LEAS | LEARNING TO EMPOWER ADOLESCENT GIRLS AT SCALE

Empowering Adolescent Girls: The Agency to Navigate Digital Technologies

January 22, 2025

Education Operations SUPPORT HUB

ACCELERATE EQUALITY

WORLD BANK GROUP Gender

Empowering Adolescent Girls for the AI Era: Three Essential Strategies for Education Systems

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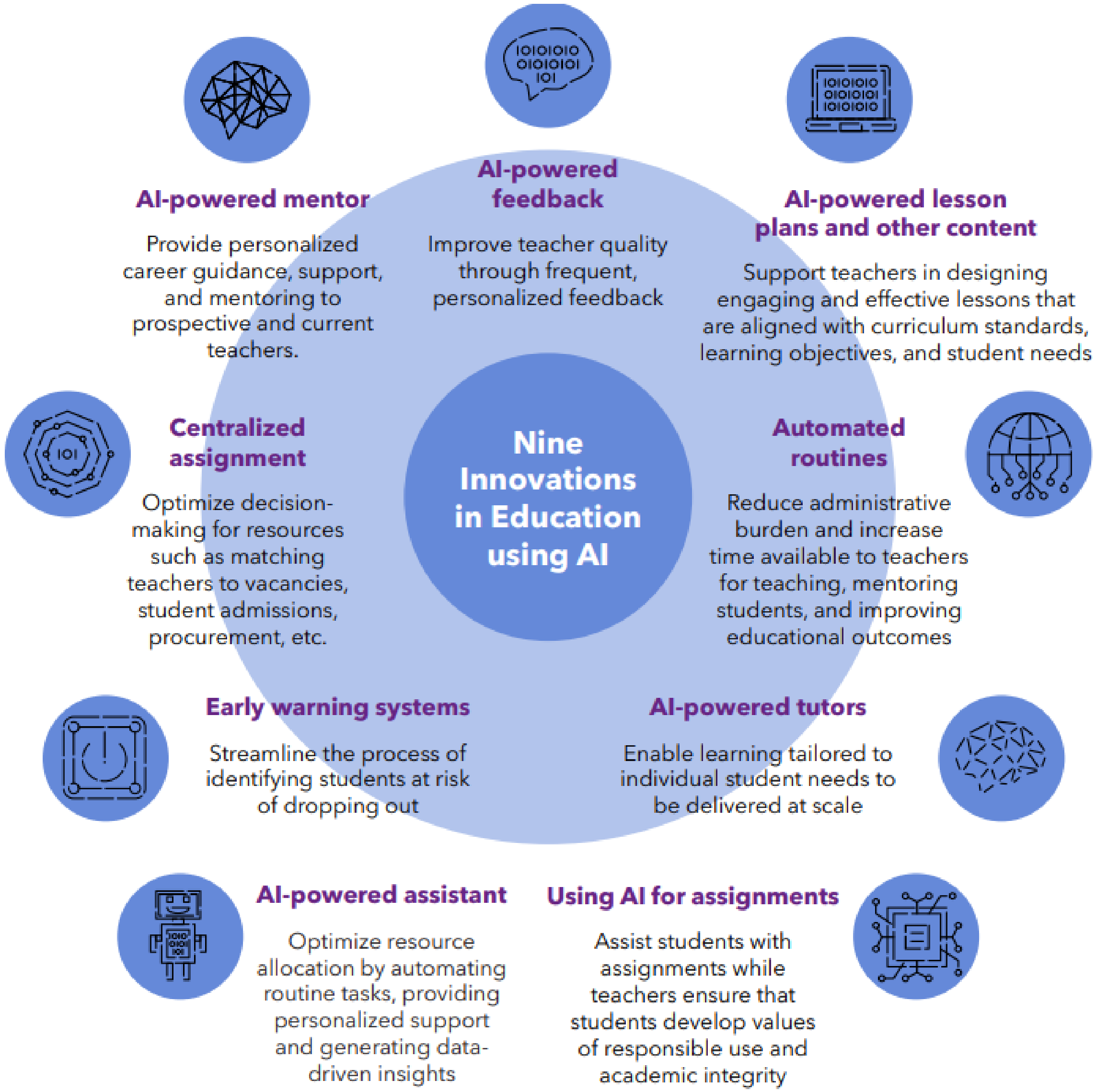
The Promise of AI in Education

Digital technologies and AI can help in solving some of the biggest education challenges



What is the evidence for the use of AI and technology in education so far?

Adaptive Learning	• A meta-analysis (Major et al, 2021) which included 16 RCTs concluded that technology-supported adaptive learning has a statistically significant positive effect on learning outcomes. • More personalized approaches that adapt or adjust to students' level had a significantly greater impact (an effect size of 0.35) than those that only link to students' interests.
Personalized Tutors	• The evaluation of the personalized writing assistant Letrus stands out for high school students in Espírito Santo in Brazil. The total score of students' essays improved by 0.09 SD (Ferman et al, 2021) • A study in Fresno, California (Hunt et al, 2024) found that students who used Reading Progress scored significantly higher in reading in both K-2 and 3rd-6th grades. • A pilot applied to girls in northern Ghana showed that Read Along improved English proficiency in all items of the EGRA test within three months of use (De Waal et al, 2023). • Six weeks of after-school teacher-led AI tutoring in Benin City, Nigeria increased test scores by 0.3 SD, equivalent to 2 years of typical learning gains in English, AI knowledge, and digital skills. Girls —initially lagging behind boys—showed even greater gains, indicating the program's potential to bridge gender gaps in learning. (forthcoming-De Simone, Barron Rodriguez, et al 2024)
Books and digital resources	• A meta-analysis (Savva et al, 2023) examined the impact of e-book reading on young children's language and literacy development. Findings showed that digital features combined with adult support produced significant positive effects compared to traditional book reading with adult support.
Edtech in general	A meta-analysis from Stanford University (Silverman et al, 2024) found that • Educational technology has positive effects on primary literacy, with moderate impacts on decoding (g = 0.33) and reading comprehension (g = 0.23), and a high impact on writing (g = 0.81), although with few studies available in the global south. • Longer interventions (more than 22 hours) improve decoding skills, especially in low-income students. • Educational technology shows promise as long as it focuses on equity and longer-term programs to improve early literacy .

Emerging Principles in the use of AI: the PIONEERS framework

Prioritizing students

Inspiring teachers through ongoing training and adresssing fears

Optimizing access and immersion through holistic design

Nurturing necessary digital infrastructure

Empowering students and teachers in the use and understanding of AI

Enhancing implementation through a comprehensive monitoring strategy

Reducing AI Risks mitigating overreliance and addressing bias

https://blogs.worldbank.org/en/education/From-chalkboards-to-chatbots-in-Nigeria (De Simone, Barron Rodriguez, Mosuro, Dikoru & Manolio, 2024)

First recommendation: Building AI Literacy: Starting Early, Starting Strong

Why It Matters:

- Understanding AI fundamentals prepares students for their future and ensures ethical and meaningful use of AI.
- AI is expected to drastically change the job market, with almost 40 percent of global employment being impacted by AI (IMF, 2024)

The Problem:

- Early integration of AI literacy and digital skills into curricula- EU's DigComp 2.2 framework, UNESCO Framework

Actions:

- Invest in digital infrastructure, human capacities, and AI tools for diverse contexts (rural, low bandwidth, mobile-first programs)- Example-Rori in Ghana
- Address inclusion of girls through all the program cycle (recruitment, attendance, engagement, monitoring strategy, etc.) – Example- AI for Youth in Nigeria

Second recommendation: Opening Doors: Pathways to STEM and AI Careers for Women

The Challenge:

- Women account for only 29.2% of STEM professionals, with low retention rates (WEF, 2023)

Address the Social and Cultural Barriers

Challenge gender stereotypes by showcasing women role models and celebrating their achievements in STEM.

Engage families and communities to create a supportive environment for girls pursuing STEM careers.

Provide Mentorship and Career Guidance

Establish mentorship programs connecting girls with female leaders in STEM and AI fields.

Strengthen career counseling in schools to expose girls to STEM opportunities early.

Expand Training and Scholarships

Offer targeted training programs that are affordable, accessible, and gender-responsive.

Increase scholarships for girls to pursue STEM education, prioritizing underserved communities.

Leverage Public-Private Partnerships (PPPs)

Collaborate with industry and NGOs to deliver practical training aligned with industry needs.

Third recommendation: Breaking Barriers: Women at the Helm of AI Innovation

Why It Matters:

- The gender AI divide is caused by the exclusion of women at every stage of the AI life cycle, from design, research and development to implementation.
- Without women in AI design, systemic biases will persist.

The Problem:

- Women represent only 25% of AI researchers and 20% of employees in technical AI roles.

Actions:

- Support women’s leadership through intentional policies, incentives, and targeted initiatives
- Prioritize women in decision-making roles for AI strategy to mitigate bias and enhance equity.

“Humans are allergic to change. They love to say, ‘We’ve always done it this way.’ I try to fight that. That’s why I have a clock on my wall that runs counterclockwise”– Grace Hopper

Key Takeaways

01

The Challenge AI literacy is more than a skill—it's the key to equity in our digital future. Today's gender gap in AI threatens to amplify existing inequalities.

02

The Solution Success requires coordinated action: early education, infrastructure investment, and inclusive policy frameworks.

03

The Urgency Women's participation in AI development is essential for AI solutions that work for all. The time to shape an equitable AI future is now.

Thank you!

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https://www.worldbank.org/en/topic/edutech

Empowering Women and Girls Using Digital Technologies

Global Context

70% of men are using the Internet, compared with **65% of women**--this translates to **244 million** more men than women using the Internet (ITU 2023).

Women are also **13%** less likely to own a smartphone than men (GSMA 2024).

Women living in low- and middle-income contexts are still **8 percentage points** less likely to have an official ID than men (ID4D/Findex).

A **six-percentage point gap** in account ownership persists between men and women
(Findex 2021).

Women are less likely to have performed mobile phone-related tasks, like setting a PIN, password, or inserting a SIM card (GSMA 2023).

Nearly **85% women globally** have experienced some tech-facilitated gender-based violence – and 45% were younger women (The Economist, 2021).

An ecosystem of constraints limit women and girls’ access and use of technology

Lack of affordability

The high cost of handsets and data are often cited as barriers to access. While this is often a challenge for both women and men, women’s lack of access to economic opportunities, such as lower paying or less secure jobs, and less disposable income, tends to exacerbate exclusion (APC 2015; GSMA 2015; A4AI 2016).

Limited digital literacy and skills

Challenges related to skills, literacy and education also limit access and use for women. These limitations contribute to a lack of confidence in using technology (World Bank 2018; GSMA 2023).

Gender and social norms

Gender norms also play a strong role in limiting access for women and girls. In many cases, family members discourage women’s use of the internet and mobile phone ownership (GSMA 2015; 2020).

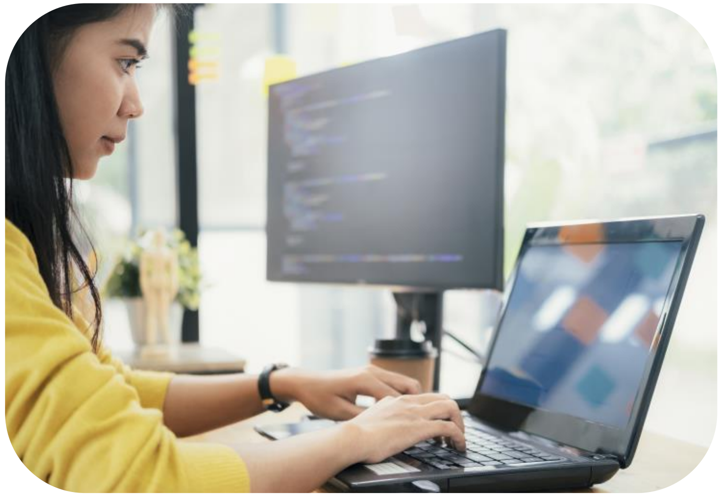
Online safety concerns

Online, women might face cyber harassment, cyberstalking, and cyberbullying, infringements of privacy, surveillance and monitoring, and misuse of nonconsensual intimate images—this could prevent or limit women’s internet use and reduce their willingness to participate in the digital economy (Web Foundation 2015; APC 2017; World Bank 2018; S4YE 2022).

Lack of relevant content

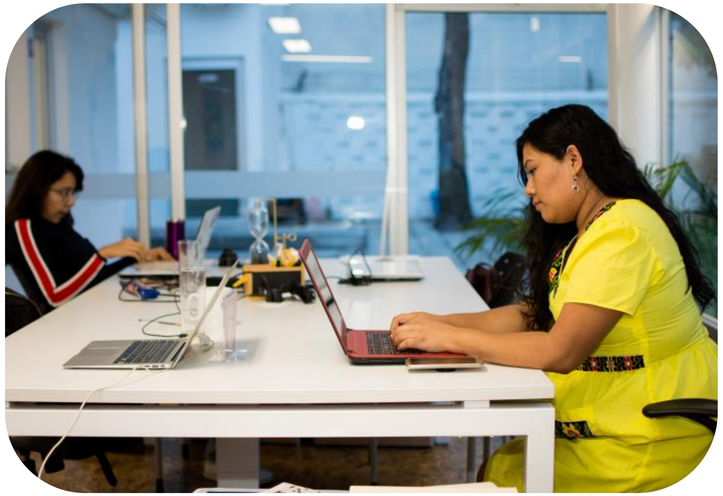
Many women are unsure about what the internet is and sometimes equate it with social media. This means that they often do not see the value in sacrificing time and money to access and consistently use the internet (A4AI 2016; Broadband Commission 2017; Web Foundation 2020).

These constraints are interrelated and operate across women and girls' lifecycle



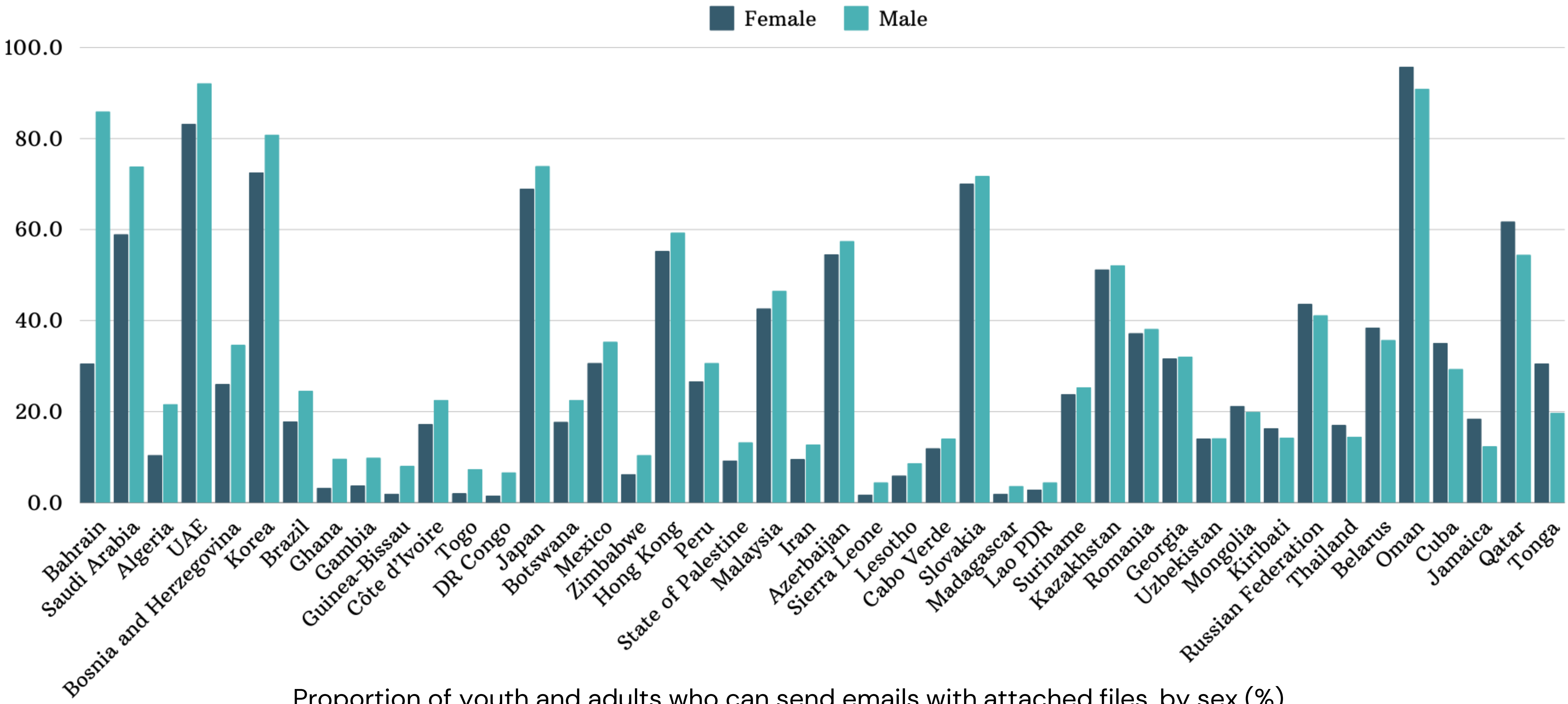
Greater barriers to access STEM and ICT education at a young age

Greater risk of experiencing technology-facilitated gender-based violence (GBV)



Greater challenges to attaining economic empowerment and financial autonomy

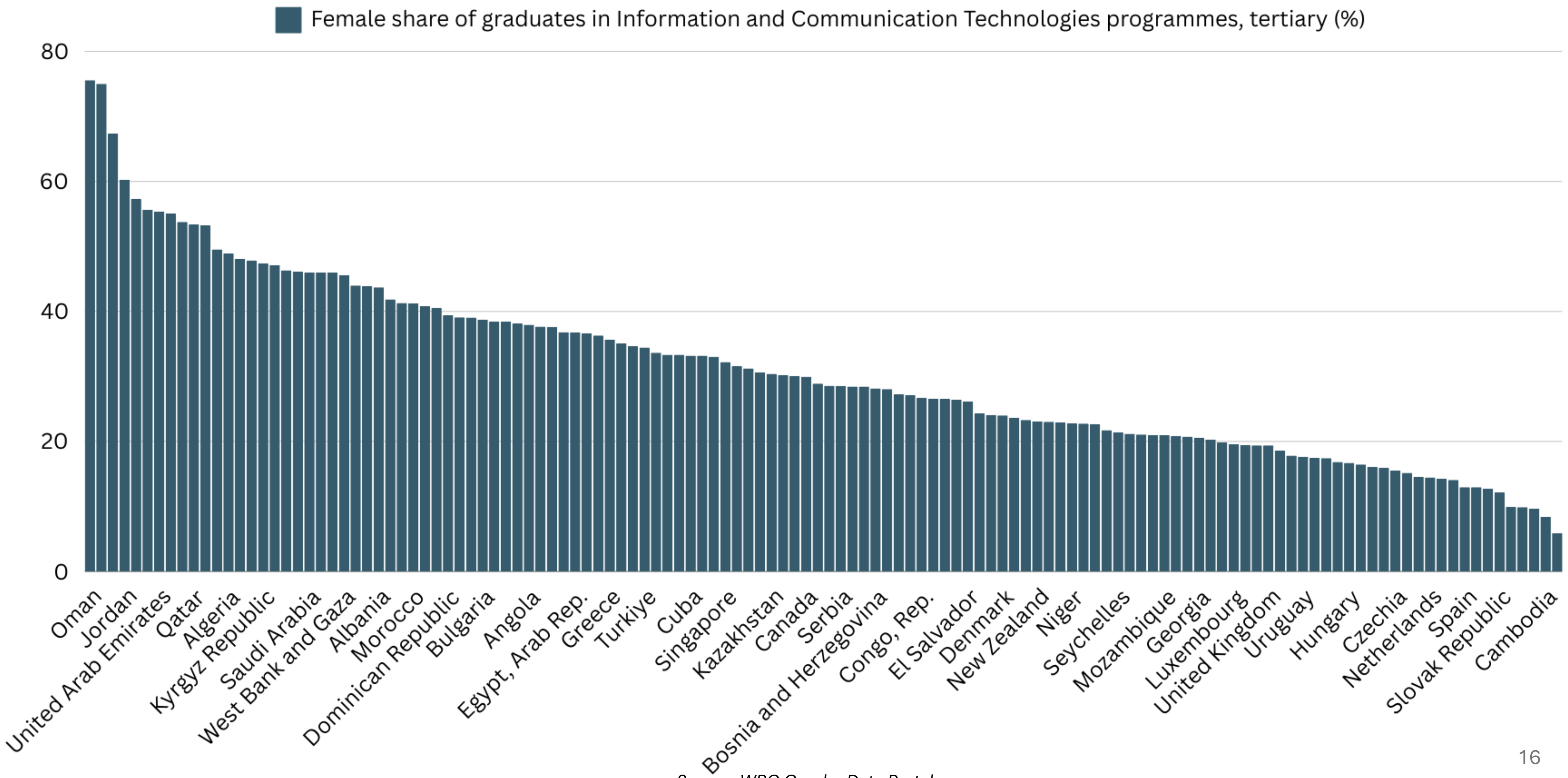
Gender gaps in digital literacy



Proportion of youth and adults who can send emails with attached files, by sex (%)

Figure sorted by largest gap in percentage points in favor of males; Source: UN Women SDG Indicator Dashboard

Advanced digital skills attainment for women



Source: WBG Gender Data Portal

How do we approach this challenge?

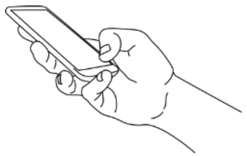
Women’s Basic Digital Literacy

Promising Interventions

Digital Development operations often couple digital connectivity infrastructure with basic digital literacy training geared towards vulnerable communities to ensure they can have equitable access to digital services. Research (Moore et. Al, 2024) suggests this is key to adoption. For youth, partnerships with Education teams and country clients are key.

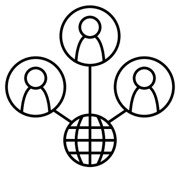
DESIGN TO MITIGATE CONSTRAINTS

- Women’s meaningful inclusion starts with program design. Programs can address constraints to physical mobility by covering transportation costs or locating trainings in women’s communities; ensure timing does not conflict with care responsibilities; and build flexibility into program design.



HANDS-ON TRAINING + GROUP LEARNING

- When teaching women basic digital literacy, mobile-related digital skills training that focuses on repeated tasks, as well as practical demonstrations on handsets is especially promising.
- To overcome challenges that might exist around reading and writing (literacy rates for adult women are, in most low- and middle-income countries, lower for women than men), speech-to-text tools could also be integrated as a work-around.
- Leverage women’s groups to support peer learning.



CONSIDER SOCIAL NORMS

- In contexts with restrictive gender and social norms, engage the community, including men, to build trust and to mitigate potential exclusion.
- Consider including information to help prepare women for risks they may face online, like cyber violence. Include training on privacy, safety, and encryption mechanisms.
- Minimize women’s risk of and exposure to sexual harassment. Consider integrating a holistic approach-- anti-sexual harassment policies, a complaints procedure, defined consequences, and training and awareness-raising, and monitoring and evaluation.

(Beegle and Rubiano-Matulevich 2020; Arnold and Venkatesan 2020; (GSMA 2021)

Gina Mata, Gina al Umma Program: A Pilot in Northern Nigeria

- "Gina Mata, Gina Al-Umma" means "build up women, build the community."
- Empowered 1,295 disadvantaged adolescent girls and young women in Northern Nigeria.
- Rights-centric approach to digital skills training, including a strong focus on socio-emotional skills, digital and financial inclusion, and community-building
- Implemented in 6 states (Abuja, Kaduna, Kano, Jigawa, Gombe and Borno) characterized by fragility, conflict, and violence.

Project Implementation Summary

Component 1: Makoyar Fasaha

120 Teachers

TTT:INSTRUCTIONAL DESIGN & CAPACITY BUILDING FOR INSTRUCTORS
Enhancing the capacity of 120 Instructors and Teachers to Deliver Market-Relevant Digital Skills Training through a Train-The-Trainer program over 3 months

Component 2: Dalibar Fasaha

400 Students

ADOPT-A -CLASS PROGRAM: STEM-BASED BLENDED LEARNING WITH PHYSICAL FACILITATION SESSIONS
Engaging 400 Adolescent Girls in STEM with a Comprehensive Rights-Based Empowerment Model. Setup ICT Jet clubs across 8 girls' public secondary schools to enhance sustainability and ownership through Adopt-a-School Program

Component 3: Matan Fasaha

500 Participants

DIGITAL LITERACY FOR UNDERREPRESENTED COMMUNITIES
Digital Skills Training for 100 Young Women on the Gig Economy

VIRTUAL ECONOMY TRAINING FOR REMOTE WORK
Digital Skills Training for 100 Young Women on the Gig Economy

LIFELONG LEARNING PROGRAMMES & MENTORSHIP CONNECTS

INTEGRATING RIGHTS BASED CURRICULUM TRAINING

Digital learning hub for young women from underrepresented communities in Kaduna state

Lessons Learned

- Incentives are key levers for driving retention rates.
- Focus on creating the right environment for learning.
- Integrate local communities and empower them to take ownership of the program.
- Location, location, location.
- Prioritize digital infrastructure to drive participation.
- Adapt training content, language, and style of delivery based on local context.
- Create a community of learners.
- Plan for language diversity. Build pathway of learning for those learners not fluent in English.

Thank you!

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Thank You!

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