



May 2025

DIGITAL VS. IN-PERSON BUSINESS TRAINING AT SCALE: CAUTIONARY LESSONS FROM A RANDOMIZED TRIAL IN ETHIOPIA

Authors: Tsedey Asheber, Rachel Cassidy, Menaal Ebrahim, Diego Ubfal, and Toni Weis

KEY MESSAGES

- **Digital business training offers flexibility and scalability, but translating these features into tangible benefits for women-led businesses is challenging.** We conduct a randomized controlled trial (RCT) comparing app-based and in-person training for 2,000 growth-oriented, digitally-connected women entrepreneurs in Addis Ababa, using identical curricula for both modalities. Despite the potential appeal of digital training for women facing time and mobility constraints, we find limited engagement, significant costs and negligible impact.
- **Completion rates were much higher for in-person training.** While over 75 percent of women started the training in both groups, only 22 percent of app users completed the program, compared to 71 percent of in-person participants.
- **Neither training modality led to measurable improvements in business outcomes.** Business survival, revenues, profits, inputs, and practices remained unchanged across both groups. Business knowledge gains were modest and similar for both modalities, even among women who completed the program.
- **The cost advantage of digital training was smaller than expected.** Although the average cost per participant was lower for app-based training, the necessity of in-person onboarding to generate initial engagement narrowed the cost differential and raised marginal costs.
- **Standalone training may not be sufficient to improve business performance.** Even among women entrepreneurs with growth-oriented intentions, business training alone had no significant effect, suggesting the need for complementary interventions to address other binding constraints.
- **Improving digital training outcomes will require stronger incentives to keep learners engaged.** Gamification, and tailored support for individuals with low digital literacy may help sustain participation and improve outcomes for e-learning programs.

ABOUT THE AFRICA GENDER INNOVATION LAB

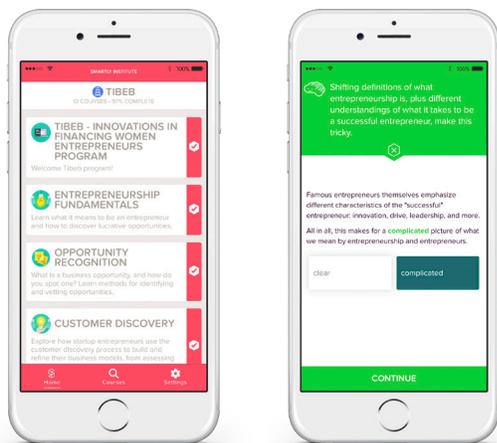
The World Bank's Africa Gender Innovation Lab (GIL) conducts impact evaluations of development interventions in Sub-Saharan Africa, seeking to generate evidence on how to close gender gaps in earnings, productivity, assets, and agency. The GIL team is currently working on over 80 impact evaluations in more than 30 countries with the aim of building an evidence base for the region. The impact objective of GIL is to increase take-up of effective policies by governments, development organizations, and the private sector to address the underlying causes of gender inequality in Africa, particularly in terms of women's economic and social empowerment. GIL aims to do this by producing and delivering a new body of evidence and developing a compelling narrative, geared towards policymakers, on what works and what does not work in promoting gender equality.

OUR MOTIVATION

Women entrepreneurs in Ethiopia – and elsewhere – continue to face large and persistent gaps in business performance compared to men, especially among micro and small firms.ⁱ These disparities are often attributed to differences in access to capital, networks, and business skills.ⁱⁱ Business training has long been a favored policy tool to close these gaps and is typically delivered in the form of in-person, classroom-based training programs. The evidence suggests that traditional business training results in only modestly improved outcomes for business owners, and the cost of in-person delivery can be high.ⁱⁱⁱ In-person business training programs deliver even poorer outcomes for women, who face additional barriers from restrictive social norms limiting their mobility and time.^{iv}

Digital training presents a promising alternative: it is potentially more scalable, flexible, and cost-effective.^v App-based programs can reduce operational costs (e.g., venues, trainers) and allow women to learn at their own pace, potentially overcoming the time and mobility barriers they face. However, digital training comes with trade-offs – reduced peer interaction, the need for digital literacy, and risks of low engagement and high dropout rates. These challenges are especially relevant in low-income settings, where access to devices and confidence with technology may be limited, even among smartphone users. Against this backdrop, our study seeks to test whether app-based business training can deliver comparable or superior outcomes to in-person training, under favorable conditions, and to explore the behavioral and logistical factors that affect digital learning success.

Figure 1: Sample content from the training app



WHAT WE DID

We partnered with a leading provider of mobile education technology to develop an app-based business training program tailored to women entrepreneurs in low-income settings. The content was adapted from MBA preparatory courses in the United States and customized – both in language and structure – to suit the needs of our target audience. The app included eleven self-paced modules covering core topics such as entrepreneurship fundamentals, marketing, and accounting. Each module featured interactive quizzes and case studies designed to keep users engaged through active learning, rather than passive reading or viewing.

The in-person training used the same core content but was delivered in a classroom format. Sessions combined slideshow presentations with participatory methods like role plays, group projects, and brainstorming exercises to maintain engagement. The training was delivered in six-week cohorts of 25 participants each, with two-hour sessions held twice a week. In both modalities, participants who completed at least eight modules or sessions received a certificate.

The study sample was drawn from the World Bank-funded Ethiopia Women Entrepreneurship Development Project (WEDP). At the time, WEDP had registered over 40,000 women business owners in its Management Information System, including 17,700 based in Addis Ababa. Around 4,000 women met the study's eligibility criteria: smartphone and internet access, a high school education, active ownership of a business with fewer than 30 employees, and a stated preference for app-based training.

Of those eligible, 2,000 women attended information sessions held between March and June 2023. After completing a baseline survey on their smartphones with support from facilitators, participants were randomly assigned – via public lottery – to one of four groups: (1) in-person training, (2) app-based training, (3) app-based training with access to networking chat groups,¹ or (4) a control group that received no training. Those in the app-based groups were given immediate access to the app, along with support to download, log in, and navigate its features. A follow-up phone survey was conducted with nearly all participants about six months after the training was rolled out.

¹ We ultimately combined groups (2) and (3) due to minimal engagement with the chat groups, due to both government restrictions on messaging services and an apparent lack of interest in virtual peer networking.

WHAT WE FOUND

Training participation patterns differed sharply across modalities. Seventy-one percent of women in the in-person training completed at least eight sessions (the agreed benchmark for completing the course and receiving a certificate), compared to just 22 percent in the app-based training. Administrative records and app usage data show high initial interest: over 75 percent of participants in both groups completed at least one session or module. However, engagement dropped quickly among app users, despite weekly reminders and small cash prize incentives. Most completed only one to three modules, while a smaller group completed all eleven – suggesting that users either fully committed or disengaged early, with little middle ground.

By contrast, in-person attendance remained more consistent. Although about 25 percent of participants never attended a session – often due to competing responsibilities – 95 percent of those who started the course completed at least eight sessions. This pattern might suggest a “lock-in” effect, where the structure of scheduled sessions, peer presence, and the effort of travel helped sustain participation – factors absent in solo, app-based learning environments.

Neither training modality produced meaningful improvements in business outcomes. There were no significant effects on business survival, profits, sales, inputs, investment, or practices six months after training. Gains in business knowledge were modest, with just a 5 percent average improvement, and no significant differences between app and in-person learners. These findings held across a range of subgroups, including those with higher education, better digital skills, stronger baseline business performance, or different sector profiles.

The cost advantage of digital training was smaller than anticipated. Average costs per participant were \$278 for app-based training and \$521 for in-person training, driven by high fixed costs of content development and delivery. Marginal costs for digital delivery fell to \$49 – but this was largely due to the inclusion of in-person onboarding sessions. A follow-up experiment tested whether these sessions were necessary: participants who received only virtual app access, with or without remote troubleshooting support, showed extremely low engagement. Only 10 percent completed one module, and just 3 percent completed eight. These findings suggest that hands-on, in-person guidance is essential to unlock even minimal engagement with digital training.

Figure 2: Training participation by modality





FOR MORE INFORMATION, PLEASE CONTACT

Menaal Fatima Ebrahim
mebrahim@worldbank.org

Toni Johannes Weis
tweis@worldbank.org

Africa Gender Innovation Lab
afrgenderlab@worldbank.org

1818 H St NW
Washington, DC 20433 USA
www.worldbank.org/africa/gil

This GIL impact evaluation was conducted in partnership with the Government of Ethiopia's Women Entrepreneurship Development Project (WEDP). The authors acknowledge support from Hassan Hussein and Yohannes Solomon at the Entrepreneurship Development Institute (EDI), and from Salman Alibhai, Marlon Rawlins and Mengistu Bessir at the World Bank. Funding for the study was provided through generous contributions from Global Affairs Canada, in partnership with the Umbrella Facility for Gender Equality (UFGE). UFGE is a multidonor trust fund administered by the World Bank to advance gender equality and women's empowerment through experimentation and knowledge creation that help governments and the private sector focus policy and programs on scalable solutions with sustainable outcomes. UFGE is supported with generous contributions from Australia, Canada, Denmark, Finland, Germany, Iceland, Ireland, Latvia, Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom, the United States, the Bill & Melinda Gates Foundation, and the Wellspring Philanthropic Fund.

Photo credit:
Impala Communication / World Bank

POLICY IMPLICATIONS

Increasing engagement – through gamification or social commitment – is key to making digital training work. Significantly lower completion rates compared to in-person training highlight the need for stronger engagement incentives in digital learning. Gamified features – such as progress tracking, points, or competitions – can motivate users to continue. Social commitment mechanisms, may replicate the accountability and structure that help drive participation in in-person settings, although the study also tested additional moderated group chats and found they did not improve take-up.

A “tech-plus-touch” approach may be most appropriate for reaching women entrepreneurs. Access to a smartphone and internet does not guarantee effective use. In the study, many users struggled with basic navigation, highlighting the need for digital literacy support. In-person onboarding sessions helped bridge this gap and were critical for getting participants started. Similar touchpoints – such as help lines or regular check-ins – may help increase uptake and reduce early drop-off.

The cost advantages of digital training are often overstated. While digital training avoids expenses like classroom space and instructors, in-person elements – such as onboarding and troubleshooting support – remain necessary for many beneficiary groups. Combined with high fixed costs for app development and content adaptation, these requirements limit how far costs can be driven down. Low completion rates must also be factored in when evaluating cost-effectiveness.

Training alone is unlikely to be enough to transform women-led businesses. The lack of impact on business performance reinforces a broader lesson: business training, on its own, rarely has a transformational effect on women's businesses. Women entrepreneurs in low-income settings face multiple constraints – including limited access to finance and markets, care responsibilities, and social norms. To deliver results, training should be paired with complementary interventions that address these systemic barriers.

For more information on this study, see the following paper:

Testing the Promise of Digital Scaling: In-Person versus App-Based Training for Women Entrepreneurs

REFERENCES

- i World Bank. 2019. “Ethiopia Gender Diagnostic Report.” World Bank, Washington, DC.
- ii World Bank. 2019. “Profiting from Parity. Unlocking the Potential of Women's Businesses in Africa.” World Bank, Washington, DC.
- iii McKenzie, D., C. Woodruff, K. Bjorvatn, M. Bruhn, J. Cai, J. Gonzalez-Uribe, S. Quinn, T. Sonobe, and M. Valdivia (2023): “Training entrepreneurs,” *Vox-DevLit*, 3.
- iv Ufbal, D. (2024): Supporting Women-Led Businesses: Narrative Review of Recent Causal Evidence. World Bank Research Observer, published online 6 December 2024.
- v Alhorr, L. (2024): “Virtual Windows Through GlassWalls? Digitization for Low-Mobility Female Entrepreneurs,” Policy Research Working Paper No. WPS 10803. World Bank, Washington, DC.