNESCO's Youth Mobile Initiative, deployed in more than 20 countries worldwide, is providing young girls and boys with the skills and confidence to become creators of digital innovations (Alonso 2023).

Another way to address gender stereotypes is to pay attention to underlying learning beliefs. It is known that women perform better when they believe skills can be improved, and that intellect and abilities are not fixed or innate. A study showed that women are underrepresented in fields whose practitioners believe that raw, innate talent is the main requirement for success (Leslie, Cimpian, Meyer, and Freeland 2015). It is therefore important that teachers convey this idea to students, both explicitly through direct instruction, and implicitly through their feedback and praise (West, Kraut, and Chew 2019).

Facilitate Access to Role Models and Mentors

The negative effect of sociocultural stereotypes on girls can be mitigated by mothers and other female family members setting a positive example of technology use and encouraging girls to pursue technology-related studies and leisure activities (West, Kraut, and Chew 2019). Competent and effective female teachers and trainers help build girls' and women's self-confidence in their digital skills, inspiring them to consider careers in technology. For example, studies in the United States, Switzerland, and ten Sub-Saharan African countries¹⁰ have found that having a female professor can have a powerful effect on female

¹⁰ The Sub-Saharan African countries examined were: Benin, Burkina Faso, Burundi, Cameroon, Chad, Congo, Côte d'Ivoire, Niger, Senegal, and Togo.

students' interest and performance in STEM related classes (Alonso 2023). For example, in Bangladesh and India, in the iSocial Kallyani and Internet Saathi's programs, female trainers acted as visible, relatable female role models who benefited from the use of digital technology by earning an income from the digital services and training that they provided their peers (Tyers et al. 2021).

Relatedly, ICT mentorship programs for women and girls are also important. In Jamaica, the organization Youth Can Do IT launched a Women in ICT Mentorship Program in 2018 that pairs young women between the ages of 15 and 22 with female mentors working in the ICT industry. The program was created with the main objective of providing the opportunity for young women in pursuit of tech-related careers through mentorship and a networking community of support (Loop Jamaica 2018). A similar program in Ghana called Tech Needs Girls established a network of female computer scientists and engineers who teach girls to code and serve as mentors and role models (West, Kraut, and Chew 2019).

Mentorship can also have a positive effect even if even if mentors and mentees are close in age. For example, the Aspirations in Computing in the United States, uses peer-led learning to teach girls at the primary and secondary education levels programming fundamentals and computational thinking in hands-on environments. Of the 14,200 girls, women, genderqueer and non-binary people the program has reached, 75 percent expressed interest in taking a future computing class after the program concluded. Mentoring relationships, particularly with near-peer mentors, particularly influenced girls' self-efficacy and confidence in ICT skills (Alonso 2023).

Provide Transportation, Childcare, Meals, and Flexible Schedules

Programs designed to suit the needs of women often consider whether the training is provided at a location women feel comfortable visiting (or at their own home) and can offer transportation as needed. Other considerations might include addressing social norms that could limit their participation, such as opposition from family members (McDougall et al. 2022). In these contexts, women-only classes and having female trainers could prove important. Schedules should also be designed to accommodate the target group; for instance, classes aimed at stay-at-home mothers should be offered during school hours and welcome young children or provide childcare (West, Kraut, and Chew 2019).

To avoid adding a double burden of domestic and caregiving responsibilities, it is essential to



consider women's time constraints when designing programs aimed at advancing digital literacy. A World Bank paper highlights persistent gender inequalities in time allocation between market work and unpaid domestic tasks, despite notable progress toward gender equality in recent decades. The study finds that life events like marriage and parenthood shift individual's time use, often leading women to focus on unpaid domestic and caregiving work, while men concentrate on market work. Analyzing time-use patterns across 19 countries with varying income levels, the paper shows that prime working-age women face the greatest "penalties," particularly in labor market participation, unpaid work, and reduced leisure. In contrast, men generally experience no penalty—and sometimes even benefit—from marriage and parenthood (Rubiano Matulevich and Viollaz 2019).

Prioritize Mobile Literacy

Most digital skills training programs do not include a focus on mobile even though it is the primary way most people access the Internet (McDougall et al. 2022). Therefore, focusing on mobile training could be helpful to increase the digital access of women. To help address this shortfall in basic mobile digital skills, the Mobile Internet Skills Training Toolkit (MISTT) was created. The toolkit helps demonstrate the functionality and value of the Internet on Internet-enabled mobile phones and provides a practical, visual introduction to the most popular services, such as WhatsApp, YouTube, and Google (as well as safety features and cost estimates).

Originally developed in India, in 2017, MISTT was localized in Rwanda by Tigo, where over 300 agents received training as part of a pilot (Croxson and Rowntree 2017). While not focused on gender, the pilot found that following training, MISTT trained sales agents managed to increase the number of new data subscribers by 15 percent (compared to 0 percent in the control group). The evaluation revealed that MISTT training addressed the belief that "the Internet is not for me" and gave customers the confidence to make it something that is relevant to their own lives. It also had a ripple effect, as customers were training other people on what they had learned (GSMA 2017). This type of training could be helpful for women and other excluded groups like people with disabilities, and in fact the training included information on the accessibility features of mobile Internet services (GSMA 2021b).

Improve Online Safety and Security

Online violence against women and girls reflects gender stereotypes and patriarchal norms in society. While access to technology and the Internet can bring many opportunities for women, it can also lead to unintended

negative consequences for their safety and well-being. Women and girls are increasingly targeted by online and technology-facilitated gender-based violence, such as threats through social media, harassment, abuse, cyberbullying including revenge-porn and physical violence (Davaki 2018). Women and girls increasingly report their hesitation accessing and using the Internet due to the associated risks.

While men and women are both being targeted for cyberattacks and privacy breaches, women are often more at-risk because of their lower digital literacy and digital financial capability, and are therefore less aware of risks and risk mitigation strategies. Enhancing digital literacy, digital financial literacy, digital safety measures, and risk mitigation strategies can help minimize the risks for women and girls when accessing and using the Internet (Tyers 2020). However, social norms upholding gender inequalities and systematically disadvantaging women need to be addressed by engaging gatekeepers, household members and policymakers to improve women's and girls' safety offline and online. Box 5 highlights Vodafone's India Sakhi Sakhi Mobile-Based Safety Service.



Box 5 Vodafone's India Sakhi Sakhi Mobile-Based Safety Service

In 2018, Vodafone Idea Ltd introduced the *Sakhi* mobile-based safety service to address safety concerns and remove some of the obstacles that women face when owning and using a mobile phone. The Sakhi service offers three features: emergency alert, emergency balance, and private recharge. The main objective of the service is to respond to gender-based violence and to develop services that cater to women's needs. Since its launch it has reached millions of women in India. While research has consistently shown that safety concerns about mobiles are an important barrier to ownership and use by women, mobile phones can also make women feel safer and more connected. The findings of the evaluation on the early impact of Sakhi found that the service taps into a key motivation for mobile adoption, which is safety through connectivity. In addition, it increases women's sense of confidence and strengthens their belief that change and increased opportunities are possible.

Source: GSMA. 2019. Mitigating Women's Safety Concerns with Mobile: Vodafone Idea India Sakhi service. London, United Kingdom: GSMA. https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/gsma_resources/case-study-vodafone-india-sakhi/.

6. Designing Women’s Digital Literacy Programs



This chapter presents analysis of over 100 publicly available programs, toolkits, guidelines, and case studies focused on digital literacy and digital financial literacy training focused on women. Drawing from good practices and promising approaches highlighted in these resources, this chapter introduces a framework to categorize elements of program design, referred to as “design categories” (See Table 7). To better understand the effectiveness of each design category, an analysis of the corresponding evidence was undertaken and is presented in this chapter.

It is important to acknowledge the limitations of this report. There is limited evidence related to evaluations of these design categories within the context of women’s basic digital literacy and digital financial capability programs. As a result, this analysis incorporates studies and insights from related fields and other bodies of literature to broaden the scope. Additionally, while examples of relevant programs are included to highlight ongoing initiatives on-the-ground, many lack publicly available data on their efficacy. As the field of women’s basic digital literacy and financial capability continues to evolve, this report serves as a starting point, laying the foundation for program design and illuminating areas for additional studies, evidence, and insights.



Table 7: Program Design Framework

Design Category	Program Features
Digital Literacy Programs	
<p>Delivery Channels:</p> <p>The different channels through which content or learning experiences are delivered to learners.</p>	<ul style="list-style-type: none"> • Print Media (books, articles, handouts, flyers, newspapers) • Broadcast Channels (television or radio) • Digital Channels (web, video, interactive voice response (IVR), multimedia, mobile applications, SMS)
<p>Instructional Approaches:</p> <p>The manner by which instructors and learners interact with one another to enhance the learning process.</p>	<ul style="list-style-type: none"> • Classroom-based • Group-based • Peer-based • Training-of-Trainers
<p>Learning Models:</p> <p>The types of pedagogical methods and strategies that facilitate the actual learning process.</p>	<ul style="list-style-type: none"> • Learning-by-Doing • Bite-sized Learning • Gamification and Edutainment • Personalized Content • Nudges and Behavioral Design
<p>Wraparound Features:</p> <p>The holistic program design features and logistical mechanisms that support and facilitate the learning process.</p>	<ul style="list-style-type: none"> • Mentoring • Community-Based Interventions • Engaging Gatekeepers • Providing Transportation, Childcare, and Meals
Digital Financial Capability Programs	
<p>Sector-Specific Use Cases</p>	<ul style="list-style-type: none"> • Entrepreneurship and Business Skills Development Programs • Social Assistance Programs
<p>Gender-Inclusive Digital Financial Services</p>	<ul style="list-style-type: none"> • Women-Centered Product and Service Design • Women Agents

6.1 DELIVERY CHANNELS

A training delivery channel refers to the medium through which training content or a learning experience is delivered to beneficiaries. Training programs that aim to enhance digital literacy and digital financial capability among women should leverage a variety of delivery channels, such as: Print media, including books, articles, handouts, flyers, or newspapers; Broadcast channels, including television or radio; and Digital channels, including websites, videos, interactive voice response (IVR), multimedia, SMS, and mobile applications. By integrating multiple delivery channels, training programs can accommodate women with varying literacy levels, promoting greater access and effective learning outcomes.

Global Evidence on Delivery Channels

Analysis of over 100 studies identified only one that provided evidence on a related program design feature—Digital Channels—that was applied in a digital literacy program. This study comprised of a large-scale randomized controlled trial conducted in Kenya which assessed the effectiveness of automated SMS-based business training as part of the ARIFU SMS-based learning platform (Fuchs et al. 2022). A detailed description of this study can be found in Appendix C: Evidence Summary Table.

The research identified several instances of lessons delivered through SMS, WhatsApp, or similar platforms. However, these approaches were often part of formal educational training for primary and secondary school curricula. They primarily target school-aged students, particularly in the wake of the COVID-19 pandemic, which necessitated a shift to e-learning solutions for students.

Given the limited evidence, further research is needed to better understand if and how digital delivery channels can effectively support women in their basic digital literacy learning journeys. Moreover, comparative studies are needed to assess the effectiveness of approaches driven by digital technologies and platforms relative to traditional delivery channels, such as print-based methods or broadcast media. This research could provide valuable insights into optimizing delivery methods to enhance outcomes for women.

Good Practices & Promising Approaches for Delivery Channels

Print Media

Print-based delivery channels encompass content presented in written form in traditional print media, including books, articles, handouts, flyers, and newspapers. Training materials such as toolkits, manuals, and training curricula predominantly adopt a print-based approach, primarily for instructors to utilize while delivering training. However, in the context of this report, which focuses on digital literacy programs for women with lower levels of literacy, presenting content solely in print-based media poses challenges. Therefore, while the inclusion of written materials can be necessary for certain aspects of program delivery, it is important to recognize the limitations and barriers they pose for the target audience.

Broadcast

For the sake of comprehensiveness, we have included broadcast of television and radio as delivery channels. It is worth mentioning that these channels can also be utilized for educational or edutainment purposes, such as radio programs aimed at educating children or adults. However, in this research, we have only identified these delivery channels in relation to digital literacy programs.

Digital Channels

This category encompasses a range of digitally-enabled formats, including websites, visual elements such as videos, images, diagrams, and infographics. It also includes audio formats like spoken word, sound effects, audio recordings or interactive voice response. Furthermore, interactive formats such as quizzes, games or simulations are considered part of this category. By utilizing these digital channels, digital literacy programs can leverage the advantages of each medium to create engaging, interactive, and multimodal learning experiences. This approach caters to different digital literacy levels and helps to effectively convey information, making the learning process more accessible and enjoyable for participants.

Online and Web-Based Platforms

Online and web-based delivery channels refer to the use of websites or Internet-based platforms to deliver training content, provide learners with access to various training program content and learning materials, complete training modules, and access opportunities for collaboration. Participants can access these training materials, modules, and resources by using Internet-enabled devices, such as desktop computers, laptops, smartphones, or tablets.

The web-based format has many benefits. It allows training programs to design and structure their content in a way that is most suitable to achieve the program objectives. Online delivery channels often include various features and functions, such as embedded quizzes, discussion forums, or interactive elements, as well as the integration of video lectures, webinars, or live streaming of training sessions. This allows for an exchange between fellow participants and conversations with instructors or the website hosts. If enabled, the use of an online delivery channel enables administrators to monitor and track learners' progress and performance based on completed training sessions, quiz scores, or other metrics, allowing for an assessment of the effectiveness of the provided intervention.

Online delivery channels in training programs also provide flexibility and convenience to learners, allowing them to engage with the content at their own pace and on their own schedules, regardless of their location. This eliminates the need for participants to physically attend training facilities, which can be particularly beneficial for women in remote areas where transportation can be time-consuming or burdensome. However, this format may be limited by the need for reliable internet access, appropriate devices, and basic digital skills, potentially excluding learners without these resources and making it unsuitable for all contexts.

An early example of a digital literacy program that leverages online and web-based delivery channels is the She Will Connect program, launched in 2014 by Intel in Kenya, Nigeria and South Africa. The goal was to bridge the gender digital divide with a specific emphasis on women with limited ICT skills or low digital literacy (See Box 6).



Box 6 Digital Literacy: Intel's She Will Connect, Kenya, Nigeria, South Africa

The program's primary objective is to connect more women to the Internet and equip them with essential technology skills, opening doors to information and creating new economic and social opportunities. Participants of *She Will Connect* gain access to a wide range of educational, financial, health, employability, and entrepreneurship resources offered by program partners and affiliated organizations. The program aims to empower women with a comprehensive understanding of the opportunities provided by the Internet, combining conceptual knowledge with practical proficiency.

A key focus of the program is the use of online delivery channels. Participants engage in a practical "learn by doing" approach, where they acquire hands-on skills, such as browsing and email. Partnering with various organizations, the program incorporates gender-relevant content and facilitates an online peer network. It goes beyond basic computer skills and explores broader concepts like the importance of being online and understanding online community dynamics, while prioritizing online safety and security.

Available data suggest that the program has reached over 200,000 women with face-to-face trainings and 2.5 million women with content through social media. In addition, over 800 women have started an internship, job, or business after the program. With respect to challenges, the program notes: i) the lack of device ownership among trainees; ii) issues around affordability of broadband and data; iii) lack of policy support to facilitate nationwide reach; and iv) the inability to scale or sustain the program due to the lack of support among government and the private sector.

Source(s): "Intel She Will Connect Program." Intel. Accessed November 27, 2024: <https://www.intel.com/content/www/us/en/corporate-responsibility/social-impact-and-educational-initiatives/she-will-connect.html>; GSMA. 2015c. Accelerating Digital Literacy: Empowering Women to Use the Mobile Internet. London, United Kingdom: GSMA. https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/06/DigitalLiteracy_v6_WEB_Singles.pdf; "She Will Connect." 1 World Connected. Accessed December 17, 2024: https://1worldconnected.org/project/africa_digitalskills_gender_intelshewillconnectafrica/.

Video

The video format refers to the use of audiovisual content to deliver learning materials to participants of a training program. The videos can cover various training topics, concepts and skills and provide a visually supported demonstration, explanation or examples of the learning content to learners. It allows for interactive content delivery, where learners attention is being captured by the means of the visual medium, while their learning experience is being stimulated. Using context-related scenes, an engaging storylines

and actors or animated figures allows participants to be entertained while consuming the learning content. The video can be accessed through a learning platform, online on dedicated websites, platforms or social media, as well as distributed on physical media such as universal serial bus drives or digital video disks. A potential limitation of the video format is its higher production cost, particularly when adapting content to local contexts through appropriate language, culturally relevant imagery, and context-specific elements. One example is the Arab Women’s Enterprise Fund and Tasaheel Microfinance Company in Egypt (See Box 7).



Box 7 Digital Financial Capability: Arab Women’s Enterprise Fund and Tasaheel Microfinance Company, Egypt

From 2018 to 2020, these partners delivered a digital literacy training program that utilized short videos in Egyptian Arabic, which could be downloaded onto participants’ phones at Tasaheel branches. The videos empowered women by teaching them how to effectively use technology for marketing, business management, and integrating mobile money solutions. The program’s success was reflected in increased foot traffic at Tasaheel branches, improved loan repayment rates, and the establishment of an e-wallet product called Raseedy. Through the use of videos, women were taught valuable digital skills to support the financial management of their businesses.

Source: Gueguen, Chloe, Reham Gharbiyeh, Julia Hakspiel, and Sabal Majali. 2020. “Making Digital Finance Work for Women in the MENA Region: Eight Lessons From the Field.” AWEF Practitioner Learning Brief. Arlington, VA: SEEP Network. https://seepnetwork.org/files/galleries/AWEF_Making_Digital_Finance_Work_for_Women_in_the_MENA_Region_v2.pdf.

Another example of engaging video content is *Hey Sister! Show me the Mobile Money* campaign implemented by the United States Agency for International Development (USAID) and Strategic Impact Advisors. This program aims to empower women in Ghana, Uganda, Malawi, Rwanda, Kenya, and Tanzania by providing them with the knowledge and skills to access and utilize digital financial services (See Box 8).



Box 8 Digital Financial Capability: Hey Sister! USAID and Strategic Impact Advisors, Africa Region

One of the key elements of the Hey Sister! campaign is the use of IVR and engaging video content. The campaign features 25 video animations that cover a wide range of topics related to mobile money usage. These videos are designed to be informative, interactive, and visually appealing, making it easier for women to understand and learn. Through the videos, women can explore essential skills such as setting up a mobile money account, performing transactions, paying bills, and protecting themselves from scams and fake news. The storyline of the videos follows the journey of four women who support and guide each other in using mobile money to manage their finances effectively.

By showcasing everyday scenarios and transactions, the videos provide practical examples that resonate with women's lives. This approach not only helps women build their skills but also boosts their confidence in using mobile money services. The video and audio content is available in 16 local languages, ensuring accessibility and inclusivity for women from diverse linguistic backgrounds. It addresses the challenge of lower literacy levels by presenting information visually and through interactive storytelling.

The use of videos in the campaign has proven to be an effective way to engage women and facilitate their learning process. The combination of visual representation, relatable scenarios, and interactive elements creates an engaging and impactful learning experience. By leveraging the power of videos, this campaign is empowering women to embrace digital financial services and gain greater control over their financial lives.

Source: Strategic Impact Advisors. 2023. Hey Sister! Show me the Mobile Money! Available at: <https://www.siaedge.com/show-me-the-mobile-money>.

Interactive Voice Response (IVR)

IVR is an engaging format that facilitates interactive communication through voice commands and responses. IVR systems utilize pre-recorded audio prompts or menus to guide users through the learning material. Participants can utilize their voice or touchpad to select options, provide responses, and engage with the system. Upon recognizing and processing the input, the IVR system provides relevant feedback and responses. IVR proves to be a valuable tool, particularly in contexts where participants have lower levels of digital literacy or limited access to technology and Internet connectivity. This format offers a user-friendly and step-by-step approach to delivering learning content in a structured manner.

One of the advantages of IVR is its adaptability to individual learners' needs. The system can provide branching menus that allow participants to choose specific topics or areas they wish to focus on. This personalized approach ensures that learners can access relevant content that aligns with their interests and learning objectives. By leveraging IVR in training programs, instructors can effectively deliver content and engage participants, even in settings with limited technological resources or digital literacy. Additionally, it allows for more flexibility to conduct trainings at a time that suits participants best. IVR serves as a bridge to access learning opportunities and empowers individuals to acquire new skills and knowledge through interactive voice-based communication.

While the application of IVR technology can provide various benefits to users, it can also create downsides and risks for women. IVR calls can appear from unknown numbers, which might put women at risk. This is especially the case in context of societies with restrictive gender norms, when unknown calls could be met with suspicion by male gatekeepers (Arnold and Venkatesan 2021). It is therefore recommended to use a female voice when programming the IVR responses, to avoid assumptions that the learner is speaking to a man (Hartley 2022). It is also important for learners to know who is calling and to fully understand why they are being called. Building trust and knowing who is calling requires program staff to notify learners about upcoming calls and to onboard the learners in-person to make sure that they understood the purpose of the modules and answer the first introductory call.

One example of IVR in practice is from the UN Refugee Agency (UNHCR), which worked to address digital exclusion among refugees and asylum-seekers. To enhance digital literacy among displaced populations, UNHCR launched a pilot in Indonesia using IVR technology. This approach was rolled out in 2022, and delivered digital literacy training through short, recorded modules that displaced people can listen to on basic, feature, or smart mobile phones (See Box 9).





Box 9 Digital Literacy: UN Refugee Agency, Global

UNHCR leveraged IVR's pre-recorded messages and simple navigation, making it suitable for individuals with low functional and digital literacy. The pilot involved identifying community representatives to recruit participants from diverse backgrounds—including people with different nationalities, a range of language skills, as well as different sexes and ages. The results highlighted the importance of complementary in-person support and better tailored training programs to the needs of potential participants, through a co-creation process.

Building on the success of the IVR pilot, UNHCR is now co-creating a basic digital skills training program in partnership with displaced populations. The curriculum focuses on priority topics, linking skills to real-life benefits and debunking myths about digital devices. The pilot is being delivered through established learning centers operated by refugee-led organizations, capitalizing on existing resources and expertise.

Source: UNHCR Innovation Service. 2022. "Dialing into Digital Skills: Using Interactive Voice Response Technology." UNHCR Innovation Service (blog), November 14, 2022. <https://medium.com/unhcr-innovation-service/dialling-into-digital-skills-using-interactive-voice-response-ivr-technology-bd98eba28506>.

In 2022, the Government of Zambia, in partnership with the United Nations Capital Development Fund (UNCDF) and Viamo, a tech startup, initiated a program to promote digital and financial inclusion through IVR technology. The program specifically linked digital financial literacy with specific use cases, including on access financial services and the payment of utility bills, with a focus on women and youth in underserved communities (See Box 10).



Box 10 Digital Financial Capability: Government of Zambia, UNCDF and Viamo

The Government of Zambia, UNCDF and Viamo program developed a digital financial literacy training program in response to low customer education, low levels of trust in digital financial services, and the exclusion of women from the digital economy. The program aimed to support digital payment solutions for water and electricity. The 667 service, accessible via IVR and a WhatsApp chatbot (for those with smartphones), provides free on-demand information in four major Zambian languages, allowing users to progress through the lessons at their own pace. In addition to customer education, community workers, or "booster teams" conducted outreach to raise awareness about the service and to on-board new customers onto mobile money platforms of their choosing.

The program focuses on the Lusaka, Kabwe, and Kitwe districts, with the goal of reaching 30,000 customers, including 21,000 women and 9,000 youths. By prioritizing customer education, the initiative aims to facilitate Zambia's digital transformation and ensure that no one is left behind, especially women and youths.

Source: Kambandu-Nkhoma, Mali and Dominic Adongo. 2022. "UNCDF strengthens digital literacy to increase participation in the digital economy." UNCDF (blog), July 29, 2022. <https://www.uncdf.org/article/7885/uncdf-strengthens-digital-literacy-to-increase-participation-in-the-digital-economy>.

Multimedia Format

A multimedia format combines multiple elements, such as images, text, graphics and videos in a presentation. The mixed format approach creates an immersive and interactive experience for learners when delivering engaging content.

In 2019, MTN Benin conducted a pilot program in two peri-urban areas in Benin, employing various channels to reach underserved customers. One approach involved text message marketing, directing users to a free platform hosting training videos translated into four local languages. Additionally, MTN utilized their digital channels, allowing customers to access the Data Smart videos. The pilot also employed 400 dedicated Data Smart field sales agents who provided training to customers and assisted them in purchasing data packages. Furthermore, a mobile data acquisition team conducted classroom training sessions and encouraged customer engagement by offering small prizes as incentives. The pilot used a multimedia format approach to reach the customers and include the mix of different delivery channels (GSMA 2021c).

Mobile Applications

Many programs use mobile applications (apps), whereby participants download and install the app on their devices. Through these apps, learners can access the training content, modules, resources, and, if available, interactive features. Ideally, these apps offer a user-friendly interface, supporting learners in navigating easily through the app and training program and engaging them in the activities.

Mobile apps can also issue push notifications that deliver messages directly to participants through the web or on their mobile devices. These push-notifications can be used as a reminder, provide updates or give prompts related to the training programs objectives. They receive high attention from the users and can provide timely information to announce important announcements, upcoming events, updates on training modules or expected deadlines. In combination with a task to complete, push notifications can enhance a desired behavior or action.

Vodafone Egypt Foundation's Knowledge is Power Initiative aims to modernize and enhance the learning process in Egypt. The initiative focuses on improving literacy skills through classroom and mobile learning through a free mobile app (See Box 11).



Box 11 Digital Literacy: Vodafone Egypt Foundation's Knowledge is Power Initiative

A key component of the Knowledge is Power initiative is the Mobile Literacy App, a free application that utilizes pictures and a talkback function to facilitate learning. The app can be downloaded on Android smartphones, Nokia smartphones, iPhones, and some feature phones, allowing women to learn at their own pace and convenience, even from home. It is complemented by classroom sessions conducted by trained volunteers and facilitators.

The program has gained substantial interest from women due to the flexibility of mobile-based learning and the accessibility of the classroom sessions. These sessions are held in various community locations, including community centers, schools, mosques, churches, and the homes of volunteer teachers in remote villages. The initiative promotes collaborative and flexible learning opportunities. The program targets women aged 15 and above who aspire to improve their literacy skills. Participants attend 3-6 months of classes and undergo a final exam administered by the General Authority for Literacy and Adult Education. Many of the volunteer teachers and facilitators involved in the program are young women.

By combining mobile learning and classroom sessions, the Knowledge is Power Initiative aims to empower women through improved literacy, enabling them to enhance their opportunities and actively participate in their communities and the economy. Since the launch of the program in 2012, more than 360,000 people have completed it, of which 70 percent are women.

Source: Swinford, Richard and Camille Demyttenaere. 2017. Connected Education. Newbury, United Kingdom: Vodafone. https://www.vodafone.com/content/dam/vodcom/files/vodafone_connected_education.pdf.

Short Messaging Service (SMS)

Another well-established digital delivery channel is SMS, a text messaging service that allows users to send short message between mobile phones. Training programs have leveraged SMS to deliver lessons, training content, prompts, and reminders. This delivery channel is especially useful when providing learners with concise, bite-sized snippets of information and content at a time, which engages participants in an interactive manner. Messages can be sent during specific intervals to keep learners motivated to complete a specific task related to the program or provide them with additional resources or links to other learning

offerings. Another advantage of SMS-based training is that it is not reliant on Internet, making it more accessible to utilize basic feature phones. As a result, this approach to be accessible and effective in low-resource environments and when targeting female learners, who are less likely to own and/or use Internet-enabled smartphones.

The Rural Distribution Network (RUDI) program implemented by the Self-Employed Women's Association of India (SEWA) in 2007 focused on empowering local saleswomen called "RUDIbens" to distribute agricultural products to rural consumers. To address mobile literacy challenges, SEWA developed an SMS-based mobile application that played a crucial role in the program (See Box 12).



Box 12 Digital Literacy: Rural Distribution Network by the Self-Employed Women's Association, India

SEWA placed the RUDIbens, the end users, at the center of the tool development process. They conducted workshops to understand their needs and created initial prototypes of the application on paper, incorporating user feedback. Once the mobile platform was developed, it was further tested with a small group of RUDIbens. The SMS-based mobile application was designed in the local dialect and optimized for feature phones commonly used by these local saleswomen. It took into account their literacy levels, utilizing drop-down menus and numbers instead of requiring them to type letters. This approach made it easier for the bens to navigate and use the application effectively. SEWA also provided visual information manuals written in a mix of English and the local dialect to support self-learning. Additionally, trainings were organized at district and village levels to enhance the bens' knowledge and skills.

The program leveraged the social circle of the RUDIbens by selecting experienced individuals to be trained as master trainers, who then provided guidance and support to other bens in their respective villages. The SMS-based mobile application not only facilitated communication and information exchange between the RUDIbens and SEWA but also enabled the bens to efficiently manage their businesses and stay connected with customers. It played a pivotal role in enhancing the effectiveness and reach of the RUDI program, enabling the women to participate in the rural distribution network and improve their livelihoods. During the pilot, 2,500 RUDI bens were trained. Based on the initial trainings, 97 percent of the interviewed RUDI bens saw a growth in customers (most of them saw a 10-20 percent growth). RUDIbens are now operating in seven districts.

Source: GSMA. 2015c. Accelerating Digital Literacy: Empowering Women to Use the Mobile Internet. London, United Kingdom: GSMA. https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/06/DigitalLiteracy_v6_WEB_Singles.pdf; and Green, Jennifer, Vandana Pandya, and Sara Lynn Pesek. 2017. Food Packaging: SEWA Rudi Project Assessment in Gurajat, India. Cambridge, MA: Comprehensive Initiative on Technology Evaluation (CITE) at MIT. https://dspace.mit.edu/bitstream/handle/1721.1/115540/RUDI%20FINAL%20REPORT_Dec%202017.pdf?sequence=1.

An example related to digital financial capability is the WomenLink II program, which was rolled out from 2018 to 2021 in India and the Philippines. It aimed to empower poor and low-income women aged 15 and above by addressing the demand-side barriers to financial inclusion (See Box 13).



Box 13 Digital Financial Capability: WomenLink II, India and the Philippines

One key component of the WomenLink II program was the SMS campaign, which delivered relevant and actionable information to over 40,000 women. Over 24 months, women received messages containing information on basic financial products, money management tips, and digital financial services. This campaign resulted in positive behavior change, with 30 percent of women starting to save and an average growth of 142 percent in the amounts saved. Additionally, there was a 26 percent increase in the number of women using community-based agents for bills payment. The SMS-based information push campaign was well-received, with 95 percent of women reporting that the messages were relevant and applicable to managing their household budgets. This campaign effectively improved financial literacy, established trust, and increased awareness and understanding of financial products and services among low-income women. By targeting the demand-side barriers through the SMS campaign, the WomenLink II program aimed to catalyze economic empowerment. The program recognized that building trust and improving financial literacy were crucial steps towards driving usage of digital financial services. The SMS campaign served as a remote delivery method, ensuring that women received valuable information regardless of their location or accessibility to physical resources.

Source: Panuncialman, Kim, Erica Sale, Christine Violago, Christian Loupeda, Beverly Brul, Renzo Relente, and Lyka Raisa Luis. 2021. WomenLink II: Catalyzing Women's Economic Empowerment through Community Agents and Expansion of Digital Financial Services to Low-Income Women. Washington, DC: Grameen Foundation. <https://grameenfoundation.org/documents/WomenLink-Report-02262021.pdf>.

6.2 INSTRUCTIONAL APPROACHES

Instructional approaches refer to how learners interact, communicate, and/or engage with one another to enhance the learning process. Digital literacy and digital financial capability training programs targeting women have incorporated several similar but distinct types of instructional approaches: Classroom-based; Group-based; Peer-based; and Training-of-Trainers (ToT).

Global Evidence on Instructional Approaches

The *Instructional Approaches* program design category is supported by two studies that provide evidence from pilot evaluations. These studies highlight the effectiveness of group-based approaches, where participants who received digital training content, supplemented by face-to-face support from a facilitator experienced significant improvements. Specifically, this approach doubled positive outcomes in device ownership, skills confidence, and employment opportunities (Mboob et al. 2022). Additionally, an experimental study conducted in India demonstrated the impact of peer effects on women’s entrepreneurship and business outcomes. In this study, women attending a business counseling program were randomly assigned to attend with a friend, resulting in enhanced outcomes. The effects were particularly pronounced among women constrained by restrictive social norms that limit female mobility (Field et al. 2016).

Good Practices & Promising Approaches for Instructional Approaches

Classroom-Based

Classroom-based training focuses on gathering participants in a dedicated physical space, such as a school, training center or educational facility, where instructors or trainers deliver the training content through a presentation, discussion and practical exercises. Participants actively engage in attending the lectures, participating in the discussion, completing assignments and applying the knowledge and skills during the program. UN Women, in collaboration with The Orange Foundation and the National Peace Hut Women of Liberia, implemented a 6-month digital literacy program from 2022 to 2023 (See Box 14).



Box 14 Digital Financial Capability: National Peace Hut Women of Liberia, UN Women and Orange Foundation

Peace Huts are spaces created and operated by women, which provide counselling, mediation, access to gender-based violence services, and access to police and justice services. They are recognized as an innovative approach to conflict resolution. Women can also access capital or support for income generation via Village Savings and Loan Association programs. The in-person digital literacy program yielded positive results, with over 70 women securing employment with Orange as agents and an additional 700 women actively using and managing mobile money accounts after receiving capacity-building training in 2022.

Both rural and urban women stand to benefit from these training initiatives. Rural women have been attending digital literacy classes at two dedicated women’s digital centers established at the Totota Peace Hut and the Gboinyee Tarr Town Peace Hut. These centers provide training on the use of various devices, such as computers and tablets, enabling women to access information, financial services, and market opportunities.

Collaborating with the Orange Foundation, UN Women also focused on enhancing the capacity of women entrepreneurs to effectively utilize social media platforms for advertising and marketing their products. In addition to digital skills, the training programs encompassed literacy, numeracy, business skills, and other initiatives aimed at empowering women economically.

Source(s): “UN Women integrates digital technologies into women’s economic empowerment programmes.” UN Liberia (blog), March 28, 2023. <https://liberia.un.org/en/225225-un-women-integrates-digital-technologies-womens-economic-empowerment-programmes>; and Bility, Abraham. 2019. National Peace Hut Women of Liberia - An Account of Support Provided By UN Women (2009-2018). New York, NY: UN Women. <https://africa.unwomen.org/en/digital-library/publications/2020/05/national-peace-hut-women-of-liberia--an-account-of-support-provided-by-un-women-2009-2018>.

Group-Based

Group-based models provide an active and collaborative learning approach, where participants work together in smaller groups to engage with materials, solve problems, and learn from each other. This approach involves seminars, workshops, group activities where participants meet and work together in a more interactive and informal environment. The trainers facilitate and guide the discussion, exercises or case studies and support the groups with the development of a program structure. Group-based models differ from classroom-based training in that the latter is more formal and instructor-led, with a primary focus on lectures and structured lessons in a traditional setting. The Basic Digital Literacy for Rural Clusters in Northern Nigeria program, established in 2021 by Tech4Dev and the United Kingdom Foreign Commonwealth and Development Office serves as a good practice example. The program set out to introduce learners in underserved communities to digital literacy and equip them with essential skills for the 21st-century world and workplace via group-based training (See Box 15).





Box 15 Digital Literacy: Basic Digital Literacy for Rural Clusters in Northern Nigeria

The Basic Digital Literacy for Rural Clusters in Northern Nigeria program conducted in-person group training that targeted excluded populations in rural communities, with a focus on empowering women, girls, persons with disabilities, and other groups. The initiative sought to increase the number of digitally literate individuals in Northern Nigeria and provide them with the necessary skill set for future work and advanced learning, thus reducing the likelihood of continued poverty. The program targeted 1000 people across ten states, with a specific goal of including 50 percent of women and girls (aged 8-18; 45-65), 30 percent of people with disabilities, and 20 percent of other excluded groups. The comprehensive curriculum covered various aspects of digital literacy, including computing device and Internet usage, digital information handling, online communication, online safety, and virtual collaboration. By closing the digital divide, the program aimed to ensure inclusive digital access for all and enhance community resilience to current and future challenges, such as pandemics, faced by digitally-excluded or underserved groups in Nigeria.

Source: "Past Programs. Basic digital Literacy for Northern Nigeria." Tech4Dev. Accessed November 27, 2024: <https://tech4dev.com/programs/basic-digital-literacy-for-northern-nigeria-past.html>.

Another example is the Digital Life program, initiated by the Good Things Foundation and the Kenya National Library Service Foundation in 2017. It aimed to improve the lives of Kenyans by providing digital access and evaluating the Internet's potential in addressing economic and social challenges. The 12-month pilot project involved 10 libraries receiving face-to-face training, while 52 others received digital training and information (See Box 16).



Box 16 Digital Literacy: Digital Life Program, Kenya

The Digital Life program was inspired by the United Kingdom's Online Centres network. The program collaborated with the Kenyan National Library Service to introduce library users to the benefits of digital skills and the Internet. To ensure personalized learning experiences, participants' skill levels and goals were assessed beforehand, enabling tailored content and flexible group or individual sessions. More than 1,000 Kenyans benefited from the program, while 20 librarians were trained as "digital champions" on the Learn My Way Kenya platform, which was available to all pilot participants. The program's delivery was informal and adaptable, allowing individuals to learn at their own pace, with access to free or low-cost Internet and resources like the Learn My Way platform.

The program leveraged the extensive Online Centres Network, consisting of 5,000 libraries, community centers, businesses, social housing associations, and other organizations. Additionally, the buddy program linked 12 Kenyan libraries with Online Centres in the United Kingdom and Australia, fostering valuable exchanges of experiences, challenges, and best practices in digital skills training.

Providing the option to learn together as a group allowed participants to learn from each other and foster a sense of community. Through Digital Life, Good Things Foundation successfully empowered Kenyans with new skills and access to the digital world, creating a positive impact on their lives and communities.

Source: IFC. n.d. Good Things Foundation: Overview of the Kenyan Pilot Project. Washington, DC: International Finance Corporation (IFC). <https://www.ifc.org/content/dam/ifc/doc/mgrt/digital-skills-final-web-gtf.pdf>.

An example related to digital financial literacy is the BRAC Shakti program. Launched in 2020 in rural Bangladesh, the aim was to empower women by enhancing their confidence and proficiency in using DFS. With the support of Ideo.org, The Gates Foundation, BRAC's Social Innovation Lab, and bKash, the program implemented an innovative, group learning program (See Box 17).



Box 17 Digital Financial Capability: BRAC Shakti, Bangladesh

The BRAC Shakti program designed small, supportive groups where women could learn together, share experiences, and develop a sense of camaraderie. This was informed by extensive testing, which revealed that women made greater progress and showed more enthusiasm when learning in groups rather than individually. These groups also held regular check-ins to discuss saving habits and navigate financial dynamics within their households. By learning collectively, women gained a supportive environment where they could lean on each other for guidance and encouragement.

During the pilot phase, which lasted six months, the BRAC Shakti program successfully reached 5,000 rural women in the Hoar region. Encouraged by the positive outcomes and the transformative power of group-based learning, the program plans to expand its reach to more women in different regions. The aim is to enable them to acquire essential digital financial skills and achieve economic empowerment. By fostering collaboration and solidarity within the groups, the program empowers women to take control of their financial futures and contribute to their communities' economic development.

Source: "Onboarding omen to Mobile Money with Gamified Learning." Ideo.org (blog). <https://www.ideo.org/project/brac-shakti>; and Chowdhury, Maleha and Raiya Kishwar Ashraf. 2022. "Mobile money can be scary. How can we change that?" The Good Feed (blog), February 27, 2022. Accessed November 27, 2024: <https://blog.brac.net/how-can-mobile-money-encourage-savings-and-build-confidence/>.

Peer-Based

Peer-based training approaches leverage the knowledge and experiences of participants within a community to facilitate collaborative learning and skill development. In this model, individuals with similar expertise share insights, solve problems together, and provide feedback, creating a more egalitarian learning environment. Participants often take on dual roles as both learners and teachers, actively contributing to the learning process and supporting each other's growth. This approach prioritizes peer interaction over traditional instructor-led methods, fostering a more interactive and shared learning experience.

In peer-led training sessions, trained peer facilitators who possess expertise in digital literacy lead the activities and guide other participants through the learning process. These peer facilitators are typically selected from the same communities or social networks, such as sharing the same employment context. This fosters a sense of trust, relatability, and familiarity among the participants, enhancing the learning experience.

By utilizing the peer-based approach, training programs for digital literacy can create a supportive and inclusive learning environment that addresses the specific needs of women. This approach not only helps women gain confidence and skills but also fosters a sense of community and empowerment as they learn from and with their peers. In addition, a study found that the impact of learning increases when program recipient chooses their trainer and when the trainer is well equipped to provide the information (Hakizimfura, Randall, and Zia 2018).

While both group-based and peer-based models emphasize collaboration, the key difference lies in instructor involvement. In group-based models, the instructor leads the learning process, while in peer-based training, participants take the lead, with minimal reliance on a formal instructor. In Bangladesh, the Herfinance Digital Wages program was implemented by BSR, Women's World Banking, the Bill & Melinda Gates Foundation, and three implementing partners. The program aimed to empower women garment factory workers by teaching them how to make person-to-person (P2P) transfers using mobile phones. A key focus of the program was peer learning, harnessing the power of workers supporting each other (See Box 18).





Box 18 Digital Financial Capability: Herfinance Digital Wages, Bangladesh

The HerFinance program featured peer ambassadors who provided hands-on guidance to their co-workers. The training sessions were strategically timed to align with the factory workers' salary payment schedule, ensuring that they had funds in their mobile money accounts for seamless transfers. The training sessions took place on the factory floor during lunch and breaks. The program also took a hands-on, learning-by-doing approach to build the confidence of the participants in independently sending money home. It emphasized the convenience and ease of digital transfers, emphasizing that they could perform transactions directly on their phones, eliminating the need for agents or waiting in lines.

The peer ambassadors played a critical role in supporting and mentoring their fellow workers, creating a supportive learning environment. By prioritizing peer learning, the program aimed to foster a sense of camaraderie and trust among the participants. The peer ambassadors not only facilitated the training but also provided ongoing support and encouragement as the women workers adopted and utilized digital financial products effectively. This peer aspect created a dynamic and empowering learning experience where participants could learn from their peers' experiences and share insights and challenges.

Source: "HerProject: Digital Wages." BSR. Accessed November 27, 2024: <https://herproject.org/programs/herfinance/digital-wages>.

Training-of-Trainers

The Training of Trainers (ToT) model aims to prepare instructors to present the content effectively, engage with participants questions, and lead activities and exercises that reinforce the learning. The ToT model follows a cascade approach, where a group of skilled and motivated master trainers are taught the content of the training materials and receive training on how to apply the appropriate teaching techniques to convey the information in an engaging manner to the target audience. The master trainers take on the responsibility of instructing new trainers who may be unfamiliar with a particular topic or training format. These new trainers, in turn, will then go on to train a larger group of participants. The cost-effectiveness of this approach and the localized outreach into different and at times difficult to reach communities likely explains the widespread use of this training and teaching model. The Gina Mata, Gina Al-Umma program in Nigeria was a pilot program launched by the World Bank with support from the Digital Development Partnership and the Human Rights, Inclusion and Empowerment Umbrella Trust Fund. The pilot's ToT approach was a critical component of the program (See Box 19).



Box 19 Digital Literacy: Gina Mata, Gina AI-Umma, Nigeria

The Gina Mata, Gina AI-Umma program provided inclusive digital skills training to disadvantaged young women and girls in six states in Northern Nigeria that are experiencing fragility, conflict, and violence: Abuja, Kaduna, Kano, Jigawa, Gombe and Borno. The program was developed and implemented through close partnerships with the private sector, mobile network operators, the Nigeria Universal Service Fund, and NGOs.

Under the 3-month Training-of-Trainers program, 120 instructors and teachers were equipped with the knowledge and skills necessary to effectively deliver market-ready, rights-based, and inclusive digital skills training in their communities. Twenty-five top-achieving graduates were selected as “Highflyers” to deliver the Gina Mata, Gina AI-Umma training to target beneficiaries.

Another important aspect of the pilot was the implementation of a rights-based curriculum. This curriculum went beyond digital skills training and incorporated international and regional human rights laws, concepts related to women’s rights and child rights, recognition of digital skills as economic rights, and education on online safety.

The pilot also provided opportunities for vulnerable girls and young women to connect with female mentors who had successfully pursued careers in ICT. Under one project component, the pilot partnered with all-girls public secondary schools to establish Junior Engineers, Technicians, and Scientists Clubs. By exposing female secondary students to role models through after-school STEM clubs, the program sought to inspire more girls and young women to study STEM-based courses.

The clubs also encouraged peer-to-peer learning, where current program beneficiaries would go on to mentor and teach members from junior classes. Another program component that targeted female internally displaced persons, out-of-school youth, and other disadvantaged women also incorporated female trainers and recruited women in ICT professions to serve as mentors. This enabled female beneficiaries to build networks and support systems to help them achieve their professional goals. Mentors were recruited from local and international women-led technology-related groups and organizations such as Google WomenTechMakers, SheCodeAfrica, Shecluded, and the SheMentors Initiative.

Through this inclusive and rights-based approach, the Gina Mata, Gina AI-Umma pilot program bridged the digital skills gap for marginalized young women and girls in Northern Nigeria. By developing their digital skills and empowering them with a strong understanding of their rights, the program created opportunities for economic advancement, increased digital inclusion, and promoted a safer online experience for participants.

Source: Robinson, Danielle. 2024. Building Women, Empowering Communities: Delivering Rights-Based Digital Skills Training to Women and Girls in Northern Nigeria. Washington, DC: World Bank.

6.3 LEARNING MODELS

Learning models refer to the types of pedagogical methods and strategies that facilitate the actual learning process. This includes specific elements integrated into the design of a program, service, or product to achieve particular goals or enhance the user experience. For the purposes of this report, these approaches are discussed as intentional components that aim to improve program effectiveness, increase engagement, and maximize impact for learners. Examples include gamifying learning content or breaking lessons into smaller, digestible segments for bite-sized learning. Depending on the program's goals, these approaches can be carefully selected and tailored to meet the needs of the learners.

Global Evidence on Learning Models

Under the *Learning Models* design category, only one field experiment was identified investigating learning-by-doing approaches in financial decision-making processes, specifically in the context of savings accounts. The study found that practical experience plays a critical role in overcoming “status quo bias” in financial decisions—that is to say banking staff’s bias towards repeating the same decisions in the same ways, offering savings account access only to the same types of people (Giné and Goldberg 2023). Edutainment also proved to be an effective learning model. A study in South Africa, which assigned viewers to watch a soap opera with financial messages, found that viewers were almost twice more likely to borrow from formal sources, less likely to engage in gambling, and less prone to enter hire purchase agreements than the control group, who watched a soap without financial messages (Berg and Zia 2013).

There is also substantial evidence demonstrating how behavioral science approaches can improve financial inclusion and economic empowerment. From 2015–2019, ideas42 and the World Bank collaborated with the governments of Kenya, Tanzania, and Madagascar to test the impact of a package of behavioral designs leveraged in cash transfer programs (ideas42 2019). RCTs tested the integration of behavioral designs and nudges—including layering plan-making, money pouch, and SMS reminders onto regular payments—onto beneficiaries of national social protection programs in each country. The studies found that the behavioral design packages increased the likelihood of recipients having a productive goal, saving money, and paying off debt.

Another intervention led by ideas42 and Busara Center for Behavioral Economics used behavioral science to increase women’s use of mobile banking accounts in Nigeria in 2014.¹¹ In collaboration with a major bank and a telecommunications company, the intervention designed SMS campaigns using behaviorally informed language to encourage customers—particularly women, who access and use banking products at a lower rate than men—to use their accounts. While effects varied by message and audience, the study found that the SMS campaign led to increased mobile account usage.

From 2017 to 2018, ideas42, Women’s World Banking, and JazzCash, a large digital finance and telecommunications company, conducted a study in Pakistan to increase women’s access to and use of mobile banking (ideas42 2020). The intervention utilized customized SMS messages to increase customer referrals to women. The messages focused on monetary incentives, encouraging users to invite women, and emphasizing social norms and reciprocity framing. The results demonstrated a significant increase in number of referrals compared to the control group, resulting in a 64 percent increase in new female customers. Additionally, mentioning female friends, mothers, and sisters in the SMS referrals led to a greater number of referrals to other women, contributing to a further rise in female customer sign-up.

These studies demonstrate the impact of learning approaches across a variety of fields. However, more research is needed to better understand the effectiveness of learning approaches in women’s basic digital literacy and financial capability programs.

Good Practices & Promising Approaches for Learning Models

Learning-by-Doing

Learning-by-doing is an approach in training programs where participants actively engage in practical activities related to the subject matter. Instead of passively receiving information, learners are encouraged to apply their knowledge and skills through hands-on exercises, simulations, or real-world scenarios. This experiential learning method allows participants to directly experience and practice the concepts being taught, enhancing their understanding, problem-solving abilities, and retention of information. By actively engaging in the learning process, learners gain practical experience and develop critical thinking skills that can be applied in real-life situations.

¹¹ “Project: Increasing Engagement with Mobile Banking in Nigeria.” *Behavioral Evidence Hub* (webpage). <https://www.bhub.org/project/increasing-engagement-mobile-banking-nigeria/>.

Several programs adopt a range of good practices that are not isolated to one design approach. For instance, the HerFinance Digital Wages program, which was highlighted as a good practice for peer-based approaches, also incorporates learning-by-doing (see Box 18). To address the limited digital literacy of the participants, a step-by-step visual aid was developed and utilized by peer ambassadors during the training. This visual aid was designed to be easily understandable and intuitive, even for those with low literacy levels. By prioritizing a learning-by-doing approach, the program aimed to instill confidence in the women customers, allowing them to perform P2P transfers independently. Within just two transactions, participants reported feeling comfortable with the process. The program relied on a network of peer ambassadors to facilitate hands-on training and support the women workers in adopting and utilizing digital financial products effectively.

Bite-Sized Learning

Bite-sized learning refers to the practice of breaking down the content of training programs into small, easily digestible pieces. It involves structuring information into simple and understandable messages that can be easily comprehended and retained by learners. By presenting the content in single steps, learners can focus on one concept at a time, gradually building their understanding and skills. This method enhances the learning experience by reducing cognitive overload and allowing learners to grasp the material more effectively.

One example is the GSMA's MISTT toolkit, which provides trainers with a section designed for trainers who have limited time (2-3 minutes) to work with trainees, or as a quick recap for those who have completed the training. It offers concise sessions on various topics related to the Internet and mobile technology. There are six topics to choose from, including Introduction to the Internet, WhatsApp, YouTube, Google, KaiOS, Android, Assistive Technology, and Safety and Cost. Each session provides an overview of the specific service and offers hands-on practice using a mobile phone. The toolkit and the short and bite-sized learning elements can be accessed online and as a .pdf document (GSMA 2022a).

Edutainment and Gamification

Edutainment and gamification are interactive approaches that actively engage beneficiaries in the learning process by making learning fun. Edutainment refers to the combination of educational content with elements of entertainment, creating an enjoyable and engaging experience for users. It involves

incorporating popular and local storytelling forms such as comics or telenovelas to deliver content in a fresh format. The main objective is to enhance attention, recall, and learning outcomes by optimizing the delivery of information in an entertaining and captivating manner.

Gamification involves using game design principles, such as challenges, rewards, and competition, to make learning more engaging, interactive, and enjoyable. By incorporating elements like points, levels, badges, leaderboards, and quests, gamification motivates learners, enhances their participation, and encourages them to actively explore and master the learning content. It can provide a sense of achievement, foster a growth mindset, and increase knowledge retention and application.

Interactive elements that are often incorporated in edutainment and gamified learning include quizzes and simulations. Quizzes serve to assess the learners' knowledge and understanding of the content, providing a measure of their comprehension and skills uptake. Simulations, on the other hand, create virtual environments where learners can engage with real-life scenarios, make decisions, and observe the consequences of their actions. These interactive formats can promote active participation, critical thinking, and practical application, while enhancing the overall learning experience. For instance, the Hope Town Hero App project launched in 2023 by Plan International and Visa in the Philippines highlights an interactive approach to teaching digital financial literacy (See Box 20).



Box 20 Digital Financial Capability: Hope Town Hero App, Philippines

The Hope Town Hero App project launched in 2023 by Plan International and Visa in the Philippines is an offline-capable, game-based app that captures the interests and hobbies of disadvantaged youth and girls on digitalization. With the scenarios and interactive activities embedded in the app, youths learn more about financial literacy and practical skills while enjoying the mini-games in a safe digital environment. In addition to work readiness skills, the app also teaches basic financial literacy skills such as building a healthy money mindset, and has an in-game tool that lets learners create financial goals and monitor their monthly budget.

Source: Plan International. 2023. Visa and Plan International app boosts girls' financial literacy. Makati, Philippines: Plan International. <https://plan-international.org/philippines/news/2023/03/10/visa-app-boosts-girls-financial-literacy/>.

The BRAC Shakti program also leveraged gamification, specifically incorporating friendly competition and rewards to make the learning process engaging and enjoyable for the participants (See Box 17). As women made deposits into their digital accounts, they earned rewards such as cashback bonuses, access to entrepreneurial training, or even free health consultations. This not only incentivized their participation but also reinforced their confidence in using digital financial services. The pilot phase, which commenced in October 2021, successfully reached 5,000 rural women in the Hoar region over a six-month period. Encouraged by the positive outcomes, the program plans to expand its reach to more women in different regions, enabling them to acquire essential digital financial skills and gain economic empowerment. By embracing a gamification learning approach, the BRAC Shakti program has transformed the learning experience for rural women, making it interactive, enjoyable, and effective.

Personalized Content

Customization and personalization of content is a crucial aspect of training programs, particularly when targeting women. When the content includes specific details and messages tailored to target women, it enhances their reception and engagement. By incorporating relevant details, such as characters, environments, and languages that resonate with the women's lives, the training content becomes more relatable and meaningful. This level of customization ensures that the content and use cases introduced in the training align with the women's experiences and needs in the digital and financial realms.

The HeySister! Campaign discussed earlier in this paper follows the journey of four women who assist and teach each other to effectively manage their finances using mobile money (See Box 8). The lessons cover various everyday events and transactions, such as opening accounts, bill payments, and secure cash transfers, while also addressing the importance of protecting oneself from scams and fake news. The learning series showcases the stories of four women, each representing different stages and roles in their lives. From Annette, who is unbanked and yet to use mobile money, to Josephine, who manages household expenses and owns a feature phone, and Myriam, a successful businesswoman with expertise in digital tools, the campaign represents diverse perspectives. Lily, Myriam's daughter, contributes as a sophisticated entrepreneur, utilizing digital platforms for her fashion and jewelry business. Through a personalized approach and the inclusion of four

diverse women, participants can establish stronger connections and relate more effectively to the learning materials and content.¹²

Women's World Banking implemented the DigiAsia program in Indonesia to expand access to supplier credit for micro-entrepreneurs, specifically female warung shop-owners. The training content utilized engaging comic strip-style narratives, featuring a relatable local character. The content of the training messages was carefully crafted to be entertaining, relatable, and easily shareable, leveraging the popular narrative storytelling style of comic strips in Indonesia. A local character was created to effectively convey key messages related to utilizing supplier credit. Each training message concluded with clear next steps, empowering women to implement what they learned and feel more comfortable applying for credit (Dimova et al. 2021).

Nudges and Behavioral Design

Behavioral science, incorporating knowledge from anthropology, economics, neuroscience, psychology, and sociology, offers valuable insights and tools to tackle challenges like gender equality and development goals (Walsh 2022). Unlike traditional policy interventions, behavioral science acknowledges the influence of psychological and social factors on human behaviors. Policymakers and development practitioners can utilize this understanding to enhance policy design and implementation, leading to more cost-effective and impactful outcomes. By embracing behavioral science, new possibilities emerge in addressing persistent challenges and unlocking the full potential of individuals and societies.

Behavioral design is a strategic practice used to influence people's actions and choices positively. The goal of behavioral design is to make the desired action or choice the obvious and preferred option. This approach employs various methods, such as text messaging, reminders, and setting default options, to guide individuals towards making decisions that benefit them. For instance, setting default options can help users avoid repetitive decision-making. Using an opt-in setting, rather than opt-out, for adjusting privacy settings on mobile phones or apps can enhance security by encouraging users to opt for a private account instead of a public one.

One advantage of behavioral design is its cost-effectiveness, allowing for the scaling and reaching of a large number of users. However, clear and easily understandable communication is essential when implementing these approaches. Unclear messaging may lead to confusion, eroding

¹² "Meet Our Sisters." *Strategic Impact Advisors*. Accessed November 27, 2024: <https://www.siaedge.com/meet-our-sisters>.

trust in authority and reducing the likelihood of pursuing recommended actions. It is crucial to consider whether these approaches can stand alone or require supplementary interventions, especially in contexts where literacy levels are low. Misinterpretation of messages could lead to unintended actions and result in a loss of trust and credibility. Therefore, careful consideration of the program's structure, objectives, and context is advised to ensure the effectiveness and appropriateness of behavioral design interventions.

6.4 WRAPAROUND FEATURES

Wraparound features that consider social and gender norms are crucial in program design to ensure inclusivity and support for participants, particularly women. Social norms refer to the unwritten rules and accompanying behaviors that govern social behavior, perceptions, and conduct. They shape how people behave and how people expect others to behave (Burjorjee, El-Zoghbi, and Meyers 2017). These informal rules are often highly gendered in that different norms apply to men, women, boys, and girls, and they impact individuals' lives to resonate in varying ways (Koning, Ledgerwood, and Singh 2021).

These wraparound features must be context-specific and follow a no-harm approach, strengthening women's participation in digital literacy programs. Key considerations include hiring female staff and facilitators, offering accessible locations close to trusted community spaces, and scheduling sessions to accommodate women's responsibilities. Using local language and female interpreters can reduce barriers and foster engagement. Ensuring safety, providing compensation (e.g., mobile money), and offering childcare support are essential for increasing participation. Additionally, engaging household members and incorporating mentors or community-based settings can further support women's involvement.

Global Evidence on Wraparound Features

Wraparound Features can have a positive impact on digital literacy and financial capability training programs targeting women. Studies have shown the effectiveness of role models and mentorship in research areas beyond women's digital literacy and financial capability programs. A Ugandan study found that female entrepreneurs with male mentors were 22 percent more likely to succeed in male-dominated sectors such as metalworking and electricals. Role models provided critical sector information and psychosocial

support, enabling women to overcome occupational segregation and societal norms (Campos et al. 2015). Similarly, a study demonstrated that exposure to non-stereotypical role models—regardless of gender—enhanced women’s sense of belonging and academic aspirations in STEM, underscoring the need to reduce stereotype threats (Cheryan et al. 2013). A study examined showed that exposure to same-sex STEM experts significantly improved women’s self-concept, attitudes, and motivation toward STEM careers (Dasgupta 2011, Stout et al. 2011).

Programs targeting gatekeepers also show promise. The *Bandebereho* intervention in Rwanda involved a 15-session curriculum to challenge entrenched gender norms, leading to improved couple communication, caregiving practices, and reduced intimate partner violence (Doyle et al. 2018). Similarly, World Bank initiatives in Pakistan and Nigeria provided women entrepreneurs with wraparound services such as childcare, transportation, and spousal involvement, resulting in better financial management, business planning, and business growth (World Bank 2019). Finally, the EMAP program in the Democratic Republic of Congo demonstrated that engaging men in discussion groups fostered gender-equitable attitudes, improved relationship quality, and shifted men’s behaviors, though reductions in intimate partner violence remained limited (Vaillant et al. 2020).

Good Practices & Promising Approaches for Wraparound Features

Mentorship and Role Models

Evidence has shown that mentorship can support women’s engagement with technology (Dasgupta 2011; Cheryan, Drury, and Vichayapai 2012; Stout et al. 2011). Mentors can play a crucial role in boosting women’s interest, confidence, and intention to pursue various fields of study or professional development opportunities. By providing examples of successful women and offering guidance on academic and career paths, mentors can inspire women to explore and pursue training in areas traditionally dominated by men. Mentors also contribute to improving women’s social, emotional, and behavioral skills, which are important for success in training programs.

In relation to role models, a 2019 study has shown that the negative effect of sociocultural stereotypes on girls can be mitigated by mothers and other female family members setting a positive example of female technology use and encouraging girls to pursue technology-related studies and leisure activities (West et al.). A female trainer can also be a visible, relatable

female role model for women learning digital skills. For example, the iSocial Kallyani and Internet Saathi programs in Bangladesh and India found that women identified with female trainers, who benefited from the use of digital technology by earning an income from the digital services and training that they provided their peers (Tyers et al., Alonso 2023). For more information on employing female agents in digital financial services initiatives, see section 6.6 “Women Agents.”

Mentorship program that specifically designed for women can have a considerable impact in improving women’s learning outcomes. For example, one study found that one-on-one sessions with women role models in science-related careers increased the likelihood of girls enrolling in male-dominated STEM tracks in tertiary education (Hammond et al. 2020). Incorporating mentoring into training programs for women can therefore enhance their overall learning experience, motivation, and success. By providing access to mentors who can offer guidance, support, and inspiration, women can overcome barriers, develop their skills, and pursue their educational and professional aspirations. The “Digital Skills for Business” program, implemented in Rwanda in 2021 by Digital Opportunity Trust and Equals Global Partnership, aimed to empower women with digital skills and bridge the digital gender gap with mentoring as a central program element (See Box 21).



Box 21 Digital Literacy: Digital Opportunity Trust and EQUALS, Rwanda

The program established a supportive learning community that offered training, coaching, and mentorship, with a strong focus on fostering leadership skills and empowerment among young women. By placing young women at the center of the digital transformation in their communities, the program aimed to highlight their potential as innovators, leaders, and mentors, showcasing the transformative power of their leadership. The program recruited 15 knowledgeable and tech-savvy youth leaders called Digital Champions, who underwent capacity building training. These Champions played a crucial role in providing mentoring, virtual and face-to-face training, and coaching sessions for 183 young female entrepreneurs and business owners, including those with disabilities. The program specifically targeted women running struggling businesses, possessing basic literacy and numeracy skills, and having some access to digital tools.

One of the lessons learned during the pilot was the importance of creating safe and supportive environments for women to learn. During the pilot young women reported feeling more comfortable learning how to use technology when the training was conducted in group settings with other women who have similar backgrounds, educational levels, and familiarity with technology, making it easier for them to relate to one other.

Source: Mboob, Ida, Ebo Kobena Osam, and Danielle Robinson. 2022. *For Women, By Women, With Women: Bridging the Gender Digital Divide*. Washington, DC: World Bank. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099610011082285212/p17272608e21410300976405be930707674>.

Another example is The Circle in Pakistan, which was established in 2018 and conducts online and in-person training for women and girls from low-income households in semi urban and urban areas in more than 80 cities. The 8-week in-person digital literacy program addresses women from underserved communities, offering them safe spaces in tech Hubs to come together to meet their mentors. The mentors are part of a network of dedicated female instructors that deliver digital and financial literacy across Pakistan. In 2023, more than 10000 women graduated from Circle's digital literacy programs.¹³

The Mobilizing Myanmar program, implemented in Myanmar in 2019 by U.S.-based nonprofit Partners Asia serves as another good practice. The program worked to improve the digital financial capability of female-led micro, small, and medium enterprises (MSMEs). It leverages partnerships with women leaders in the community, local educators, industry stakeholders, and government representatives. One key aspect of the program is the inclusion of trusted peers who serve as role models, offering participants valuable opportunities for hands-on practice with their mobile money accounts. Female entrepreneurs learn from these role models, reducing their fear of making mistakes and building confidence in their digital skills. The program emphasizes in-person learning. A critical component of the program is establishing trust with the female trainees who may have limited numerical literacy, digital literacy, and self-confidence. By fostering a supportive and trusted environment, the program aims to empower these women and help them overcome barriers to digital financial capability.¹⁴

13 "About." *CIRCLE Tech Hub Pakistan*. Accessed November 27, 2024: <https://circlewomen.co/tech-hub/>.

14 "Mobilizing Myanmar." Accessed November 27, 2024: <https://www.mobilizingmyanmar.org/>.

Community-Based Interventions

The community-led approach is instrumental for the success of digital literacy programs aimed at addressing social norms and empowering women. Actively involving community members in the planning, implementation, and evaluation of training programs ensures that the initiatives are relevant and responsive to the needs and aspirations of the communities they serve. This approach recognizes that communities possess valuable knowledge, experiences, and aspirations for their own development.

Embracing a collaborative and community-led approach fosters a sense of ownership and participation among community members. It empowers them to take an active role in the decision-making processes, ensuring that the program aligns with their values, cultural norms, and aspirations. This approach also helps addressing social norms that may hinder women's participation in digital literacy programs. By actively involving community members, including influential figures such as community or faith leaders and gatekeepers, the program can challenge existing norms, stereotypes, and biases. This engagement creates opportunities for dialogue, awareness-raising, and the promotion of gender equality within the community. Furthermore, a community-led approach fosters a sense of ownership and pride among community members, which enhances the long-term sustainability of the program. It leverages local resources, networks, and expertise, contributing to the program's effectiveness and impact.

The Cashpor and Eko Program, implemented in India in 2011 by Grameen Foundation, Cashpor MicroCredit, Ltd., ICICI Bank, and Eko, focused on leveraging women's social circles and community-based learning (See Box 22).



Box 22 Digital Financial Capability: Cashpor and Eko Program, India

One key aspect of the Cashpor and Eko Program in India was training and utilizing community health workers to educate clients on financial services, including mobile savings, using their mobile phones. These health workers were from the same communities as the program's clients, making them trusted and credible sources of information. By using the mobile savings platform, themselves, the health workers provided real-life experiences for clients to learn from, fostering trust and confidence.

Addressing women's fears and misconceptions about using mobile phones for financial transactions was another crucial component of the training. Picture boards were used to tell stories and directly address concerns and questions, helping to alleviate fears and build understanding.

The program also emphasized hands-on trial opportunities, allowing women to practice using mobiles. Trainers encouraged women to explore various buttons to overcome their fear of making mistakes. Initially, women had concerns about the safety of the mobile application and lacked confidence, fearing they might lose their savings or make errors. Overcoming these mental barriers was a key challenge, and the program sought to build trust and confidence through practical experience. Furthermore, Cashpor leveraged women's social circles for learning by engaging key influencers in the community: both older, more affluent women, and younger, technologically savvy women. These influencers helped convince and train other women, while Cashpor's loan officers, who had built trust through banking interactions, played a crucial role in overcoming mistrust of the new technology.

Source: GSMA. 2015c. Accelerating Digital Literacy: Empowering Women to Use the Mobile Internet. London, United Kingdom: GSMA. https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/06/DigitalLiteracy_v6_WEB_Singles.pdf.

Engaging Gatekeepers

Another crucial aspect of program effectiveness is obtaining the support and buy-in of social gatekeepers in women's lives. The term *gatekeepers* refers to individuals who have authority or influence over women's decisions and access to resources, and often refers to men. This may include family members, community leaders, or religious figures. Engaging with gatekeepers, and gaining their endorsement, is vital in overcoming barriers that might hinder women's involvement in digital literacy programs. By addressing their concerns and showcasing the program's advantages, practitioners can help to break down restrictive gender norms and foster an inclusive environment that empowers women.

Research conducted as part of the Women and Money project by IDEO.org highlights that there are key transitioning moments when gender norms have the potential to relax and force the reevaluation of the gender norms for women.¹⁵ This can be in moments such as at the beginning of a marriage, where a window of opportunity opens for couples to apply new models and make the power dynamics more symmetrical. These moments of transition also apply during the birth of a child, where it is also more acceptable for women to make decisions that support their child, for example, paying for school fees or supplies. A crisis might demand a woman to step in as a breadwinner and provide for the family as

15 "Women and Money: Measuring and Designing for Women's Financial Empowerment." *Ideo.org*. Accessed November 27, 2024: <https://www.ideo.org/project/womenandmoney>.

earners and decision-makers, for example when the primary breadwinner loses a job, or if a natural disaster should strike.

The EQUALS Digital Literacy project, which supported refugee and host community participants in Kamwenge District, Uganda, conducted focus group discussions and sensitization sessions with both female beneficiaries and their male household members. These sessions aimed to foster understanding and acceptance of women's smartphone ownership and usage. As a result, female beneficiaries felt more comfortable participating in the program, while male household members became actively supportive, encouraging women to join and share their newfound knowledge with others. The involvement of male peers played a crucial role in reducing the risk of intra-household conflict and gender-based violence related to women's smartphone ownership. Through male involvement and community sensitization, the pilot contributed a more inclusive and supportive environment for women's digital literacy and ownership of smartphones (Mboob, Osam, and Robinson 2022).

Providing Transportation, Childcare, Meals, and Flexible Schedules

When designing training programs, it is crucial to consider the physical and logistical barriers that may prevent women from fully participating. Women often face additional responsibilities, such as caregiving, that can make attending training programs challenging. To ensure equitable access and engagement, it is essential to incorporate support mechanisms such as childcare, transportation, and meals. These elements help alleviate the logistical burdens that women might face, enabling them to focus on learning and personal development.

Childcare support is particularly important for women with caregiving responsibilities. Women are more likely to be the primary caregivers for children, elderly family members, and other members of the household. Without reliable childcare, they may struggle to attend training sessions. By providing access to childcare services, either through on-site facilities or partner organizations, training programs can help women to participate without worrying about or neglecting their caregiving duties. Women who know their caregiving responsibilities are addressed are more likely to commit to the program, which in turn increases their ability to learn and benefit from the training.

Depending on where women live, accessing a training location may involve significant travel time, and without affordable or reliable transportation, they may be unable to attend. Offering transportation support or organizing programs at convenient, safe locations can remove a major barrier. Likewise, providing meals can allow participants to focus on the program itself without worrying about food or the added burden of preparing meals for themselves or their families

during training hours. These provisions are especially important for women from lower-income backgrounds, where access to such support may be limited.

Furthermore, designing training programs with consideration for the scheduling and environment is equally vital. Choosing accessible locations that are safe and close to where women live, or where they are comfortable, can help encourage participation. In some cases, programs held in women-only spaces may create an additional sense of security, particularly in regions where cultural or societal norms may discourage women from participating in mixed-gender settings. Additionally, timing the sessions to accommodate women's often busy schedules, factoring in their caregiving and household responsibilities, ensures that these programs do not add further pressure or conflict with daily life.

Ideário Hub, a technology start-up in Mozambique, accomplishes this by offering free, three-month digital literacy courses for sixty low-income young women three times a year that fit around the women's caring responsibilities (Sayagues 2018). Many of the participants are young mothers who attend the classes after dropping their children at school and are able to bring their infants with them to the training center (West, Kraut, and Chew 2019). To address the time constraints of women, the Banglalink initiative in Bangladesh offered training in bite-sized chunks (e.g., 15-minute modules) and Viamo's Calling All Women in Tanzania and Pakistan offered bite-sized learning opportunities through 90-second audio messages in the local language (Tyers et al. 2021). The Gina Mata, Gina Al-Umma project in Northern Nigeria also serves as good practice with respect for incorporating women-centered design strategies into a digital skills training program (Mboob, Osam, and Robinson 2022) (see Box 19).

6.5 SECTOR-SPECIFIC USE CASES

The research also identified sector-specific digital financial capability programs that primarily target women through entrepreneurship and business skills trainings or as components of social protection programs. These programs not only focus on empowering women in their respective fields but also offer additional components such as digital financial literacy, mobile money usage, business skills, and other digital financial services and products to enhance their overall capabilities. These examples leverage relevant use cases, in which the skills or knowledge being taught have direct applicability and benefits for the participants. These use cases involve identifying real-life situations or tasks where the acquired skills can be put into practice and have a meaningful impact.

By focusing on relevant use cases, the training addresses the specific needs and goals of the participants, increasing their motivation and engagement. Understanding individuals' objectives, aspirations, and daily routines allows

for the identification of their pressing needs and motivating scenarios. Once identified, the necessary digital skills required to effectively engage in these use cases can be determined. It is crucial to communicate the personal advantages of acquiring these skills to fulfill learners' goals, highlighting the relevance of the training. It is important to note that this section did not review the extensive body of literature related to women's entrepreneurship or social assistance; however, it showcases promising programs that incorporate digital literacy or digital financial capability training.

Good Practices and Promising Approaches for Sector-Specific Use Cases Advancing Women's Digital Financial Capability

Entrepreneurship and Business Skills Development Programs

Business and entrepreneurship programs play a crucial role in equipping individuals with the necessary skills to effectively navigate and leverage digital tools and platforms for financial management. These programs offer comprehensive training on various aspects of digital finance, including mobile banking, online payment systems, digital bookkeeping, and financial planning. By integrating digital tools into financial practices, participants can enhance their financial literacy, streamline business operations, and unlock new opportunities for growth and sustainability.



Box 23 Digital Financial Capability: ONOW Myanmar

ONOW Myanmar, an organization focused on empowering young female migrant workers, has implemented a program to enhance their digital literacy and financial knowledge. The program introduces concepts such as bank accounts, ATM cards, mobile money, and digital finance. To support their learners, ONOW has developed a chatbot called “Ngwe Oo Yin” or “Money Garden,” which features animated shorts called “Lu Mite Nae Ngwe Ah Tu Ma Nay” (Fools and Their Money Soon Part). This interactive platform has been utilized by over 200,000 people, providing financial management and entrepreneurship education.

The program also incorporates an incubator where members are introduced to the Money Garden chatbot, which simulates conversations and introduces the benefits of various financial products offered by ONOW's partner institutions. The chatbot guides users through the onboarding process, including know your customer (KYC) requirements, to help them open savings accounts or mobile money wallets. Recognizing the limitations of chatbot interaction alone, ONOW

staff follow up with users through phone calls, offering personalized support as needed. The Money Garden chatbot, which has garnered over 300,000 users across Myanmar, is publicly available and was advertised through targeted advertisements on Facebook.

The curriculum primarily focuses on mobile money, digital finance, and other relevant concepts to enhance the digital literacy and financial knowledge of young female migrant workers, preparing them to start their own businesses. Through these initiatives, ONOW aims to empower these women with the necessary skills and knowledge to navigate the financial landscape and improve their economic opportunities.

Source: "ONOW Myanmar." Accessed November 27, 2024: <https://www.onow.com/>.

The Build Back Better Enhancing Recovery and Resilience of Small & Micro-Businesses project in Bangladesh by UNCDF and Visa aimed to empower entrepreneurs by equipping them with the necessary financial and digital literacy skills (UNCDF 2022). Through e-learning modules, including audio-visual and app-based tools, the project focused on enabling micro and small entrepreneurs, particularly women, to confidently embrace new digital services and enhance their business' competitiveness. These e-learning modules were designed to complement existing initiatives and build upon the progress achieved so far. They provided entrepreneurs with the capacity to leverage digital tools effectively for business improvement. The modules were made available on partner platforms as topic-based online lessons, ensuring easy access for any small business on those platforms. In the initial phase, the project successfully assisted 5,000 micro and small businesses in acquiring the essential digital and financial capabilities required to navigate and utilize tools in the digital era. The target audience primarily comprised micro and small entrepreneurs, with a specific focus on empowering women. The learning modules covered a wide range of topics related to the digital and financial ecosystem. These topics included the importance of onboarding businesses onto digital platforms, utilizing cashless transactions, and the benefits associated with digital engagement. The project collaborated with key partners such as Aspire to Innovate, eKShop, and ShopUp to develop the e-learning modules, incorporating audio-visual and app-based tools.

The Business Women Connect program, implemented from 2017 to 2021, focused on improving digital literacy skills and financial knowledge among women microentrepreneurs in Mozambique (TechnoServe 2022). The program

collaborated with local financial service providers and trained women agents to offer services in communities. The participants, who were typically married women between 18 and 60 years old, owned micro-enterprises to support their families and often had low incomes and low levels of literacy. The training modules covered a range of topics, including financial literacy and management, savings, gender equality, business investment, customer service, stock and supplier management, agency banking, and merchandising. Mentoring was incorporated into the program, recognizing the importance of personalized guidance in empowering women microentrepreneurs. Mentors played a vital role in imparting knowledge, building confidence, and encouraging the women to develop their skills and achieve their business goals. To participate in the program, entrepreneurs had to meet certain criteria such as owning a registered business, operating for more than two years, having a physical establishment, and meeting specific sales and literacy requirements. The program collaborated closely with local officials, community leaders, and previous graduates to identify potential participants. Awareness-raising meetings, TV programs, WhatsApp groups, and marketing campaigns were used to reach out to women in peri-urban areas. Business Women Connect partnered with Mozambican financial service providers and trained over 100 businesswomen as service providers and advocates of formal savings. The program aimed to empower women through economic opportunities and contributed to the body of evidence on women's economic empowerment through a randomized controlled trial evaluated by The World Bank's AFR (AFR Gender Innovation Lab).



Box 24 Digital Financial Capability: We Initiative, BLC Bank Lebanon

The We Initiative, launched in 2012 by BLC Bank Lebanon and IFC's Banking on Women Program, is a comprehensive program focused on the economic empowerment of women in the MENA region. It is dedicated to providing women with equal banking rights and opportunities to finance and develop their personal or business projects. The initiative goes beyond financial services and offered a range of tools and resources to support women's expertise, including business power sessions, workshops, articles, studies, and success stories for inspiration.

Recognizing the importance of non-financial services, the bank introduced the WE Initiative's online platform. This platform specifically caters to female entrepreneurs, providing them with access to financial and non-financial information. It facilitates networking among members and offers connections to tax, business, and legal advisers at reduced fees. The initiative aims to support BLC Bank Lebanon's female customers, including women from diverse

backgrounds such as entrepreneurs, professionals, mothers, and those facing daily challenges. It serves as a platform to find solutions for their concerns, overcome obstacles, and unlock their full potential. The WE Initiative continues to be an ongoing project, empowering women and helping them thrive in their personal and professional lives.

Source: Murti, Bhattiprolu Balachandra. 2017. Gender-Smart Business Solutions: Case Study: Banking on Women Entrepreneurs Pays Dividends at BLC Bank. Washington, DC: International Finance Corporation (IFC). <https://documents1.worldbank.org/curated/en/518111511501736267/pdf/121527-WP-LB-Gender-Case-Study-BLC-PUBLIC.pdf>.

Social Assistance Programs

Social assistance programs often include traditional financial skills or digital financial capability program content in their training offerings and overall support package. These programs not only provide financial assistance, such as cash transfers, but also offer specialized training aimed at enhancing women's digital financial skills.



Box 25 Digital Financial Capability: BOMA Pilot, Kenya

In 2017, the BOMA pilot project in Kenya aimed to test the effectiveness of the Graduation Approach in uplifting ultra-poor households from extreme poverty and integrating it into the government's social protection systems. A total of 1,526 women successfully graduated from the program. The program utilized SMS financial literacy training, employing the Arifu training model to provide essential information and digital skills training to individuals with basic mobile phones. Out of the 1,600 participants, 1,350 were enrolled in the group business model, which consisted of three-person businesses, while 250 participants were enrolled in the one-person business model.

The graduation interventions included cash transfers, technical training in business skills and digital financial literacy, consumption stipends, health and savings support, as well as mentoring and life skills training. Graduation occurred when participants met specific criteria, defined as achieving a certain level of social, physical, and productive assets that enable households to become self-sufficient and resilient against shocks without falling back into extreme poverty.

The program employed locally selected and village-based Mentors and Community-Based Trainers from the Cooperative for Assistance and Relief Everywhere (CARE International) to provide technical and life skills training, as well as intensive mentorship, aiming to enhance overall well-being within targeted communities. To facilitate engagement with voice recordings, mentors recorded messages from trusted mentors from the community, which helped build trust among women when introduced to new technology. This approach resulted in increased mobile money usage among recipients, more than doubling its adoption rate following the training.

The pilot program demonstrated the potential of the Graduation Approach in lifting ultra-poor households out of extreme poverty. By combining financial literacy training, mentorship, and essential support services, the program empowered participants to build the necessary assets and capabilities for sustainable self-sufficiency. The integration of mobile technology facilitated access to information and resources, contributing to positive behavioral changes and increased financial inclusion among the program participants.

Source: Sanders, Catherine. 2019. PROFIT Financial Graduation: Endline Report. Rome, Italy: International Fund for Agricultural Development (IFAD). <https://www.boma.ngo/wp-content/uploads/2019/07/PROFIT-Financial-Graduation-Endline-Report-June-2019.pdf>.

By incorporating digital financial literacy and capability training, women are equipped with the necessary knowledge and skills to effectively manage their finances using digital platforms. These training programs are designed to equip women with essential skills such as online banking, mobile payment systems, budgeting, and digital financial security. The aim of programs like this is to improve women's financial decision-making abilities and promote their overall financial well-being. For example, the Capacity Building for Entrepreneurs program in Sierra Leone provided entrepreneurs, who were selected by other organizations and often beneficiaries of other programs already, with foundational financial and digital literacy training, as well as access to affordable financial services and platforms (See Box 26).



Box 26 Digital Financial Capability: The Capacity Building for Entrepreneurs Program, Sierra Leone

The Capacity Building for Entrepreneurs in Sierra Leone program, implemented by UNDP, UNCDF, and the Institute of Development and Humanitarian Assistance (IDHA) in 2021-2022, focuses on improving economic opportunities for entrepreneurs in Sierra Leone. The project aims to support 10,000 beneficiaries from four districts by providing trainings and access to affordable financial services and products. The program includes in-person sessions on financial and digital literacy, where trainees learn essential skills to manage their businesses and navigate digital tools. After completing these sessions, the entrepreneurs are connected with financial services providers, allowing them to access credit and grow their businesses effectively.

The training sessions primarily target women's groups and associations in selected market centers and communities. Some entrepreneurs are selected from the beneficiaries of other programs such as the Safety Net for Women Traders Programme implemented by UNDP in collaboration with the Mano River Union and the Women Cross Border Traders' Union. In Freetown, the capital city, beneficiaries are recommended by the Women Traders Association of Freetown.

The training covers various aspects of entrepreneurship, including record keeping, savings, goal setting and achievement, business planning, and risk management. By equipping entrepreneurs with digital and financial literacy skills, as well as facilitating access to financial services, the program aims to enhance their capabilities and support the growth of their businesses, ultimately improving economic opportunities in Sierra Leone.

Source: "Sierra Leone - Boosting Entrepreneurs Skills with Financial and Digital Literacy Trainings." UNCDF (blog). Accessed November 27, 2024: <https://www.uncdf.org/article/7372/sierra-leone-boosting-entrepreneurs-skills-with-financial-and-digital-literacy-trainings>.

The Shock Responsive Safety Net for Human Capital Project in Somalia provides another example of how social protection programs can effectively integrate financial training content to promote women's digital financial capability. The Baxnaano project—Baxnaano means uplift—provided cash transfer to poor and vulnerable households. By collaborating with the GSMA, the program utilized the Mobile Internet Skills Training Toolkit (MISTT) to support digital financial literacy development (See Box 27).



Box 27 Digital Financial Capability: The Safety Net for Human Capital Project (Baxnaano), Somalia

Somalia's Baxnaano Shock Responsive Safety Net for Human Capital Project is a program led by the Federal Government of Somalia that supports the provision of nutrition-linked cash transfers to poor and vulnerable households across the country. The World Bank supports the Somali government in its efforts to strengthen institutional resilience and establish the basic delivery mechanisms of this national social safety net system. The implementation of the project is supported by the World Food Programme (WFP), among other development partners, which is contracted by the Ministry of Labor and Social Affairs to deliver the nutrition-linked cash transfers.

In order to tackle key implementation challenges such as low literacy levels (especially among women) while recognizing the essentialness of digital literacy to access digital financial services, WFP partnered with the GSMA Mobile for Humanitarian Innovation Programme (M4H) in 2023. The purpose of this collaboration is to empower Somali women by enhancing their digital financial literacy skills to empower them to access and use the mobile-based safety net. As such, the GSMA used its [Mobile Internet Skills Training Toolkit \(MISTT\)](#) and co-organized Train-the-Trainer sessions to enhance the digital financial literacy (with a focus on mobile money) of partners, including Mobile Network Operators. The lead trainers subsequently trained community mobilizers with the same training who in turn trained over 300,000 women across the country. Originally launched to respond to the 2019 drought, the first state-led social safety net system engendered significant improvements in digital literacy and SIM ownership among Somali women, many of whom became independent in managing their mobile money accounts.

Sources: "The World Food Programme, Empowering Somali Women through Mobile: Digital and Financial Literacy in Humanitarian Settings." Accessed December 18, 2024: <https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/blog/empowering-somali-women-through-mobile-digital-and-financial-literacy-in-humanitarian-settings/>. "The World Bank, Developing a State-led Social Safety Net System to Boost Human Capital and Build Resilience in Somalia: The Baxnaano Program." Accessed December 18, 2024: <https://www.worldbank.org/en/results/2022/10/10/developing-a-state-led-social-safety-net-system-to-boost-human-capital-and-build-resilience-in-somalia-the-baxnaano-prog>.

Digital financial capability training has also been leveraged for social protection programs in the context of forced displacement. The Digi#ances Project in Jordan integrated digital financial services into its social protection and social assistance initiatives targeting low-income Jordanians, migrant workers, and Syrian refugees (See Box 28).



Box 28 Digital Financial Capability: The Digi#ances Project, Jordan

The Central Bank of Jordan and the Germany aid agency jointly implemented the Digi#ances Project in Jordan from 2015 to 2023. The Project aimed to leverage digital financial services (including cross-border remittances) to improve the access to remittances in the context of forced displacement; as it was difficult for Syrian refugees to open a bank account in Jordan. Similarly, 42 percent of Jordanian adults did not have a bank account. As such, the project provided low-income Jordanians and Syrian refugees and migrant workers in Jordan (with a strong focus on women and youth) who do not have bank accounts, the knowledge they need to use digital financial services responsibly.

The Digi#ances Project's digital financial literacy curriculum consisted of audio episodes, board games to make digital planning, take-home activities, and visual guides specifically designed to increase unbanked Jordanians and refugees' (with a particular focus on women) access to and use of e-wallets. To enhance sustainability of the project, two outdoor board games (approximately 20 m²) with large figures were set up in Azraq and Za'atari refugee camps. The Digi#ances Project also included pilots of needs-based mobile money services (including remittances), in partnership with stakeholders from the private sector, the World Food Programme, the United Nations High Commissioner for Refugees, and humanitarian organizations. It also supports the deployment of tailored campaigns and comprehensive financial training courses and materials for mobile payment service providers and recipients who are required to successfully complete the training to facilitate the transition to mobile wallets.

As a result of this project, Jordan counted more than 2.04 million active mobile wallets in 2023, which represents a significant increase compared to 200,000 mobile wallets, when Digi#ances started in 2015. Furthermore, 98 percent of households in the Azraq and Za'atari refugee camps currently receive their aid payments from UNHCR and WFP through e-wallets. Similarly, 60 percent of households in surrounding host communities receive their payments via mobile wallets. It should be pointed out that 30 percent of these payments are distributed directly to female beneficiaries, who often are the heads of the household within their communities.

Sources: "Creating the Conditions for Money Transfers without Borders." GIZ. Accessed December 16, 2024: <https://www.giz.de/en/worldwide/38566.html>.

6.6 GENDER-INCLUSIVE DIGITAL FINANCIAL SERVICES

Digital financial service providers have recognized the need to bridge the gender gap in digital financial usage and have taken proactive steps to develop

targeted digital financial capability programs for women. By introducing women-centered services and products and training female agents to cater specifically to women, they aim to increase women's access to and utilization of digital financial services.

Global Evidence on Gender-Inclusive Digital Financial Services

The *Gender-Inclusive Digital Financial Services* design category is supported by two studies highlighting the potential of digital financial services to advance women's digital financial capability or other aspects of women's economic empowerment. In a field experiment conducted in Bangladesh, automatic payroll deposits were found to improve workers' financial literacy and expand their use of digital services. This, in turn, fostered greater savings and enhanced economic resilience (Breza et al. 2020). In India, when women received wages via direct deposit in their own bank accounts (rather than an account managed by their husbands), along with training on how to use them, their labor force participation in both the public and private sectors increased. These women also became more accepting of working outside the home, experienced less resistance from their husbands, and had increased financial autonomy (Field et al. 2020).

Good Practices & Promising Approaches for Gender-Inclusive Digital Financial Services

Women-Centered Products and Services

Mobile operators have made considerable efforts in several countries to address the challenge of lower levels of digital literacy among the population. These initiatives aim to bridge the digital divide and empower individuals, particularly women, to fully participate in the digital economy. One key aspect of these efforts is the design and launch of new products and services specifically targeted towards women as an untapped customer base. Recognizing the unique needs and preferences of women, mobile operators have introduced tailored offerings that cater to their requirements. These offerings may include affordable data plans, user-friendly mobile applications, and value-added services that prioritize accessibility and convenience.

For example, the Arab Women's Enterprise Fund and the Tasaheel Microfinance Company collaborated to implement a digital literacy training initiative in Egypt. The program not only increased women's awareness about mobile money solutions, but also centered their needs to empower them to integrate new solutions into their daily businesses (See Box 29).



Box 29 Digital Financial Capability: Digital Literacy Training Program, AWEF and Tasaheel Microfinance Company, Egypt

The Arab Women's Enterprise Fund (AWEF) collaborated with Tasaheel Microfinance Company in Egypt from 2018 to 2020 to implement a digital literacy training solution. The training aimed to empower Egyptian women by providing them with the skills to effectively use technology for business growth and financial management. The objectives of the training were twofold. Firstly, it aimed to demonstrate how technology can be used for marketing products and managing businesses, enabling women to expand their activities and improve loan repayment rates. This, in turn, would enhance their access to larger loans in the future. Secondly, the training aimed to raise awareness among women about mobile money solutions and how they can integrate these into their daily business operations, such as making payments to suppliers, receiving payments from buyers, and managing savings and micro-loan servicing. The initial results of the digital financial services learning program were promising.

Tasaheel experienced increased foot traffic at their branches, a rise in customer referrals from women who received the training, and improved loan repayment rates. Responding to the demand for electronic payments among beneficiaries, Tasaheel management established Raseedy for Electronic Payments Company to offer an e-wallet product not only to Tasaheel's customers but also to other microfinance institutions operating locally. The curriculum focused on creating awareness of mobile money solutions and helping women integrate these solutions into their daily business management. In-person follow-up support was provided by Tasaheel loan officers or regional digital financial services facilitators, either on a one-on-one basis or in a group setting. This support complemented the training and further assisted women in implementing their newfound knowledge effectively. Through the collaboration between AWEF, Tasaheel Microfinance Company, and other stakeholders, the training program successfully empowered Egyptian women to leverage technology for business growth and financial management. By incorporating video-based learning and providing ongoing support, the program facilitated the adoption of digital financial services and contributed to the economic empowerment of women in Egypt.

Source: Gueguen, Chloe, Reham Gharbiyeh, Julia Hakspiel, and Sabal Majali. 2020. "Making Digital Finance Work for Women in the MENA Region: Eight Lessons From the Field." AWEF Practitioner Learning Brief. Arlington, VA: SEEP Network. https://seepnetwork.org/files/galleries/AWEF_Making_Digital_Finance_Work_for_Women_in_the_MENA_Region_v2.pdf.

The Sakhi mobile service in India also centered women's experiences and needs. By offering features included an emergency alert, the mobile-based safety service address women's safety concerns (See Box 30).



Box 30 Digital Financial Capability: Sakhi, Vodafone Idea, India

The Vodafone Idea's Sakhi is a mobile-based safety service that addresses gender-based safety concerns and removes some obstacles that women face when owning and using a mobile phone in India. The service offers features such as an emergency alert that informs pre-saved contacts about the last location and a private recharge option that blocks mobile agents to obtain the phone number. The research showed, once aware of the service and the convincing narrative of the shared responsibility of a women's safety, community leaders and gatekeepers seemed to approve and appreciate the service and women's ownership and use of mobile phones.

Source: GSMA. 2019. Mitigating Women's Safety Concerns with Mobile: Vodafone Idea India Sakhi service. London, United Kingdom: GSMA. https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/gsma_resources/case-study-vodafone-india-sakhi/.

Women Agents

To address the barriers related to gender gaps in financial access, financial service providers and organizations are intensifying their efforts to improve women's access to women agents within their banking and branching networks. These women banking agents, also referred to as retail agents, are individuals hired by banks to provide financial services at non-traditional locations like retail outlets or mobile kiosks. Their responsibilities encompass a range of tasks such as collecting credit payments, accepting deposits, disbursing funds, and facilitating various financial transactions.

By increasing the presence of women agents, financial service providers aim to reduce the travel distance that female customers often have to cover to interact with an agent of their gender. This strategy is expected to promote greater financial inclusion and help bridge the gender gap in financial access (Chamboko et al. 2021). Women agents can be employed either on a full-time basis by financial service providers or engage in this role as a secondary employment opportunity. Additionally, some women agents may operate as street vendors who offer banking services alongside their primary business activities.



Box 31 Digital Financial Capability: Female Agent Program, AWEF and Dinarak Jordan

The Arab Women’s Enterprise Fund (AWEF) and Dinarak Jordan implemented the Female Agent program in Jordan to improve mobile money access among disadvantaged Jordanian women, particularly in rural or semi-rural areas. The program established a female agent network, partnering with local community-based organizations to onboard agents and provide them with comprehensive financial literacy training.

The initial pilot in the Al Zarqa governorate successfully onboarded 30 female-owned businesses, equipping them with the necessary skills and materials to effectively promote mobile money to their female customers. It was observed that the standard training program needed to be extended and tailored to meet the specific needs of the female agents, covering technical aspects and soft skills such as sales, customer management, and marketing.

Dinarak also invested in sales and educational materials to facilitate knowledge transfer to customers with limited exposure to mobile money. They implemented gender-smart distribution and marketing strategies, including events with female associations in rural areas and advertising campaigns through radio, flyers, and the Internet. These efforts resulted in the registration of an additional 15,779 female e-wallet users over two years.

Dinarak’s achievements were recognized in 2019 when they won the “Equals in Tech” Prize and received a visit from Queen Maxima of the Netherlands, the UN Secretary-General’s Special Advocate for Inclusive Finance for Development. The program’s curriculum emphasized training, sales, and educational materials to enable female agents to effectively promote mobile money services to their customers.

Source: Gueguen, Chloe, Reham Gharbiyeh, Julia Hakspiel, and Sabal Majali. 2020. “Making Digital Finance Work for Women in the MENA Region: Eight Lessons From the Field.” AWEF Practitioner Learning Brief. Arlington, VA: SEEP Network. https://seepnetwork.org/files/galleries/AWEF_Making_Digital_Finance_Work_for_Women_in_the_MENA_Region_v2.pdf.

Women agents play a key role in serving underserved and marginalized customers. Research shows that they tend to reach more marginalized communities than male agents, particularly in rural areas where they often work longer hours outside the conventional working day (Pinto, Arora, and Roy 2020). This sustained presence allows them to provide continuous access to financial services. In areas with restrictive gender norms, women agents primarily serve other women. However, in regions with less restrictive norms, they serve a broader range of marginalized groups, including the poor, youths, elderly people, and people with disabilities, more effectively than male agents (Hernandez et al. 2023).



Box 32 Digital Financial Capability: The Community Agent Network (CAN), the Philippines

The Community Agent Network (CAN) program was jointly developed by Grameen Foundation, ideas42, and JPMorgan Chase Foundation. Implemented in the Philippines from 2015 to 2017, the program aimed to address the low digital and financial literacy levels among women and improve their access to financial services in rural communities. Through comprehensive training programs utilizing interactive voice response, multimedia on mobile phones, and other technology tools, the program equipped women with essential digital and financial skills. These empowered women, serving as community agents, provided their neighbors with digital access to financial resources, contributing to their overall well-being.

As entrepreneurs, the community agents earned a small fee for each transaction they facilitated. The program boasted an impressive network of 2,286 finance agents, 75 percent of whom were women, operating in 423 villages. This network successfully connected over one million individuals to digital financial services, spanning across various remote islands. Many of these agents operated sari-sari stores, small neighborhood shops equipped with a convenient table-top digital financial platform. This platform enabled connections with banks, utility companies, government agencies, and local businesses. Through the support from the JPMorgan Chase Foundation, the CAN program achieved remarkable results over three years, facilitating more than 4.3 million transactions with a total value of 1.3 billion Philippine Pesos (US\$24.9 million).

Source: "In midst of rural poverty, 1.3 million people gain access to financial services through women's networks." Grameen Foundation. Accessed November 27, 2024: <https://grameenfoundation.org/stories/press-releases/in-midst-of-rural-poverty-1-3-million-people-gain-access-to-financial-services-through-womens-networks>.

An IFC study across nine microfinance institutions from seven countries in the Africa region found that women agents were significantly more successful than male agents, with both higher volume and value of transactions (IFC 2018).¹⁶ A 2020 study analyzing data from over 1.1 million customer transactions at a microfinance institution in the Democratic Republic of Congo revealed that customers tend to prefer agents of their own gender. Female customers, in particular, were found to be 7.5 percentage points more likely to transact with a female agent than with a male agent. Interestingly, clients also transact at higher amounts with agents of their own gender, and when women have higher balances, they are more likely to go to female agents (Chamboko et al. 2021). In Bangladesh, over half (52 percent) of female customers preferred banking with

¹⁶ The seven countries are: Senegal, Nigeria, Cameroon, Democratic Republic of Congo, Rwanda, Tanzania, and Madagascar.

female agents, though 97 percent of customers were forced to visit male agents due to female agent scarcity (Barooah et al. 2018). In India, Pradhan Mantri Jan Dhan Yojana (PMJDY) program, which opened over 420 million bank accounts, of which 53 percent belonged to women, also focused on deploying women agents, called business correspondents (BCs), to rural India to mitigate gender norms. Roughly 80 percent of all BCs were women (Aadil 2019). However, in Nigeria, Women's World Banking did not find a difference in the frequency or size of transactions for women interacting with female or male agents, highlighting the need for context-specific approaches (Lyons et al 2020).

Several studies show that women agents can outperform their male counterparts on key performance indicators, provided that their challenges are addressed with appropriate support from both public and private sectors. Women agents face barriers including gaps in digital literacy, lack of business acumen, and lack of leadership experience due to limited financial decision-making opportunities (Calder et al. 2021). They also struggle to access essential resources like working capital, delaying business growth (Sinha, Jain, and Poulouse 2023). Additionally, domestic responsibilities and mobility constraints reduce the time they can invest in their businesses, leading to slower growth and increased stress (Pinto, Arora, and Roy 2020).

A study in the Democratic Republic of Congo found that female agents are more efficient and profitable than their male counterparts. They handle higher transaction volumes and conduct 12 percent more transactions per month, despite often working shorter hours. While women agents typically operate in more rural areas with less commercial activity, they report 16 percent higher profits when considering their overall business performance (Harten and Rusu 2016).

Emerging studies are showing that women's income increases as a result of becoming agents (Hernandez et al. 2023). A project in Pakistan has found that participants who joined a program to become agents increased their income by US\$9.40 per month, with the highest performers tripling their earnings (Women's World Banking 2018).



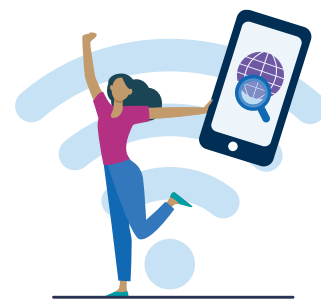


Box 33 Digital Financial Capability: Business Women Connect, Mozambique

The Business Women Connect program was implemented from 2017 to 2021. The program focused on enhancing the knowledge and utilization of mobile savings accounts and business skills among women microentrepreneurs. Since 2017, the program has collaborated with various Mozambican financial service providers, such as Letshego Bank and M-PESA, and worked with their women agents to offer services in local communities. In 2018, over 100 businesswomen were trained to become more effective service providers and advocates for formal savings, benefitting thousands of other women in Mozambique. The program targeted married women between the ages of 18 and 60, who often turned to entrepreneurship out of necessity to support their families. Participants typically had low incomes and low levels of literacy. The training modules covered various topics, including financial literacy and management, savings, gender equality, business investment, customer service, stock and supplier management, agency banking, and merchandising. By incorporating mentoring into the program, the program designers recognized the importance of personalized guidance and mentorship in empowering women microentrepreneurs. The mentors played a vital role in imparting knowledge, building confidence, and encouraging the women to develop their skills and achieve their business goals.

Source: TechnoServe. 2022. Equality for Growth: The Business Women Connect Program's Approach to Supporting Women Entrepreneurs. Arlington, VA: TechnoServe. <https://www.technoserve.org/resources/equality-for-growth-the-business-women-connect-programs-approach-to-supporting-women-entrepreneurs/>.

Further research is needed across more country contexts to examine the impact of gender-balanced agent networks on the adoption and usage of digital financial services by female customers. Continued efforts and exploration in this area will contribute to a more comprehensive understanding of how to effectively address gender disparities in financial access and promote women's financial inclusion.



7. Conclusion

The *What Works to Advance Women's Digital Literacy* report aims to provide a review of evidence and programs to support policymakers and practitioners in designing and implementing future digital literacy interventions. The limited number of impact evaluations of women's digital literacy programs highlights the need for more evidence to better assess the efficacy of these programs.



7.1 SUMMARY OF EVIDENCE

By delving deeper into the available studies, experimental research, and other forms of evidence *specifically* related to the design categories, this study assesses whether the promising approaches identified in the program analysis are supported by existing evidence. Based on the existing evidence base, there are several that require further exploration and evaluation.

It is important to acknowledge that this report and its methodology have limitations. Not all available studies could be reviewed within the scope of this work, and we recognize that this effort represents a starting point rather than a comprehensive synthesis. As an emerging field, the study of women's basic digital literacy and financial capability continues to evolve, and this report serves as a contribution to expanding the body of knowledge in this area.

Delivery Channels

The summary table featured in Appendix C highlights the supporting evidence for the *Delivery Channels* design category. Notably, we found it is an emerging area, with only one study providing evidence in this domain. This study, a large-scale randomized controlled trial conducted in Kenya, assessed the effectiveness of automated SMS-based business training as part of the ARIFU SMS-based learning platform (Fuchs et al. 2022).

The analysis also identified instances of text-message-based lessons delivered through SMS, WhatsApp, or similar platforms. However, these approaches were often part of educational training for school curricula and primarily target school-aged students, particularly in the wake of the COVID-19 pandemic, which necessitated a shift to e-learning solutions for students.

Given the limited evidence, further research is needed to better understand whether technology-based delivery channels effectively support women in their basic digital literacy learning journeys. Moreover, comparative studies are needed to assess the effectiveness of technology-driven approaches relative to more traditional delivery channels, such as text- and paper-based methods or broadcast media like radio and television. This research could provide valuable insights into optimizing delivery methods to enhance outcomes for women.

Instructional Approaches

The *Instructional Approaches* design category is supported by three studies that provide evidence. One pilot evaluation highlights the effectiveness of group-based approaches, where participants who received digital training content supplemented by face-to-face support from a facilitator experienced significant improvements. Specifically, this approach doubled positive outcomes in device ownership, skills confidence, and employment opportunities (Mboob et al. 2022). This study was the only example of this design category we identified focusing on women's basic digital literacy.

An experimental study conducted in India demonstrated the impact of peer effects on women's entrepreneurship and business outcomes. In this study, women attending a business counseling program were randomly assigned to attend with a friend, resulting in enhanced outcomes. The effects were particularly pronounced among women constrained by restrictive social norms that limit female mobility (Field et al., 2016).

Learning Models

For this design category, just two studies were identified, emphasizing the need for more rigorous research on learning models in basic digital literacy training programs. The first study is a field experiment investigating learning-by-doing approaches in financial decision-making processes, specifically in the context of savings accounts, underscored the importance of experiential learning. It found that practical experience plays a critical role in overcoming bias in financial decisions (Giné and Goldberg 2023). The second study explored the potential of edutainment, through an educational soap opera (Berg and Zia, 2013).

Wraparound Features

This design category includes studies demonstrating the effectiveness of mentoring, role models, and engaging gatekeepers in addressing structural and

societal barriers. However, due to a lack of studies focusing specifically on basic digital literacy, these studies focus on broader, related research areas.

A Ugandan study found that female entrepreneurs with male mentors were 22 percent more likely to succeed in male-dominated sectors such as metalworking and electricals. Role models provided critical sector information and psychosocial support, enabling women to overcome occupational segregation and societal norms (Campos et al. 2015). Similarly, a study demonstrated that exposure to non-stereotypical role models—regardless of gender—enhanced women’s sense of belonging and academic aspirations in STEM, underscoring the need to reduce stereotype threats (Cheryan et al. 2013).

Another study showed that exposure to same-sex STEM experts significantly improved women’s self-concept, attitudes, and motivation toward STEM careers (Dasgupta 2011, Stout et al. 2011).

Programs targeting gatekeepers also show promise. The Bandebereho intervention in Rwanda involved a 15-session curriculum to challenge entrenched gender norms, leading to improved couple communication, caregiving practices, and reduced intimate partner violence (Doyle et al. 2018). Similarly, World Bank initiatives in Pakistan and Nigeria provided women entrepreneurs with wraparound services such as childcare, transportation, and spousal involvement, resulting in better financial management, business planning, and business growth (World Bank 2019).

Finally, the EMAP program in the Democratic Republic of Congo demonstrated that engaging men in discussion groups fostered gender-equitable attitudes, improved relationship quality, and shifted men’s behaviors, though reductions in intimate partner violence remained limited (Vaillant et al. 2020).

7.2 DRIVING PROGRESS THROUGH RESEARCH

What Works to Advance Women’s Digital Literacy aims to provide a valuable resource that synthesizes available evidence and reflects the current state of research on women’s basic digital literacy. This work highlights promising strategies for advancing women’s digital literacy while also identifying critical gaps in the evidence base that warrant further investigation. As research on basic digital literacy remains nascent and, in many ways, an emerging field, it is crucial to foster opportunities for deeper exploration, understanding, and innovation. Conducting additional studies will be essential to generate actionable insights and develop effective strategies that drive meaningful progress.

This is particularly important to support operational teams in developing women’s digital literacy and financial capability programs. By providing an

overview of current programs and synthesizing evidence from their evaluations, this report makes good practices more accessible to teams. Additionally, this study strengthens the call for further research in these areas, emphasizing the importance of understanding what works. By doing so, practitioners and policymakers can concentrate efforts on approaches that produce positive outcomes, assess whether these strategies can be scaled to different contexts, and carefully evaluate the associated risks to maximize their effectiveness and impact. Through these collective efforts, stakeholders can more effectively advance women's digital literacy and ensure that women are able to participate meaningfully in the digital economy.

Appendix A: Global Mapping of Programs

DIGITAL LITERACY PROGRAMS

Table 8: Digital Literacy Programs: AFR Region

Africa Region				
Country	Organization(s) responsible	Program name	Timeframe	Description
Dr Congo	The Orange Foundation, AfricaTik	The Digital School Program	2019–	Since 2019, the Orange Foundation has deployed its digital schools program to introduce children to digital technology in underprivileged areas with a direct impact on nearly 5,000 primary school students and the exposure of more than 10,000 students to applications. This program is available in French and in 4 national languages.
Liberia	UN Women, The Orange Foundation, the National Peace Hut Women of Liberia	N/A	2022–2023	The program aims to empower women economically and socially through digital innovations and technology to promote gender equality.
Niger	Catholic Relief Services, Tufts University, Oxford University, UC-Davis	Alphabétisation de Base par Cellulaire: Mobiles 4 Literacy	2009–2012	The program is a collaborative initiative that uses mobile phones as tools in promoting adult literacy and numeracy in Niger. The program was designed to assess the impact of mobile phone use on adults' learning and socio-economic outcomes. It integrated phone-based literacy and numeracy modules into a conventional adult literacy course, attended by 50 learners (25 men and 25 women) in each of the 113 villages selected in the Dosso and Zinder regions of Niger. All students followed a regular adult education program. However, in half the villages (the “ABC villages”) participants also learned how to use a mobile phone.
Nigeria	World Bank, Natview Technology	Gina Mata Gina Mata, Gina Al-Umma	2023–2024	<p>The Digital Development Global Practice within the World Bank, with support from the Digital Development Partnership and the Human Rights, Inclusion and Empowerment Umbrella Trust Fund, launched “Gina Mata, Gina Al-Umma”, an Inclusive Digital Technologies and Digital Skills pilot in Northern Nigeria.</p> <p>Through Gina Mata, Gina Al-Umma—which translates from Hausa to mean “Build up women, Build the community”—disadvantaged girls and unemployed women in Northern Nigeria are empowered through digital skills and soft skills training and provided with access to Internet and digital tools to break their cycle of unemployment and vulnerability to gender-based violence.</p>

Africa Region				
Country	Organization(s) responsible	Program name	Timeframe	Description
Nigeria	EQUALS Global Partnership, World Bank, The Rockefeller Foundation's Digital Jobs Africa Initiative, Natview Technology	FASAHA 4.0	2022	The program aimed to integrate more women into the digital economy and improve girls and women's economic participation in the digital space.
Nigeria	Tech4Dev, United Kingdom Foreign Commonwealth and Development Office	The Basic Digital Literacy for Rural Clusters in Northern Nigeria program	2021	The Basic Digital Education Initiative was an experiential learning computer education and STEM program that aimed to introduce learners in underserved communities to the world of digital literacy and equip them with the basic digital knowledge that is required to succeed in the 21st century world and workplace.
Nigeria	Tech4Dev	The Genesis House	-	The Genesis House digital literacy program was a 4 week training program designed to equip women and girls in the Genesis house program with basic digital literacy competence that enables for adequate participation in the future of work.
Rwanda	EQUALS Global Partnership, Digital Opportunity Trust	Digital Skills for Business	2021	Under this program, the World Bank sought to equip women with digital skills and close digital gender gaps.
Uganda	Trickle Up, AVSI Foundation, World Bank	EQUALS Digital Literacy Project	2021	<p>The objective of this pilot was to improve women's digital literacy and inclusion by increasing their agency, ownership, and usage of smartphones for economic and social inclusion to support improving women's digital literacy and inclusion among refugee and host community participants who had recently completed an economic development and inclusion activity in Kamwenge District, Uganda.</p> <p>The pilot then tested two training delivery approaches: (1) animation video only, which provided video training via the distributed smartphones; and (2) animation video plus, which supplemented the video training with hands-on support from a trained facilitator using a structured paper-based curriculum.</p> <p>Results in the animated video plus group were almost twice as high as in the animated video only group, in which 16.5 percent demonstrated the skills required to carry out basic functions of a smartphone. When comparing the learning approaches by participant demographics, the results were similar.</p>
Kenya, Nigeria, South Africa	Intel®	Intel® She Will Connect	2014	She Will Connect aimed to connect more women to the Internet and to basic technology skills so they can access information and new economic and social opportunities.

Table 9: Digital Literacy Programs: MENA Region

Middle East and North Africa (MENA)				
Country	Organization(s) responsible	Program name	Timeframe	Description
Egypt	Vodafone Foundation, local NGOs	Vodafone Egypt Foundation – Knowledge is Power Initiative	2011	The project aims to make the process of learning more modern and engaging. The goal of the initiative is to use classroom and mobile learning to improve literacy skills, and help remove a major barrier to individual empowerment, economic growth and democratic participation in Egypt. The flexibility of mobile-based learning, which can take place anywhere and anytime, and classes held in easy to access locations, has seen the program attract huge interest from women who want to improve their literacy skills.
Morocco	The Orange Foundation	Women’s Digital Centre	2019	A digital center which aims to train single mothers who lack qualifications or a job on basic digital literacy.
Morocco	The Orange Foundation	Digital Houses	2022	The Foundation has deployed the “digital houses” project to promote the digital and social inclusion of women by working with reference associations, and equipping women with computer equipment and furniture. The initiative also offers long-term training led by women engineers and volunteers.

Table 10: Digital Literacy Programs: SAR Region

South Asia				
Country	Organization(s) responsible	Program name	Timeframe	Description
India	Google, Hindustan Unilever, Axis Bank and Intel, Tata Trusts	Google: Helping Women Get Online	2013	Recognizing the Internet’s role in empowering women, the value it can add to their lives and on a macro level, the uplift in GDP of the country, Google launched Helping Women Get Online in November 2013.
India	Tata Trust, Google	Internet Saathi Program	2015	The Tata Trusts’ Internet Saathi program, launched in 2015 in collaboration with Google, encourages rural women to serve as agents for change by taking the lead in promoting digital literacy within their rural communities. In short, the program helps to create a cadre of digitally-trained women in rural communities who train other women, thereby building a growing network of trainers who impart digital literacy to rural citizens.
India	The Self-Employed Women’s Association of India (SEWA)	The “Rural Distribution Network (RUDI)” program	2004	In 2004, SEWA established the “Rural Distribution Network (RUDI)” program, through which agricultural products are purchased from local farmers, processed and packaged at a central processing facility, and then sold directly to rural end consumers through a network of local sales women called “RUDI bens.” To address mobile literacy challenges, SEWA invested in creating an application that was tailored to the needs of the RUDI bens.

South Asia				
Country	Organization(s) responsible	Program name	Timeframe	Description
India	Ministry of Electronics and Information Technology, implementation agencies, and certifying agencies	India Pradhan Mantri Gramin Digital Saksharta Abhiyan	2017	This program is an effort to complement the Government of India's vision to transform 6 million persons lives in rural areas, across States/UTs (one from each household, reaching around 40 percent of rural households) digitally literate. The project aims at helping adults with low technological literacy develop the skills they need to interact in an increasingly digital world.
Pakistan	CIRCLE, UN Women, The Bill & Melinda Gates Foundation, L'Oréal Fund for Women	The Digital Literacy Program	2020	Digital Literacy Program is a high impact training program for women from low-income households focusing on digital literacy, financial inclusion, and entrepreneurship.

Table 11: Digital Literacy Programs: EAP Region

East Asia and Pacific				
Country	Organization(s) responsible	Program name	Timeframe	Description
Indonesia	Women's World Banking DigiAsia		2017	The program aims to expand access to supplier credit to a new segment of micro-entrepreneurs. DigiAsia knows that potential customers, and women customers in particular, have limited experience with credit, and that they have strong negative associations with it due to the predatory interest rates and aggressive collection tactics of lenders. Working with DigiAsia, Women's World Banking developed a digital financial capability initiative to address these barriers and enable micro-entrepreneurs to better understand, trust, and use credit.
Philippines	Grameen Foundation, Wells Fargo	WomenLink II program	2018–2021	The program, funded by Wells Fargo, is training over 450 community agents to extend financial education and to provide access to financial services to tens of thousands more women.
Philippines	Grameen Foundation, ideas42, JPMorgan Chase Foundation	The Community Agent Network (CAN)	2015–2017	Training programs that aim to help women overcome their low literacy levels to improve access to financial services, by building a last-mile agent network that delivers digital financial services in unserved and underserved rural communities.
Philippines	Visa, Plan International	-	2023–ongoing	Visa and Plan International's partnership aims to promote digital financial education among youths and young entrepreneurs from disadvantaged backgrounds and help girls take better control of their careers, lives and futures.
Myanmar	U.S.-based nonprofit Partners Asia	Mobilizing Myanmar	2019	A flagship Digital Literacy and Livelihood Training program that leverages women's community networks to improve the digital financial capability of female-led MSMEs.
Myanmar	ONOW Myanmar	-	Ongoing	ONOW introduces young female migrant workers to bank accounts, ATM cards, mobile money, digital finance, and other concepts to improve their digital literacy.

Table 12: Digital Literacy Programs: ECA Region

Europe and Central Asia				
Country	Organization(s) responsible	Program name	Timeframe	Description
Georgia	The United Nations Educational, Scientific and Cultural Organization (UNESCO) and Business and Technology University (BTU)	Promoting Information Literacy in the Digital Environment among Women in Georgia	2022–2023	The project aimed to raise awareness of digital literacy among Georgian and Ukrainian displaced women in Georgia, by enhancing their computer literacy and information literacy skills. It specifically promoted the meaningful use of technology and women’s critical thinking abilities by encouraging women in to engage with technology and improve their readiness for the digital transformation. The project also supported the establishment of a network of participant alumnae to facilitate knowledge exchange, promote active communication, and ensure the initiative’s longevity.
Türkiye	The Estonian Refugee Council and NGO Mondo	Supporting the self-reliance of Syrian refugee women, children and youth in Lebanon and Türkiye through digital competencies and entrepreneurship trainings	2024–2025	Mondo’s project, which aims to support Syrian refugees (women, children and youth, in particular) and other vulnerable communities. It specifically aims to support the development of self-sufficiency skills by building digital and entrepreneurship skills of vulnerable communities to increase their competitiveness on the labor market while allowing them to grow their income and therefore improve their livelihoods.
Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia	TikTok and CRCA/ ECPAT Albania	TikTok Digital Safety Agenda for Western Balkans	2024	This comprehensive project aimed at equipping parents/ caregivers and teachers, minors and women (to address their specific needs and attitudes as well as the risks they may encounter in the digital world) with digital literacy knowledge and skills, covering topics such as: responsible use of internet, safety measures and social communication.
Moldova	The Orange Foundation, the Orange Foundation Moldova, the Educational Advising Center	Women’s Digital Center / Ukraine Refugee	2023	Digital literacy and entrepreneurial education project designed for refugee women from Ukraine (residing in Moldova), and for young women and girls from Moldova, aged between 18-45 years old. It aimed at providing a free offline digital literacy training, over a period of 6 months, on digital literacy, initiation into entrepreneurship, online business promotion, useful applications and creating a website, as well as the introductory course in Romanian.
Poland	Government of Poland	Digital Competence Development Program	2023–2030	A comprehensive initiative designed to enhance digital skills across various sectors of society, ranging from general citizens and government employees to specialists in the ICT sector and workers in SMEs. Among its five priorities, the program aims to ensure that 80% of Poland’s population (especially women and youth, starting from preschool) has the opportunity to acquire at least basic digital literacy skills.

Europe and Central Asia				
Country	Organization(s) responsible	Program name	Timeframe	Description
Kyrgyz Republic	The World Bank	Kyrgyz Digital CASA	2018–2025	Kyrgyz Digital CASA supports the country's digital transformation agenda and the National Sustainable Development Strategy 2018-2040. It aims to foster sustainable and inclusive growth by helping bridge the digital divide through the provision of digital skills training (for example, in areas such as digitalization of Government records and archives). This project targets women and girls, in particular, with a focus on female employees and new recruits who lack digital skills.
Kyrgyz Republic	Government of Kyrgyzstan, UNDP, private sector, and academia	Digital skills and opportunities for youth employment towards digital economy	2019–2021	The project aimed to enhance the capacity of the formal education system and also to apply new educational standards for digital skills to deliver demand-driven curriculum to better prepare youth for digital economy. This was achieved by establishing new digital skills standards and strengthening institutional capabilities of the formal education system (technical universities and vocational lyceums in Bishkek and Osh) to equip youth (with a focus on rural girls, young women and youth with special needs) with job-ready, transferrable digital skills including basic, intermediate and advanced digital entrepreneurial and soft skills, as well as enhancing digital competencies of teachers to better integrate digital skills development in education.

Table 13: Digital Literacy Programs: Worldwide

Worldwide				
Location(s)	Organization(s) responsible	Program name	Timeframe	Description
66 Countries (17 languages)	Girl Effect, Springster	Springster	2015	Springster is a global mobile platform and website created for 14- to 16-year-old girls that focuses on connecting girls to the information and resources they need to effect positive attitude and behavior change online and offline. Springster is a digital brand within Girl Effect and has currently 1.3m unique users each month. In collaboration with Facebook Free Basics and local mobile network operators, Springster is available free of charge worldwide. Springster can be accessed on social media and through various corporate partnerships.
Sub-Saharan Africa and South Asia	The U.S. Agency for International Development (USAID) and the Bill & Melinda Gates Foundation	The Women in the Digital Economy Fund	2023	The Women in the Digital Economy Fund aims to accelerate progress to close the gender digital divide by supporting programs that advance digital access and affordability; develop relevant products and tools; provide digital literacy and skills training; promote online safety and security; and invest in sex-disaggregated data and research. It will support, wherever possible, women-led solutions, products, and tools.

DIGITAL FINANCIAL LITERACY PROGRAMS

Table 14: Digital Financial Literacy Programs: AFR Region

Africa Region				
Country	Organization(s) responsible	Program name	Timeframe	Description
Côte d'Ivoire	The Didier Drogba Foundation, Ministry of National Education, Technical and Vocational Training of Côte d'Ivoire	The KALAAN initiative	2019	The KALAAN initiative involves advocating for public bodies and development partners to prioritize digital literacy. It educates the target populations on development issues such as financial inclusion through special literacy programs.
Ghana, Uganda, Malawi, Rwanda, Kenya, Tanzania; Available in 16 Languages	USAID, Strategic Impact Advisors	Hey Sister!	Ongoing	Hey Sister! is an IVR (interactive voice response) campaign designed to increase women's ability to access and use digital financial services. From 2020-2021, 238,000 people were directly reached and as many as 740,000 people were indirectly reached.
Kenya	Mercy Corps	N/A	2020	SMS financial literacy training using the Arifu training model (leading firms and NGOs in any sector use Arifu to make digital skills training and essential information available to people across their customers, agents, and suppliers who have at least a basic phone in order to upskill them, drive meaningful behavior change, and capture new insights).
Kenya	NGO BOMA, Government of Kenya, IFAD, BRAC	BOMA Project	2017-2019	The objective of the pilot was to test the effectiveness of the Graduation Approach in lifting ultra-poor households out of extreme poverty and the viability of integrating the poverty graduation approach into the government's social protection systems. The piloted finished with 1,526 women graduating from the program and out of poverty.
Igad: Djibouti, Ethiopia, Kenya, Somalia, South Sudan, Sudan, and Uganda	UNDP, in partnership with the Intergovernmental Authority on Development Secretariat and the United Nations Institute for Training and Research	The Online Entrepreneurship and Financial Literacy Training Program for Women and Girls in the region.	2022	This training series, established as part of UNDP's regional project on Advancing Gender Equality and Women's Empowerment in Africa with funding from the Government of Canada, aims to strengthen the involvement of Regional Economic Commissions and Civil Society Organizations in assisting Member States to fulfill their gender equality commitments.

Africa Region				
Country	Organization(s) responsible	Program name	Timeframe	Description
Rwanda	Umutanguha Finance Company, UNCDF, World Relief Rwanda, Equity Bank Rwanda	Expanding Financial Access and Digital and Financial Literacy	2019–2020	The project started with the aim of equipping vulnerable and low-income people with digital financial education skills, to enable them to master their cash management, budget, savings, and eventually be able to work with formal financial institutions. With the COVID-19 crisis, the project equipped its users with digital skills to navigate this new digital world. The project is also promoting the digitalization of savings groups' operations to facilitate members' transactions and ease access to their financial data.
Sierra Leone	UNDP, UNCDF, the Institute of Development and Humanitarian Assistance	“Capacity Building for Entrepreneurs in Sierra Leone”	2021–2022	The joint SDG funded project aims to improve economic opportunities for entrepreneurs through trainings and access to affordable financial services and products.
Tanzania, Mozambique	TechnoServe, the ExxonMobil Foundation, the Center for Global Development, and Vodacom	Business Women Connect	2017–2021	In its program, TechnoServe focuses on increasing women microentrepreneurs' knowledge and use of mobile savings accounts and business skills.
Uganda	FinEquity, WomenSave	Insights from WomenSave	2022	The WomenSave model addresses the fact that women living in poverty in rural areas of Sub-Saharan Africa are rarely afforded the agency to define their own financial goals and safely meets them on their own terms.
Zambia	Government of the Zambia, UNCDF, Viamo	N/A	2022	The United Nations Capital Development Fund (UNCDF) partnered with the Zambia Ministry of Finance to digitalize utility payments and drive digital and financial inclusion for Zambia's underserved customers. One aim of this partnership was to increase the availability and usage of utilities for women and youth.

Table 15: Digital Financial Literacy Programs: MENA Region

Middle East and North Africa (MENA)				
Country	Organization(s) responsible	Program name	Timeframe	Description
Jordan	GIZ & Central Bank of Jordan	Digi#ances: Improving Access to Remittances and other Financial Services through Digital Solutions	2021	The objective of the Digital Financial Literacy program was to provide individuals with no current access to financial services in Jordan with the knowledge they need to use digital financial services responsibly. Through jointly-designed and developed materials and trainings, stakeholders reached the target group with consistent, neutral, and credible information on digital financial services, and helped to foster their financial inclusion through hands-on training in this new service.

Middle East and North Africa (MENA)

Country	Organization(s) responsible	Program name	Timeframe	Description
Egypt	Fawry, The Arab Women Enterprise Fund, Baheya, AXA and Unilever	Heya Fawry	2019–2021	Heya-Fawry was an initiative in collaboration with the Arab women enterprise fund, Baheya, AXA and Unilever to empower women, increase their opportunities in the financial market and help them to climb up the financial inclusion pyramid in Egypt to ensure that women access services to the same extent as men do.
Egypt, Jordan, Palestine	AWEF-in consortia with MarketShare Associates, Education for Employment Jordan, and Positive Planet International	N/A	2015–2021	The program enhanced access to finance for women by working with digital financial service providers to expand outreach of services to women and women entrepreneurs.
Egypt	AWEF, with Tasaheel Microfinance Company	N/A	2018–2020	Digital literacy training solution through Tasaheel Microfinance Company's branch network.
Lebanon	BLC Bank Lebanon, the IFC's Banking on Women Program	We Initiative	2012-ongoing	The We Initiative is the first holistic program dedicated to the economic empowerment of women in the MENA region. It is the only initiative to provide women with an complete finance solution, giving them equal banking rights and opportunities in order to finance and grow their personal or business projects.
Jordan	AWEF, the Jordan Payments and Clearing Company	JoPACC's Digital Experiments	2019–2020	The partnership focused on implementing two “Digital Experiments” focused on increasing women's access to digital financial services.
Jordan	AWEF, Dinarak Jordan	The Female Agent Project	2018	This project is a female agent network designed to improve mobile money access among disadvantaged Jordanian women, especially in rural or semi-rural areas. Dinarak partnered with local community-based organizations to on-board the agents and offer them an intensive financial literacy training program.

Table 16: Digital Financial Literacy Programs: LAC Region

Latin America and the Caribbean				
Country	Organization(s) responsible	Program name	Timeframe	Description
Bolivia	Tigo, Institución Financiera de Desarrollo	Mujeres Conectadas	2018	Mujeres Conectadas was created with the aim of integrating more women into the digital economy and allowing them to access more and better development opportunities. Its creators envisage achieving these goals by equipping women with mobile technology tools, digital literacy, and entrepreneurial skills. Mujeres Conectadas also seeks to broaden women's access to financial knowledge and resources that can be used as springboards for starting or expanding their own businesses.
Nicaragua	Pro Mujer	N/A	Ongoing	The program aimed to provide financial literacy trainings to female entrepreneurs, leveraging their Pro Mujer mobile application.

Table 17: Digital Financial Literacy Programs: SAR Region

South Asia				
Country	Organization(s) responsible	Program name	Timeframe	Description
Bangladesh	UNCDF, Visa	The Build Back Better-Enhancing Recovery and Resilience of Small & Micro-Businesses project	2021	The project empowered entrepreneurs in Bangladesh with the financial and digital literacy skills they need to confidently adopt and leverage new digital services to improve their business' competitiveness and performance.
Bangladesh	BSR, Women's World Banking, The Bill & Melinda Gates Foundation and three implementing partners: Change Associates, MAMATA, and Young Power in Social Action	HERfinance Digital Wages Program	2015–2020	The learning objective for this project was to teach women garment factory workers how to do P2P transfers on their own, a key use case for this target segment since they send money home on a monthly basis. Key messages stressed that customers can do transfers directly on their phones, that making a transfer digitally is easy, and that it can be done in the convenience of their own home, without having to wait in line to be served by an agent.
Bangladesh	Ideo.org, The Gates Foundation, BRAC's Social Innovation Lab, and bKash	BRAC Shakti	2020	Incentive program that boosts women's confidence with digital financial services by surrounding them with the peer support they need to explore, learn, and gain comfort with new digital tools.

South Asia				
Country	Organization(s) responsible	Program name	Timeframe	Description
India	Trickle Up, TATA Communications	M-Powered programme	2020	The livelihoods aspect of their program was delivered or supported by the provision of mobile phones, training and a specially designed app called the PoP.
India	Grameen Foundation for Social Impact	Youth Champions for Digital Finance	2018	The Youth Champions initiative in India focuses on training young people to become digital financial services educators in their communities.
India	Grameen Foundation for Social Impact, Citi	Digital Inclusion Via Education Phase Two	2019–2020	The goal of the Phase Two of the Digital Inclusion via Education program is to drive sustained behavior change in adoption and usage of digital financial services among low-income populations in India through scaling the “Grameen Mittras” community agent network.
India	Grameen Foundation, Cashpor MicroCredit, Ltd. (an Indian microfinance company), ICICI Bank (a national bank) and Eko (a technology company)	Cashpor and Eko: Using Mobile Money	2011	The program aimed to provide access to mobile based savings services to Cashpor’s women members.
Pakistan	CIRCLE	Tech Hub	2021	CIRCLE, with its partners across Pakistan, set up a network of Tech Hubs for digital training of low income and underserved women in multiple cities.
Pakistan	Unilever, Jazz Cash	Guddi Baji (Good Sister in Urdu)	2017	Guddi Baji, meaning “The Good Sister” is a female community influencer program by Unilever Pakistan, which helps women open the door to economic empowerment. The project envisions bridging the prevailing gender gap by giving women in rural Pakistan the tools to become entrepreneurs.

Table 18: Digital Financial Literacy Programs: EAP Region

East Asia and Pacific				
Country	Organization(s) responsible	Program name	Timeframe	Description
Indonesia	Women’s World Banking	DigiAsia	2017	The program aims to expand access to supplier credit to a new segment of micro-entrepreneurs. DigiAsia knows that potential customers, and women customers in particular, have limited experience with credit, and that they have strong negative associations with it due to the predatory interest rates and aggressive collection tactics of lenders. Working with DigiAsia, Women’s World Banking developed a digital financial capability initiative to address these barriers and enable micro-entrepreneurs to better understand, trust, and use credit.

East Asia and Pacific				
Country	Organization(s) responsible	Program name	Timeframe	Description
Philippines	Grameen Foundation, Wells Fargo	WomenLink II program	2018–2021	The program, funded by Wells Fargo, is training over 450 community agents to extend financial education and to provide access to financial services to tens of thousands more women.
Philippines	Grameen Foundation, ideas42, JPMorgan Chase Foundation	The Community Agent Network (CAN)	2015–2017	Training programs that aims to help women overcome their low literacy levels to improve access to financial services by building a last-mile agent network that delivers digital financial services in unserved and underserved rural communities.
Philippines	Visa, Plan International	N/A	2023–ongoing	Visa and Plan International’s partnership aims to promote digital financial education among youth and young entrepreneurs from disadvantaged backgrounds and help girls take better control of their careers, lives and futures.
Myanmar	U.S.-based nonprofit Partners Asia	Mobilizing Myanmar	2019	A flagship Digital Literacy and Livelihood Training program that leverages women’s community networks to improve the digital financial capability of female-led MSMEs.
Myanmar	ONOW Myanmar	N/A	Ongoing	ONOW introduces young female migrant workers to bank accounts, ATM cards, mobile money, digital finance, and other concepts to improve their digital literacy.

Table 19: Digital Financial Literacy Programs: ECA Region

Europe and Central Asia				
Country	Organization(s) responsible	Program name	Timeframe	Description
Uzbekistan	Uzum, UNDP	From Poverty to Prosperity Programme	2024	This initiative aims to address the shortage of digital and financial literacy skills among the unemployed women and young people by providing them with the basics of financial literacy and entrepreneurship skills needed in the modern world. More specifically, the learning objective for this project is to teach women and young people basic financial literacy and business management for e-commerce.
Lithuania	Kaunas Region Education Centre, Acción Laboral, Centre for Social Innovation, die Berater Unternehmensberatungs GmbH, Social Innovation Fund, European Union	DigFinLit	2023–2025	The project DigFinLit creates inclusive learning environments for developing digital financial literacy for women and other communities in order to ensure their digital financial inclusion, equity and wellbeing. The project particularly aims at motivating adult learners to enhance their digital financial literacy to ensure socioeconomic inclusion and equity. It also provides learners with flexible and digitally-transformed learning opportunities to develop digital financial skills as an important part of entrepreneurial competence.

Europe and Central Asia

Country	Organization(s) responsible	Program name	Timeframe	Description
Armenia	EasyPay, Armenian Code Academy, and Technological Education Foundation	Financial Literacy Program	2024	The Financial Literacy Program is a free comprehensive training program that aims at providing participants (including women and youth) with knowledge of digital financial literacy. This particular training program facilitate participants understanding of the financial system, electronic payment systems, digital financial tools, and the like. The Financial Literacy Program leverages 30 to 90 minutes video lectures and assess participants' knowledge acquisition through questionnaires and other exercises.
Kazakhstan, Armenia, Uzbekistan, Mongolia, Belarus, Tajikistan, North Macedonia	The Alliance for Financial Inclusion	The Eastern Europe & Central Asia Policy Initiative	2018	The AFI Eastern Europe and Central Asia Policy Initiative specifically supports members to strengthen financial literacy focusing on digital financial literacy and wider understanding of digital financial services and FinTech solutions in the region. It aims to do so by increasing access to financial services for the unbanked women, the youth, the poorest segment of the population, and those with lower and higher levels of education.

Appendix B: Multidimensional Framework for Digital Literacy

The researchers Lyons and Kass-Hanna (2021) developed a multidimensional framework that identifies five core dimensions for digital financial literacy: (1) basic financial knowledge and skills; (2) awareness of available DFS; (3) practical know-how of how to use and operate DFS applications; (4) ability to make appropriate financial decisions within the digital context; and (5) self-protection from online scams and frauds.

The framework below provides a comprehensive understanding of the relationship among financial literacy and digital literacy, and the evolving area of digital financial literacy.

Table 20: A Multidimensional Framework for Digital Financial Literacy

Dimensions	Financial literacy	Digital literacy	Digital financial literacy	Indicator Dimensions
1) Basic knowledge and skills (the foundations)	Basic financial concepts (numeracy, compound interest, inflation, risk diversification)	Basic digital skills (knowledge of digital devices –computer, tablet, mobile phone, and the Internet)	Basic financial and digital knowledge	<p><i>Basic financial knowledge:</i></p> <ul style="list-style-type: none"> • Numeracy • Compound interest • Inflation • Risk diversification <p><i>Basic digital knowledge:</i></p> <ul style="list-style-type: none"> • Basic knowledge of hardware: mobile phone, computer and tablet use, including turning on/off, charging and locking devices • Basic knowledge of software: creating user accounts and logging in, managing passwords, and using privacy settings
2) Awareness (the knowing about)	Awareness of available financial products and services (payments, deposits, savings, credit, risk management, and insurance investments) and awareness of positive financial attitudes and behaviors (budgeting, saving, responsible borrowing, preparing for emergencies, and retirement)	Awareness of available digital solutions and applications (online research and communications tools, online entertainment, e-shopping, virtual education, telework, telemedicine)	Awareness of available digital financial services (digital payment tools, such as mobile money and digital wallets, online banking, peer-to-peer lending, and remittance services) and awareness of positive financial attitudes and behaviors	<p><i>Awareness of available DFS:</i></p> <ul style="list-style-type: none"> • Knowing about existing DFS providers • Knowing about the specific purposes of available DFS (e.g., digital payments, savings, lending, and remittances) • Knowing about the biases (present bias and other cognitive biases) that affect decision-making and long-term planning • Knowing about the risk of borrowing (e.g., over indebtedness, abusive and predatory lending practices) • Knowing about positive financial behaviors (e.g., budgeting, saving, preparing for emergencies and retirement, responsible borrowing) <p><i>Awareness of available digital solutions</i></p> <ul style="list-style-type: none"> • Knowing about existing digital solutions • Knowing about the specific purposes of digital solutions (e.g., communication, productivity, leisure) • Knowing about the risks of using digital solutions (safety and privacy)

Dimensions	Financial literacy	Digital literacy	Digital financial literacy	Indicator Dimensions
3) Practical know-how (the knowing how)	Ability to use financial services (know how to make payments, how to open a bank account, etc.)	Ability to use digital applications, platforms, and software (know how to search for information online, use email, social media and networking, download music, videos and games, learn, shop online, etc.)	Ability to make digital financial transactions (know how to use mobile money applications, navigate menus, make and cancel transactions, correct transaction errors, access peer-to-peer lending, use online banking, etc.)	<p><i>Practical know-how of operating DFS applications</i></p> <ul style="list-style-type: none"> • Knowing how to open an account on DFS • Knowing how to navigate a DFS menu • Knowing how to initiate and complete transactions • Knowing how to correct errors and cancel a transaction <p><i>Practical know-how of operating other digital applications</i></p> <ul style="list-style-type: none"> • Know how to open a web browser and search for information • Knowing how to create an email account and password • Knowing how to log-in to an email account and draft an email • Knowing how to log-into a social media account
4) Decision-making (attitudes and behaviors)	Ability to make appropriate financial decisions, reflection of attitudes and behaviors (decide to put money aside and choose reliable deposit and savings services, borrow responsibly and select appropriate lenders, etc.)	Ability to make appropriate digital decisions, reflection of attitudes and behaviors (decide to use digital tools to improve knowledge, skills, and communication, take advantage of new opportunities, etc.)	Ability to make appropriate financial decisions, reflective of attitudes and behaviors using digital financial services (decide to put money aside and choose reliable DFS, use DFS to send remittances safely, rely on peer-to-peer lending, etc.)	<p><i>Positive financial attitudes</i></p> <ul style="list-style-type: none"> • Managing day-to-day finances while setting future goals • Preparing for emergencies and retirement • Deciding to put money aside and save • Making prudent and responsible borrowing decisions • Sending remittances through reliable challenges • Ability to select appropriate DFS for specific purposes (e.g., savings, remittances and borrowing) • Ability to select reliable DFS providers
5) Self-protection	Ability to avoid misleading financial information and advice, abusive practices, and fraud	Ability to protect devices, personal data, and privacy (avoiding identity and data theft, hacking attacks etc.)	Ability to detect and avoid online scams and frauds associated with DFS	<p><i>Self-protection from online scams and fraud</i></p> <ul style="list-style-type: none"> • Ability to understand the terms of conditions related to DFS and avoid deceptive practices (e.g., unclear or unfair disclosure of fees, overcharging, subscription traps) • Ability to detect and avoid scams and frauds associated with DFS (e.g., identity and credentials theft, malware, phishing attacks) • Ability to keep PIN confidential if getting help from an agent for a DFS transaction <p><i>Self-protection related to digital devices</i></p> <ul style="list-style-type: none"> • Ability to set a password on a device • Ability to change privacy settings on a device • Ability to keep passwords confidential • Knowledge to develop complex and different passwords for each account

Note: Areas that in bold indicate areas that overlap with at least one of the other two areas (financial literacy and/or digital literacy).

Source: Adapted from Lyons and Kass-Hanna (2021) Multidimensional Approach to Defining and Measuring Financial Literacy in the Digital Age.

Additional point that are underlined were added for the purpose of this paper but are not original to the framework.

Appendix C: Evidence Summary Table

Evidence on interventions supporting women’s digital literacy remains scarce, underscoring the need for further and more comprehensive studies. Drawing from the available evidence based on rigorous impact evaluations, the table below highlights the design categories that yield effective results in addressing barriers women face in accessing digital literacy and skills. These findings should not be viewed in isolation but as part of a broader framework of interventions aimed at improving women’s access to and use of digital technology.

The following table summarizes the identified evidence across design categories, indicating whether they are classified as credible, emerging, or supported by little to no evidence.

Table 21: Evidence Summary Table

Design Category	Program Features Main Conclusion	Resources
Format and Delivery Channels	Digital Delivery Channels (Short-Message-Service) <hr/> A large-scale randomized controlled trial in Kenya assessed the effectiveness of automated SMS-based business training for micro-entrepreneurs and micro-retailers. The training content was delivered through Arifu’s interactive SMS-based learning platform which engaged participants with personalized messages and multiple-choice responses tailored to their needs. The experiment varied the timing of the SMS training and credit relief across three groups: one received both in November 2020, another received early training and later credit, and the third received training in December with earlier credit. The December holiday period, a peak business season, was specifically analyzed to understand how timing influenced engagement and outcomes. Results demonstrated that the training significantly boosted participant engagement, improved financial practices such as bookkeeping and understanding financial interest, and enhanced resilience to financial shock.	Fuchs, William Martin, Ganesh Iyer, and Przemyslaw Jeziorski. 2022. “SMS Training and Micro-Entrepreneurship Performance.” <i>SSRN</i> . http://dx.doi.org/10.2139/ssrn.4085806 .

Design Category	Program Features Main Conclusion	Resources
Models and Learning Approaches	<p>Group-Based</p> <p>The pilot evaluation of the EQUALS Digital Literacy Project demonstrated positive outcomes in device ownership, skills, confidence, and employment for women. It tested two training methods: (1) training delivered by animated video only and (2) training delivered as a combination of the animated video plus hands-on support during the group learning sessions from a facilitator. Results in the group who received face-to-face support nearly doubled those of the group who only had access to the videos, demonstrating the effectiveness of added facilitator support across demographic groups.</p>	<p>Mboob, Ida, Ebo Kobena Osam, and Danielle Robinson. 2022. For Women, By Women, With Women: Bridging the Gender Digital Divide. Washington, DC: World Bank</p>
	<p>Peer-Based</p> <p>This experimental study in India examines the peer effects on women's entrepreneurship and business outcomes. A randomized sample of clients from SEWA Bank, India's largest women's bank, participated in a two-day business counseling program. The program covered financial literacy, business skills, and featured a motivational film showcasing local role models. A subset of participants was randomly invited to attend the program with a friend. During the training, participants collaborated with a trainer to set a six-month financial goal, break it into actionable steps, and explore saving strategies and bank products. The findings reveal that women who attended with a friend were more likely to take out business loans, transition away from homemaking roles, and report increased business activity and higher household income. The effects were especially pronounced among women facing restrictive social norms limiting female mobility.</p>	<p>Field, Erica, Seema Jayachandran, Rohini Pande, and Natalia Rigol. 2016. "Friendship at Work: Can Peer Effects Catalyze Female Entrepreneurship?" American Economic Journal: Economic Policy 8 (2): 125–53. https://www.aeaweb.org/articles?id=10.1257/pol.20140215.</p>
	<p>Learning-by-Doing</p> <p>A field experiment in Malawi investigated how experience influences financial decision-making regarding savings accounts. A sample of subjects who opened and owned subsidized savings account were randomly selected to receive small cash transfer. These transfers did not have persistent effects on savings or spending, but did increase the number of transactions and thus experience with the account. All account holders were visited at home and presented with the choice of keeping their existing account but paying maintenance fees previously covered by the subsidies, closing their accounts entirely, or switching to a new type of account (Pafupi) with a different and advantageous fee structure. The study found that 53 percent of basic account holders that did not receive a transfer – via cash transfer - failed to switch to the cheaper presented account. In contrast, only 37 percent of account holders that received the cash transfer chose to keep the basic account. This learning-by-doing approach highlights the role of experience in overcoming status quo bias. Active account use familiarized individuals with account features, enabling better financial decisions. Notably, none of the participants without prior accounts chose the more expensive option, further emphasizing how hands-on engagement drives informed choices.</p>	<p>Giné, X., & Goldberg, J. 2023. "Experience in financial decision-making: Field evidence from Malawi." Journal of Development Economics, 161, 103036.</p>

Design Category	Program Features Main Conclusion	Resources
Wraparound Features	<p>Mentoring</p> <hr/> <p>Three studies examined the stereotype inoculation model, which suggests that exposure to same-sex STEM experts (such as professors and professionals) strengthens women’s self-concept, attitudes, and motivation in STEM fields. Increasing women’s identification and connection with these role models, enhanced women’s self-efficacy and commitment to STEM careers—even in the presence of persistent gender stereotypes. Two controlled experiments and a longitudinal study in a calculus class found that contact with female STEM experts improved women’s implicit attitudes toward STEM, self-efficacy, and effort on STEM tasks.</p>	<p>Master, A., Sapna Cheryan, and Andrew N. Meltzoff. 2016. “Computing whether she belongs: Stereotypes undermine girls’ interest and sense of belonging in computer science.” <i>Journal of Educational Psychology</i> 108(3): 424–437.</p> <p>Stout, J. G., Dasgupta, N., Hunsinger, M., & McManus, M. A. 2011. “STEMing the tide: using ingroup experts to inoculate women’s self-concept in science, technology, engineering, and mathematics (STEM)”. <i>Journal of personality and social psychology</i>, 100(2), 255.</p> <p>Dasgupta, Nilanjana. 2011. “Ingroup experts and peers as social vaccines who inoculate the self-concept: The stereotype inoculation model.” <i>Psychological Inquiry</i> 22 (4): 231-246.</p>
	<p>Mentoring</p> <hr/> <p>A study from Uganda shows that female entrepreneurs with male mentors were up to 22 percent more likely to own businesses in male-dominated sectors, such as metalworking, electricals and carpentry. Using data from 735 entrepreneurs, it uses a mixed methods approach to assess how women entrepreneurs in Uganda start (and strive) operating firms in male-dominated sectors, and what hinders other women from doing so. The study finds that women who cross over into male-dominated sectors make as much as men, and three times more than women who stay in female-dominated sectors. The paper examines a set of factors to explain the differences in sector choices, and finds that there is a problem of information about opportunities in male-dominated industries. The analysis also concludes that psychosocial factors, particularly the influence of male role models and exposure to the sector from family and friends, are critical in helping women circumvent or overcome the norms that undergird occupational segregation.</p>	<p>Campos, Francisco, Markus P. Goldstein, Laura McGorman, Ana Maria Munoz Boudet, and Obert Pimhidzai. 2015. “Breaking the Metal Ceiling: Female Entrepreneurs Who Succeed in Male-Dominated Sectors.” <i>World Bank Policy Research Working Paper No. 7503</i>. Available at SSRN: https://ssrn.com/abstract=2698440.</p>

Design Category	Program Features Main Conclusion	Resources
Wraparound Features	<p>Mentoring (Role Models)</p> <hr/> <p>A study investigated whether brief exposure to a “stereotypical” computer science role model impacts women’s interest in the field. Results showed that exposure to such a role model immediately and negatively influenced women’s interest, with effects lasting over time due to reduced feelings of belonging. The role model’s gender had no impact; rather, conveying a sense of belonging was crucial for increasing women’s interest in computer science. Interestingly, non-stereotypical male role models were more effective than stereotypical female ones, suggesting that reducing stereotype threat is essential for encouraging women to enter computer science. This study explores role models, which are deeply intertwined with social norms, but it does not explicitly examine mentoring approaches.</p>	<p>Cheryan, S., Benjamin J. Drury, and Marissa Vichayapai. 2013. “Enduring influence of stereotypical computer science role models on women’s academic aspirations.” <i>Psychology of Women Quarterly</i> 37(1): 72-79.</p>
	<p>Engaging Gatekeepers</p> <hr/> <p>A cluster-randomized controlled trial evaluated Engaging Men through Accountable Practice (EMAP), a male-only discussion group aimed at challenging gender attitudes and reducing intimate partner violence, with accountability to women’s needs in the community. The 16-week intervention engages men in promoting gender equity and preventing GBV by fostering behavioral change and providing tools to challenge harmful beliefs. Weekly three-hour sessions, led by trained male facilitators, address topics such as masculinity, the causes and impacts of violence against women, and positive role modeling. The impact evaluation showed significant improvements in men’s intentions to avoid violence, gender-equitable attitudes, behaviors, and relationship quality as reported by women, though it did not reduce women’s reports of intimate partner violence in the past year.</p>	<p>Vaillant J., Estelle Koussoubé, Danielle Roth, Rachael Pierotti, Mazedra Hossain, Kathryn L. Falb. 2020. “Engaging men to transform inequitable gender attitudes and prevent intimate partner violence: a cluster randomised controlled trial in North and South Kivu, Democratic Republic of Congo.” <i>BMJ Global Health</i> 5(5):e002223. https://gh.bmj.com/content/5/5/e002223.info.</p>

Design Category	Program Features Main Conclusion	Resources
Wraparound Features	<p>Engaging Gatekeepers</p> <hr/> <p>Results from a four-month training program for women entrepreneurs in Pakistan and Nigeria are part of evidence that suggests offering wraparound services, like transportation, support for childcare, or joint sessions with spouses and families to raise awareness of the benefits of women’s economic activities, lead to improvements in women’s financial management and business planning. Supported by academic partners, the program included guest speakers from entrepreneurship and banking and provided training in management tools (HR, digital marketing, PR), financial education (accounting, finance, banking), and soft skills (negotiation, leadership, presentation). Participants completed a 12-module curriculum, received one-on-one mentoring, and engaged in networking and outreach activities, culminating in a business growth plan with clear vision and goals.</p>	<p>Qasim, Q., Zoe Cordelia Lu, and Kalyah Alaina Ford. 2018. “Operational Guide to Women’s Entrepreneurship Programs: An Overview.” Washington, DC: World Bank. http://documents.worldbank.org/curated/en/629041543523635439/Operational-Guide-to-Womens-Entrepreneurship-Programs-An-Overview.</p> <p>World Bank. 2019b. “A new generation of women entrepreneurs in Pakistan (P144110): Activity completion summary (ACS).” Washington, DC: World Bank. https://documents1.worldbank.org/curated/en/114491557149320735/pdf/Activity-Completion-Summary.pdf.</p>
	<p>Engaging Gatekeepers</p> <hr/> <p>The Bandedereho intervention in Rwanda engaged men in a 15-session curriculum (up to 45 hours), adapted from Program P, to promote gender equity and positive behaviors. Topics included gender and power, fatherhood, couple communication, intimate partner violence, caregiving, child development, and male involvement in reproductive and maternal health. Participants’ partners were invited to attend 8 sessions (up to 24 hours). The intervention aimed to foster behavioral change and improve gender dynamics within families. The randomized controlled study strengthens existing evidence on male engagement approaches. Together with earlier studies the findings suggest that culturally adapted gender-transformative interventions working with men and couples can be effective at changing deeply entrenched gender inequalities. The intervention resulted in a range of health-related behavioral outcomes.</p>	<p>Doyle K., Levtov, Ruti G. Levtov, Gary Barker, Gautam G. Bastian, Jeffrey B. Bingenheimer, Shamsi Kazimbaya, Anicet Nzabonimpa, Julie Pulerwitz, Felix Sayinzoga, Vandana Sharma, and Dominick Shattuck. 2018. “Gender-transformative Bandedereho couples’ intervention to promote male engagement in reproductive and maternal health and violence prevention in Rwanda: Findings from a randomized controlled trial.” PLoS ONE 13(4): e0192756. https://doi.org/10.1371/journal.pone.0192756.</p>

Appendix D: Digital Literacy Toolkits

Table 22: Resources: List of Toolkits for Program Designers

Toolkit	Resources
GSMA digital financial toolkit	GSMA Digital Financial Toolkit
GSMA MISTT Toolkit	GSMA MISTT Toolkit
ILO – Financial Education Toolkit for Refugees and Host Communities	ILO Toolkit Financial Education for Refugees and Host Communities
UNCDF Financial digital literacy toolkit	UNCDF Financial Digital Literacy Toolkit
TrickleUp - EQUALS Digital Literacy Curriculum	EQUALS Digital Literacy Curriculum
ILO	ILO Guide Digital Inclusion and accessibility for Girls with Disabilities
GIZ financial literacy toolkit	GIZ Financial Literacy Toolkit
WFP 2020 implementation guide - financial Literacy training program for refugees & host Communities	WFP Financial Literacy Training Program for Refugees and Host communities
CGAP customer centric guide	CGAP Customer Centric Guide
World Bank Accelerating Gender Equality in Digital Development	WB Note Gender Equality in Digital Development

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