



Women and Online Learning in Emerging Markets



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EMERGING MARKETS

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Acronyms

AI	Artificial Intelligence	IT	Information Technology
AR	Artificial Reality	LGBTQ+	Lesbian, Gay, Bisexual, Transgender, Queer, and others
ARPPU	Average Revenue Per Paying User	LMS	Learning Management System
B2B	Business-to-Business	ML	Machine Learning
B2C	Business-to-Customer	MOOC	Massive Online Open Courses
CAGR	Compound Annual Growth Rate	MXN	Mexican Peso
D4TEP	Digital for Tertiary Education Program	NGN	Nigerian Naira
DOST	Philippines' Department of Science and Technology	OECD	Organisation for Economic Cooperation and Development
EdTech	Educational Technology	OER	Open Educational Resources
EGP	Egyptian Pound	OPM	Online Program Management
FDI	Foreign Direct Investment	R&D	Research and Development
GER	Gross Enrollment Rates	ROI	Return on Investment
GNI	Gross National Income	SIS	Student Information System
IFC	International Finance Corporation	STEM	Science, Technology, Engineering, and Math
ILO	International Labour Organization	UNESCO	United Nations Educational, Scientific, and Cultural Organization
INR	Indian Rupee	VR	Virtual Reality
IoT	Internet of Things		



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Foreword

EdTech is booming. Recent advances have ushered in a new era of digitally enabled learning, and with it a rapid expansion of the educational technology sector. Funding for EdTech is now three times pre-pandemic levels and, as this study suggests, the market for adult online learning is expected to more than double by 2026. If and how online platforms are serving all learners, however, particularly those in emerging markets and women, remains an open question.

Women and Online Learning in Emerging Markets aims to fill this gap in understanding. The report, developed in partnership with Coursera and the European Commission, shows how online platforms can support women in accessing job-relevant courses and credentials to advance employment and entrepreneurship opportunities.



There are few greater drivers of economic development than good quality education. Yet in emerging markets, higher education remains out of reach for many. This is particularly true for women, whose more limited access to finance and savings holds them back from pursuing multi-course, career-building online credentials. By increasing access to post-secondary education and training, particularly among underrepresented groups highlighted in this report, countries can drive economic development, raise standards of equality, and create resilience in the face of rapidly changing economic circumstances.

This study suggests how women can see career benefits from online education: 34 percent of women learners report finding a new job, setting up a business, or improving their job or business performance as a result of learning online. But increased access for underrepresented groups also yields dividends for all. Across the four countries studied, it was found that one job is created for every 30 people trained online.

This report provides insights on how to achieve these positive outcomes, highlighting challenges, best practices and recommendations for online platforms, governments and institutions, and the private sector. As online learning continues to grow and shape the future of education, I hope this data-driven research inspires those working across the EdTech sector to reach out to women learners and work to ensure equal participation.

A handwritten signature in black ink, appearing to read 'SvF', with a long horizontal flourish extending to the right.

Stephanie von Friedeburg

Senior Vice President, Operations, IFC

Foreword

The pandemic and automation are rapidly displacing workers and worsening social inequities worldwide. We have entered a new and ever-evolving era of work, accelerated by these forces, that consistently requires new skills. Technology is creating new career opportunities, but students and workers need access to flexible, affordable, and fast-tracked learning and career pathways to transition into well-paying jobs of the future.

This is particularly true for women and other underrepresented groups, who have been disproportionately impacted by the pandemic and automation. Still, hopeful trends are emerging. According to global Coursera data, gender gaps in online learning narrowed during the pandemic, even as gender employment gaps widened.

With many of our learners based in emerging markets, we partnered with the International Finance Corporation and the European Commission to better understand how these learners, particularly women, have been learning online since the pandemic's onset. We surveyed roughly 10,000 learners on Coursera across Egypt, India, Mexico, and Nigeria, nearly half of whom reported earning in their country's bottom 50th percentile of income.

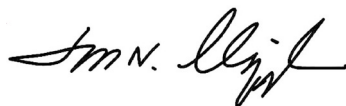
Our research found that online learning is seen as more accessible than in-person education for women and other underserved populations. In fact, 45% of women and 60% of women caregivers said they would have had to postpone or stop studies if online learning weren't an option. Women said they faced more restrictions that limited how and where they learn -- but online learning provided an opportunity for them to achieve their goals.

Among learners in Mexico and India who identified as lesbian, gay, bisexual, transgender, or queer (LGBTQ+), 40% said they were more likely to ask questions and over half (51%) were more likely to voice their opinions online compared to traditional classrooms. In addition, 17% of all learners self-identified as disabled, reporting a slight preference for blended learning.

The study also confirmed links between online learning and career outcomes in emerging markets. Our research found that one job is created for every 30 people trained on Coursera in our four focus countries. Eighty percent of all learners said they believe online credentials hold some value to employers, and nearly half (47%) of learners who joined Coursera to start or grow their business succeeded in doing so as a result. Women entrepreneurs listed confidence building as the most important thing they learned online.

Virtually every learner said they plan to continue learning online (75%) or in a blended format (24%) after the pandemic. Together, increasing broadband connectivity, online learning, and remote work offer a foundation for more equal access to economic opportunity in our post-pandemic future. However, it will require significant collaboration from both the public and the private sector to address the scale of the crisis and build competitive, equitable, and sustainable workforces amid rapid transformation.

I hope the data and insights found in this study can act as a catalyst for businesses, governments, and academic institutions to embrace new ideas and collaboration efforts that can achieve greater gender parity and build a more just world.



Jeff Maggioncalda

Chief Executive Officer, Coursera





Executive Summary

There are few greater drivers of development than quality education. At the post-secondary level, the World Bank highlights “unequivocal” returns on investment, ranging from higher employment and greater productivity and innovation, to increased civic engagement, and better health outcomes.¹

In emerging markets, the number of primary and secondary education graduates is increasing, but enrollment in higher education remains low. In Sub-Saharan Africa, for instance, only nine percent of college-age learners continue from secondary to tertiary education.² While women’s enrollment in all stages of education is increasing globally, gaps in attainment persist in low- and middle-income countries. Women learners are limited by social norms prioritizing investment in men’s schooling and by lower rates of labor market participation than men. Demand for higher education is often unmet, suggesting the need to complement public resources and classroom-based education with new partners and delivery models.

Enter online education. From micro-credentials to the gamification of learning, digital delivery has the potential to lower costs and increase access to a more diverse set of learners. Nowhere is this potential higher than in emerging markets, where young populations, fewer existing educational opportunities, and expansions in connectivity set the stage for explosive growth. In 2021 nearly 65 percent of global investment in Educational Technology (EdTech) was in post-secondary education,³ and growth projections are high—HoloniQ predicts EdTech spending is set to reach \$404 billion in 2025, up from \$163 billion in 2019.⁴ Yet, access has been uneven and long-term economic outcomes are not fully understood, particularly for women learners.

The future of work and impacts of COVID-19 have increased the need to better understand the role of online learning in the educational ecosystem. Predictions on the future of work highlight the need for quality education that is accessible, affordable, and linked with market demand. Longer working lives, changes in high-demand skill sets, and job shifts caused by automation mean that to remain relevant in the workplace, adult learners will increasingly need to educate themselves many times over during their careers. This is especially so for women, who have suffered higher job losses during COVID-19.⁵ Women’s work is also more likely to be disproportionately impacted by future

advances in technology than men’s work, as their work tends to be concentrated in the service sector and routine in nature.⁶ Yet the digital divide can create a vicious cycle that closes off online education to underserved learners who are most likely to benefit from more accessible education but who have the most difficulty accessing online services. Nonetheless, online learning can support a successful transition to the future of work by helping learners develop a range of skills and credentials in a flexible format, especially if accessibility barriers are addressed.

COVID-19 has blurred the divide between online education and traditional in-person offerings. The pandemic accelerated the adoption of online learning, both as a stand-alone model and a complement to classroom-based learning—the future of education is likely to be an effective combination of the two. However limited research has captured the potential and challenges of online education for post-secondary learners in emerging markets, including if or how women benefit from online learning, leaving the scope of the opportunity in online learning unrealized.

This report aims to address knowledge gaps related to women’s participation in online education and to inform public and private sector approaches to improve life-long learning opportunities for women. Studies on the participation, use and challenges of learners in online learning have mixed results and comparing experiences and outcomes from different platforms can be challenging given the variety of content, payment, and delivery models. With a focus on post-secondary learners, this is the first study on women and online learning in emerging markets to provide comparable data across different geographies, demographic profiles, and subjects. The methodology combines several sources, including sex-disaggregated user data from Coursera’s then 96.9 million learners; detailed surveys of 9,551 learners in Egypt, India, Mexico, and Nigeria; and interviews with over 70 global learners and industry experts. The report tracks opportunities and challenges along the learner journey, from the search for education through post-learning career outcomes and explores the potential benefits for companies and economies of closing gaps in online education. Research is conducted under the Digital2Equal initiative in partnership with Coursera and the European Commission.

Key Findings

The report finds that online education offers an opportunity to improve access to post-secondary education for learners around the world. However, not all students can access online learning equally. Online education platforms can both grow their markets and drive greater development impact by addressing women's participation challenges and better serving women learners.



Who is learning online?



32%
in Africa

34%
in the Middle East

39%
in Asia-Pacific



45%
2020-2021

39%
2017-2019



75%
of all learners plan to
continue learning online
after the pandemic

- 1. Currently, women represent a minority of learners enrolled online in emerging markets on the Coursera platform, but their participation is growing.** While in North^a and Latin America women represent about half of online learners, globally there are gaps in women's participation. Women represent just 32 percent of learners on the platform in Africa, 34 percent in the Middle East, and 39 percent in Asia-Pacific. However, these gaps have continually decreased over the last five years. Enrollment gaps in emerging markets emphasize the urgent need to better understand how to recruit and serve women learners as online learning plays an increasing role in education.
- 2. The COVID-19 pandemic boosted women's enrollment and accelerated an already strong trend towards online learning.** During the pandemic, women's participation in online learning globally jumped from an average of 39 percent in the previous three years to 45 percent in 2020 and 2021. Twenty-six percent of women in the four focus markets (Egypt, India, Mexico, and Nigeria) compared with 20 percent of men, participated in online learning specifically due to the pandemic. Health concerns, family care, and value for money all emerged as higher drivers for choosing online education for women than men in this group.
- 3. Increased demand for online learning is likely to outlast the pandemic.** Seventy-five percent of all learners plan to continue learning online after the pandemic and an additional 24 percent said they will seek blended learning options, with women more likely to prefer blended options. Eighty percent of learners said they believe online credentials held some value to employers. Increases in online learning participation during the pandemic, coupled with learners' clear intentions to continue online education post-pandemic, offer a chance for platforms to retain new women users and close gender gaps.



How and why are women and men learning online?



*Deciding factors for
women:*

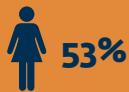
- ➔ **Mobility**
- ➔ **Safety**
- ➔ **Family obligations**

- 4. The majority of learners choose online learning out of preference, not necessity, but mobility, safety and family considerations impact women's learning choices.** Among those learners who chose to learn online due to personal preference, rather than those compelled to by the pandemic, men and women shared the top three motivations: flexible scheduling, access to high quality providers, and lack of in-person alternatives (for example, due to distance). However, women face a wider variety of considerations that restrict how and where they learn. Women were more likely than men to report that mobility (22 percent vs 14 percent), safety (26 percent vs 22 percent), and family obligations (22 percent vs 12 percent) were key factors when deciding where to study. In conjunction with women-centered policies on education, transport, and care, online learning could play a role in helping women achieve their learning goals.

^a For this report, North America refers to the United States of America and Canada. Mexico has been grouped with Latin America.



would postpone or not study at all without online learning



rely on free or audited courses



pursue specializations and professional certificates

Women are more likely to enroll in courses with at least one female instructor, and they rated these courses more highly



5. Online learning is perceived as more accessible than in-person education for women as well as underserved populations. Forty-two percent of men, 45 percent of women, and 60 percent of women caregivers indicated that they would postpone studying or not study at all if online learning was not an option. Additionally, 17 percent of all learners self-identified as disabled and this group showed a slight preference for blended learning, reflecting the need to advance accessible learning options, as well as the value of creating connection among learners. Just under a quarter of learners identifying as lesbian, gay, bisexual, transgender, or queer (LGBTQ+) in Mexico and India felt slightly safer learning online than in person; additionally, 40 percent of LGBTQ+ learners were more likely to ask questions and 51 percent were more likely to voice their opinions online than in traditional classrooms. This echoes the small but notable portion of women learners who were drawn to online learning in part to address safety risks associated with offline education.

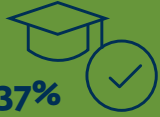
6. Women's lower access to funding impacts their learning patterns. Financing emerged as a major barrier to women's learning patterns. Fifty-three percent of women, compared with 42 percent of men, rely on free or audited courses, and only 36 percent of women, compared with 44 percent of men, use personal savings to pay for online courses, reflecting global income and financial inclusion gaps for women. Despite limited funding, women are also less likely than men to apply for financial aid. In Africa, Asia-Pacific and the Middle East, women accounted for approximately a quarter of aid applications. When asked what would make online learning more appealing, both women and men cited "greater affordability" as the top request. Financial gaps likely influence both the overall number of women learners online and their learning objectives; for instance, women may be less likely to pursue multi-course certifications in the absence of clear funding. This indicates a need not only for better outreach on existing financial aid opportunities, but also for further investment in large-scale public sector partnerships to offer innovative payment models, dedicated scholarship opportunities, and other emerging funding models that support online access to education as a public good.

7. Women are exploratory learners who look to learn across subjects while men prioritize immediate career benefits. Men are more likely to focus on the short-term professional benefits of education, such as obtaining a new job or advancing in their current role. Sixty-three percent of men, compared with 52 percent of women, learn online with a career-related goal. In contrast, 79 percent of women compared with 68 percent of men, went online to explore a specific topic. More men (71 percent) pursue multi-course specializations and professional certificates than women (52 percent). This suggests that women are exploratory learners who look to learn across subjects, but also that some women may not have the funding to commit to multi-course certifications or may not always see a clear connection between completing learning online and achieving professional objectives. Supporting women in accessing such credentials and demonstrating the potential return on investment can help build a stronger pathway between online learning and opportunities for success in the labor force. Unfortunately, patterns of gender segregation are replicated online—37 percent of those enrolled in science, technology, engineering, and mathematics (STEM) courses in 2021 were women, although enrollment rates have increased from 31 percent before the pandemic.

8. Women face challenges to course participation and completion, but practical solutions are emerging. Compared with men, women learners tend to spend less time on the Coursera platform per session and are online fewer days per week. Fifty-seven percent of the women enrolled in paid specialization and professional certificates complete their courses, compared with 64 percent of men, and women are more likely to cite lack of time and family obligations as reasons for dropping out. However, specific approaches can improve women's engagement. Notably, women were more likely to enroll in courses with at least one female instructor, and they rated these courses more highly. Women also reported that flexibility to complete courses on their own timelines through asynchronous courses and more mobile-friendly options would increase the appeal of online learning. Women show interest in blended learning options and community building and are 38 percent more likely than men to indicate they plan to pursue a blend of online and offline learning in the future. This emphasizes the need to build a future of education that leverages multiple points of entry and engagement.



How does online learning impact learners, businesses, and economies?



37%

of learners report new job, new business, or improved performance as a result of online learning

1/2 of the learners who joined to start or grow enterprises succeeded in doing so



Closing gender participation gaps could add up to

\$14 billion
to the market



One new job
is added to the economy for every 30 people trained by Coursera in the four markets surveyed

- 9. A significant portion of online learners report improved career opportunities and/or income increases.** Thirty-seven percent of learners report a new job, a new business, or improved performance as a result of online learning. This includes learners who are currently employed, unemployed, or entrepreneurs who have completed at least one lesson on the Coursera platform. An additional 19 percent believe they have improved their potential by acquiring new skills. Furthermore, 31 percent of learners without at least a bachelor's degree report positive outcomes, a number comparable to those with bachelor's degrees (38 percent). Skills learned online translate into tangible changes in income for many, with 22 percent of women and 29 percent of men reporting positive outcomes, also reporting income increases. Levels of increases varied but could be substantial. Of those whose income increased, 38 percent of women and 51 percent of men saw an increase of at least 10 percent. While women are less likely to report increases in career benefits or income, this relatively small difference is itself notable given that women learners come with fewer specific career objectives and enroll in fewer certifications.
- 10. Online learning can also be a powerful tool for entrepreneurs to start and grow their business.** Fifteen percent of men and 10 percent of women say they joined Coursera to start or grow their business and women and men achieved equal results. Nearly half (47 percent) report they have succeeded in starting and growing their business as a result of online learning. While both men and women join to enhance their subject matter skills, women list confidence building as the most important thing they learned online.
- 11. The market for post-secondary online learning in emerging markets could increase up to 10 percent by 2026 if gender gaps are closed.** In addition to the fundamental imperative to expand women's access to education, learning platforms stand to benefit significantly by expanding women's engagement online. Depending on the market growth trajectory, closing gaps in women's enrollment could add up to \$14 billion to the value of the market for online education in emerging markets in the five years between 2022 and 2026 alone, equivalent to increasing the market by approximately 10 percent. Further gains would accrue as the market grows.
- 12. One new job is added to the economy for every 30 people trained by Coursera in the four markets surveyed.** In addition to individual learners who get new or better jobs, online education also produces gains within the broader economy. Improved skills and qualifications create new jobs directly through the creation of new businesses. Jobs are also created indirectly through increased consumption and economic activity driven by higher incomes. These results reflect learners at multiple stages of engagement with online learning, from new enrollees to those completing credentials. Moving forward, these benefits can be maximized by encouraging enrollment in courses that build high-demand skills and strengthening the path between educational opportunities and the labor force.



Recommendations

Urgent action is needed to ensure that women and other underserved learners around the world can benefit equally from the expanded opportunities offered by online learning. The table below outlines key recommendations for platforms, governments and institutions, and the private sector, to collectively ensure that online learning can become a valuable tool for everyone.



Platforms

- Collect sex-disaggregated data
- Market to women learners and adapt to their preferences
- Highlight female role models and instructors
- Increase accessibility and language options
- Improve credential portability and “stackability”



Governments and Institutions & Platforms

- Prioritize access to broadband, devices, and mobile and low-bandwidth solutions
- Address challenges for refugees and learners in conflict areas
- Create physical and virtual spaces for community interaction
- Target early-stage learners and women re-entering the work force
- Improve accreditation and authentication



Private Sector

- Adopt skills-based hiring practices



Governments and Institutions & Platforms & Private Sector

- Find financing solutions for women’s online learning
- Prioritize women’s entry into high-demand skill areas
- Strengthen pathways between learning and careers



Chapter 1:

Trends and Challenges in Online Learning

Introduction

From micro-credentials to the gamification of learning, digital delivery has impacted all stages of education, offering the potential to bring down costs and increase access to underserved learners. Recent rapid technological advances have ushered a new era of digitally enabled learning. As of 2020, nearly 380 million students had used massive open online courses (MOOCs)^b alone.⁷ Additionally, traditional in-person learning is increasingly incorporating blended learning, meaning even students who do not primarily study online will use some element of online engagement. This trend has only been accelerated by COVID-19. At the peak of the pandemic, the United Nations reported that almost 1.6 billion learners in more than 190 countries were affected by the closure of schools and learning spaces.^{8,9} This rapid adoption of digital tools across the educational ecosystem adds impetus to understanding how emerging technologies can best reach and benefit underserved learners.

This shift reflects part of a wider transition to an increasingly prominent role for technology in education. At its best, online learning and the wider field of EdTech can play a vital role in reaching underserved students, helping companies and governments upskill their workforces, and addressing the challenges of the COVID-19 pandemic, refugee dislocations and other crises. Nowhere is the potential for online learning higher than in emerging markets. However, these same markets face heightened barriers to the successful use and integration of online learning.

To date, limited research captures the potential and challenges of online education for global post-secondary learners. In particular, there is little available evidence to show if or how women benefit equally to men from online learning or to what degree it can help them overcome labor force participation gaps—a persistent challenge for women even in markets where women's graduation rates exceed those of men. This report aims to address knowledge gaps related to women's participation in online education and inform public and private sector approaches to extending lifelong learning opportunities to women around the world. With a focus on post-secondary learners, this research represents the first study on women and online learning in emerging markets which provides comparable data across different geographies, demographic profiles and subjects studied in one specific business and delivery model.

Methodology

This report represents the first global study focusing on women and online learning in emerging markets. It benefits from access both to global user data from the Coursera platform and learner surveys in four focus countries—Egypt, India, Mexico, and Nigeria. Combined with a literature review and extensive interviews with learners and industry experts, it presents a uniquely comprehensive view into user experiences with online learning around the world and identifies the opportunities and challenges for the future of online learning.

^b Massive online open courses (MOOCs) refer to courses that are free or very low-cost, and available for anyone to enroll.

Given the diversity of the sector which targets a range of learner demographics, women's experiences may vary across online learning platforms. Nonetheless, this first detailed analysis of women's experiences online in emerging markets offers insights for companies and stakeholders across the sector to recruit more women learners, to improve the online experience, and strengthen career outcomes. For a detailed methodology and limitations, see Annex: Methodology.

The report leverages a variety of research methods and data sources:

- *Coursea learner data:* This research uses sex-disaggregated data from Coursea's global user database. Platform data allows insights into topics such as registration and completion rates and engagement patterns across courses and regions. Coursea's platform included approximately 96.9 million learners from more than 190 countries at the time of writing this report.^c The sample used for this analysis includes learners from across the global platform for cross-regional comparison. It excludes Enterprise learners whose studies were sponsored directly by business or government programming as well as Coursea for Campus learners who are enrolled in degrees through university providers and take select courses online. This means that this research focuses on independent learners. Sex disaggregation in platform data is based on learner self-identification.
- *Surveys from four focus countries:* Surveys were completed by 9,551 Coursea learners from Egypt, India, Mexico, and Nigeria, and targeted learners who completed at least one graded item between January 2019 to end of June 2021. Surveys captured learner motivations and aspirations, perceptions of the online experience, and post-learning career outcomes. Learners who answered the survey received a free guided project as a reward. Enterprise and Coursea for Campus learners were also excluded from survey invitations. Learners who chose not to identify their gender were included in the total responses but not included in sex-disaggregated responses. Surveys in Mexico and India offered respondents the opportunity to self-identify sexual orientation and gender identity and all four markets offered the opportunity for respondents to identify disability status. Demographic profiles of survey respondents are in Chapter 2 and chapters focusing on results from individual markets are in country-specific Annexes.
- *Learner Interviews:* Semi-structured interviews were conducted with 27 women learners from across the four focus countries. Discussions with learners detailed individual learner journeys.
- *Expert interviews:* Semi-structured interviews were conducted with over 50 experts on education policy, digitalization, accessibility and/or gender equality.
- *Market and development data:* External data on the state of the online learning market, development statistics on education, employment, connectivity, gender, and other relevant factors were used both to contextualize report findings, to project the future value of online learning in emerging markets, and to determine impacts of online learning on economic development.

This chapter provides a brief overview of the intersection between online learning and global post-secondary education. Section I explores post-secondary education, with a focus on emerging trends and challenges for women learners. Section II outlines how the burgeoning e-learning space is influencing the educational ecosystem, particularly the rapid, if often forced, digitalization during the COVID-19 pandemic, and challenges to adoption in emerging markets.

SECTION I: POST-SECONDARY EDUCATION IN EMERGING MARKETS

Demand for Post-Secondary Education in Emerging Markets is Rising, But is Often Unmet

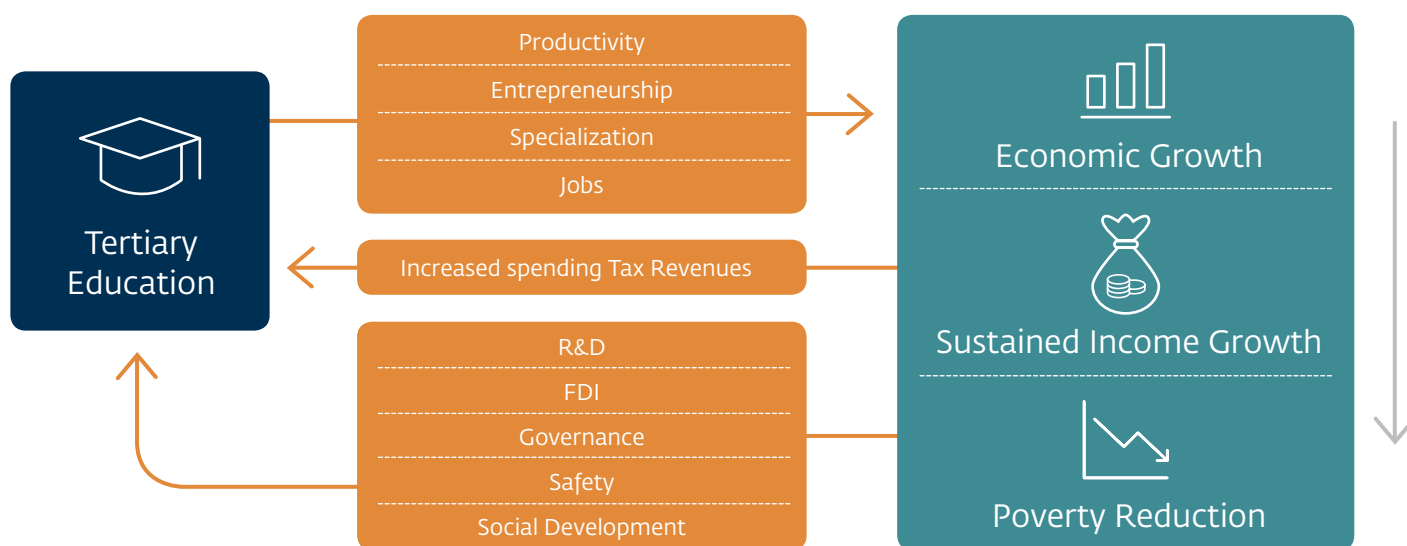
There are few greater drivers of development than quality education. At the tertiary level, the World Bank highlights unequivocal returns on investment, ranging from higher employment and greater productivity and innovation to increased civic engagement and better health outcomes¹⁰ (see Figure 1.1). For individuals, research suggests returns at the tertiary level are even higher than only completing the lower education levels.¹¹ For instance, in Latin America, a student with a tertiary education will earn twice as much as one with only a high school education.¹²

^c For country-specific data: 14.9 million learners for India; 5 million learners for Mexico; 1.7 million learners for Egypt; 1.1 million learners for Nigeria.

In emerging markets, the number of primary and secondary education graduates is on the rise, but enrollment in higher education remains low. In low- and middle-income countries, enrollment in tertiary education is 35 percent compared with 63 percent in secondary education and 102 percent in primary education. Furthermore, the disruptions caused by pandemic could increase the already high rate of children in learning poverty and risk undoing recent gains in girls' education.⁴³ In Sub-Saharan Africa, for instance, only nine percent of college-age learners of both genders continue from secondary to tertiary education.¹⁴ Despite doubling access to tertiary education between 2000 and 2018, Sub-Saharan Africa also had the slowest increase in tertiary education participation rates during this period¹⁵ and funding for tertiary education averages one percent of the GDP.¹⁶ Concerns over universities' capacity to cater to Africa's growing population could affect participation rates; an analysis by Quartz Africa shows that there are only 740 universities in the continent's most populated countries serving 600 million people, compared with 5,300 institutions serving 323 million people in the United States.¹⁷ Furthermore, ensuring quality, rather than basic access, also remains a priority to ensure equal outcomes.¹⁸

While many components are necessary to ensure a robust educational ecosystem, online learning may be particularly suited to facilitate a strong connection between higher education and rapidly changing labor market demands. When graduates cannot find employment, it reduces willingness to invest in post-secondary education. At the same time, employers often report a disconnect between graduate qualifications and in-demand skills; in 2019, 54 percent of companies worldwide reported talent shortages.¹⁹ Online learning opens access to a wider set of learning opportunities and helps institutions and companies collaborate to improve employability outcomes. It presents a unique complement to traditional tertiary education in its ability to connect to employers and allow learners to quickly pivot in the courses and skills taught. Many experts interviewed for this report also emphasized a need to build stronger connections between educators and employers. As Bisola Alabi, Founder of Heels&Tech in Nigeria said, "Recruiters are realizing it's not about the certifications, it's about ability to demonstrate skills and achievements."

Figure 1.1: Routes of Economic and Social Benefits via Tertiary Education



SOURCE: Bloom et al. 2014. In Arnhold, Nina; Bassett, Roberta Malee. *Steering Tertiary Education: Toward Resilient Systems that Deliver for All* (English). Washington, D.C.: World Bank Group.

^d Learning poverty is defined as inability to read and understand simple age-appropriate texts at the age of 10.



“Online education could open a door for some women and girls who face limits on their schooling; for instance, for girls who are pulled out of education because of fears of assault or for women who are pulled into marriage without having had a chance to complete schooling.”

Professor Linda Scott, Emeritus DP World Professor of Entrepreneurship and Innovation, University of Oxford

Importantly, predictions on the future of work highlight the need for quality education that is more adaptable, flexible, and targeted. Longer working lives, changes in high-demand skill sets, greater needs for digital skills, and job shifts associated with automation and digitalization all mean that adult learners will increasingly need to educate themselves not just once, but many times over the course of their careers. The World Development Report 2019, *The Changing Nature of Work*, noted, that over their lifetimes, “workers are expected to have multiple careers, not just multiple jobs”.²⁰ Making this transition successfully is particularly important for women, whose jobs in traditional service sectors are likely to be disproportionately impacted by changes in technology due to the routine nature of the tasks they perform.²¹

“Finishing your education in one swoop is not always an option, particularly for adult learners and those who live in challenging circumstances. It is important to give learners the option to learn at their own pace and earn stackable credentials for each course they complete along the way.”

Betty Vandenbosch, Chief Content Officer at Coursera

This trend emphasizes the need for a range of training options and formats, from individual courses to micro-credentials that build specific skills—a stance echoed by many of the experts interviewed for this report (see Table 1.1). “Learning is becoming more important than knowing—and hence we will need to focus on skill building alongside formal education. Having education without specific skillsets makes it more difficult to be employable,” said Shantanu Rooj, Founder and CEO of India’s TeamLease EdTech, India. Paul Ko, Head of Policy Research and Insights at LinkedIn said, “This shift of focus from proxies for skills—degrees and job titles—to demonstrated skills gives those with specific competencies a better chance to compete in the job market.” Online learning offers the potential to support a successful transition to the future of work by giving learners access to a wide range of topics in a flexible format.

Women Face Heightened Challenges to Completing Education and Entering the Labor Market

Women have made significant gains in enrollment at all stages and now outpace men in many markets.^{e,22} When it comes to upper secondary and post-secondary educational attainment,^f a reverse gender gap, in which women graduates outnumber men, has been observed “in virtually all high-income countries, as well as in a rapidly growing proportion of lower-income countries”.²³ Yet this trend is not universal and varies across economies and levels of schooling. In low-income countries, the percentage of young people who have completed upper secondary school is 17 percent for women and 22 percent for men.²⁴ Of the four core markets surveyed for this report, women are enrolled in tertiary education at rates higher than men’s in Egypt, India, and Mexico, but when it comes to attainment, the rate of women over the age of 25 with post-secondary education is lower than for men. This means there are fewer working age women than men who have post-secondary education, severely impacting their employment potential. In Nigeria, where only enrollment data is available, women lag men in tertiary enrollment (more detailed information is in Annex: Nigeria Country Deep Dive).²⁵

Even where women’s graduation rates are high, they often face greater challenges related to harassment, care responsibilities, and social norms. Risks at school or during commutes also play a large but often unspoken role in educational choices. For example, in Nigeria, 70 percent of women in tertiary education reported having been harassed by lecturers or fellow students.²⁶ Harassment and safety risks have real impacts on women’s schooling choices. In Delhi, a study on college choice for female students found that women were willing to enroll in a lower quality college in favor of one with a safer transportation route.²⁷ Additionally, women face higher care responsibilities. Oladiwura Oladepo, Executive Director at Tech4Dev Nigeria said, “Anyone anywhere can learn from the comfort of their own home; it breaks down the barrier to learning for a lot of women. They don’t need to worry about taking time away from their family obligations.” In this, online learning presents a double-edged sword—it could help women gain access to learning who might not otherwise be able to, but potentially at the cost of reinforcing restrictive social norms.

^e Gross enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to a specific level of education.

^f Educational attainment refers to the proportion of the population over the age of 25 which have upper or post-secondary education.

Finally, women are too often held back by norms prioritizing investment in men's schooling and by lower female labor market participation, which creates perceived lower returns on investment for women's education. Professor Maria Garrido, of the University of Washington's Information School, puts it simply, "Online learning is a powerful way to democratize knowledge and skills, but it alone cannot solve the problem of women's employment." Women's labor force participation lags men's in every region of the world, with the largest gaps in South Asia, the Middle East, and North Africa.²⁸ These statistics dramatically worsened during the pandemic. Globally, women's employment declined by 4.2 percent between 2019 and 2020, or by about 54 million jobs, in comparison with a 3 percent decline in men's employment.²⁹ This drop is attributed to the impact of lockdowns on sectors where women are overrepresented,³⁰ and school and daycare closures which increased hours spent on family care.³¹ The World Economic Forum has found that COVID-19 pushed back the anticipated timeline to close global gender gaps by 36 years.³²

"Parents of girls in underprivileged populations might not be willing to invest in their daughter's education but they can allow their girls to study online."

Manish Upadhyay, EdTech Entrepreneur, India

The solution to overcoming challenges to women's education lies both in changing norms and demonstrating long-term gains. In the words of Oni-Lusk Stover, Senior Education Specialist at the World Bank, "It is important to help women understand how their participation in online learning can lead to more than just participating—there is an opportunity factor which shows women and their communities what they stand to gain from completing these degrees." Chapter 2 explores to what extent online learning can play a role in helping women overcome these barriers, and women's and men's differing experiences in, and outcomes from online learning.

SECTION II: ONLINE LEARNING IN EMERGING MARKETS

Technology is Increasingly Impacting Education at All Levels

Digital technology has impacted education and training at all levels and ages. The intersection of education and technology takes many forms. The World Bank has identified four technologies with the potential to impact the future of education: 1) artificial intelligence (AI), including adaptive learning to identify unique student learning needs and plans; 2) remote learning, as a tool for access and efficiency, as well as expanding the potential cohort of learners; 3) the Internet of Things (IoT), driving improved data and analytics; and 4) virtual and augmented reality (VR and AR), to immerse students in real life learning situations (see Figure 1.2).³³ The second, remote learning, also known as online learning or e-learning, is the focus of this report. Further, an IFC study on vocational training concludes that "technologies such as simulation-based learning (including VR and AR); flipped classroom learning through open educational resources (OER); conversational AI; robotics; blockchain; and gamification; among others can enhance the learning experience and make learning more flexible, particularly where access to face-to-face learning is challenging".³⁴ The use of technology is, therefore, affecting education at all levels and understanding challenges and behaviors of learners is vital for wider and more inclusive adoption of technology in education.

"In the future we will see multiple life forms of education: On the go, online, modular, multimodal, on demand, gamified and crowdsourced."

Shantanu Rooj, Founder and CEO, TeamLease EdTech, India

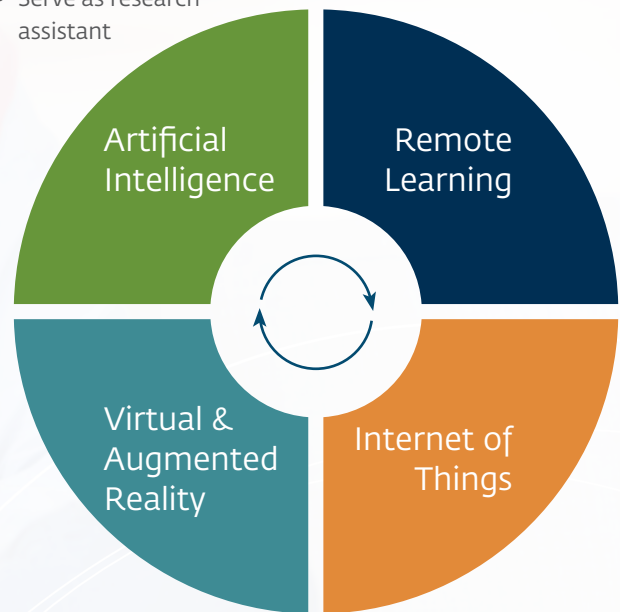


“Digital technology and capabilities are essential to more resilient tertiary education systems.”

World Bank Group Steering Tertiary Education: Toward Resilient Systems that Deliver for All

Figure 1.2: Four Technologies Influencing Education: Indicative Uses

- Drive adoptive learning
- Identify areas for academic intervention
- Serve as research assistant
- Reach new learner populations
- Job skilling and reskilling



- Immerse in real-life learning situations
- Reduce exposure to danger and health risks
- Data and analytics
- Develop more effective learning models
- Early performance gaps warnings

Based on World Bank Group, Steering Tertiary Education: Toward Resilient Systems that Deliver for All

Box 1: Growth Projections Across the EdTech Sector are Universally High

Given emerging trends and the scope of unmet needs, projections for the future of online learning are high. Projections of market value vary due to differences in the precise definition of online learning as well as the populations, markets, and date ranges covered. IFC estimates that the market for adult online learning in emerging markets alone will more than double over the five years between 2022 and 2026, reaching \$17 billion to \$48 billion. Growth could be up to 10 percent higher if gaps in gender participation were addressed (see Chapter 3, Estimates of Adult Online Learning).

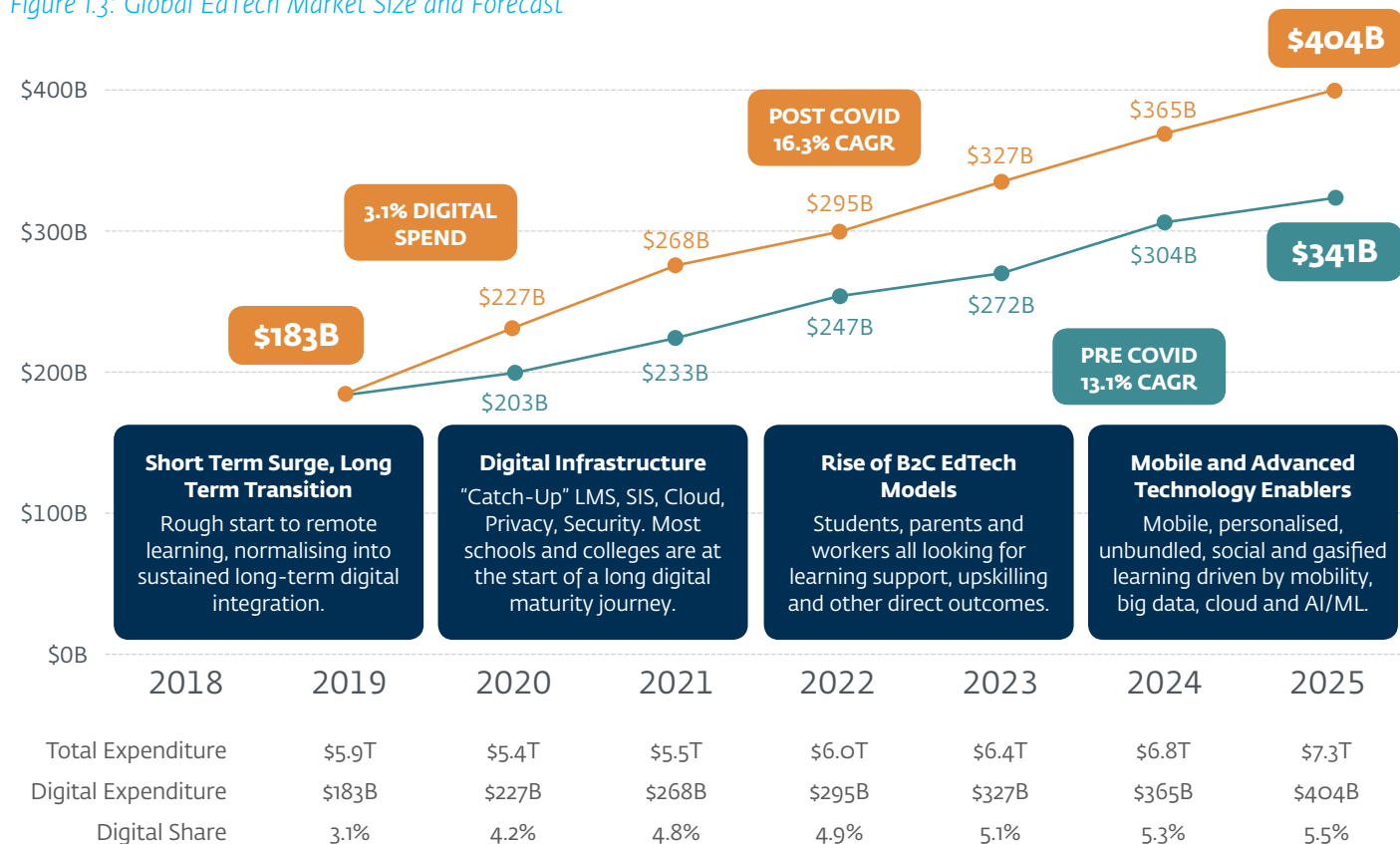
This portion of the market represents a subset of the wider market for online learning and EdTech, both of which also see high expected growth. HolonIQ estimates that the global

EdTech market could reach \$404 billion by 2025 but emphasizes that “education technology will still be underpenetrated, as EdTech would only represent 5.2 percent of the \$7.8 trillion in expected education spending that year”.³⁵ Projections are reflected in recent investment trends. In 2021 venture capital funding in EdTech was three times pre-pandemic levels, and of the 28 existing EdTech unicorns, 17 reached that status in 2021.³⁶ Post-secondary education accounted for nearly 65 percent of 2021 EdTech investment.³⁷ These figures reflect not just interest among traditional educators, but a wide variety of post-secondary learners. For instance, companies increased their use of e-learning by 900 percent between 2003 and 2016.³⁸

“[We project] EdTech spending to increase 16.3 percent CAGR from \$163 billion in 2019 to \$404 billion in 2025. We still believe education technology will still be underpenetrated, as EdTech would only represent 5.2 percent of the \$7.8 trillion in expected education spending that year.”

- HolonIQ, Global Education Outlook 2021

Figure 1.3: Global EdTech Market Size and Forecast



SOURCE: HolonIQ, Sizing the Global EdTech Market. Mode vs Model, 2021

No One Model Defines Online Learning

No one model defines online learning, which can range from one-to-one tutoring to MOOCs. First, the overall EdTech market is segmented by age and educational level into four groups: early childhood, K-12, post-secondary or higher education, and

workforce development and upskilling. This report focuses on the latter two, which have considerable overlap. Within these segments, EdTech companies employ a range of delivery methods, content offerings, and payment models, resulting in a sector characterized by a diversity of business models. Table 1.1 outlines indicative, but not exhaustive examples.

Table 1.1: Simplified Overview of Online Learning Models

Model	Name	Description
Delivery	Asynchronous	Self-paced courses where learners control the amount and frequency of engagement. This format is highly scalable, typically more affordable, and maximizes learner flexibility. However, it requires a high level of self-discipline, which can result in lower completion rates.
	Synchronous	Online content that mimics in-class settings using virtual tools such as Zoom, MS Teams, or Google Classroom which provide real-time participation, interactivity, and collaboration, both instructor-led and peer-to-peer. Live formats provide a sense of engagement and community, but limit learners to specific timeslots and may be more costly than pure asynchronous formats.
	Blended	Offerings combining both asynchronous and live and/or in-person elements. For instance, a university may offer online lectures to a large group combined with smaller, in-person tutorials.
Content	Proprietary	Companies develop and deliver their own proprietary content.
	Hosted	Companies enable access to content from third parties. For instance, online program managers (OPMs) and MOOCs host content from universities and tech companies, often awarding degrees, certificates and other credentials. Marketplace models allow individual teachers and creators to offer their own content to a wide range of learners.
Client	Business-to-Business (B2B)	Selling to companies, governments or other institutions which provide access to their employees or members, with fees typically charged on a per-seat basis.
	Business-to-Customer (B2C)	Selling direct to learners who self-pay (typically per course, degree or by subscription), using a range of modalities such as personal savings or family loans.
Payment	Free	Apps that offer free learning content typically powered by other sources of funding or revenue from in-app advertising.
	Freemium	Trials and course auditing are available for learners for free whereas paid options allow learners to earn credentials, credits, and certificates.
	Subscription	Learners pay a monthly fee to access content typically targeting learners who have long-term learning needs.
	Pay-per-Credential	Learners pay per course or credential. This is typically used by online program management providers and platforms where multiple creators/authors offer their content. Some platforms and/or providers choose to use geo-pricing by adapting prices to countries or regions.
	Deferred Tuition/ Income Sharing	These models, typically used by bootcamps, rely on offering learners the opportunity to pay back the cost of the courses once they get a job.
	Pay-per-Seat	A license is given per user, for instance a company accessing training for employees, to access a platform or a set of courses, certifications, or credentials. This is typically used by enterprises such as organizations, governments and universities who cater to a large group of learners.

Distinctions Between Online and In-Person Learning Are Increasingly Blurred

Online resources are often combined with in-person education, creating a blended learning experience.

Increasingly, this includes the formal adoption of online tools by universities and other traditional providers as a complement to classroom work or to reach new learners. “A key trend in online learning is that traditional universities are now offering MOOCs. Previously this was left to specialist platforms,” said Professor Asha Singh Kanwar, President and CEO of Commonwealth of Learning. While this report aims to fill research knowledge gaps specifically related to the online experience, the future of education is likely to be determined neither by in-person nor online learning alone, but rather an effective marriage of the two.

Whatever the form, there is no doubt that online learning will continue to impact the future of education.

This marriage exponentially increases the impact of online learning on the sector. The World Bank notes that, “remote delivery and online learning technologies have irreversibly changed how tertiary education institutions operate, educate, and innovate more than any other disruptive technology of the past decade.”³⁹ For instance, India, Indonesia, and Malaysia have all adopted frameworks to ensure that online coursework can count toward full university credentials.⁴⁰ UNESCO has found that the growth of private and distance education has acted as a driver toward universal access to higher education.⁴¹

The COVID-19 pandemic accelerated the uptake of online learning and blended learning.

“Prior to COVID-19, fully digitized teaching programs with educational technology embedded across the curriculum were rare”⁴² summarizes one group of researchers at the Alexander von Humboldt Institute for Internet and Society and the Global Learning Council. However, education saw widespread transformation in the face of extensive school closures and health risks. Even those who are not pure online learners may have an element of online learning in their curricula. “The pandemic has given a substantial push towards blended learning and hybrid modes and the incorporation of online elements in education,” says Jamil Salmi, Global Tertiary Education Expert. Further, experts agreed that pandemic-driven digitalization has also increased the acceptance of online credentials, a long-standing barrier to further uptake of digital learning models (see Chapter 2, Section III).

While the effectiveness of online learning is heavily debated, there is considerable evidence that points to its potential to expand access to education. Several studies that compare online learning to face-to-face formats by looking at learner

grades conclude that students perform better in face-to-face settings⁴³ and in blended formats.⁴⁴ However, effectiveness can differ depending on the target audience. For example, a study in Australia found that learners who had professional development objectives perform better than those with general learning interests.⁴⁵ The type of assessment can also affect outcomes; in some assessments no gaps in performance are observed.⁴⁶ Additional studies show no differences in outcomes, for example, a randomized control trial of STEM education online in Russia found that “online and blended instruction produce similar student learning outcomes as traditional in-person instruction at substantially lower costs”.⁴⁷ The mixed findings point to underlying factors that can have an effect on student results in online and face-to-face settings.⁴⁸ One thing is clear, online learning can lower barriers to those who would otherwise not have access to education. A review of literature about online education found that when designed with disadvantaged learners in mind, online learning extends access to more diverse populations.⁴⁹ These findings give impetus for more studies, such as this one, that explore learner motivations, challenges, and outcomes.

Online adoption during the pandemic has been uneven and unequal.

Many educators turned to online learning as a matter of necessity rather than choice. A review of responses to the pandemic in post-secondary education notes that, “School closures and the shift to online provision in higher, technical and adult education have significantly disrupted the learning of students around the globe. And while many providers have been able to respond creatively to these disruptions and maintain continuity of learning for their students, to one degree or another, many more have lacked the financial, technological, and pedagogical resources to support their learners adequately through lockdown.”⁵⁰ This is particularly the case in emerging markets, where connectivity gaps are largest (see Chapter 2 Section II).

Indeed, further investment and innovation are needed for effective online learning.

In the OECD’s review of online learning in the face of COVID, the organization called for a number of ways to strengthen adoption, including:

- Widening content beyond an emphasis on skills geared toward white collar jobs;
- Supporting teachers with training and resources to effectively deliver lessons online;
- Increasing learner completion rates, for example, through improved documentation for completed lessons; and
- Effective testing through robust, documented, and comparable learner evaluations.⁵¹

These are lessons that could support the successful adoption of online learning within the educational ecosystem well beyond the pandemic.

This rapid adoption of digital tools across the educational ecosystem has increased understanding of how emerging technologies can best reach, and benefit underserved learners. At the same time, the diversity of models across the online market challenges systematic analysis of learner experiences and outcomes. Comparing outcomes from different platforms can prove challenging given diverse content, payment, and delivery models (see Table 1.1). The increasing integration of online and offline learning adds to this challenge, particularly following the pandemic.

Emerging Markets Face Unique Opportunities and Challenges Related to Online Learning

Nowhere is the potential of online learning higher than in emerging markets, where young populations, fewer existing educational opportunities, and expansions in connectivity set the stage for explosive growth. At its best, online learning offers the possibility to expand access to new, underserved learners and to provide quality education to all. Noel Ajoc Regional Director of the Philippines' Department of Science and Technology (DOST) reflected on the promise of online education saying, "We have to democratize learning. Why is it that only the rich can go to top ranked universities, why can't it be anyone? MOOCs are the practical way to do that." Lena Olsen Sømme of NORAD echoed this sentiment, "We want EdTech to be a channel that enables education systems to reach learners that aren't reached by traditional channels. We believe it can play a vital role in increasing access to education."

"If there was ever a tool that can support inclusion in education, it is EdTech. The beauty of online learning is its ability to deliver the same quality across the world."

Precious Imuwahen Ajoonu, Transformation Director, Edo State Government, Nigeria

Yet, the digital divide in emerging markets poses a challenge to the adoption of online learning. While the results in Chapter 2 highlight learners' experiences who have internet access, continued digital gaps impact the growth of the sector.

The most significant of these may be access to the internet and other fundamental tools of the digital economy. As of 2021, 57 percent of those living in developing countries use the internet, in comparison with 90 percent of those living in developed countries.⁵² Internet use in emerging markets is not only less widespread but is often more costly and services are of lower quality. For instance, a 5GB fixed-broadband basket costs 4.4 percent of the monthly gross national income (GNI) per capita in developing countries, and only 1.2 percent of the GNI per capita in developed countries.⁵³ High smartphone versus PC use, also places limits on teaching strategies. High connectivity costs can mean data, as much as the cost of tuition, is a determining factor of students' cost of education. It can also restrict video and other high bandwidth uses, limiting delivery modules.

Limited connectivity and digital skills can create a vicious cycle that keeps online learning opportunities restricted to higher income populations. A study of MOOCs in Colombia, the Philippines, and South Africa found that 80 percent of users only have basic or intermediary Information Communication Technology (ICT) skills.⁵⁴ Similar studies in Nigeria⁵⁵ and Nepal⁵⁶ also found connectivity to be a challenge for learners. Furthermore, a systematic review of literature on MOOCs showed a strong relationship between digital literacy and learners' performance in online learning.⁵⁷ While this early data indicates that many students can overcome some degree of the digital skills gap, it also suggests a need for straightforward delivery mechanisms that could reduce the viability of some teaching methods. Shireen Yacoub, CEO Edraak, Jordan said, "Using online learning requires a certain level of digital literacy and fluency, having access to hardware, and a connection. This means certain socio-economic groups may be excluded and including more disadvantaged groups doesn't just happen automatically, it takes concerted effort."

These challenges are felt more keenly by women. Gender gaps reduce access for women and limit their methods of engagement with high-skill, high-tech learning tools. The gender gap⁹ in internet access in developing countries is 12.3 percent.⁵⁸ Digital skills, as much as affordability, represent a challenge; UNESCO has recently found that "skills deficits have eclipsed barriers of access as the primary contributor to the digital gender divide".⁵⁹ Women are also more likely to access the internet exclusively on mobile phones or shared devices,⁶⁰ limiting effective access to course materials and formats.

⁹ The gender gap represents the difference in the percentages of men and women using the internet, relative to the percentage of men using the internet.

Even with reliable connectivity, women’s online engagement is often subject to restrictions and monitoring. Relatives may act as gatekeepers to technology by forbidding, limiting or mediating women’s access to mobile phones or the internet.⁶¹ Matt Vanderwerff of IREX said, “Access to the internet is not binary. The type of access and power relations in a household with shared access to a device impact how much women and girls may be able to use technology.” Negative perceptions around women’s use of mobile phones and the internet can result in harsh judgment from other members within the community.⁶²

Similarly, many of the vulnerable groups that face gaps in education also face limited access to the internet. Persons with disabilities have lower levels of mobile phone ownership and are less likely to use mobile internet or be aware of mobile internet

and its benefits.⁶³ Despite the wealth of accessibility and assistive features available on smartphones, persons with disabilities are significantly less likely to own a smartphone. When intersected with gender, the gaps are even greater; women with disabilities have some of the lowest rates of mobile phone and smartphone ownership and are least likely to use mobile internet⁶⁴ (see Box 6 in Chapter 2 for further discussion on disabilities).

Collectively, these differences mean there is a paradox in expanding e-learning—those who are most likely to benefit from increased access to education are frequently those who face the most significant challenges in accessing services online. The question of how best to address these challenges and extend online learning globally forms the basis of this report.

Box 2: Digital for Tertiary Education Program (D4TEP)

Learners today have digital experiences in every aspect of their daily life, from transportation to entertainment to banking. They expect the same in education. Their preferences are changing, reflecting:

- A growing demand for affordable degree options, micro-credentialing, and closing skill gaps;
- Shifting demographics and an evolving workforce making education more relevant for lifelong learners; and
- An increasing recognition of the need to prepare students for the future of work, including careers that may not exist today.

This puts pressure on universities to strengthen their ability to compete in an increasingly online market and serve the growing number of students seeking alternatives to traditional classroom based educational options. Enter D4TEP,^h a program which provides a customized suite of tools to accelerate institutions’

digital transformation, from learning how to integrate systems and automate back-office processes and procedures, to enriching the educational experience of students both in and out of the virtual classroom, and more.

Universidad Peruana de Ciencias Aplicadas (UPC) is a university in Peru that piloted D4TEP to develop its online offerings. “COVID has added impetus to our digital transformation roadmap. Suddenly, digital tools were the whole of the education experience,” says Clery Luz Neyra Vera, Director of Innovation and Transformation, UPC. The university used virtual laboratories and a digital library and trained staff to ensure quality academic performance online. It also started the Ecuador Digital Platform that offers materials and tutorials to help teachers adapt to the new reality of online learning. As Vera puts it: “In this new, more globalized world shaped by an exponential growth of technology, it is necessary to constantly innovate to remain competitive and grow.”

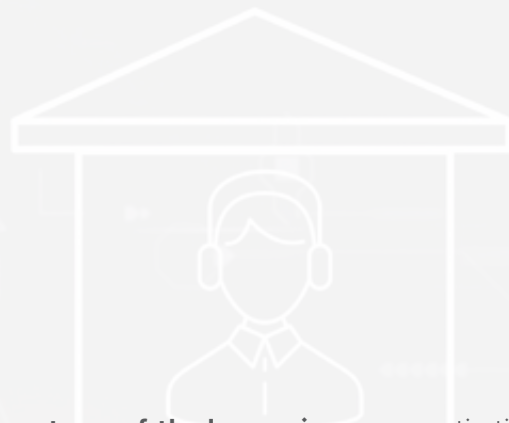
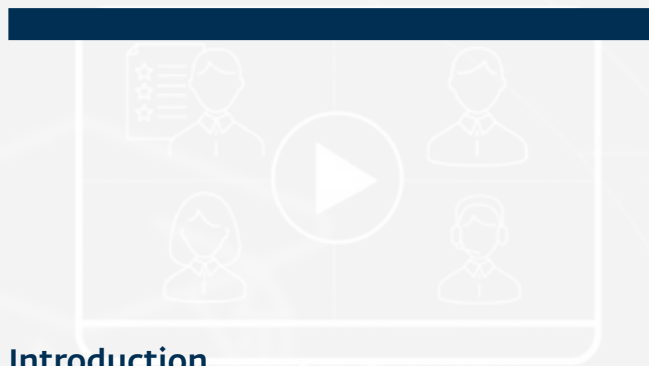
^h For more information on the program: <https://ifc-org.medium.com/digitalization-in-higher-education-an-imperative-and-an-opportunity-for-central-america-13bde263d9d3>





Chapter 2:

Online Learning Experiences, Women and Men in Emerging Markets



Introduction

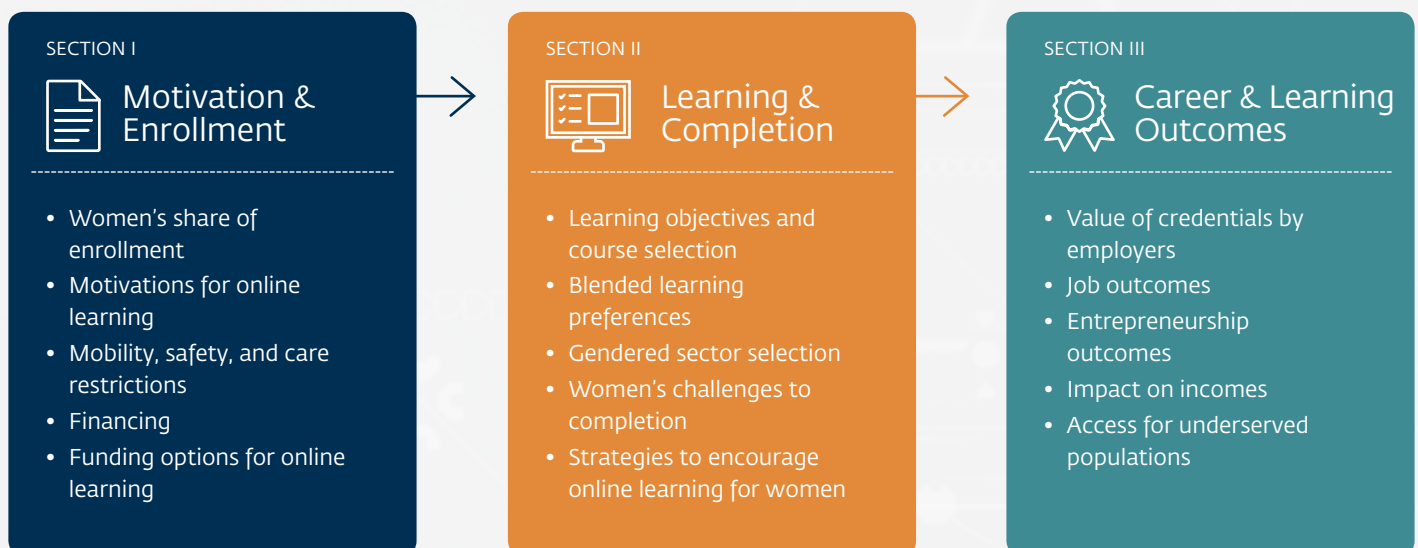
EdTech and online learning are transforming education; however, to date little research has highlighted women's experiences with online learning, the unique challenges they face, or the new opportunities the model offers. This report addresses knowledge gaps related to women's participation in online education by leveraging global, sex-disaggregated data from the Coursera platform as well as surveys from four focus countries (Egypt, India, Nigeria, and Mexico), and interviews with experts and learners.

This chapter quantifies the rate of women's current engagement with online learning across regions and sectors and explores women's and men's experiences along three

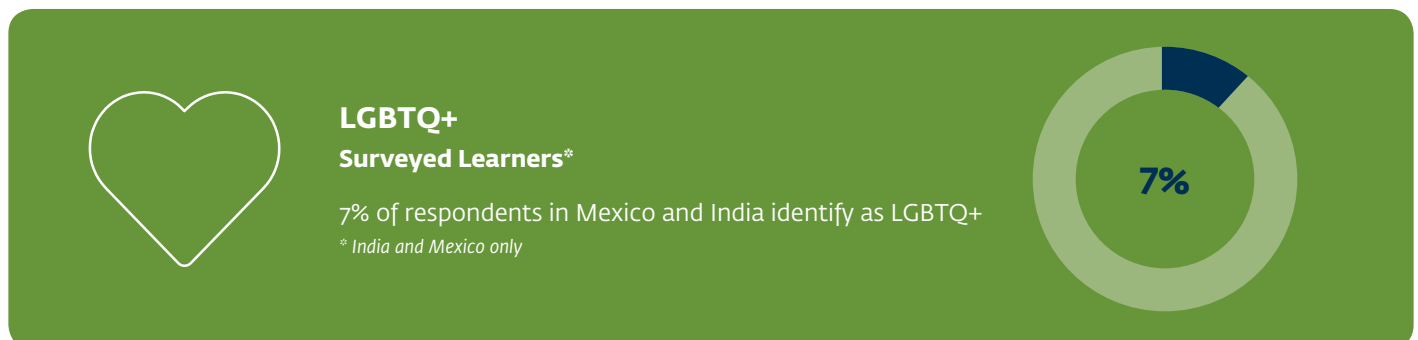
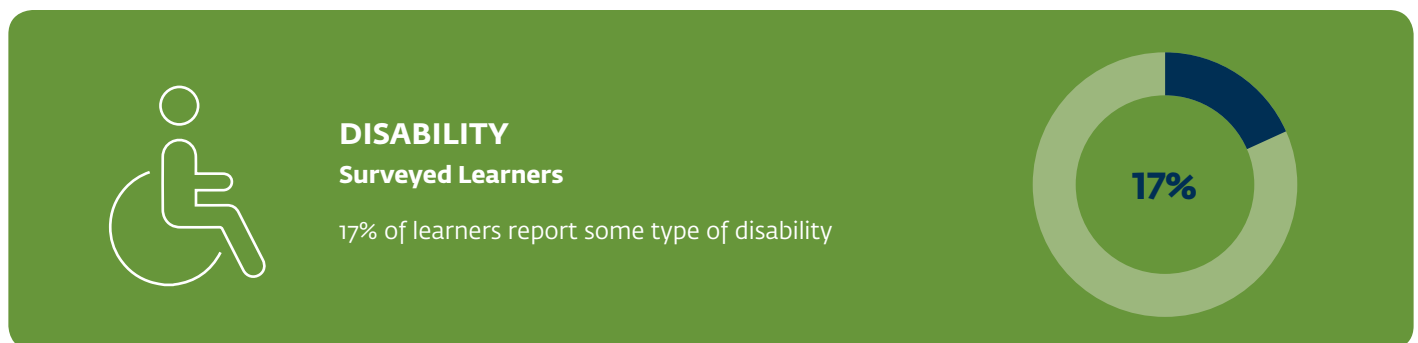
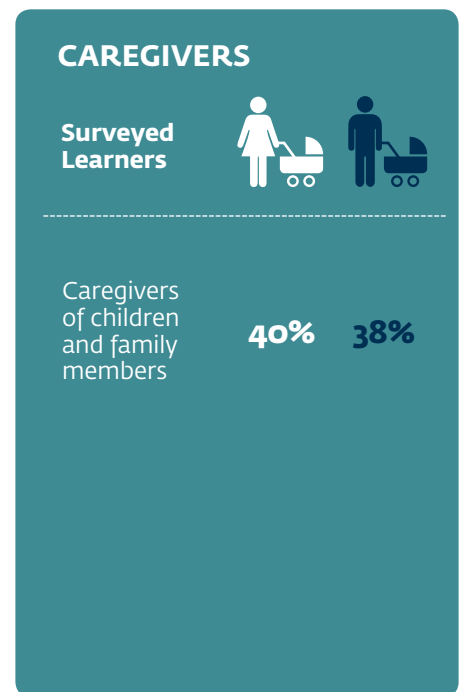
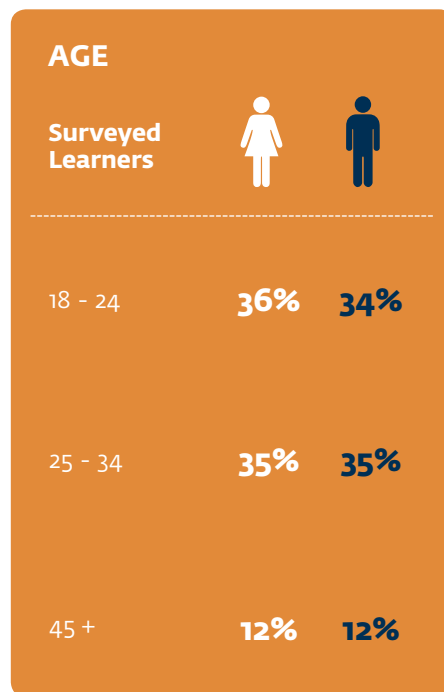
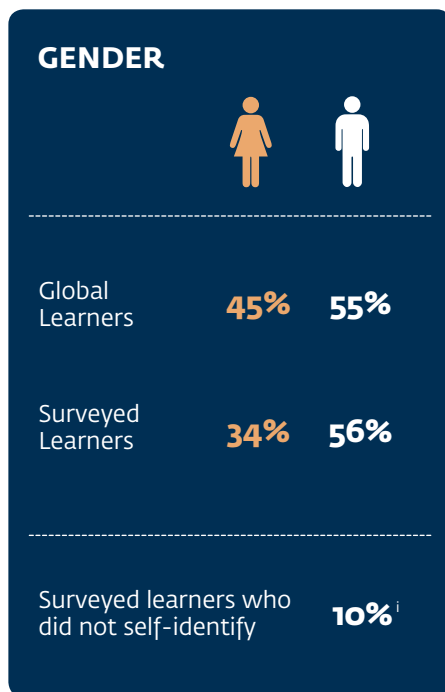
stages of the learner journey— motivation and enrollment, including choosing whether and where to pursue education; learning and completion, including course selection, participation, and performance; and post-learning career outcomes, including job and business performance (see Figure 2.1). It finds that women and men have different motivations for online learning, and experience different barriers to entry and experiences online.

Given the diversity of the sector which targets a range of learner demographics women's experiences may vary across online learning platforms. Nonetheless, this first detailed analysis of women's experiences online in emerging markets offers insights for companies and stakeholders across the sector to recruit more women learners, to improve the online experience, and strengthen career outcomes.

Figure 2.1: Stages of the Learner Journey



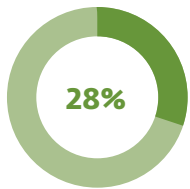
Learner profiles



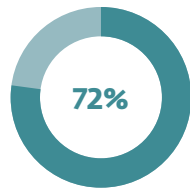
ⁱ Learners who chose not to identify their gender are included in total results only and were not included in sex-disaggregated results.

EDUCATION

Global Learners

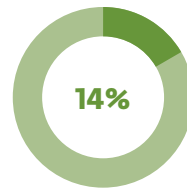


High School /
Associates Degree

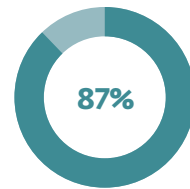


Bachelor /
Higher

Surveyed Learners



High School /
Associates Degree



Bachelor /
Higher

COUNTRIES



Global Learners
190+ Countries

Surveyed Learners



Egypt



Mexico



India



Nigeria

EMPLOYMENT

Surveyed Learners

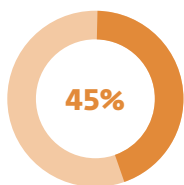
44% Employed

27% Unemployed

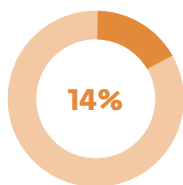
18% Entrepreneur

11% Unspecified

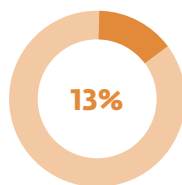
INCOME



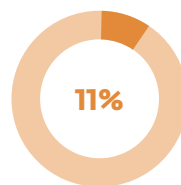
50th
percentile



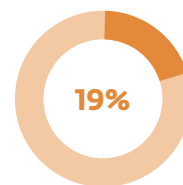
50-80th
percentile



80-90th
percentile



90-95th
percentile



95th+
percentile



SECTION I: MOTIVATION AND ENROLLMENT

Women Represent a Minority of Learners in Most Markets, But Their Participation is Growing

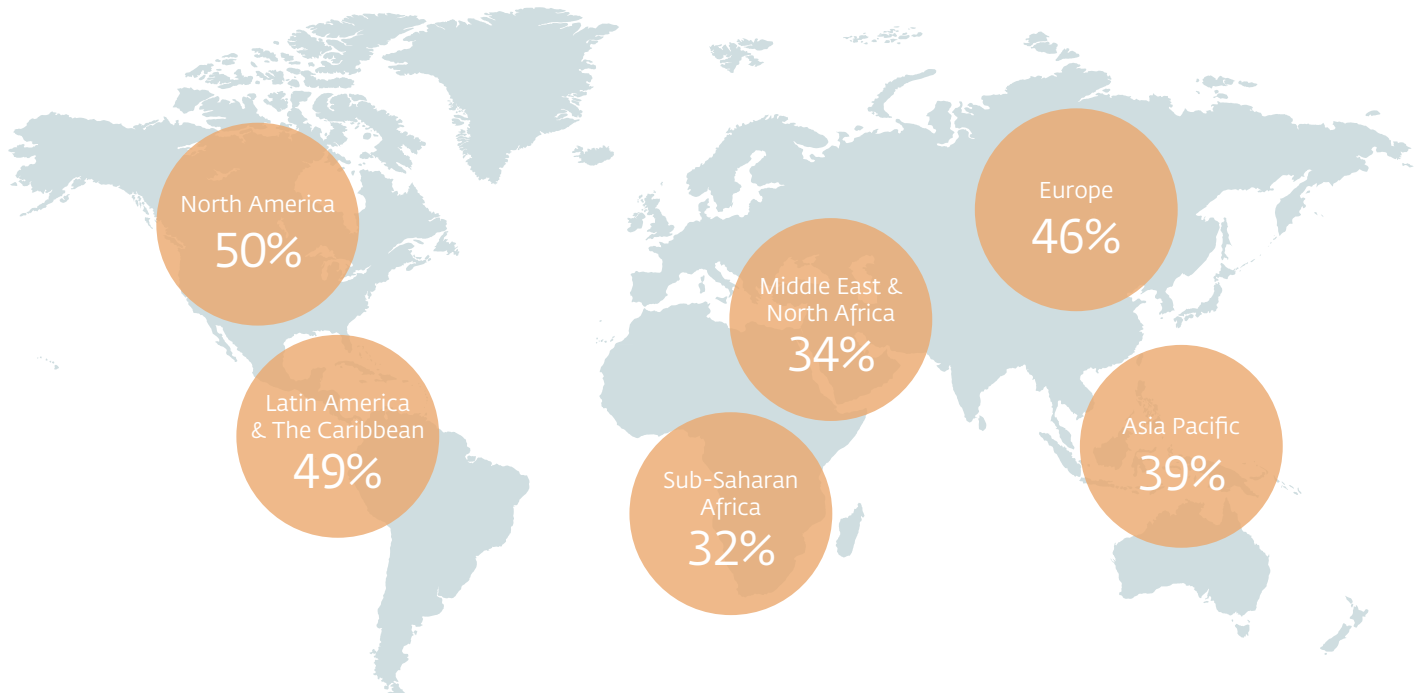
Broad comparisons between conventional and online enrollment data are difficult as the Coursera platform serves learners in different educational and career stages and includes learners who are already enrolled in traditional institutions. This means global counts of tertiary learners would also include students on Coursera and other platforms. World Bank data on overall Gross Enrollment Rates (GER)⁶⁵ show that women's enrollments in elementary, secondary, and tertiary education are equal to or higher than men's in most regions, however, there are wide variations within regions (see Chapter 1 Section I).

Currently, women represent a minority of learners enrolled online in emerging markets on the Coursera Platform, but

over time their participation is growing. Platform enrollment data in 2021 show regional disparities. While in North America women represent half of online learners, other regions show clear gaps in women's participation. Women represent just 32 percent of online learners in Africa and 34 percent in the Middle East, rising to 39 percent in Asia Pacific and just under half in Latin America.

Enrollment gaps between men and women have been slowly decreasing over the last five years. Between 2017 and 2021, women's enrollment grew from 40 percent to 44 percent globally. The years impacted by the COVID-19 pandemic saw jumps in women's participation across all markets, with women's participation globally increasing from an average of 39 percent in the previous three years to 45 percent in 2020 and 2021. In Africa, growth in women's enrollment rate has been gradual, while in Asia Pacific, Latin America and the Middle East, the pandemic has caused the biggest jump (see Figure 2.3). Ongoing gaps in women's participation emphasize the urgent need to better understand how to recruit and serve women learners as online learning plays an increasing role in the educational ecosystem.

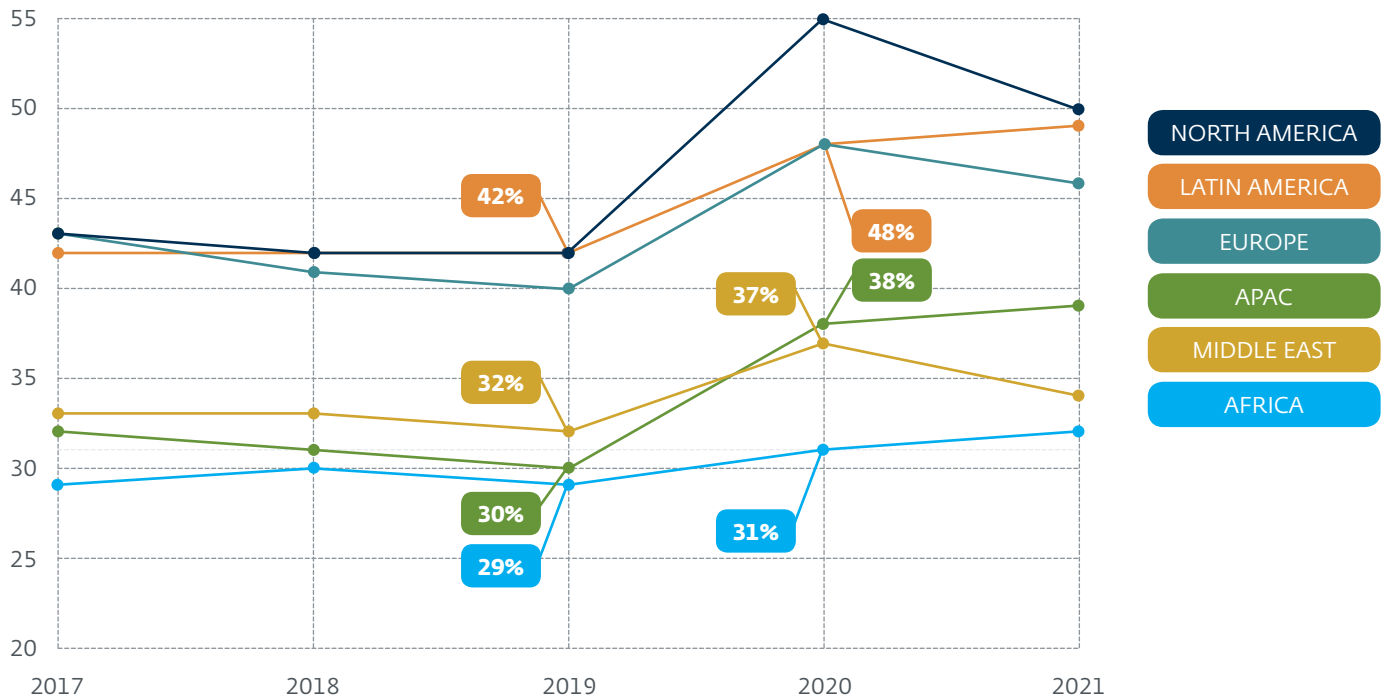
Figure 2.2: Women's Share of Enrollment by Region in 2021 (Source: Coursera Platform)^j



For the purpose of this report, North America refers to the United States of America and Canada. Mexico has been grouped with Latin America.

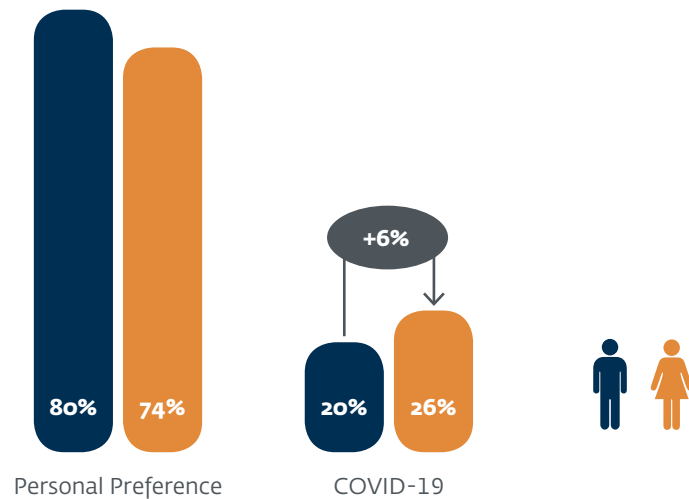
^j For all platform data: differences above 1% are statistically significant at 5 percent level. For this report, North America refers to the United States of America and Canada. Mexico has been grouped with Latin America.

Figure 2.3: Women's Share of Enrollment, Percentage of Total Enrollments 2017 - 2021



SOURCE: Coursera Platform

Figure 2.4: Reason for Joining Online Learning



More women than men decided to learn online because of the pandemic. When asked whether they selected online learning due to personal preference or the COVID-19 pandemic, 26 percent of women in the four focus markets, compared with 20 percent of men, selected online learning specifically due to the pandemic, corroborating platform enrollment trends (see Figure 2.4). This suggests that platforms have an unprecedented opportunity to engage this new user base, particularly women, to solidify long-term growth (see Chapter 3 for a discussion of the business case and Chapter 5 for recommendations).

All differences statistically significant at 5 percent level

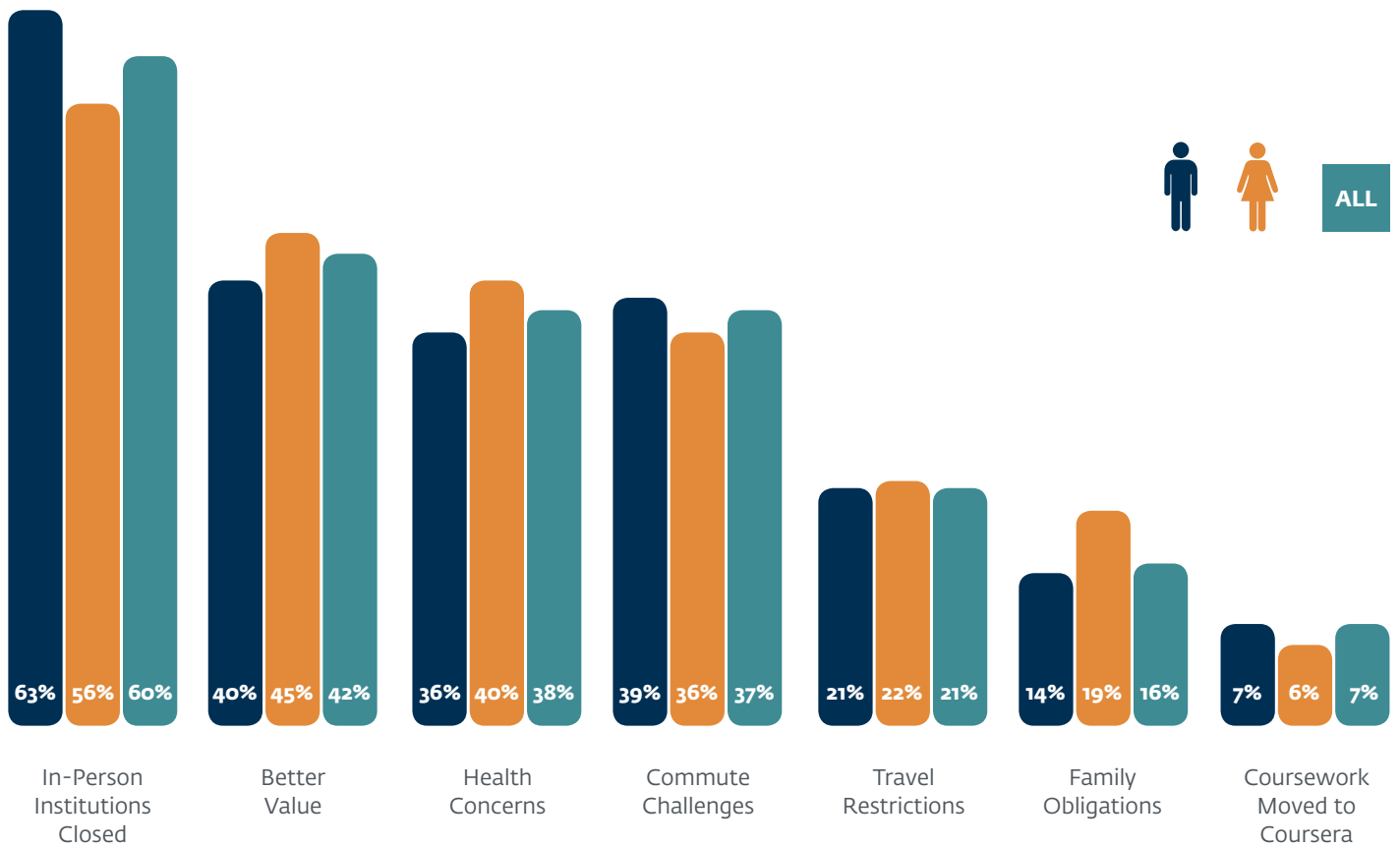
SOURCE: IFC/Coursera Survey*

* For all graphs, data is rounded to nearest percent.

Both men and women who joined online learning platforms due to the pandemic cite closure of in-person learning institutions as a key driver (see Figure 2.5). Health concerns, family care, and value for money all emerged as slightly higher motivating factors for women than men in this group. This suggests that different considerations are at play when women, especially those with

families, decide to pursue online education. Furthermore, some women interviewed cite that the limited social life, the elimination of commuting time, and commercial shutdowns during the pandemic left them with more time, which they used to explore online learning.

Figure 2.5: Key Drivers for Learners Motivated by the Pandemic



TOP REASONS FOR LEARNERS MOTIVATED BY THE COVID-19 PANDEMIC

Differences in family obligations, in-person institutions closed significant at 5 percent level; health concerns, better value significant better value significant at 10 percent level; remaining differences not statistically significant

SOURCE: IFC/Coursera Survey

Online Learning Opens Doors for Those Who Would Have to Delay or Cancel Learning



45% of women



60% of women caregivers would postpone or not study at all without online learning.

A significant share of those surveyed would not be studying in the absence of online learning. Forty-two percent of men, 45 percentⁱ of women, and 60 percent of women caregivers say that they would postpone studies or not study at all if online learning were not an option. This suggests that online platforms are indeed reaching students who face constraints either due to lack of local alternatives or personal limitations around mobility, care, and other factors. It also suggests that those women who are able to overcome challenges related to digital access have a high chance of benefiting from online learning.

Moreover, demand for online learning, either alone or via blended models, looks to be relatively robust even following the pandemic. Seventy-five percent of learners plan to continue to learn online after the pandemic and an additional 24 percent said they will seek blended learning options in the future.

Women Face a Wider Variety of Considerations That Impact Their Learning Choices

Over three-quarters of all women and men learning online choose online learning out of personal preference (see Figure 2.6). Of these, the vast majority (87 percent) of learners are attracted to the flexibility offered by online learning. Additional top motivations include a lack of local in-person alternatives and access to high quality providers. Women are also more likely than men to be motivated by family obligations, or mobility and safety concerns.

- **Family obligations and caregiving:** Women are nearly twice as likely as men to cite “family obligations” as one of their top motivations for studying online (22 percent vs 12 percent). This also applies to women with care responsibilities; gender differences remain even after accounting for men who list themselves as caregivers. Men, on the other hand, are more likely to join online learning platforms in search of higher quality providers.
- **Mobility:** Women learners surveyed are more likely than men to cite restrictions in commuting as a reason for choosing online learning (20 percent vs 14 percent).
- **Safety:** Twenty-six percent of women also report they feel safer and more comfortable learning online compared to 22 percent of men (see Figure 2.6).



Men were more likely to study online to optimize the learning experience.



Women were more likely to face barriers such as mobility, safety, and family restrictions.

While gender specific differences in each individual category are in some cases small, collectively they show that women face a wide variety of barriers that limit how, where, and when they learn. In contrast, men were more likely to take up online learning to optimize their learning experience, and to access high quality providers—men were nine percentage points more likely than women to select this category.

ⁱ Difference between men and women not statistically significant, difference between men and women caregivers significant at 5 percent level

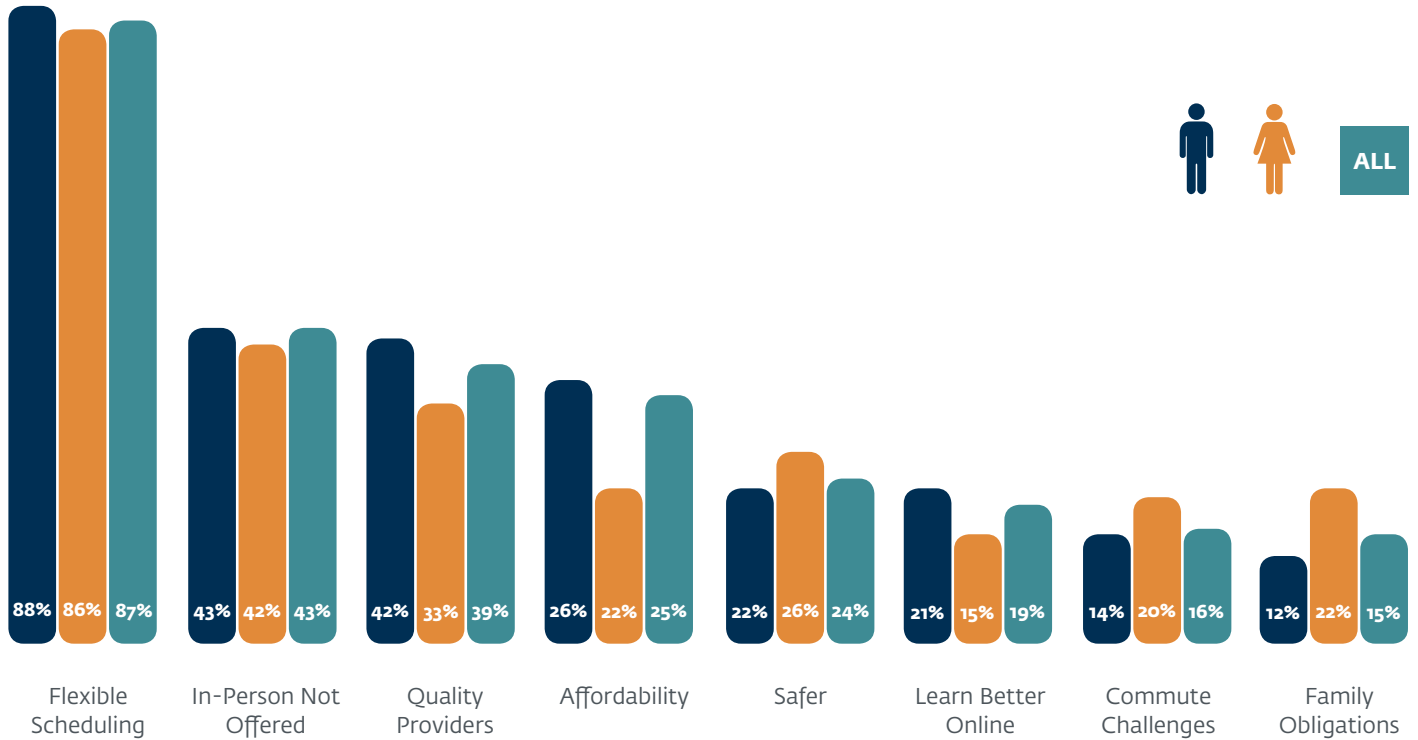
Motivation & Enrollment

Learning & Completion

Career & Learning Outcomes

Seventy-five percent of learners surveyed will continue using online learning to address future upskilling needs.

Figure 2.6: Personal Choice Drivers to Study Online



TOP REASONS FOR LEARNERS MOTIVATED BY PERSONAL PREFERENCES

Differences in flexible scheduling and in-person not offered not statistically significant, remaining differences statistically significant at 5 percent level

SOURCE: IFC/Coursera Survey



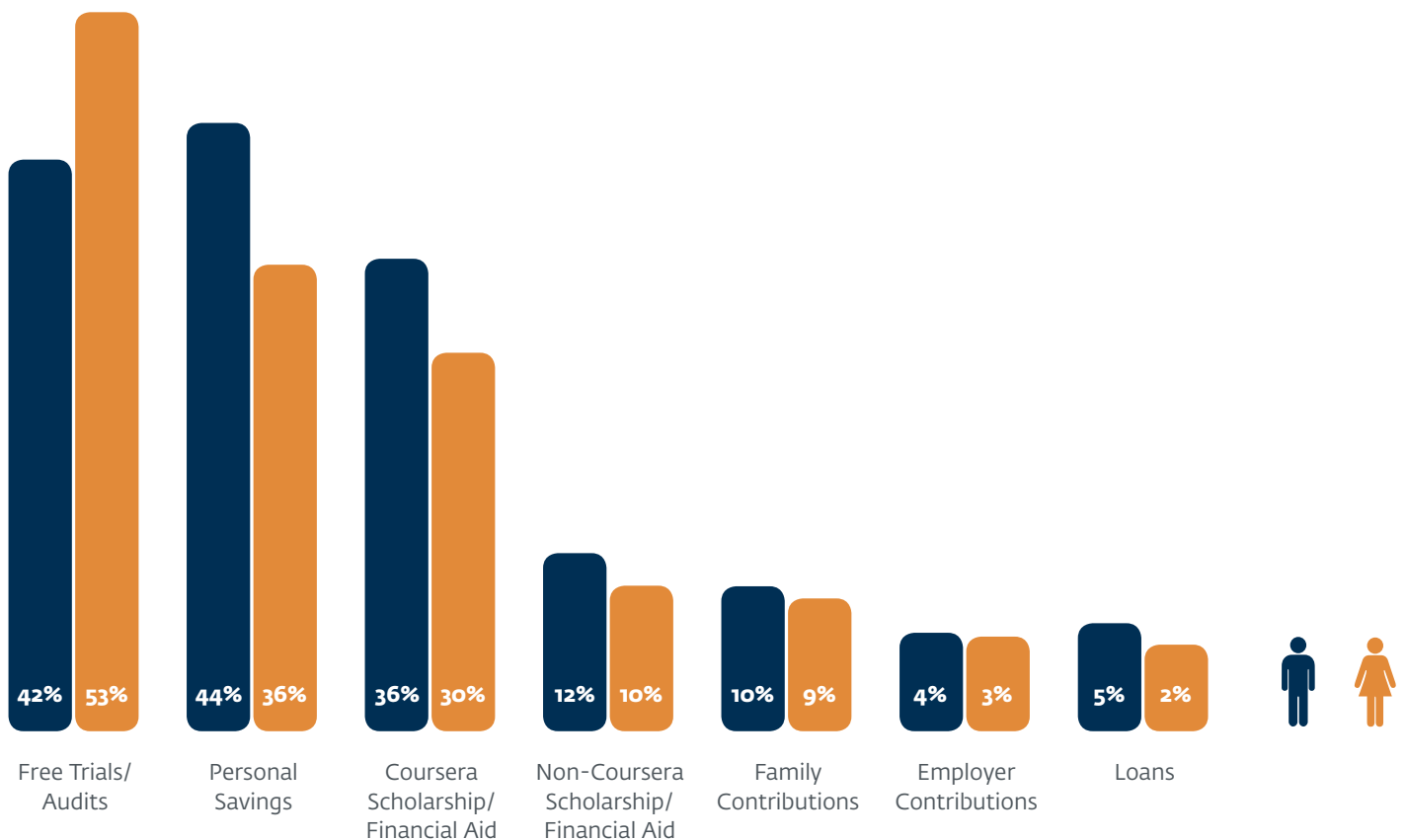
SOURCE: COURSERA

Women’s Lower Access to Funding Impacts Their Learning Patterns

Women are more likely than men to depend on free courses and are less likely to have access to funding. Financing emerged as a major barrier impacting women’s learning patterns. Free or audited courses^m represent the single biggest entry point for female learners with just over half of female survey respondents saying they either rely on free trials or audited classes without cost when they learn online. Men also rely on free trials and audits but not to the same extent as women; rather, the

top source of funding for men is use of personal savings. Despite lower access to funding, women are much less likely than men to apply for financial aid or scholarshipsⁿ via the Coursera platform. In Africa, Asia Pacific, Latin and Central America, and the Middle East, women accounted for an average of just 28 percent of financial aid applications in 2021. Gendered differences in payment options reflect persistent global financial inclusion gaps, including women’s lower access to personal savings.⁶⁶

Figure 2.7: How Learners Pay for Online Learning



HOW LEARNERS PAY FOR ONLINE COURSES

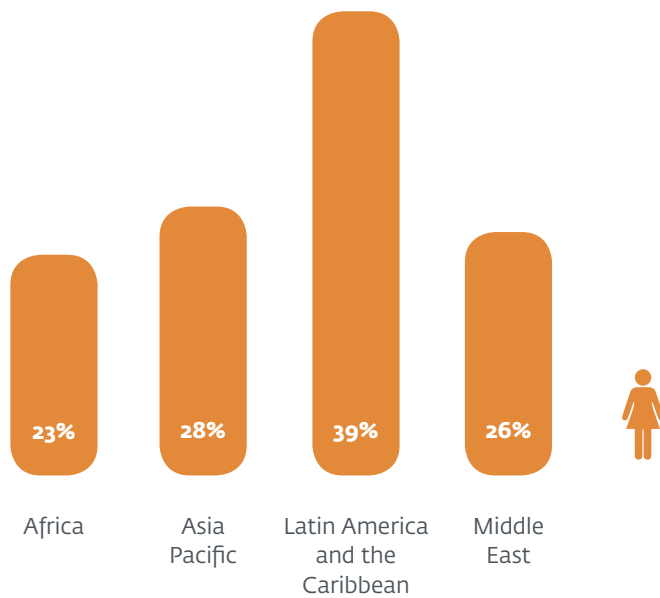
Difference in family contributions, employer contributions not statistically significant, remaining differences statistically significant at 5 percent level

SOURCE: IFC/Coursera Survey

^m Coursera allows learners to audit classes whereby they see most of the course materials for free but would not be able to submit certain assignments, get graded or receive a certificate upon completion.

ⁿ Coursera offers financial aid or scholarships for most courses which enable learners to access course content, complete all work required and earn a certificate.

Figure 2.8: Women's Share of Financial Aid Applications in 2021



SOURCE: Coursera Platform

Financial exclusion has wide-reaching effects on women's educational choices. Collectively, funding gaps likely influence not just the overall number of women learners online but also how they engage; for instance, the absence of a clear funding source could be the reason why women are less likely to pursue long-term, multi-course certifications (see Chapter 2, Section II). This indicates a need to better understand the reasons behind the gender gap in scholarship applications, and a need for more large-scale partnerships to fund emerging forms of educational access as a public good. Box 3 outlines emerging models of learner funding across the EdTech sector.

"Financial aid has been very helpful for me to learn, the cost in local currency can be substantial so without scholarships and funding I would not have learned as much as I have."

Sukhmani, learner from India



Box 3: Examples of Funding Options for Online Learning

Government-led Online Learning

Government upskilling programs can offer access to either a broad catalog of online courses on a given platform or to specific online learning content targeted towards prioritized sectors. The government of the Philippines' Department of Science and Technology (DOST) partnered with Coursera to offer access to 75,000 learners in an initiative that aimed to develop the workforce in emerging fields of technology. Noel Ajoc, Regional Director of DOST Caraga Region in the Philippines, reports that most of the learners in the initiative were women and believes it has helped equalize access to job-relevant education across various income and education levels. In a program survey, the majority of learners said the training initiative helped them land a job. Other examples include the Future Work is Digital initiative^o in Egypt which offers free scholarships to 200,000 learners focusing on digital skills through the Udacity online learning platform. In some countries, particularly OECD countries, governments develop their own platform to offer these opportunities to learners such as France Universitaire Numerique (FUN) in France and EduOpen in Italy.⁶⁷

Private Sector Programs

Tech giants such as Amazon, Google, IBM, and Meta have recently put forward branded company credentials and professional certificate programs. Companies like Google use their philanthropic arm to offer scholarships and opportunities for learners in different countries as well as specific programs for underrepresented groups. An example of this is a program where Google, in partnership with Coursera, is offering scholarships through local organizations in Egypt, Lebanon, Morocco, Palestine, Saudi Arabia, and the UAE.⁶⁸ In 2021, Meta Singapore announced the launch of upskilling initiatives for learners and SMEs, which includes scholarships to working mothers.⁶⁹ In Africa, both Meta and Google partnered with the African Coding Network to provide professional certificate programs to women in tech.⁷⁰ Such programs, which focus on digital skills and STEM fields, work on building a pipeline of talent

for select technologies and competencies. They typically provide closed single solution platforms specific to the company offering the certificate program which makes credentials earned less portable and stackable.^p While this can limit the broader use and impact, especially compared with platforms that offer broader courses or skills, these programs provide a unique opportunity for learners to earn credentials that target specific sectors and companies.

Deferred Payment Plans and Financing Options

Some platforms that provide cohort-based online education, where learners join in time-bound cycles, offer deferred tuition or Income Share Agreement. *Deferred tuition models* are ones where candidates have fixed installments that are payable once candidates find a job, whereas *Income Share Agreements* operate on a similar model but allow students to pay a proportion of their income once employed. Henry, a digital learning platform in Latin America, and United States-based Springboard are two providers that offer these options. Moreover, Springboard allows learners to apply for financing through a financial service partner. UpGrad in India began offering installments to its learners in 2020.⁷¹ Such programs are often concentrated in high-growth sectors and typically require a significant financial investment. Certifications on UpGrad and Henry start at \$3,000 to \$4,000 while other programs, which target learners in the United States, can cost significantly more. Admission is managed through a competitive application process with requirements on time availability, minimum educational levels, device, and connectivity making them harder to access for learners in emerging markets, women, and other underrepresented groups. Further, women learners in this study reported challenges in affordability of programs with far lower price points which suggests the need for alternative models for all programs, not just exclusive cohort-based tech-focused programs. Finding financing solutions, inspired by these models, that work for broader populations in emerging markets and underserved sectors will help address some of the affordability issues.

^o More information at <https://egfwd.com/about-us/>

^p Stackable courses can be combined with other courses and applied towards a degree or certification.

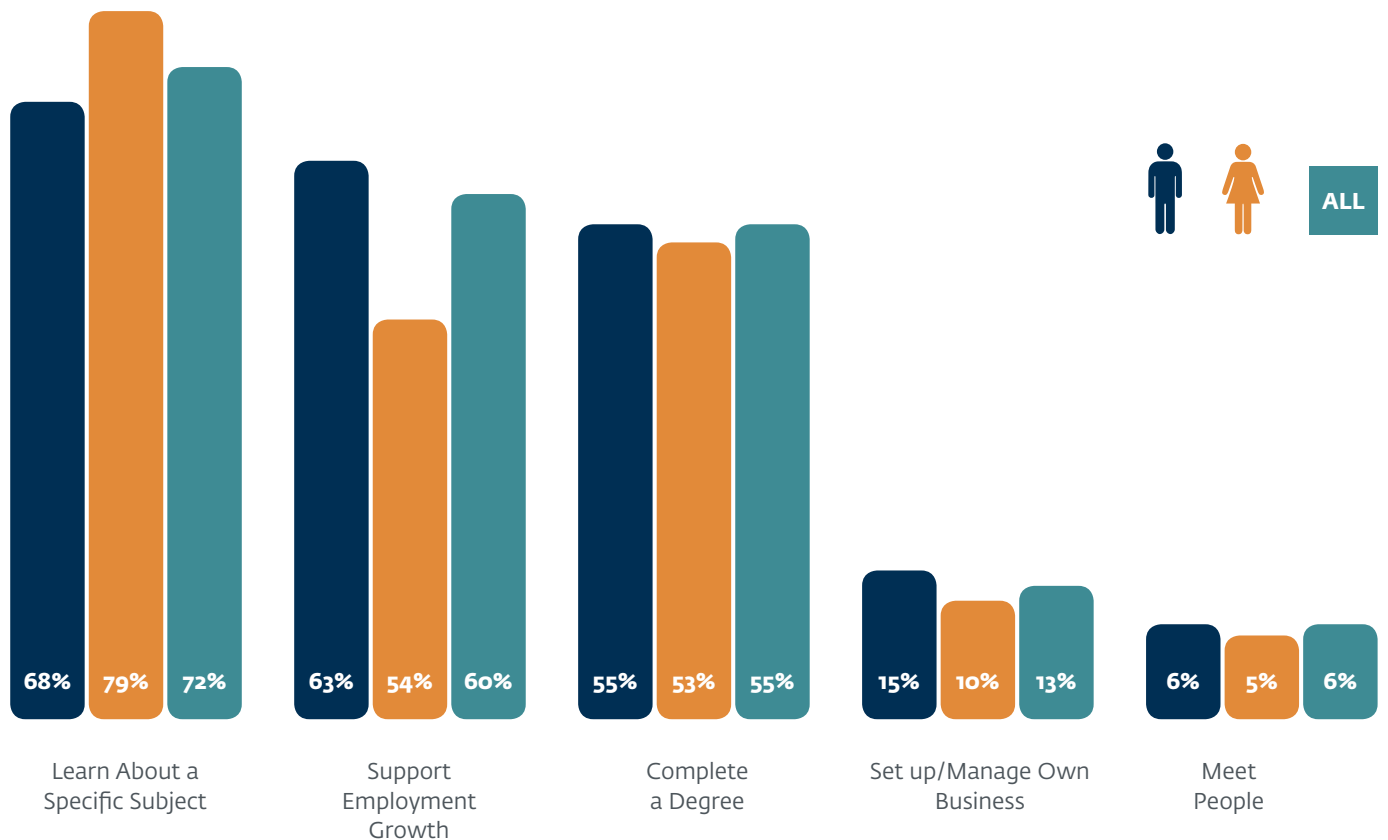
SECTION II: LEARNING AND COMPLETION

Women and Men Prioritize Different Learning Objectives

Women are primarily focused on learning while men join with both learning and career advancement in mind. Most learners cite “to learn about a new topic” as the main reason for enrolling in online courses and over half join to gain a degree or

speed up the completion of an in-person degree or certification. However, men are more likely to have professional objectives such as finding a new job, advancing in a current job, or learning to set up or manage their business (see Figure 2.9). These results show that priorities and learning choices are different for men and women. Coursera platform data solidifies this finding. Enrollment data for 2021 show that 71 percent of men learners compared with only 52 percent of women learners are enrolled in specializations and professional certificates, which are longer sets of courses that aim to support learners’ career progressions and typically attract monthly costs.

Figure 2.9: Key Objectives for Online Learning

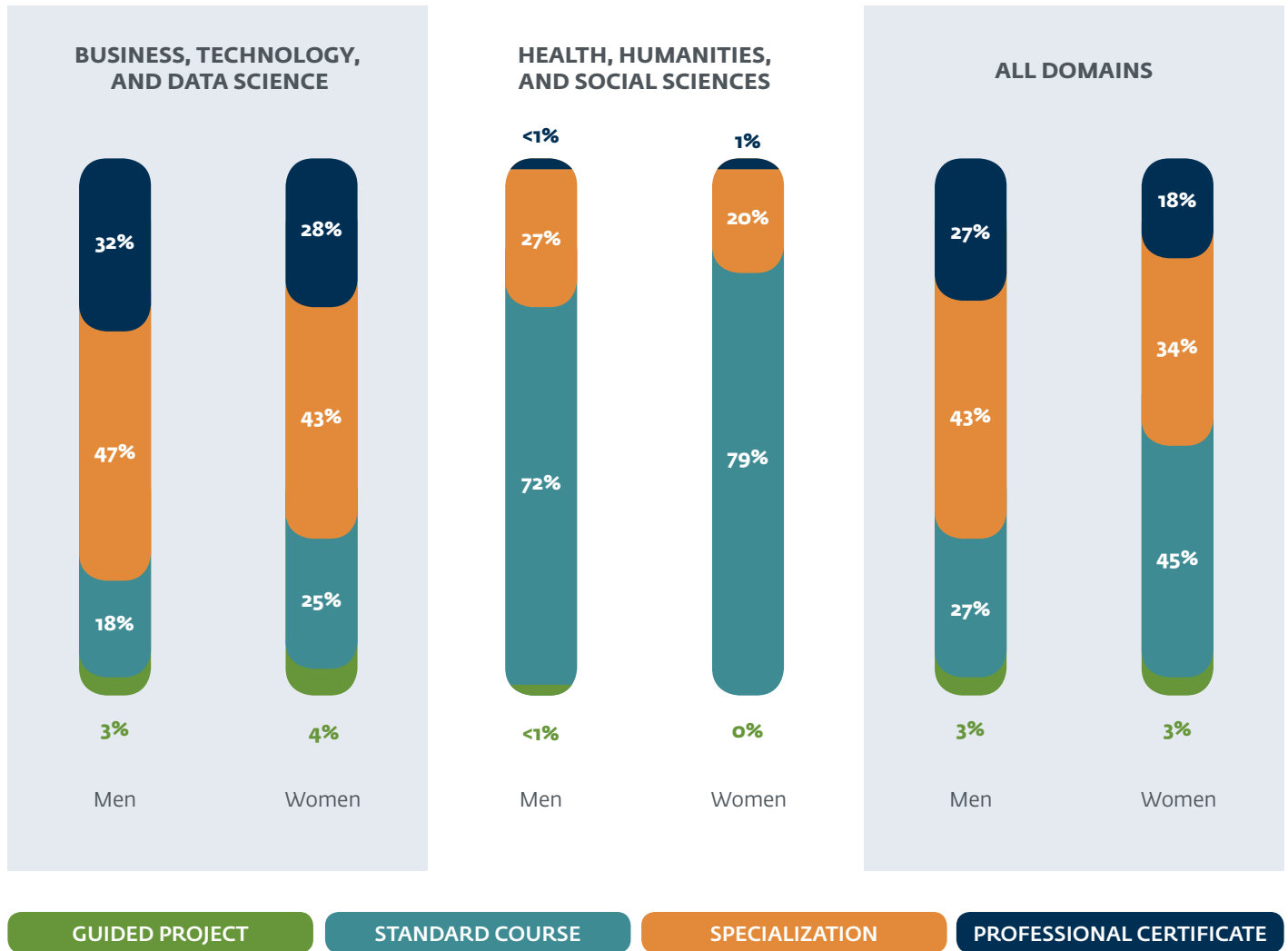


OBJECTIVES FOR LEARNING ONLINE

Differences in ‘Meet People’ not statistically significant, remaining differences statistically significant at 5 percent level

SOURCE: IFC/Coursera Survey

Figure 2.10 Enrollment in Specializations and Certificates



SOURCE: Coursera Platform

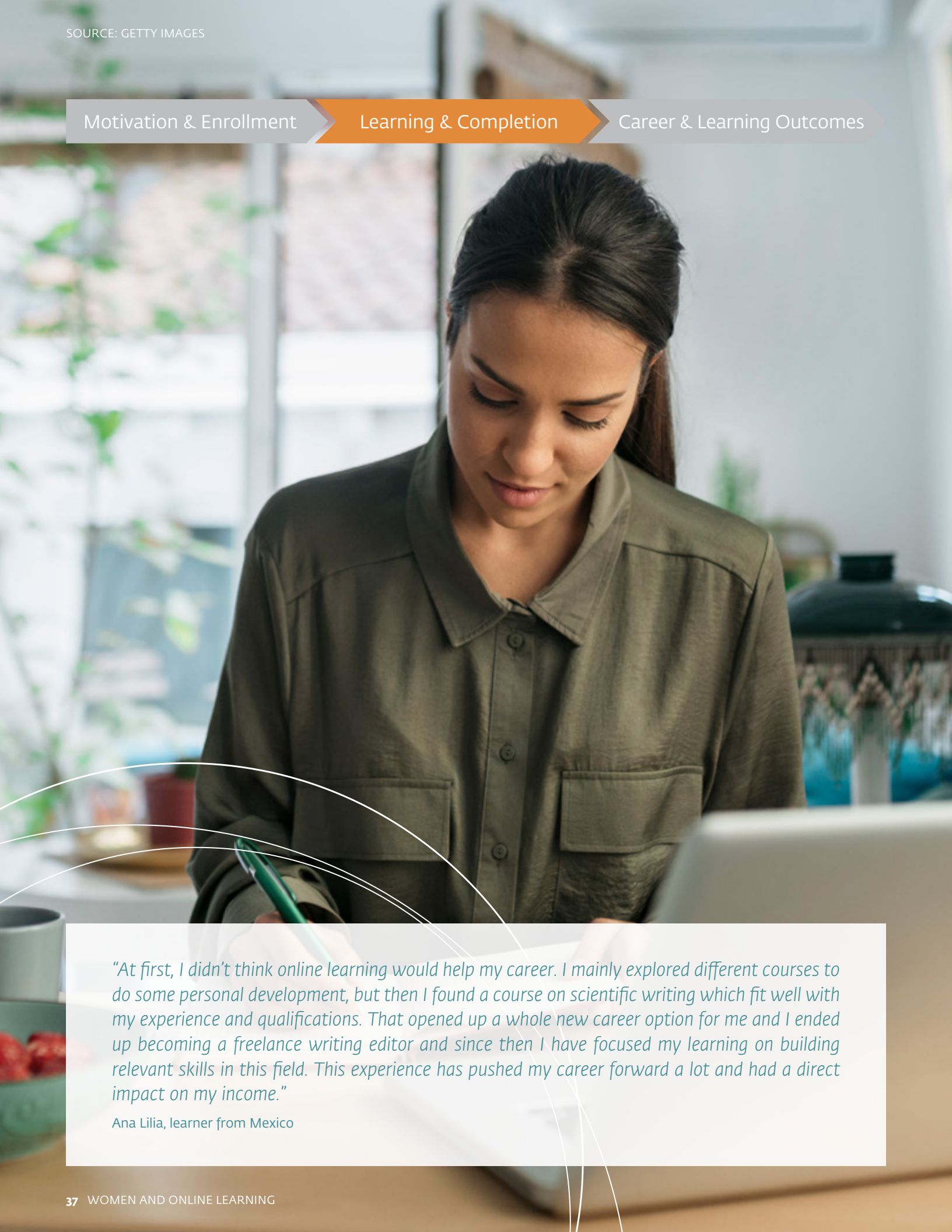
In contrast, women are more likely to be exploratory learners accessing a variety of course subjects. Forty-five percent of women learners choose to take stand-alone courses compared with only 27 percent of men. Stand-alone courses are not tagged to a specialization or certification and are therefore less likely to be stackable. These differences are partially driven by women’s interest in courses outside of business, technology and data science which are mainly taught through stand-alone courses, however, gender differences hold across subject matter (see Figure 2.10). Other potential factors affecting women’s choices could be women’s higher care responsibilities and lower

funding availability. Differences also suggest that women learners do not always see a clear connection between completing learning online and achieving professional objectives. Building a stronger pathway between online learning and the labor force, including by expanding acceptance and demand for online credentials amongst employers and incorporating practical work and internships in the online learning experience, would benefit all learners, but especially women, who are underrepresented in many labor markets and face higher pandemic-related job and business losses.

Motivation & Enrollment

Learning & Completion

Career & Learning Outcomes



“At first, I didn’t think online learning would help my career. I mainly explored different courses to do some personal development, but then I found a course on scientific writing which fit well with my experience and qualifications. That opened up a whole new career option for me and I ended up becoming a freelance writing editor and since then I have focused my learning on building relevant skills in this field. This experience has pushed my career forward a lot and had a direct impact on my income.”

Ana Lilia, learner from Mexico

Blended Learning and Community Engagement Can Attract Women Learners

The women surveyed exhibit a stronger desire for a blend of online and offline learning. Despite a strong overall preference towards online education, 29 percent of women indicate they plan to pursue a blend of online and offline learning in the future compared with 21 percent of men.⁹ Moreover, several learners interviewed voiced their interest in more interaction and listed a desire to find study partners. As Ana Lilia, a learner from Mexico, told the research team, *“In face-to-face education I can rely on other students to find motivation, but online, it takes more effort to motivate yourself which can be hard. I miss the personal interaction and the social connection.”*

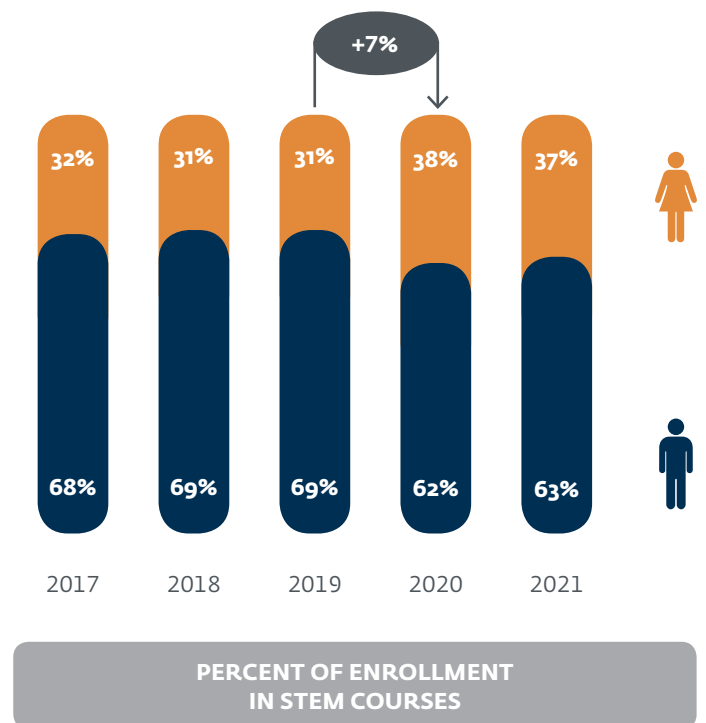
This finding reinforces earlier studies showing that learners, women in particular, place great emphasis on community and social learning. A social learning survey⁷ previously conducted by Coursera shows that social interaction and finding learning buddies to help stay committed is the top objective for women when interacting online, which could explain their interest in blended learning, where personal interactions can be easier. A recent study of two online learning courses also suggests that women have more collaborative and communicative engagement patterns⁷² which may further explain differing preferences. Building collaborative learning experiences online and facilitating peer-to-peer engagement are ways to keep different learners, especially women, interested. Furthermore, these findings emphasize an increasing need not to focus just on online learning or traditional learning models, but to consider a future of education that leverages multiple points of entry and progression.

Women's and Men's Sector Selection Patterns Replicated Online

Women are concentrated in the Humanities and Social Sciences and are less represented in STEM domains. Most women on the global Coursera platform are enrolled in the Humanities or Social Science domains, they make up only 30 percent of learners in the Data Science and Technology domains and represent only 37 percent of learners in all STEM courses. While

a gender gap persists, women are looking to build skills related to STEM. Two out of five of the top skill sets women gain on the platform are related to technology and data science, compared with five out of five for men (see Figure 2.12). These findings reflect similar sector segregation offline and are consistent with analyses of other platforms; for example, a study of the edX platform found that women were 12 percent less likely to enroll in STEM courses.⁷³ Nonetheless, women's STEM participation rates on Coursera have increased since 2017, especially in 2020, where women's enrollment rose by 7 percentage points with the onset of the COVID-19 pandemic, an increase that was sustained in 2021 (see Figure 2.11). Additionally, once registered in STEM courses, women perform well with average grades between 2019 and 2021 on the platform showing no gender differences.

Figure 2.11: Enrollment in STEM Courses



SOURCE: Coursera Platform

⁹ Differences statistically significant at 5 percent level.

⁷ The social learning experiences survey was conducted by Coursera separately and looked at how learners prefer to interact with other learners, what they aim to gain from such interactions and in what formats they would like to use.

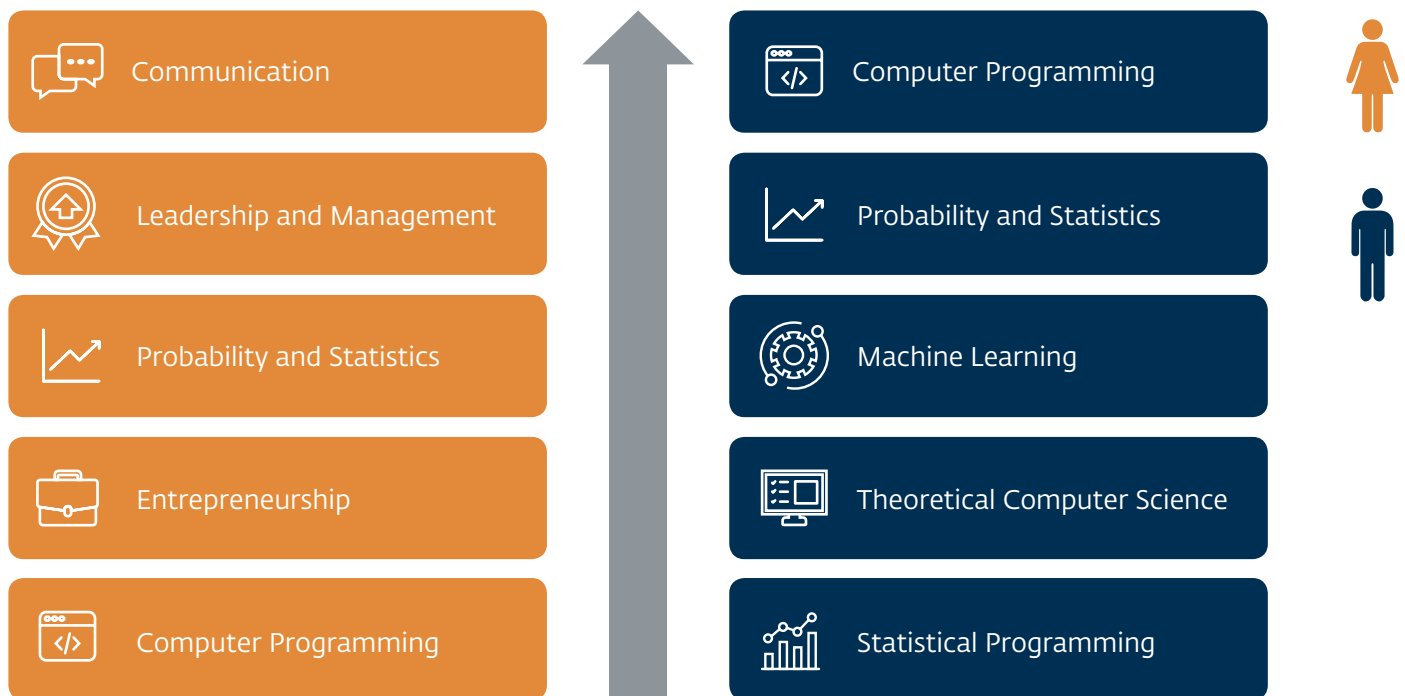
The case for increasing women's participation in STEM fields is well documented.⁷⁴ Encouraging women into STEM careers improves economic prospects; on one hand projected growth in STEM jobs and salaries are higher and on the other, gender pay gaps are smaller than other sectors.⁷⁵ Furthermore, STEM education helps women move out of sectors that are more at risk of automation⁷⁶ (see Chapter 1, Section I) as well as sectors more vulnerable to economic shocks such as the COVID-19 pandemic, where women were especially hard hit.⁷⁷ Comparable data on women's STEM enrollment in face-to-face institutions versus online is limited and studies that compare participation levels in offline and online environments are difficult to find. However, there is suggestive evidence that gender diversity is improved in some STEM online degrees compared with face-to-face formats.⁷⁸ For example, a microbiology and cell science bachelor program

at the University of Florida that is offered in a hybrid online and in an on-campus format found that women's representation in the hybrid online program is 23 percentage points higher.⁷⁹ Box 4: What Works to Get Women Learning Online, shows how using female instructors and role models can attract more women to STEM courses online.

"Online learning has given women another avenue to get into the IT industry. You can take your time to adjust your pace and avoid feeling intimidated by more experienced and vocal persons who you would be exposed to in a face-to-face classroom."

Jennifer, learner from Nigeria

Figure 2.12: Ranking of Top Skills Among Men and Women Learners on the Coursera Platform



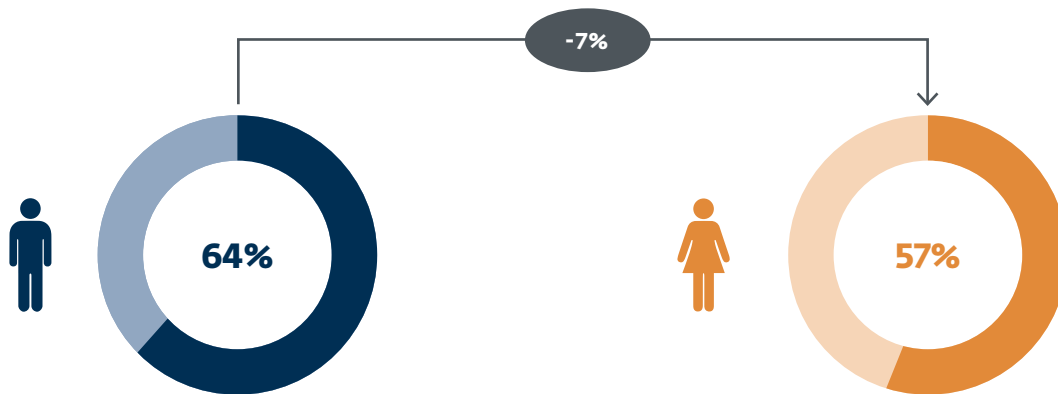
SOURCE: Coursera Platform

Women and Men Have Different Learning and Course Completion Patterns

Women face challenges to course participation and have different learning patterns than men. Platform data shows that women enrolled in paid specialization and professional certificate courses are less likely than men to complete their courses; 57 percent of women complete their courses compared with 64 percent of men (see Figure 2.13). The gender differences in completion are similar across the different regions and subject areas, with the exception of Language learning and to some extent Arts and Humanities where women are more likely than men to complete courses.⁵ A recent study of two online courses offered by Stanford University has shown that the more time learners spend online, the more likely they are to complete a course.⁶⁰ Platform data leveraged in this study show differences in learning patterns where, compared with men, women learners tend to spend less time on the platform and are online fewer days

per week,[†] contributing to their lower completion of paid courses and certifications (see Figure 2.13). An analysis of an inactive user survey which Coursera conducts on its platform shows that 82 percent of women cite lack of time compared with 80 percent of men. While lack of time due to work responsibilities or schooling are the main reasons for learners' lack of time, women are twice as likely as men to list family obligations as an explanation for their lack of time.[‡] Furthermore, women learners interviewed for this report voiced challenges in constant availability to study in the face of other responsibilities, and some expressed financial issues preventing them from continuing courses beyond the trial phase. These findings suggest that family obligations and financial considerations not only affect women's initial enrollment in online learning but also their ability to complete courses. Findings from this report and other emerging literature highlight approaches which improve women's engagement with online learning (see Box 4).

Figure 2.13: Completion Rates for Specializations and Professional Certificates



SOURCE: Coursera Platform

"We only have one computer, so if one of my children needs to use it, I have to wait. Once I can get my own computer, I will be able to learn more consistently."

Gaadi, learner from Nigeria

⁵ Differences in language learning statistically significant at 5 percent level, Arts and Humanities is not.

[†] Differences statistically significant at 5 percent level.

[‡] Differences in lack of time and family obligations statistically significant at 5 percent level.

Box 4: What Works to Get Women Learning Online

Make online learning more affordable

"Sometimes I leave the courses on standby and do not finish them until I get enough money to pay for them."

Natelli, learner from Mexico

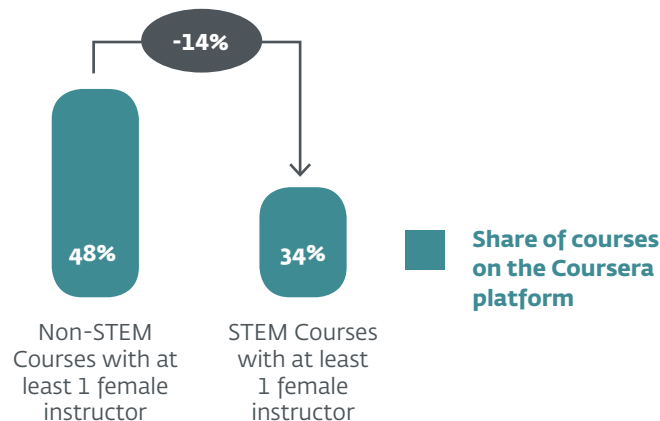


68% of learners list affordability as one of the top ways to make online learning more appealing

SOURCE: Coursera Platform

In the survey, 68 percent of all learners list affordability as one of the top ways to make online learning more appealing. Students interviewed point out that while online learning is often more cost effective than face-to-face options, payment mechanisms can sometimes put women at a disadvantage. For example, taking more time to finish a course can increase the cost of a subscription or force women to pay for the course again if they miss submission deadlines. Women also report using a mix of free trials and audit opportunities and postponing courses to keep costs low. By designing payment models that are mindful of women's time constraints, communicating funding options available, and making payment schemes available, platforms can address some of the affordability challenges and ensure women's learning journeys are not interrupted by funding challenges. Additionally, converting more women into paid users will be essential to grow online learning services in emerging markets, as detailed in Chapter 3 Section I.

Figure 2.14: Share of STEM and Non-STEM Courses With at Least One Female Instructor



SOURCE: Coursera Platform

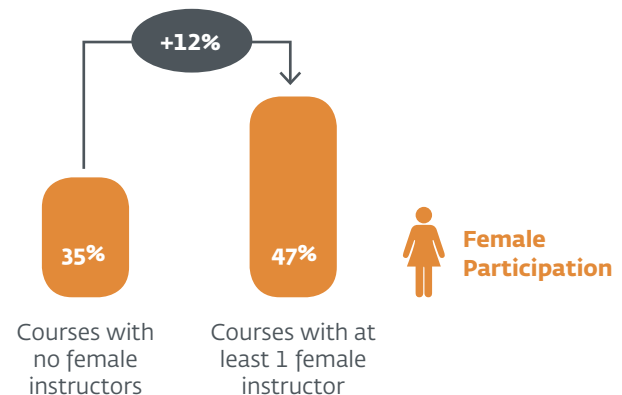
Increase female instructors and role models especially in STEM fields

One of the key strategies to attract more women to online courses, particularly in STEM, is to include female role models.⁸¹ A recent experimental study found that including a gender-inclusive photo in STEM course advertisements increases women's enrollment.⁸² Forty-eight percent of courses on the Coursera platform in non-STEM domains have at least one female instructor. However, this number drops to only 34 percent in STEM courses (see Figure 2.14). Platform data show that women's enrollment is positively correlated with having at least one female instructor. In STEM courses, women's enrollment increases by 34 percent when at least one female instructor is present (see Figure 2.15). These patterns hold true for non-STEM courses as well and apply to both younger and older women learners who are equally motivated by the presence of female instructors. Furthermore, platform data on course satisfaction rates shows that both men and women tend to give courses a slightly higher rating when at least one of the instructors is a woman.

"Women need to see other women in the programs they apply for. Content providers need to work on making faculty more diverse and bring in women as leads and co-leads of courses."

Prof. Brooke Elliott, Executive Associate Dean and EY Professor, University of Illinois, USA

Figure 2.15: Effects of at Least One Female Instructor



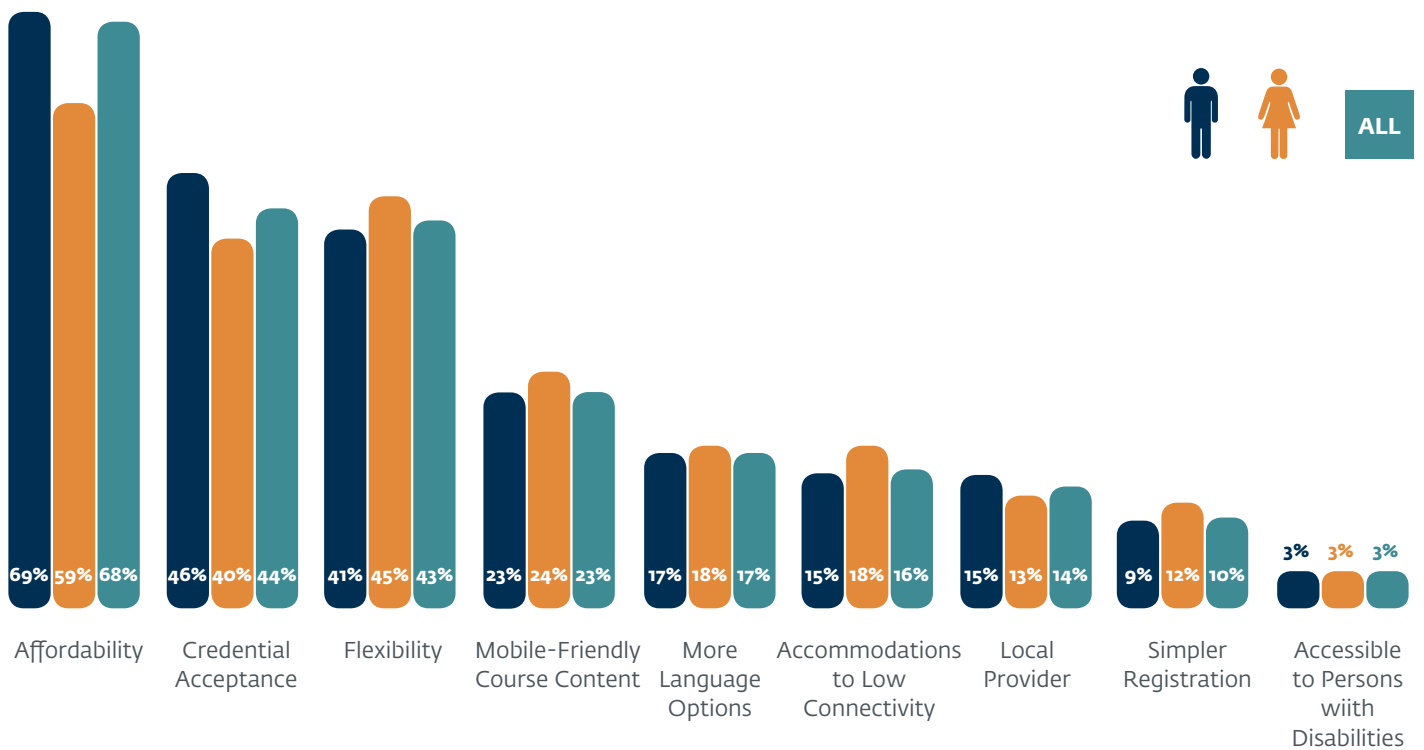
SOURCE: Coursera Platform

Increase flexibility and boost mobile and low bandwidth content

When asked what would make online learning more appealing, 45 percent of women and 41 percent of men list flexibility in schedules and deadlines (see Figure 2.15). Furthermore, almost a quarter of learners voice a desire to have mobile-friendly course content. Usage data from the Coursera platform show that women are more likely than men to use mobile devices for their learning in all regions. The number of learners using mobile devices to access content is higher in Africa and the Middle East, where 63 percent and 58 percent of women respectively attend courses via mobile. Women learners interviewed also highlight their interest in including shorter, mobile-optimized components. This study has focused on those already online, which is why having accommodations for limited, irregular or low bandwidth did not

rank as a top reason to make online learning more appealing. However, more women than men cite this as a top request. Women learners who were interviewed point to the cost of mobile data as a challenge that can prevent them from reviewing materials as often as they would like. Most of the experts interviewed also shared concerns about the quality of internet connectivity. Ronda Železný-Green, Digital Education Expert, notes, “Making asynchronous content available offline will allow learners to have the same experience without consuming a lot of bandwidth, which is important for women who tend to have lower access to mobile data.” Partnering with mobile providers to reduce the cost of access for learning content, offering access to learning hubs with available devices and connectivity, and creating videos and content that requires low bandwidth or which is downloadable can help to address some of these challenges.

Figure 2.16: Making Online Learning More Appealing



MAKING ONLINE LEARNING MORE APPEALING

Differences in mobile-friendly options, more language options, accessible to persons with disability not statistically significant. All other differences statistically significant at 5 percent level

SOURCE: IFC/Coursera Survey

Motivation & Enrollment

Learning & Completion

Career & Learning Outcomes

“With my time commitments, having shorter and simpler videos where I can absorb the information quickly would be very helpful.”

Amira, learner from Egypt

Highlight online learning’s potential to support career progression

Many women interviewed report joining the platform without a clear expectation of the impact it could have on their career. Their choice of stand-alone and diverse courses also reflects exploratory learning patterns. Enrollment data presented in Section I show that women are less likely to enroll in professional certificates and specializations, multi-course certifications that help learners build job relevant credentials (see Figure 2.10). In learner interviews, women say they are interested in receiving guidance and support as they choose the best learning path. Ingressive for Good, an organization which partnered with Coursera through its Workforce Recovery Initiative to offer courses to 5,000 Nigerian students, worked with learners to create individualized learning paths as they navigated the vast number of available courses. They also used women mentors and offered peer-to-peer learning opportunities to show learners successful female role models. Blessing Abeng, Co-Founder and Director of Communications at Ingressive for Good says, “This helped learners progress towards a clear career goal and resulted in the placement of over 400 learners in jobs.” Mentorship opportunities and career guidance are key strategies to support women in fully leveraging the time they spend learning online to advance their careers.

“At the beginning I was just exploring the platform, I didn’t expect to gain much from it. I have since used it to complete certifications, build my portfolio, and fill key knowledge gaps which helped address some of the concerns and feedback I was receiving from my employer.”

Toluwalope, learner from Nigeria



Adapt courses to women’s different learning preferences



Platforms can increase women’s enrollment by **8% to 17%** by adding practice quizzes, personalizing content recommendations, listing common mistakes for peer-reviewed assignments, and distributing assessments throughout a course.

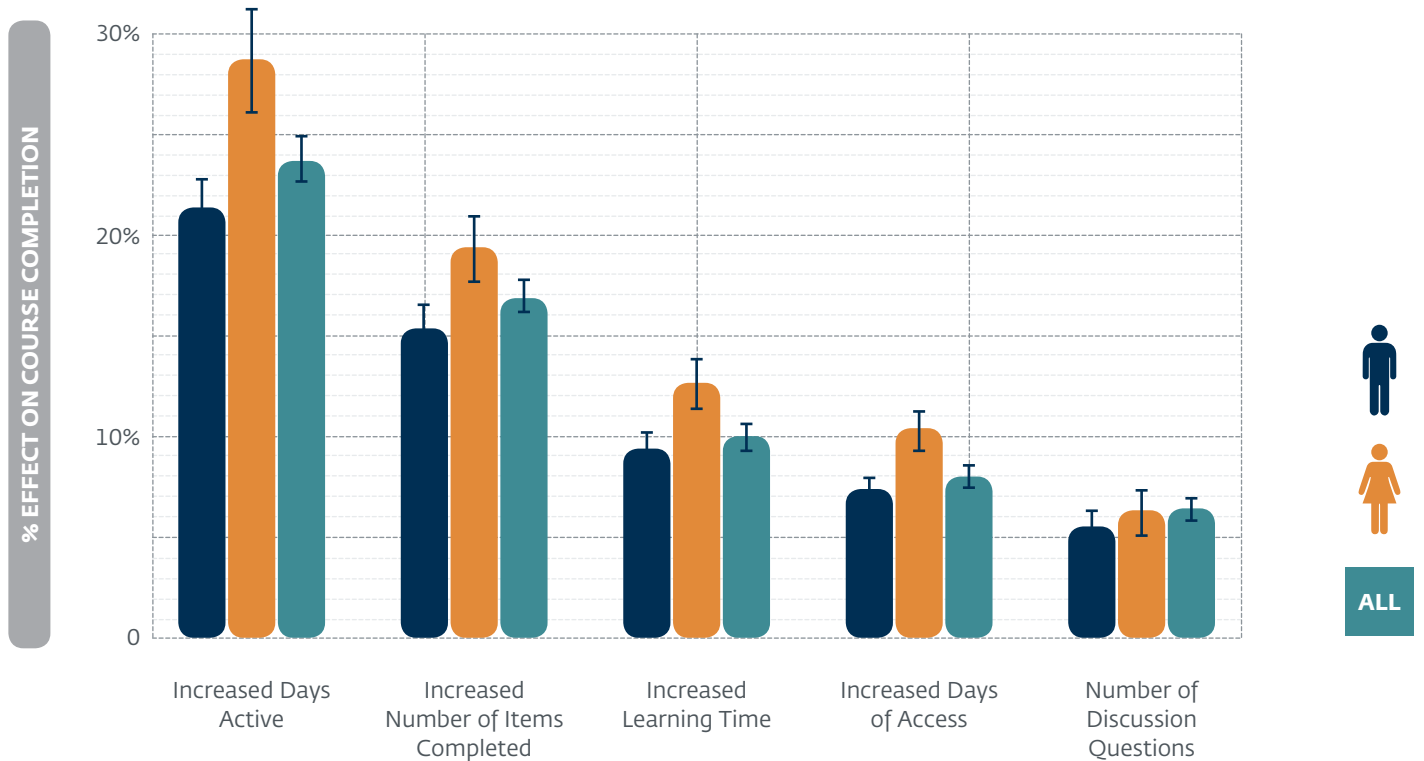
Platforms can increase women’s enrollment by adapting course design to suit women’s differentiated learning behaviors and challenges. Coursera’s 2021 Women and Skills Report finds that platforms can increase women’s enrollment between eight percent and 17 percent by adding practice quizzes, personalizing content recommendations, listing common mistakes for peer-reviewed assignments, and distributing assessments throughout a course.⁸³ Platform data also shows maintaining a daily schedule and ensuring learners keep up with assignment deadlines are the two biggest predictors of course completion (see Figure 2.17).

The effects of these two behaviors are stronger for women than they are for men. Designing courses with shorter sessions that make it easier to learn regularly but in briefer intervals can be a way to ensure time constrained learners, especially women, are able to follow through with their learning. Further, supporting learners to keep up to date with assignments through reminder prompts, peer-support, and ascending assignment difficulty levels can make it easier for women to complete more assignments, increasing the odds of completing courses.

“It’s not about mode of delivery. While it does matter if the learning is delivered digitally or face-to-face, it is not the determinant of outcome. We tend to blame the mode of delivery for failure of online learning, when pedagogical design is the real culprit.”

Maria Spies, Co-CEO, HolonIQ

Figure 2.17: Learner Behaviors Affecting Completion



Difference in number of discussion questions not statistically significant, all other differences statistically significant at 5 percent level

SOURCE: Coursera Platform

SECTION III: CAREER OUTCOMES

Learners Believe Their Credentials Are Valued by Employers, But There is Room to Strengthen Labor Market Connections

Most learners believe their credentials are valued by employers, but there is room to strengthen connection to the labor market. Eighty percent of learners surveyed in the four core markets say online credentials hold value for employers and recruiters to some degree. This perception is highest in Nigeria where 92 percent of learners believe their credentials are valued by employers. Even in Mexico, where this perception was lowest, 70 percent agreed with this statement. This holds true for all fields although learners in the STEM field have a slightly stronger conviction that employers value their credentials (see Figure 2.18).

This likely reflects a concentration of standardizable skills in STEM sectors. While all learners agree that recruiters still prefer traditional degrees and coursework to online credentials, only a small minority think online learning holds no value at all. Just under half of the learners surveyed say that increased acceptance among employers for online learning would make online learning more appealing to them in the future, pointing to a need to strengthen connections to the labor market.

“The challenge with wider acceptance of online earned credentials in higher education is the need to have good recognition. It will be a challenge for traditional universities to incorporate these credentials, such as MOOCs taken with another institution, micro-credentials and on the job learning, into their programs.”

Jamil Salmi, Global Tertiary Education Expert

Box 5: Factors affecting the value of online credentials

In this research over 50 experts were asked what factors affect how seriously online credentials are taken. A synthesis of the discussion is presented below which can inform further research on the value of online credentials.



- **Connectivity infrastructure:** Geographies where connectivity is more reliable may be more prone to valuing credentials.



- **Industry, risk appetite and innovation:** Some sectors, such as the infrastructure sector, tend to be risk averse while ICT sectors have a stronger appetite for risk and a greater focus on innovation which could explain their openness to online credentials.



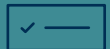
- **Platform maturity:** The availability of mature platforms that have highly developed learning tools and have experience in providing both theory and skills may explain why acceptance may be more salient in tech fields where online learning platforms are more prominent.



- **Size of skills gaps in the market:** Markets with large skills gaps can force companies to look beyond traditional education and find alternative candidates. For example, jobs that require advanced digital skills such as illustrations, digital marketing can be more open to online credentials.



- **Quality of existing face-to-face alternatives:** Several experts in Nigeria, for example, find that online degrees are preferred over face-to-face degrees since they are perceived to provide access to more rigorous education at renowned institutions which positively affects employability.



- **Local accreditation:** In countries where online learning is accredited, online education is taken more seriously.

Motivation & Enrollment

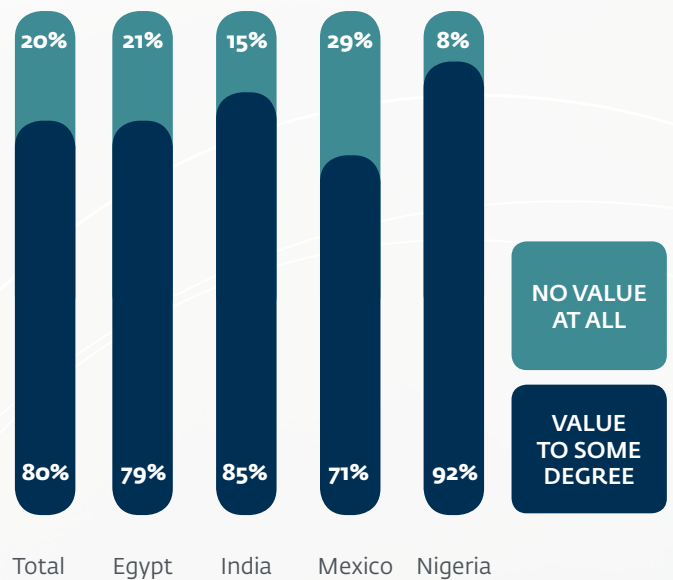
Learning & Completion

Career & Learning Outcomes



These findings are consistent with research on employer perceptions. A 2016 study of MOOCs in Colombia, the Philippines, and South Africa found that employers have a generally positive view of online learning but have questions regarding the quality of education for those who have only online credentials.⁸⁴ Experts consulted for this study highlight the increasing value of online learning in the job market, particularly in STEM fields and considering the COVID-19 pandemic. As Marie A. Cini, PhD, Provost and Chief Academic Officer at University of the People noted, “COVID has accelerated our acceptance of online education because in March of 2020 all schools and most colleges and universities went online. In addition, virtual work and remote work has helped us get over the notion that work only happens in an office or a classroom.” However, experts also shared a need for wider accreditation and rigorous authentication of online credentials. By offering stackable and portable online-earned credentials, working more closely with employers and governments towards wider accreditation, and exploring technologies such as blockchain, that hold great promise in solving authentication and verification issues in online learning,⁸⁵ platforms can further strengthen perceptions of online learning.

Figure 2.18: Learner Perceptions of Employer Value of Online Learning



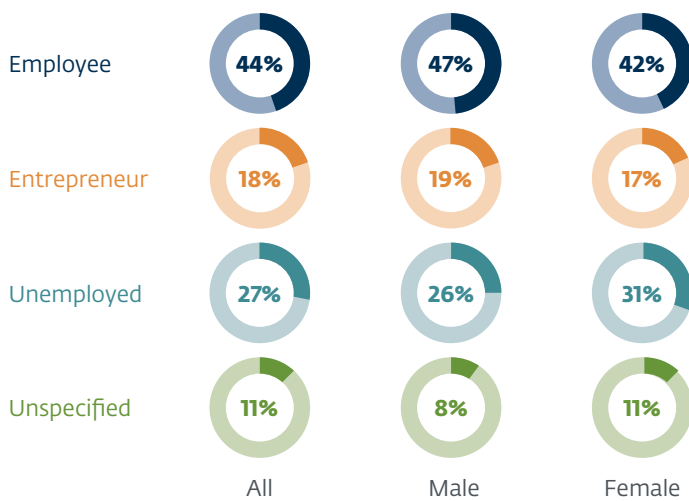
Differences for Total and for Egypt statistically significant at 5 percent level, remaining differences not statistically significant

SOURCE: IFC/Coursera Survey

A Significant Portion of Online Learners Report Career Benefits

Most learners surveyed are employed or are entrepreneurs, while 27 percent are unemployed. Women are more likely than men to be unemployed (see Figure 2.19).^v

Figure 2.19: Employment Status



Differences statistically significant at 5 percent level

SOURCE: IFC/Coursera Survey

A large share of learners surveyed join online learning with the objective to improve their employment and entrepreneurship opportunities (see Chapter 2, Section I). In presenting the effects of online learning on career outcomes, this study differentiates between two main outcomes. First, “Positive Job or Business Outcome”—learners who believe online learning has positively affected their career either by acquiring a new job or stating a new business, or by improving their performance at their existing job or business. Second, “Improved Potential”—learners who believe they are better prepared for new job applications but have yet to see a concrete outcome. Since surveyed learners included those who have not yet completed courses, learners could also opt to say that it was too early to say. Table 2.1 illustrates the different potential outcomes.

“Resistance to online learning is coming down. Students look at the ROI of a degree; education is becoming more outcome focused, and service providers, be that platforms, universities, or other institutions, who cannot deliver the outcome the student is looking for will not be able to last. Platforms that can deliver on this ROI promise succeed at building credibility.”

Shantanu Rooj, Founder and CEO, TeamLease EdTech, India

Table 2.1: Learner Outcomes

Learner Outcomes		
Positive Job or Business Outcome	New job	Learners who achieved one of the following outcomes which they attribute to online learning: - Secured a promotion or a new job with current employer - Found a new job with a new employer
	New business	Learners who achieved the following outcome which they attribute to online learning: - Set up a new business
	Improved performance in the existing job or business	Learners who achieved at least one of the following outcomes which they attribute to online learning: - Performed better at their current job - Learned to manage their business better
Improved potential		Learners who listed that they: - Built skills to prepare a new job application but have yet to achieve outcomes
Too early to say		Learners who are still early on in their learning journey to report any outcomes
No demonstrated impact		Learners who listed that online learning: - Had no impact on advancing their career

^v Some learners reported being part-time entrepreneurs and part-time employees. For the purposes of this analysis, these learners were considered as part-time entrepreneurs.

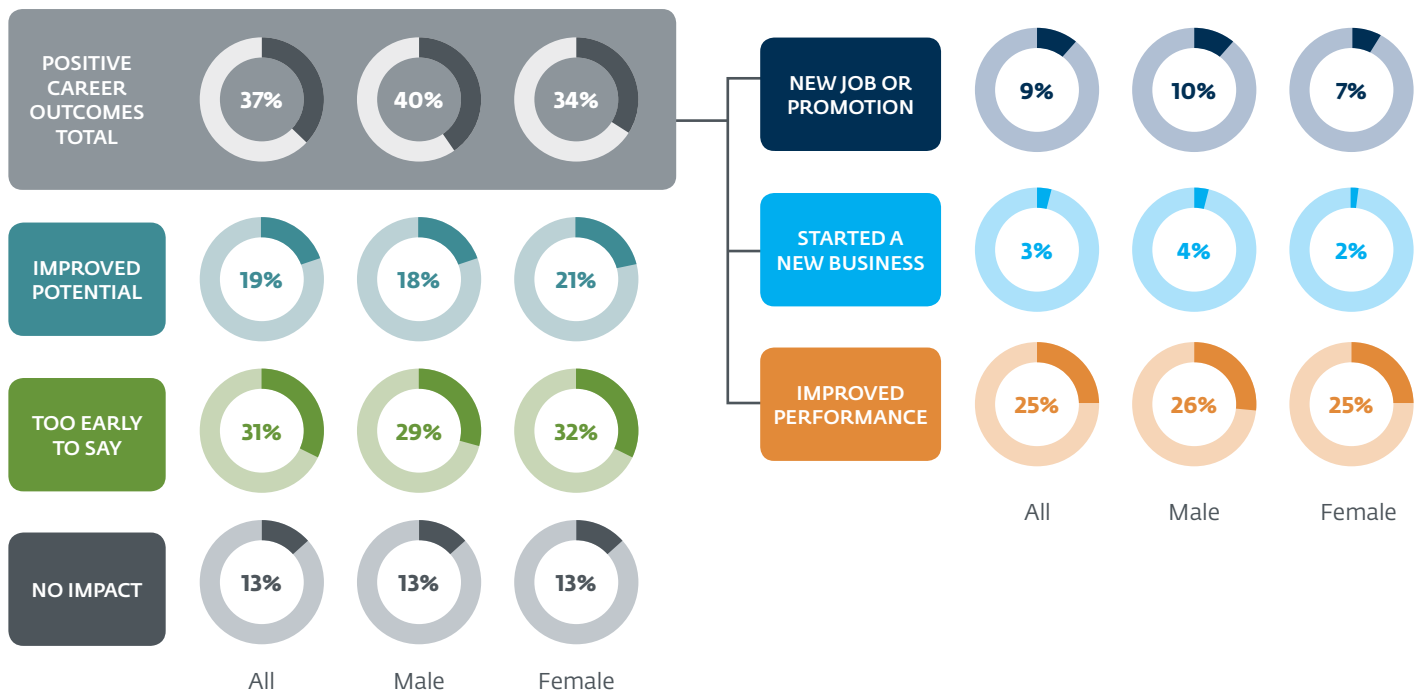
Thirty-seven percent of learners report positive job or business outcomes, demonstrating that online learning can support upskilling as well as career and business progression. This includes the 12 percent who report acquiring a new job or a promotion or starting a new business and a further 25 percent list improved performance as a result of their online learning. An additional 19 percent believe they have improved their potential through acquiring new skills (see Figure 2.20). The largest share (31 percent) of surveyed learners report that it is too early to say. Given that this study surveyed learners active between 2019 and 2021, some of whom were still working towards completing their targeted coursework, this share is to be expected.

Improving acceptance of online learning and strengthening the connection to employment pathways can improve outcomes. Box 5: Strengthening Employment Pathways, sheds some light on examples of linking online education to employment outcomes.

"I used Coursera to develop my data analytics skills. It has been very helpful for my career and skills development. I believe it helps me stand out and have a stronger profile when I apply for jobs."

Maggie Hamdi, learner in Egypt

Figure 2.20: Career Outcomes, All Learners



Differences statistically significant at 5 percent level for all categories except improved performance and no impact

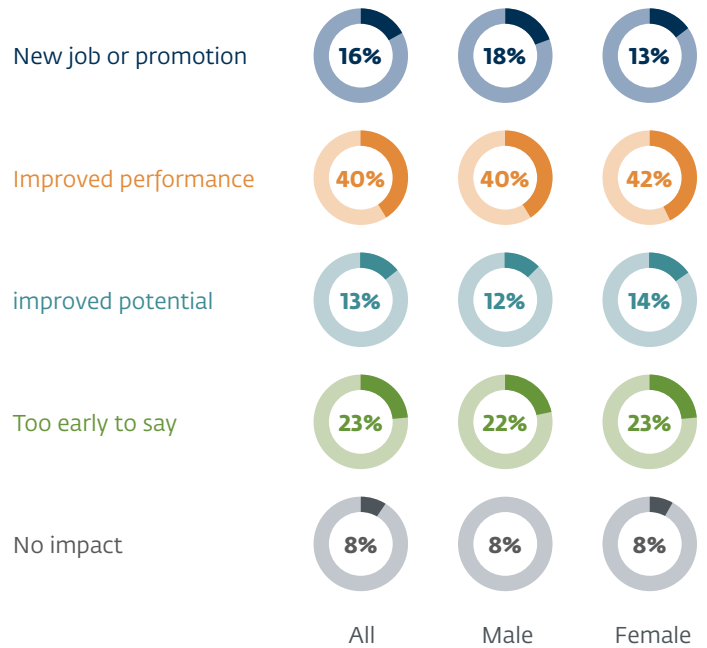
SOURCE: IFC/Coursera Survey

Men and women surveyed benefit from online education to slightly differing degrees. Thirty-four percent of women report improved performance, getting new jobs or being promoted, and starting a new business as positive career outcomes of online learning compared with 40 percent of men (see Figure 2.20). Women are almost as likely as men to report improved performance and are slightly more likely to report improved potential as an outcome. The main gender difference is in the number of learners who cite getting a new job or promotion or starting a new business; nine percent of women compared with 14 percent of men report this outcome. Despite this difference, this finding is notable given that women are significantly less likely than men to come to online learning with specific career goals and are also less likely to invest in multi-course certificates (see Figures 2.9 and 2.10). Platforms should capitalize on results like these to build a compelling case for women to consider online learning as a pathway towards employment. Given women’s differing considerations, such as care responsibilities, mobility restrictions and affordability concerns, a clear return on the time and money invested in online learning is necessary.

Over half of learners who are employees report positive job or business outcomes, demonstrating that online learning can support employee upskilling and progression. Sixteen percent of learners report acquiring a new job or a promotion, 40 percent list improved performance as a result of online learning, and 13 percent believe they have improved their potential through acquiring new skills (see Figure 2.21). Women are slightly less likely to report a new job or promotion, but more likely to report improved performance and improved potential.

Online learning is a powerful tool to help entrepreneurs start and grow their businesses. Fifteen percent of men and 10 percent of women surveyed say they joined Coursera to learn how to set up or manage their own business (see Figure 2.9). Women and men achieved equal results—47 percent of both men and women report they have succeeded establishing and managing their business because of what they learned online. Overall, entrepreneurs rely on online learning to primarily develop subject matter skills followed by soft skills. Technology and technical knowledge rank among the top skills which both men and women entrepreneurs find important. However, when it comes to soft skills, while all learners place emphasis on leadership skills, 36 percent of women list self-confidence as the most important thing they learn online, making it the top skill learned by women. Another potential gender difference is that women are more likely than men to benefit from financial literacy skills (see Figure 2.22). With an estimated worldwide financing gap of \$1.5 trillion for women-owned MSMEs alone,⁸⁶ online learning can be a powerful tool for women-owned businesses to fill knowledge and skills gaps as well as build financial knowledge and self-efficacy.

Figure 2.21: Career Outcomes, Full or Part-time Employed Learners



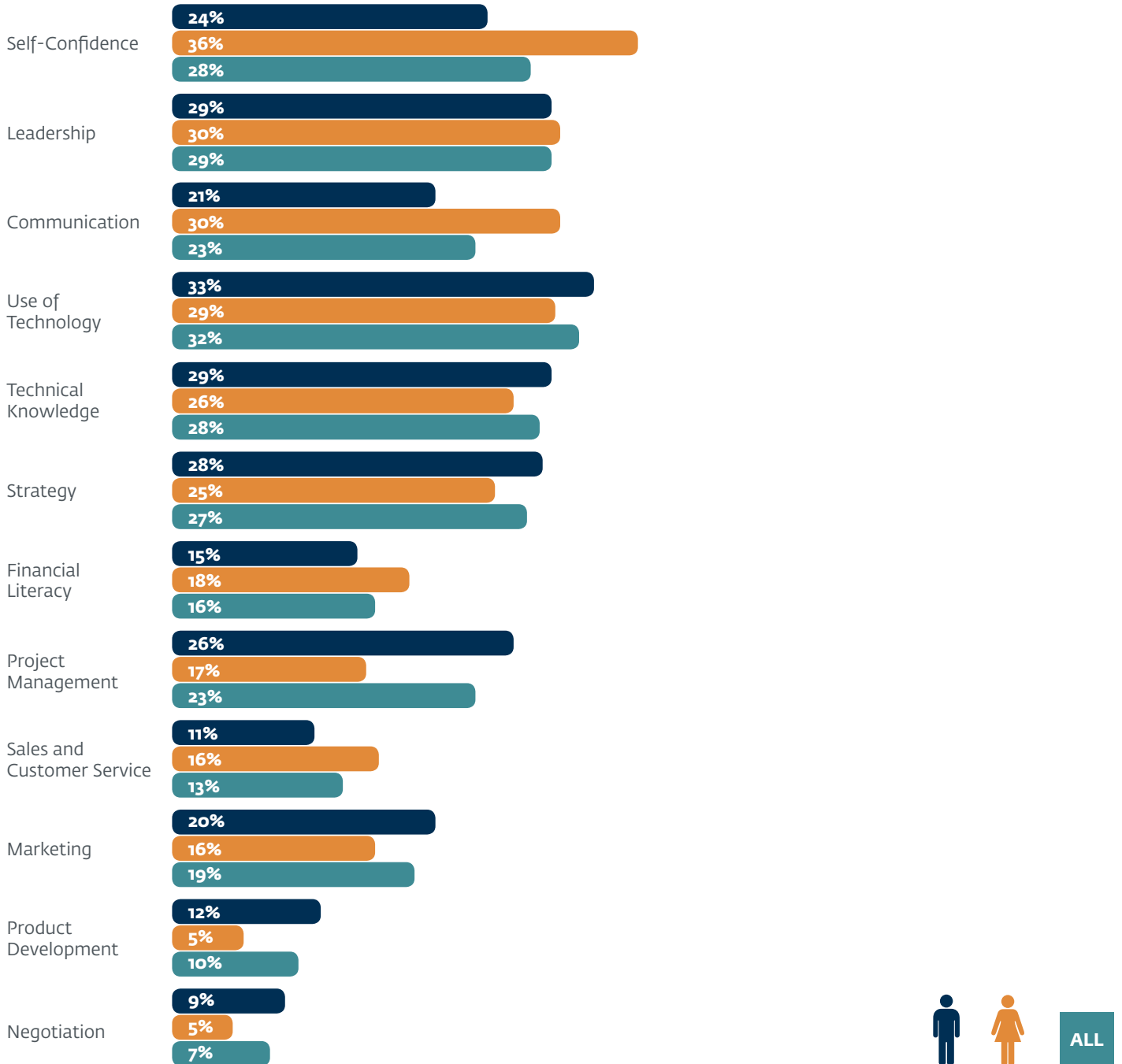
Differences in improved potential and new job or promotion statistically significant at 5 percent level, remaining differences not statistically significant

SOURCE: IFC/Coursera Survey

I joined Coursera with the goal of scaling my business. As a result of the courses I took, I made improvements in my delivery, record keeping, managing staff and marketing. I delegated work and brought on a distributor which had a positive effect on my bottom line."

Victoria, learner from Nigeria

Figure 2.22: Skills Entrepreneurs Develop Online



TOP SKILLS DEVELOPED BY ENTREPRENEURS

Differences in self-confidence, communication, negotiation, project management, product development, sales statistically significant at 5 percent level, marketing and financial literacy 10 percent, remaining differences not statistically significant

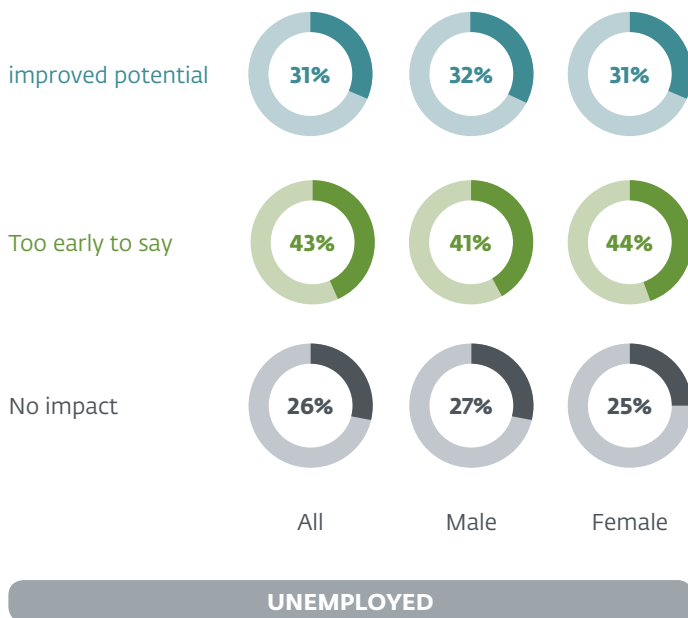
SOURCE: IFC/Coursera Survey

Almost one third of learners who are currently unemployed, men and women equally, believe online learning is helping them be prepared for job applications. Looking just at the 27 percent of surveyed learners who report being unemployed, the majority say that it is too early to say whether they have experienced career benefits or not, which is likely due to where they are in their learning journey. However, 31 percent report they believe they have improved their potential by building skills to prepare for job applications. This is notable since the survey targeted learners between 2019 and 2021, a time when the pandemic led to record job losses, especially for women.⁸⁷ This, combined with earlier findings, suggests that online learning can support reentry into employment.

"I focused on improving my entrepreneurship, business and financial management knowledge to help me build my fashion business. I learned how to market and sell my goods and gained confidence in myself."

Mary, learner from Nigeria

Figure 2.23: Career Outcomes, Unemployed



Differences not statistically significant in all categories

SOURCE: IFC/Coursera Survey

^w This analysis excludes those who list they are unemployed.

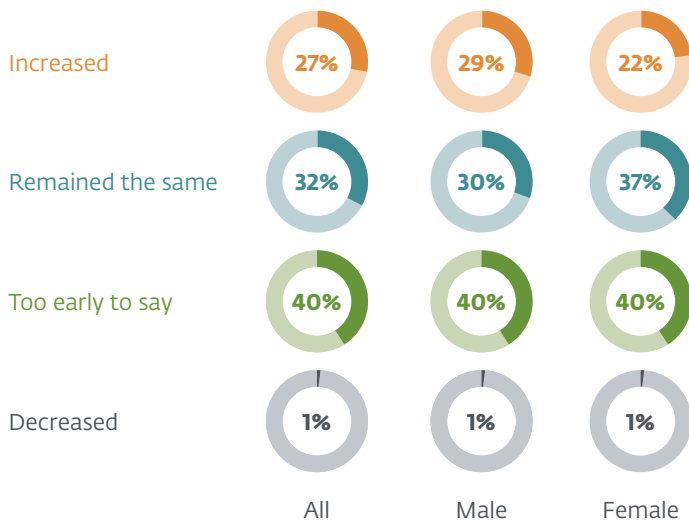
A large share of job or business outcomes for employees and entrepreneurs takes place in the service sector. Of the three sectors (services, industry, and agriculture), 86 percent of new jobs, promotions, or new businesses occur in the service sector, reflecting a growing share of service sectors across economies in developing countries. For instance, more than half of firms in Egypt conduct wholesale, retail, and repair activities and account for 42 percent of total employment.⁸⁸ At the same time, in India, employment has been growing most rapidly in sectors such as construction and retail, while industrial employment remains low compared with high-income countries.⁸⁹

A Notable Minority Also Reported Income Increases

Of those who report positive job or business outcomes, over a quarter also report income increases as a result of online learning.^w Thirty-two percent of entrepreneurs and 26 percent of employees report increased income suggesting that entrepreneurs are somewhat more likely to see positive income effects. Almost half of income increases are higher than 10 percent indicating that online learning can offer substantial financial benefits to learners (see Figure 2.24).

Evidence suggests that women are less likely to report any increases and, when they do, they are more likely to report smaller income increases, with 36 percent, twice the number of men, only achieving increases between one percent and five percent. This is in line with earlier findings that women are less likely than men to report starting a new job or business but are as likely as men to report improved performance at their existing job or business (see Figure 2.20). While more research is needed, these findings may reflect wider economic challenges faced by women. Only half of all economies globally mandate equal pay and the selected focus countries have substantial gaps in the equal pay index.⁹⁰ For entrepreneurs, these gaps are also consistent with the challenges faced by women-owned businesses which tend to be smaller and grow more slowly,⁹¹ and receive only one percent share of procurement opportunities with large corporations and governments.⁹²

Figure 2.24: Impact of Online Learning on Incomes of Men and Women

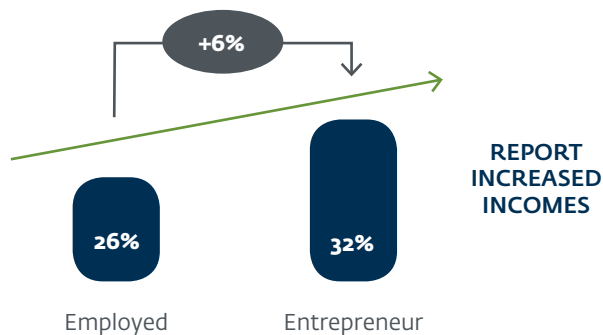


INCOME IMPACT ON ALL THOSE WHO REPORTED POSITIVE CAREER OUTCOMES

Differences for income decrease and too early to say not statistically significant, remaining categories statistically significant at 5 percent level

SOURCE: IFC/Coursera Survey

Figure 2.25: Impact of Online Learning on Incomes of Employees and Entrepreneurs

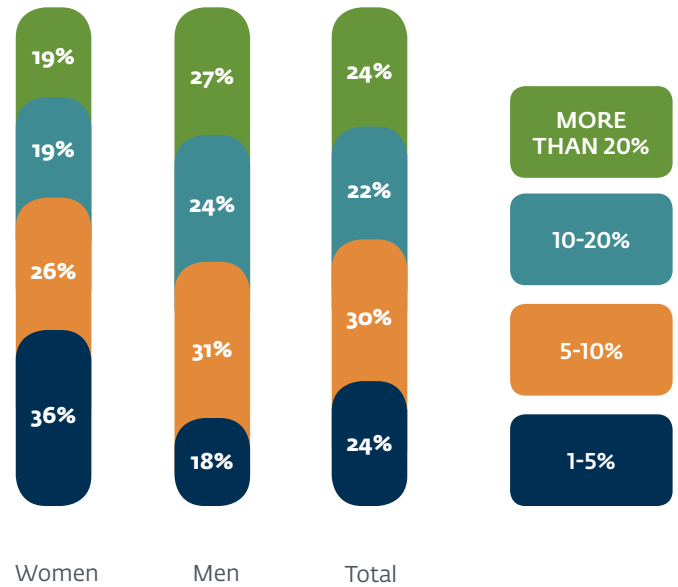


EMPLOYED VS ENTREPRENEUR INCOME EFFECTS

Differences for income decrease not statistically significant, remaining categories statistically significant at 5 percent level

SOURCE: IFC/Coursera Survey

Figure 2.26: Income Increase Amount for Men and Women

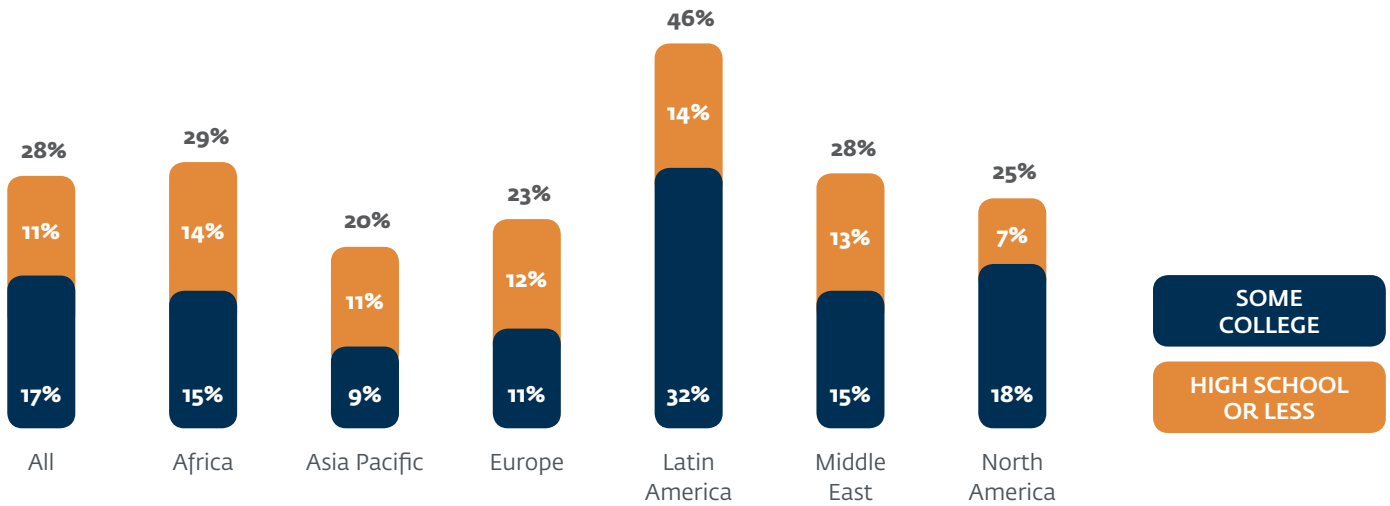


INCREASE AMOUNT FOR ALL THOSE WHO REPORTED AN INCREASE IN INCOME

Differences for 10-20 percent and 5-10 percent not statistically significant, remaining categories statistically significant at 5 percent level

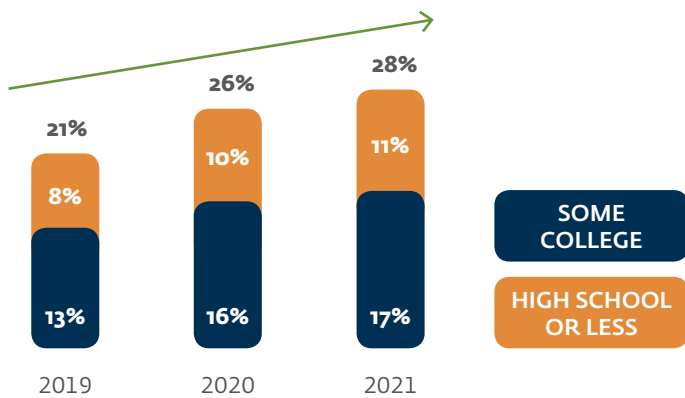
SOURCE: IFC/Coursera Survey

Figure 2.27: Educational Backgrounds of Learners, by Region



SOURCE: Coursera Platform

Figure 2.28: Trends in Educational Background of Learners in the Four Focus Countries



SOURCE: Coursera Platform

“Pursuing the data analytics professional certificate track helped me develop job-relevant skills that were helped me find a job after a long stretch of unemployment. It also helped me find my passion, genomic data science. I am using online learning to prepare myself to pursue a postgraduate degree in that field.”

Confidence, learner from Nigeria

Online Learning can Increase Access to Education for Marginalized Learners

Literature varies as to the ability of online learning to reach underserved or marginalized learner groups. Previous studies cite various challenges that affect the enrollment of underserved populations, including digital literacy, connectivity, cost, time poverty, language, and culture.^{93,94,95,96} However, studies also acknowledge that the barriers to access are significantly lower for e-learning than for other forms of higher education.⁹⁷ Moreover, several studies find that online learning platforms actually increase access for those with lower education,^{98,99} those in marginalized rural areas,¹⁰⁰ and low-income learners. While more work is needed to identify why some courses reach underserved populations better, these studies also point to localization, language, and technology costs as barriers.¹⁰¹ This report aims to contribute to this debate by providing data on how different underserved populations in emerging economies participate in online learning.

A growing number of online learners have no bachelor’s degree. Over a quarter of learners on the Coursera platform do not have a bachelor’s degree and 11 percent have only completed high school. In Latin America this number is a lot higher—46 percent of learners on the platform do not have a bachelor’s degree (see Figure 2.27). In our four focus countries, these numbers have consistently grown from 21 percent in 2019 to 28 percent in 2021 (see Figure 2.28).

Motivation & Enrollment

Learning & Completion

Career & Learning Outcomes

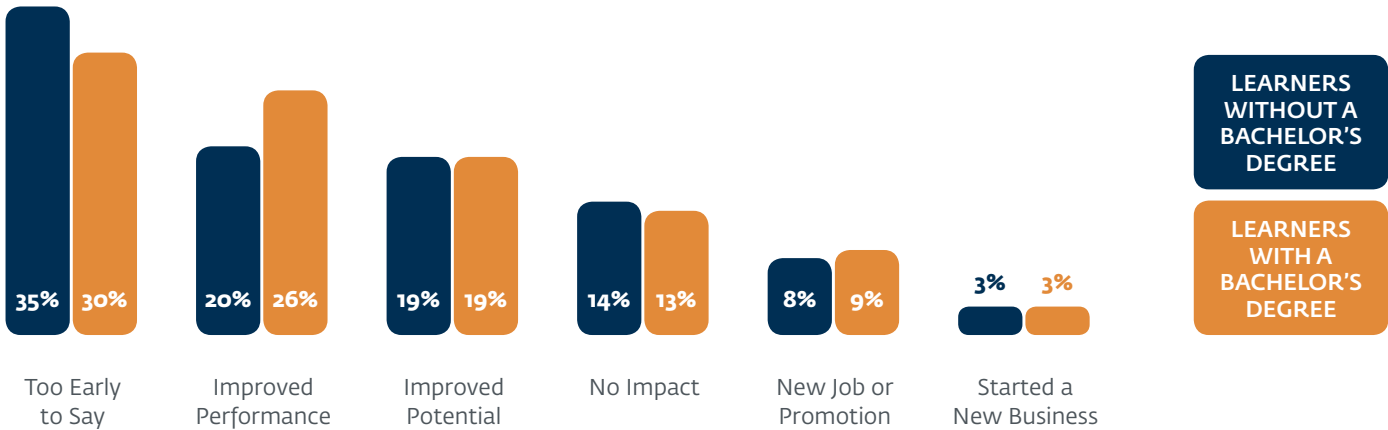


Job outcomes for learners without a college degree are similar to those with bachelor's degrees and higher in the four countries surveyed. In this study's survey sample, 12 percent of learners did not have a bachelor's degree or higher. The job and business outcomes for learners without a tertiary degree are similar to those with tertiary education. Eleven percent of those without bachelor's degrees report starting a new job or business compared with 12 percent of those with bachelor's degrees. Bachelor's degree holders were slightly more likely to report improved performance (26 percent compared with 20 percent), but both groups were equally likely to improve their potential by being better prepared for job applications (see Figure 2.29). Gender differences in outcomes depending on education level are minor and mimic overall observations on gender differences. Online learning, and the growing use of micro-credentials and professional certificates, may be a viable pathway towards employment especially in emerging markets where tertiary enrollment is lower (see Chapter 1). Shifting towards skills-based hiring, where candidates can prove their competency in practical ways, and reviewing the educational requirements in job listings can expand opportunities for underserved populations to leverage online learning to advance their careers.

"Policies need to start with the last mile. Current policies tend to prioritize serving mainstream learners. We find that online education benefits women, persons with disability as well as marginalized and disadvantaged communities. Governments need to adopt a targeted approach to reach these marginalized groups first which will, by default, serve the center better."

Prof. Asha Singh Kanwar, President and CEO, Commonwealth of Learning

Figure 2.29: Career Outcomes by Educational Level, Total



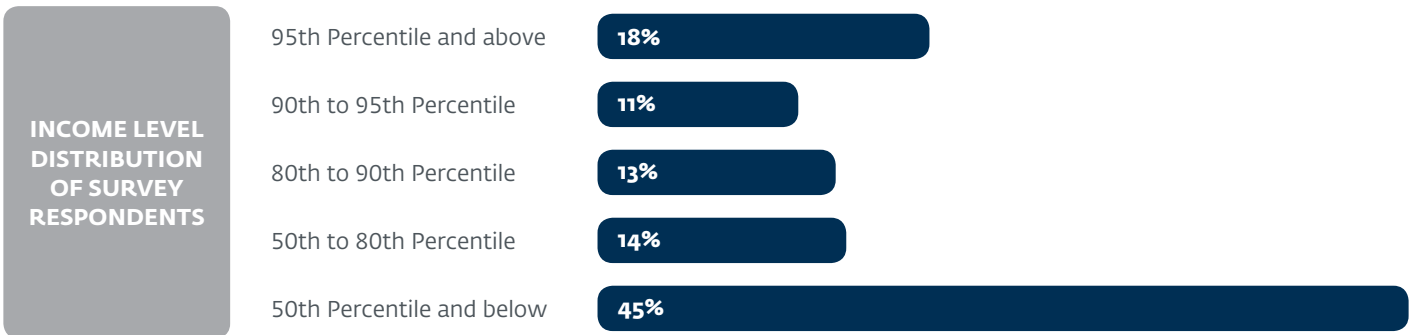
Differences for too early to say statistically significant at 5 percent level, remaining categories are not

SOURCE: IFC/Coursera Survey

Learners in the bottom half of the income distribution are well represented on the Coursera platform, with 45 percent of respondents reporting an income in the bottom 50th percentile of their respective country (see Figure 2.30). This number was notably higher in Mexico compared with other countries; 66 percent of Mexican learners surveyed fall into that group. When income data is overlaid with the educational attainment data discussed in the previous section, it is clear the share of those with

a high school or associate degree is higher in the bottom 50th percentile of income. However, since the 50th percentile mark includes a wide range of incomes, this study could not identify which learners would be considered learners at the base of the pyramid.* Future research will need to fully explore to what extent persons at the base of the pyramid are accessing and benefiting from online learning, including those in the bottom 50 percent of national income distribution.

Figure 2.30: Surveyed Learners Income Distribution

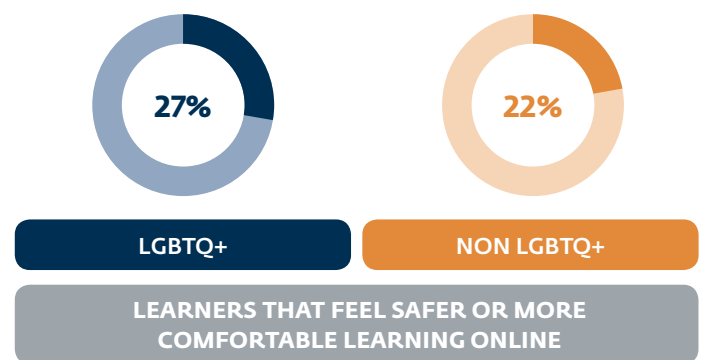


SOURCE: IFC/Coursera Survey

* Base of the pyramid is defined as people who have a low income (i.e., earn less than \$8.44 a day in purchasing power parity) and/or lack access to basic goods and services.

Online learning can also increase access to education for learners identifying as lesbian, gay, bisexual, transgender, or queer (LGBTQ+). Just over a quarter of learners identifying as LGBTQ+ in Mexico and India^v report feeling slightly safer learning online than in person (see Figure 2.31). LGBTQ+ learners are more likely than others^z to ask questions and voice opinions online compared with face-to-face education; 51 percent of LGBTQ+ learners say they are more likely to voice their opinions, and 40 percent say they are more likely to ask questions. This echoes the small but notable portion of women learners who were drawn to online learning in part to address safety risks in accessing education offline (see Section 1).

Figure 2.31: Safety Considerations for Learners who Identify as LGBTQ+



Differences statistically significant at 10 percent level

SOURCE: IFC/Coursera Survey

Box 6: Strengthening Employment Pathways

Develop Partnerships with Recruiters

In 2020, Coursera partnered with Jobberman, a large training and recruitment platform in Nigeria, to develop jobseekers' soft skills and improve job placement outcomes. This is part of a larger project that aims to upskill five million young people in Nigeria and secure job placements for 60 percent of the participants by 2025.¹⁰² Jobberman aims to address the mismatch of experience and skills between employers and jobseekers by offering its digitally savvy candidates access to six soft skills development courses on Coursera. It offers other low-tech solutions for more cost-conscious learners with poor digital literacy through social messaging apps like Telegram and WhatsApp. Learners maintain a profile on Jobberman's platform and are encouraged to share their achievements on social media to boost their visibility to employers both on and off the platform. The organization exposes learners to job opportunities, addresses challenges in the recruitment process, and tracks the performance of candidates. For example, Jobberman noticed that women tended to undersell themselves when it came to compensation so added salary negotiation courses to its curriculum. Training providers that pursue targeted partnerships with recruiting platforms can strengthen employment pathways for learners by helping learners boost their online profiles, and connect with potential recruiters to unlock job opportunities.

Embed Online Learning in Government Upskilling Initiatives

The Government of Barbados' National Transformation Initiative

(NTI)^{aa} partnered with Coursera to reskill and upskill up to 120,000 workers across the country, offering free access to licenses purchased by NTI. NTI also partnered with Google to offer 20,000 scholarships to vulnerable learners with no prior technical knowledge to prepare them for entry-level digital jobs.¹⁰³ To address the impact of the pandemic on the tourism and service sectors, NTI developed different learning pathways to upskill, retrain and retool the workforce in high-growth areas including sustainable tourism, the green and blue economy, and creative industries. To facilitate pathways to employment and entrepreneurship for learners, NTI initiated discussions with institutions such as the Barbados Chamber of Commerce and Industry, the Small Business Association, and the Barbados Workers Union. Dr. Allyson Leacock, Director of the National Training Initiative for the Government of Barbados reflected on this experience: "Training programs need to ensure they are developing digital and human skills that are useful in the private and public sectors and these programs can lead to an internship or placement." Embedding online training from industry leaders like Google, IBM, and Meta in such initiatives can ensure learners grow their skills in prioritized high-growth sectors which improves their chances of finding employment. Furthermore, stakeholder coalitions that bring together a diverse set of organizations can help to recruit program participants, offer foundational learning pathways, and provide support services. It can also support learners with identifying employment and entrepreneurship opportunities and strengthen learner career outcomes.

^v Sexual identity was not queried in Nigeria and Egypt.

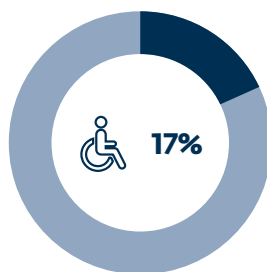
^z Differences between those who identify as LGBTQ+ and those who do not significant at 5 percent level.

^{aa} More information at <https://www.nti.org.bb/>

Box 7: Online Learning and Persons with Disabilities

Learners with disabilities are a diverse group with varying individual educational needs.¹⁰⁴ Over 1 billion people—nearly 15 percent of the world’s population—have some form of disability,¹⁰⁵ and 80 percent of persons with disabilities live in developing countries.¹⁰⁶ This global number is rising, due to increases in chronic health conditions and an aging population.¹⁰⁷ Inconsistent data collection on disabilities,^{108,109} the relatively recent consensus on the definition of disabilities by the Washington Group on Disability Statistics, and the rate of adoption of the Washington Group Short Set of Questions on Disability, make comparisons across markets challenging.¹¹⁰ While this research largely focuses on women learners, surveys in the four focus countries also asked respondents to self-identify if they have a disability to gain insights into how online learning could better serve this group. Surveys from the four focus countries in this research found that 17 percent of respondents reported some type of disability, a figure slightly higher than the worldwide average of 15 percent. However, there were variations across countries (see Figure 2.32).

Figure 2.32: Share of Survey Respondents with Disability



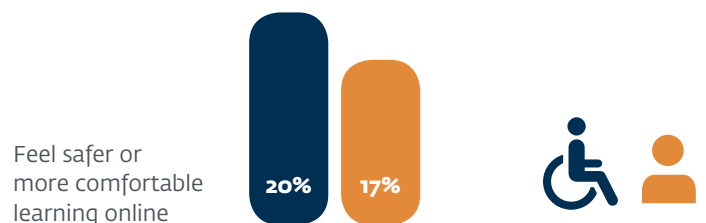
SOURCE: IFC/Coursera Survey

“A key trend in education for persons with disability is the integration of technologies used by the mass population. Disabled users no longer only use specialist technology, they’re using everyday technology, for example mobile, AI, Alexa, and we need to make sure that all technology is accessible.”

Prof Jane Seale, Open University

^{bb} Differences statistically significant at 1% level.

Persons with disabilities are more likely to live in poverty due to discrimination and barriers in education, healthcare, and employment.¹¹¹ While the right to education of persons with disabilities is widely established,¹¹² completion gaps start early in the educational journey and have increased over the last few decades. Even as global primary and secondary completion rates have increased, these gains have been smaller for children with disabilities,¹¹³ leading to increasing gaps in educational outcomes.¹¹⁴ Students with disabilities have lower educational completion rates at the primary, secondary,¹¹⁵ and post-secondary levels.¹¹⁶ Following education, nearly two-thirds of persons with disabilities of working age are outside the labor force and persons with disabilities are twice as less likely to be employed than those without disabilities.¹¹⁷ Persons with disabilities face discrimination at the hiring stage and encounter prejudices about their productivity.¹¹⁸ When persons with disabilities are employed, they are also more likely to be underemployed, informally employed, or placed in low-wage jobs with unfavorable working conditions and promotional prospects.¹¹⁹



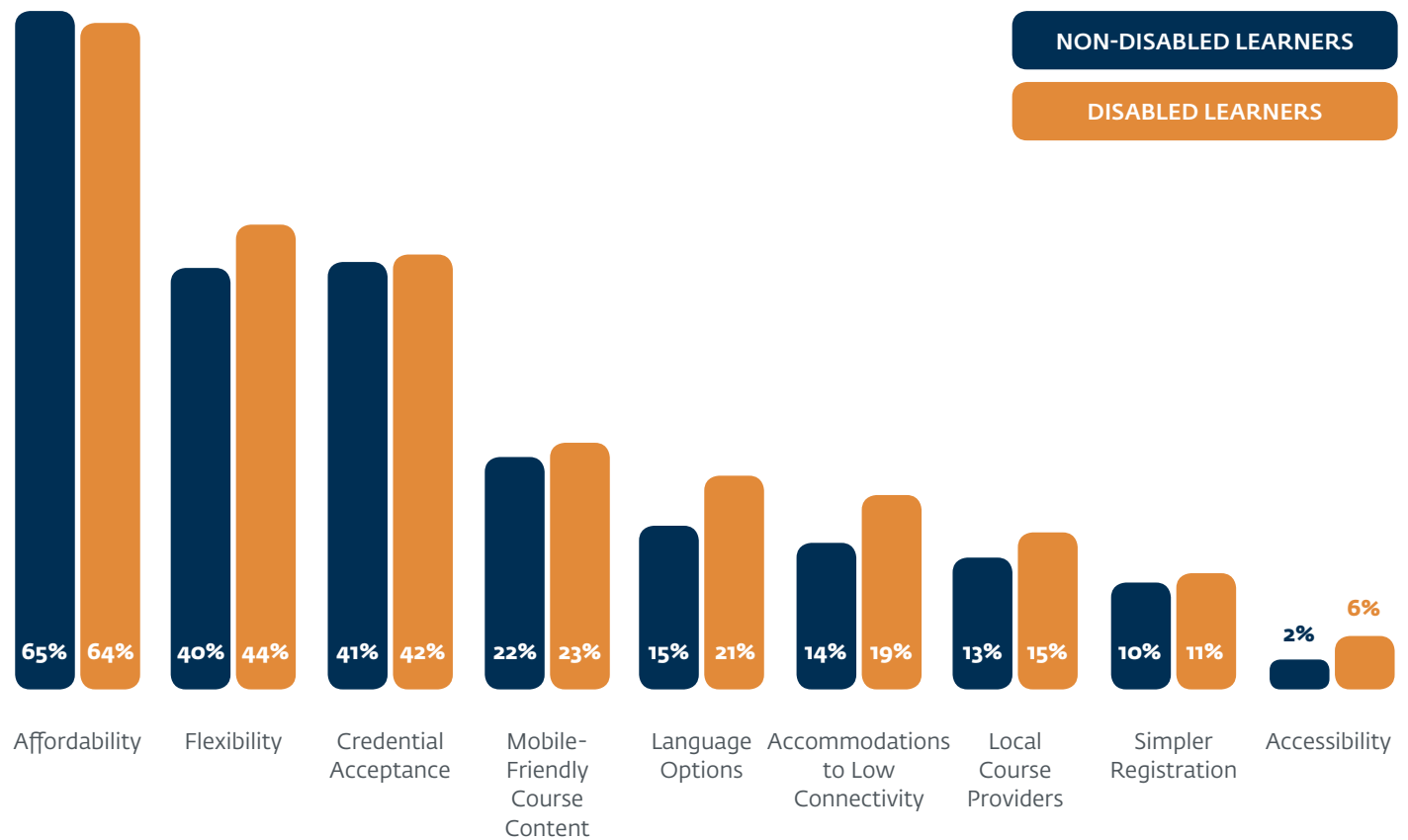
SOURCE: IFC/Coursera Survey

This study found that a significant portion of disabled learners benefited from access to online learning. Twenty percent of learners with disabilities report feeling safer and more comfortable learning online, in comparison with 17 percent of non-disabled learners.^{bb} Professor Jane Seale of the Open University reflects, “Students can shy away from asking for special accommodations or help. They want to feel that they’ve succeeded without needing extra help or different treatment. Offering accommodations without specific requests is one way to break down barriers for learners with disabilities.”

*"Lack of support, access to the internet, accessible software and learning materials is likely to deepen the gap for students with disabilities. Disruption to skills and training programmes are likely to have far-reaching effects on youth with disabilities who face a multitude of barriers to entering the workforce."*¹²⁰

United Nations Educational, Scientific and Cultural Organization

Figure 2.33: Making Online Learning More Appealing for Persons with Disabilities



MAKING ONLINE LEARNING MORE APPEALING FOR DISABLED LEARNERS

Differences in affordable, mobile options, and credential acceptance not statistically significant, remaining differences statistically significant at 5 percent level

SOURCE: IFC/Coursera Survey

When asked what changes would be most effective to improve the online learning experience, disabled learners were more likely to ask for the following:

- *Languages:* The biggest differences were about language options, where 21 percent of disabled learners indicate this as an area for improvement, in contrast to just 15 percent of non-disabled learners. Similar, though smaller, differences were seen in the demand for more local learning providers.
- *Bandwidth:* Disabled learners were more likely to highlight the need to accommodate limited, irregular, or lower bandwidth connectivity. Nineteen percent of learners with disabilities compared with 14 percent of non-disabled learners cited connectivity accommodations as a leading feature that would make online learning more appealing. These differences are in line with data on persons with disabilities which shows that they are less likely to access mobile internet and list affordability as one of the top barriers to mobile internet usage.¹²¹
- *Flexibility:* Disabled learners were also more likely to report a demand for flexible learning schedules and deadlines. Forty-four percent of disabled learners compared with 40 percent of non-disabled learners report that greater flexibility in schedules and deadlines would make online learning more appealing.
- *Accessibility:* Perhaps unsurprisingly, disabled learners also were more than twice as likely to ask for accessibility features, however, notably, this was the least prioritized option. This result is likely because the survey targeted learners who are already on the platform, meaning accessibility is not a barrier for them. Further research targeting non-users who are unable to access online learning is needed.

These responses, and particularly the large differences in demand for low bandwidth accommodations and new language options, suggest that disabled learners face more barriers to online learning than learners without disabilities.

In terms of technological accessibility, international guidelines such as the W3C Web Content Accessibility Guidelines¹²² support web accessibility for persons with disabilities. While Coursera conforms to these standards,¹²³ not all online learning platforms are compliant with accessibility guidelines. In addition, technological accessibility is but one aspect of accessibility. Pedagogical approaches,^{124,125} social and cultural dynamics,¹²⁶ and the attitudes of faculty, administrators, and peers¹²⁷ have a determining impact on learner outcomes¹²⁸ and the likelihood that students will disclose their disabilities or request necessary accommodations.¹²⁹ This is particularly relevant for those with invisible disabilities and is found to remain the case even in the context of fully online learning.¹³⁰ While this study focuses on learners who are already able to access online learning, further research focused on those who are not participating in online learning is necessary to uncover barriers and develop strategies for inclusion.





Chapter 3:

Firm and Economy Level Impacts of Online Learning

Introduction

Chapter 2 explored opportunities and challenges in online learning for individual students, particularly women. However, both education and gender equality are economic multipliers where even a small improvement in either can produce wider economic gains, and the potential impact of online learning extends far beyond individuals. This chapter explores the impact of online learning at the industry and economy levels. Section I details projections for the future of online learning in emerging markets and explores three scenarios for the business case of closing gender gaps. Section II assesses the wider economic outcomes of online learning in the four core markets.

Key results are highlighted below, and detailed methodologies are in the Annex: Methodology.

“As more and more human activity moves online, the considerable progress societies have made towards gender equality in offline environments is at risk if women do not play a more active role in building, as well as simply using, the digital tools and applications where people spend increasing amounts of time.”

EQUALS and UNESCO, I'd Blush If I Could: Addressing Gender Divides in Digital Skills Through Education

^{cc} Data on investment volumes is taken from Pitchbook.

^{dd} See Methodology Chapter for regression results.

^{ee} While certain course characteristics such as the gender of the instructor have been found to matter for increasing women's representation (see [Coursera's Women and Skills Report 2021](#)), the topic of what drives women's participation remains open.

SECTION I: THE BUSINESS CASE FOR CLOSING GENDER GAPS IN ONLINE LEARNING

Online Learning Currently Derives Less Revenue from Women Than from Men

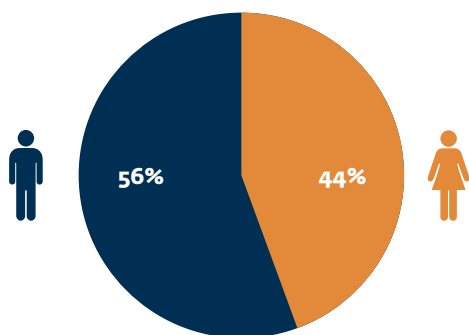
The most common business model used in the EdTech industry focuses on building the user base, giving free access to key content, with the expectation of converting free users to paying subscribers over time, also known as the “freemium model”. EdTech providers are not alone in this approach; other technology players such as Google, Meta, and Twitter have relied on freemium models from their inception. However, freemium models can often result in a low share of paid enrollments. According to Coursera's cross-country data from 2019 to 2021, the ratio of free to paid enrollments is 15:3 globally.

Women are less likely to enroll in paid courses than men.

Globally, in 2019 and 2020, women were around 1.4 times less likely to enroll in paid courses on the Coursera platform than men. Econometric analyses conducted in this research show that gender differences in paid enrollments persist even after accounting for differences between men and women in internet access, age, schooling, access to online learning solutions (proxied by the volume of investment in EdTech),^{cc} and labor force participation across different countries.^{dd} These results suggest online learning platforms can do more to meet women's unique needs and career objectives. For example, statistics presented in Chapter 2, showed that women have different learning goals than men, have different course interests, and are less likely than men to apply for financial aid even though it is offered and promoted to everyone equally. Overall, and while active research exists there are no conclusive determinants for women's lower participation in online platforms.^{ee}

As a result of women's lower participation as paying subscribers, online learning companies in emerging markets^{ff} are deriving less revenue from women than from men. An analysis of survey data from online learners across the four markets on socio-demographic and economic characteristics combined with platform data on usage suggests that the market for adult online learning in emerging markets could be valued at \$8.5 billion in 2021. This includes MOOCs, micro-credentials, and online non-degree certificates.⁹⁹ An estimated 44 percent of the market value was derived from women, reflecting women's lower participation in online learning platforms and conversion to paid customers compared with men (see Box 7 for further details on the methodology).

Figure 3.1: Revenue Generated by EdTech Providers, by Gender, 2021



SOURCE: IFC's estimates obtained through a demand model analysis leveraging survey and platform data (see Box 7 for further methodology details).

Closing Gender Gaps Would Increase the Value of Adult Online Learning in Emerging Markets

This research projects that the market for adult online learning will more than double over the next five years, reaching between \$17 billion and \$48 billion by 2026. The large range of this estimate derives from the rate of innovation of online learning providers and the income growth of the population, which may affect the average revenue per paying user (ARPPU).^{hh} Innovation can result in more attractive offerings which can increase users' willingness to pay for online learning. Similarly, income increases can propel the willingness to pay. The range of estimates also depends on the offerings of focus within the market over the next five years. More complex offerings with a higher ARPPU, such as online degrees are expected to grow slowly, whereas simpler offerings with a lower ARPPU, such as MOOCs are expected to grow more quickly.ⁱⁱ

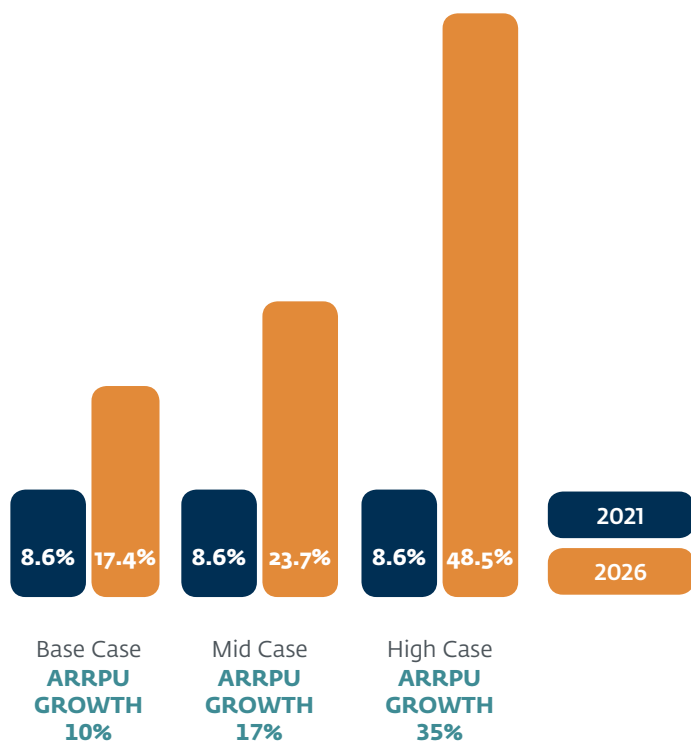
^{ff} Emerging Markets is defined as a group of countries classified as IDA, IBRD or Blend according to the World Bank's [lending groups](#). Most of these economies are low-income or middle-income, however, some high-income countries are included.

⁹⁹ Massive online open courses (MOOCs) refer to courses that are free or very low-cost, and available for anyone to enroll; online-non-degree certificates refer to programs that offer professionally oriented training and can grant a certification but not a degree; micro-credentials refer to mini-qualifications often gained by participating in short, free or low-cost online courses. The market size analysis excludes online degrees and online program management (OPM) offerings (products and services on which educational institutions can run online courses).

^{hh} The approach used to estimate the market size's growth considers growth in the market only derived through ARPPU. The approach does not consider increases in the number of users other than those driven by natural population growth. Therefore, increases in connectivity in certain regions which may potentially drive more users to use online learning are not considered in the model.

ⁱⁱ Three growth scenarios are considered. The first scenario, which is the base case, is informed by growth expectations from online vendors in emerging markets, gathered through expert interviews (ARPPU CAGR = 10%). The second scenario assumes the same growth rate as that estimated by the market research firm, HoloniQ, for the market that includes online degrees, non-degree certificates, micro-credentialing, MOOCs and OPMs (ARPPU CAGR = 17%). The third scenario assumes an average growth rate across different market research firms regarding the MOOCs market only (ARPPU CAGR = 35%). The market estimated in this report is in between the market estimated by HoloniQ and the MOOC market estimated by other market research firms, as it does not include online degrees.

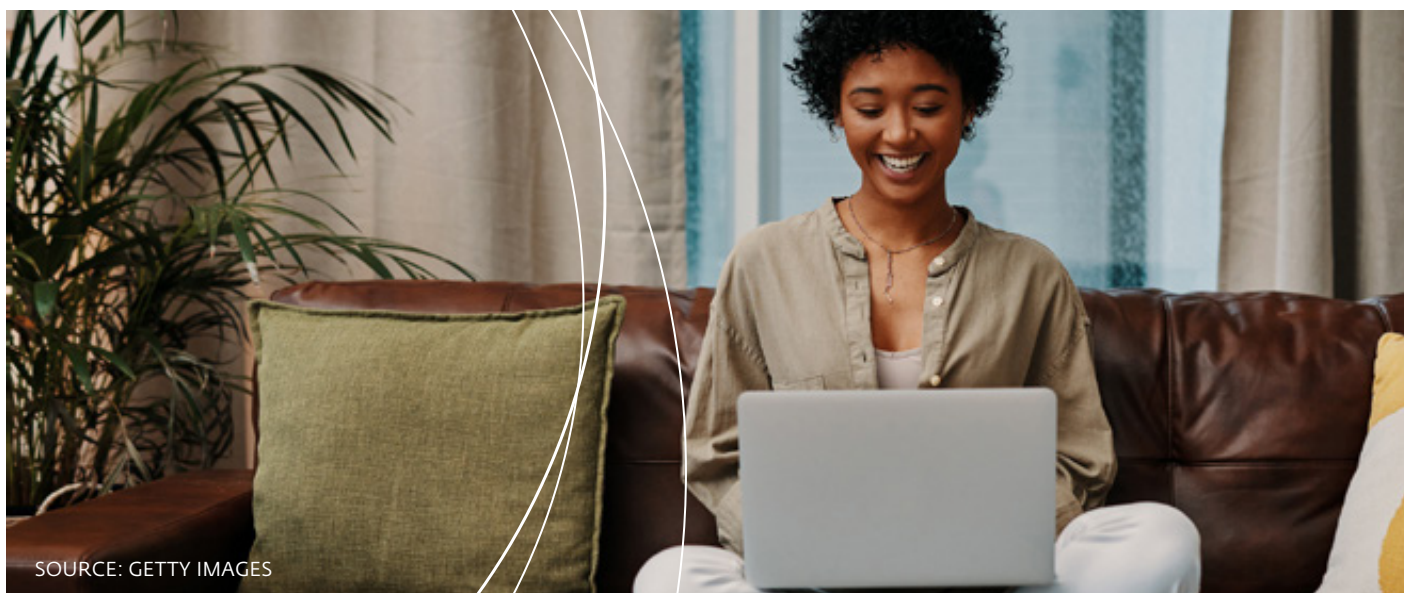
Figure 3.2: Market Size of Adult Online Learning (US\$ billion), 2021 vs 2026



SOURCE: IFC's estimates obtained through a demand model analysis leveraging survey and platform data (see Box 7 for further methodology details).

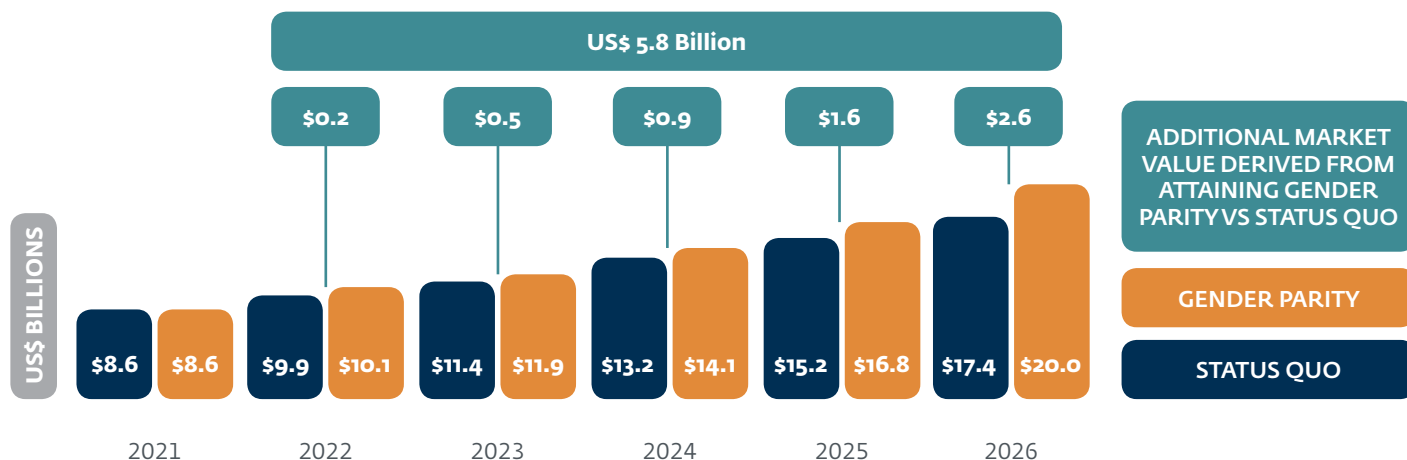
Closing the gender gap in access to online learning platforms in emerging economies could increase the total size of the market by approximately 10 percent over the next five years (between 2022 and 2026) (see Figures 3.3, 3.4 and 3.5). This would result from the inclusion of around 8 million women per year to the paid online learning market. Depending on the growth path assumed for the average revenue per user, the total value of the market will range from \$6 billion (under the base case) to \$14 billion (in the high case) over the five-year period to 2026.

These estimates only reflect the market for adult online learning in emerging markets. Estimates applied to the wider EdTech market would be higher still. Gains could accrue in two ways. First, by bringing more women into online learning markets and second, by increasing women's conversion rates into paid customers. For the latter, the biggest opportunity may lie in making online learning offerings more attractive for women, including those from low-income backgrounds, than under current business models. This reflects the fact that women's valuation for paid courses is lower than that of men with a similar income background and who pay the same price. An econometric analysis of survey data from over 6,000 online learners from the four focus countries suggests that women are 50 percent less likely to pay for online courses than men even when they have a similar income background and the course costs the same. By increasing the perceived value of courses for women, and depending on the cost of such an intervention, online learning platforms can raise their participation rate and contribute to closing the gender gap in online education.



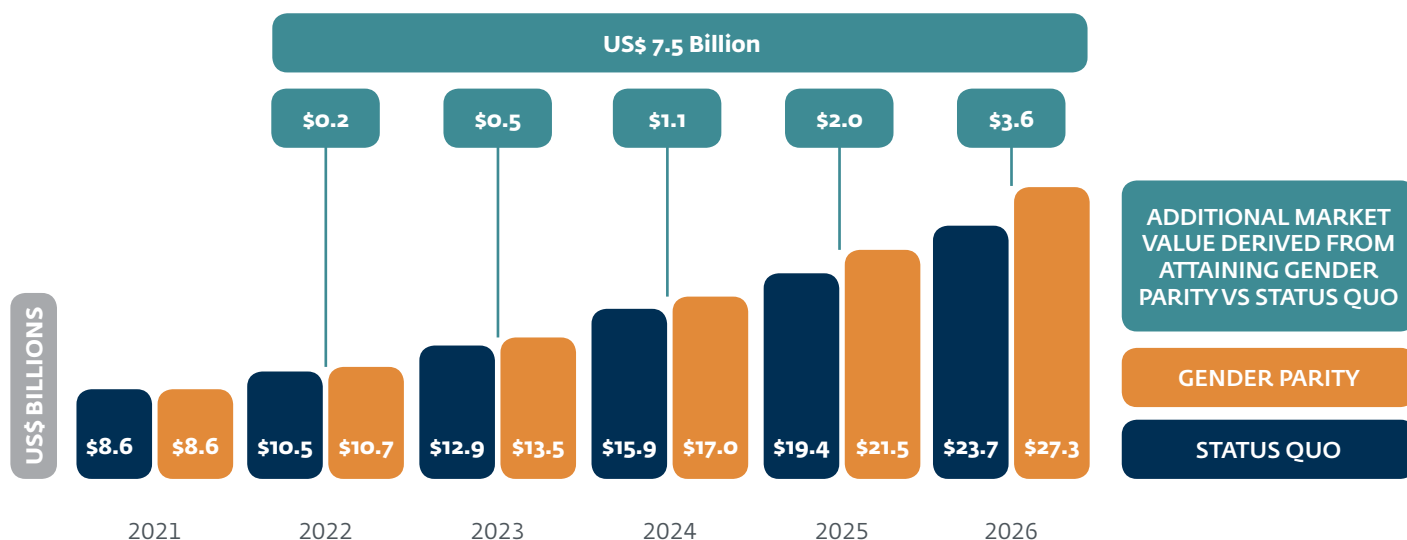
SOURCE: GETTY IMAGES

Figure 3.3: Market Value: Status Quo vs Gender Parity (Base Case)



SOURCE: IFC's estimates obtained through a demand model analysis leveraging survey and platform data (see Box 7 for further methodology details).
 Note: gender parity is defined as an equal propensity to pay for courses across gendersⁱⁱ.

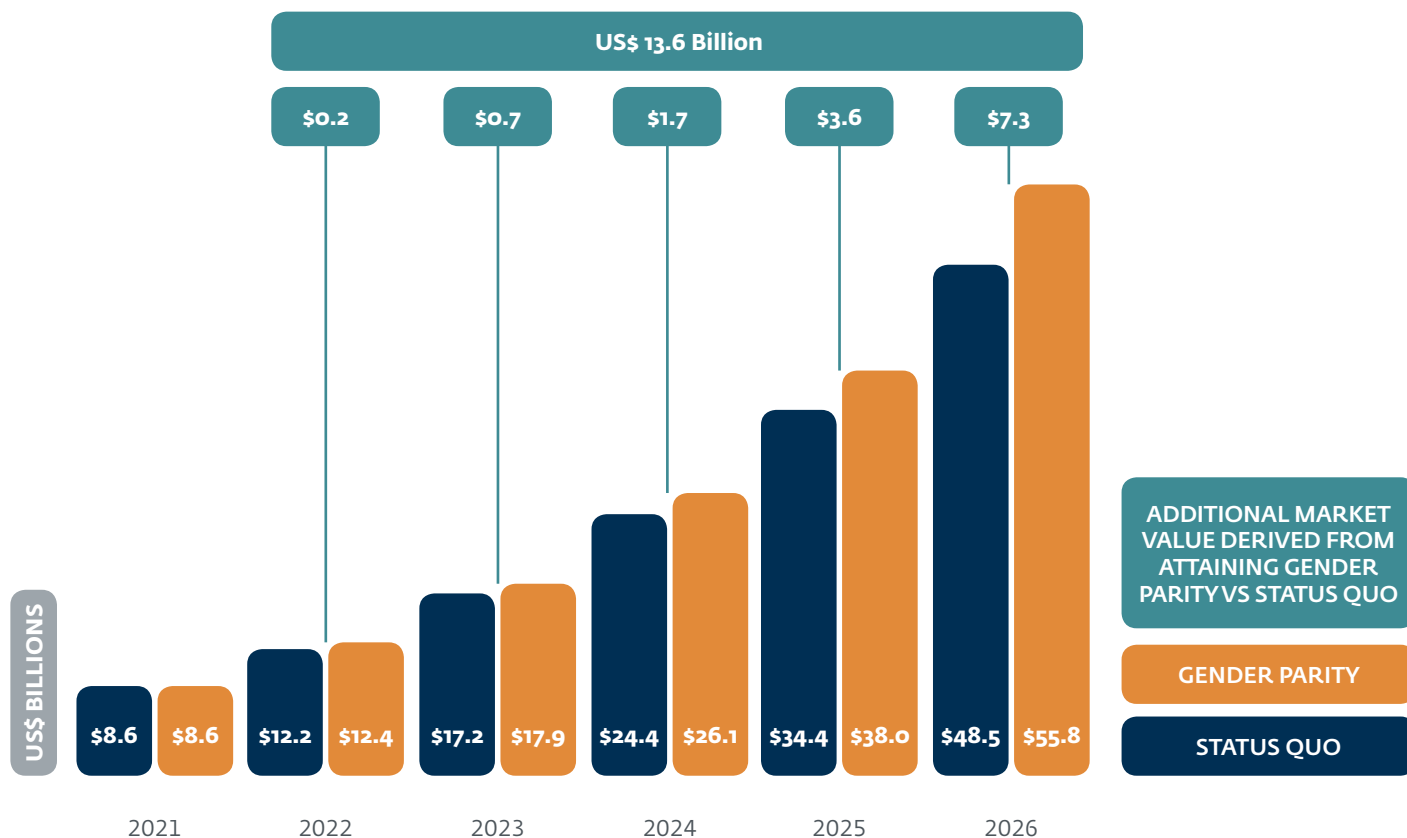
Figure 3.4: Market Value under Gender Parity (Mid Case)



SOURCE: IFC's estimates obtained through a demand model analysis leveraging survey and platform data (see Box 7 for further methodology details).

ⁱⁱ Equal propensity to participate equates to assuming that the minimum income level at which both women and men are willing to participate is equivalent (See Box 1). However, as this share of women and men is then multiplied by the number of women and men who have upper secondary education completed or not, the resulting number of men and women participating in the market may not be equivalent. The market value of women being higher than men from 2025 onwards reflects two main factors: i) in some countries a larger number of women have upper secondary or more completed than men (e.g., in Mexico, approximately 52% of women have upper secondary or more completed as per the ILO). ii) In other countries the number of women with upper secondary or more (the target market) is expected to grow over time (e.g., in Nigeria, our estimates based on ILO population trends suggest that whereas 44% of women had upper secondary or more completed by 2021, 45% will do so by 2026).

Figure 3.5: Market Value under Gender Parity (High Case)



SOURCE: IFC's estimates obtained through a demand model analysis leveraging survey and platform data (see Box 7 for further methodology details).

Other areas of interventions remain critical to close the gender gap in online education. Regression analyses using Coursera data to cover over 200 countries, combined with data from leading sources such as UNESCO, the World Bank and Pitchbook, show that the gender gap in the propensity to pay for online courses^{kk} is strongly linked with gender gaps in educational attainment (measured by the number of years of completed education). Countries with an increasing gender gap in educational attainment make less progress in closing the gender gap in access to online learning (see Annex: Methodology for more detailed regression results).

Closing the gender gap in online education can also result in positive career benefits and improved livelihoods for women. Of all the women surveyed, those who enroll in paid courses seem to derive higher benefits. Approximately 11 percent of women who have enrolled in at least one paid course over the last three years, experienced career related income increases, compared with 6.8 percent of women who have only enrolled in free courses over the same period. In addition, the size of the income premiums is also larger for paid women users. The weighted income premium for women who have taken paid courses is 10.9 percent,^{ll} while women who take free courses experience a premium of around

^{kk} Measured as the difference between women's paid enrollment rate and men's paid enrollment rate.

^{ll} Calculated based on the following statistic: of those women who experience a career-related income increase and paid for an online course, 30% report a 1% - 5% pay increase, 22% report a 5% - 10% increase, 19% report a 10% - 20% pay increase, and 28% report more than 20% pay increases.

8.7 percent. Econometric analyses of the surveyed learners from the four countries show that these differences in income benefits across paid and unpaid female users remain even after accounting for basic demographics such as years of education, age, country, and occupations. These results imply that if the gender gap in the

propensity to pay for online courses was closed, 904,000 women (11.3 percent of 8 million), on average, per year, could potentially experience income increases of around 10.9 percent in emerging markets.^{mm}

Box 8: Methodology for the Market Size and Business Opportunity From Closing the Gender Gapⁿⁿ

Market Size Approach

- The size of the market was calculated using the four countries in which Coursera collected detailed survey data (Egypt, India, Mexico, and Nigeria) as a basis.
- A demand model on the number of paid courses was specified for each country and gender, as a function of each user's age, income, education, and price paid per course. The demand model is estimated through an econometric regression.
- With these results, the minimum household income at which individuals are willing to pay for a course was identified, and thereafter the total number of individuals living above such income level.
- The product of the number of individuals willing to pay for a course with the expected average revenue per paying user in each country provided the market value estimate.
- After estimating the market sizes for these four countries individually, the market value for all emerging markets was extrapolated by assuming the four countries' market sizes are proportional to their GDP.
- Projections consider growth of the average revenue per paying user, population growth, and price trends.

Business Opportunity From Closing the Gender Gap

- Two scenarios are considered. The first assumes the status quo is maintained and the second scenario assumes that the gender participation gap closes progressively over time and achieves full closure by 2026.
- This equates to assuming that the minimum income level at which both women and men are willing to participate is equivalent.^{oo} The size of the market opportunity is derived from comparing both scenarios.

Key Assumptions of the Modelling Exercise

- The market sizing approach extrapolates the entirety of the online learning market based on a limited sample of Coursera's users from the four countries only.
- It relies on data sources which may have limited capacity to properly identify top incomes, such as publicly available government estimates and the World Bank's Povcal tool.^{pp}
- Projections such as countries' income growth and vendors' innovation are not directly captured. To partially adjust for this, estimates include different scenarios for market growth using growth expectations from other market research firms.^{qq}

^{mm} Most of Coursera's paid users have also taken free courses. In this context, it is important to note that these potential benefits represent the sum total of benefits across the learners' lifecycle across paid and unpaid courses, and not an automatic increase expected when a learner moves from free to paid. It is thus possible that some of these women may have already experienced some or most of the benefits while they were free users.

ⁿⁿ The full methodology is detailed in the Methodology Chapter.

^{oo} Closing the gender gap does not necessarily equate to an equal market value by gender. The reason is that despite an equal propensity to participate, there may be more women in a given country or women with completed secondary, which may result in a larger market value for women once the participation rates are equalized (See Methodology Chapter for further details).

^{pp} PovcalNet was developed by the World Bank's Development Research Group to allow users to replicate the calculations made by the World Bank's researchers regarding the share of people living a given international poverty line (for example, \$1.90, \$2.50, or \$3.00 a day).

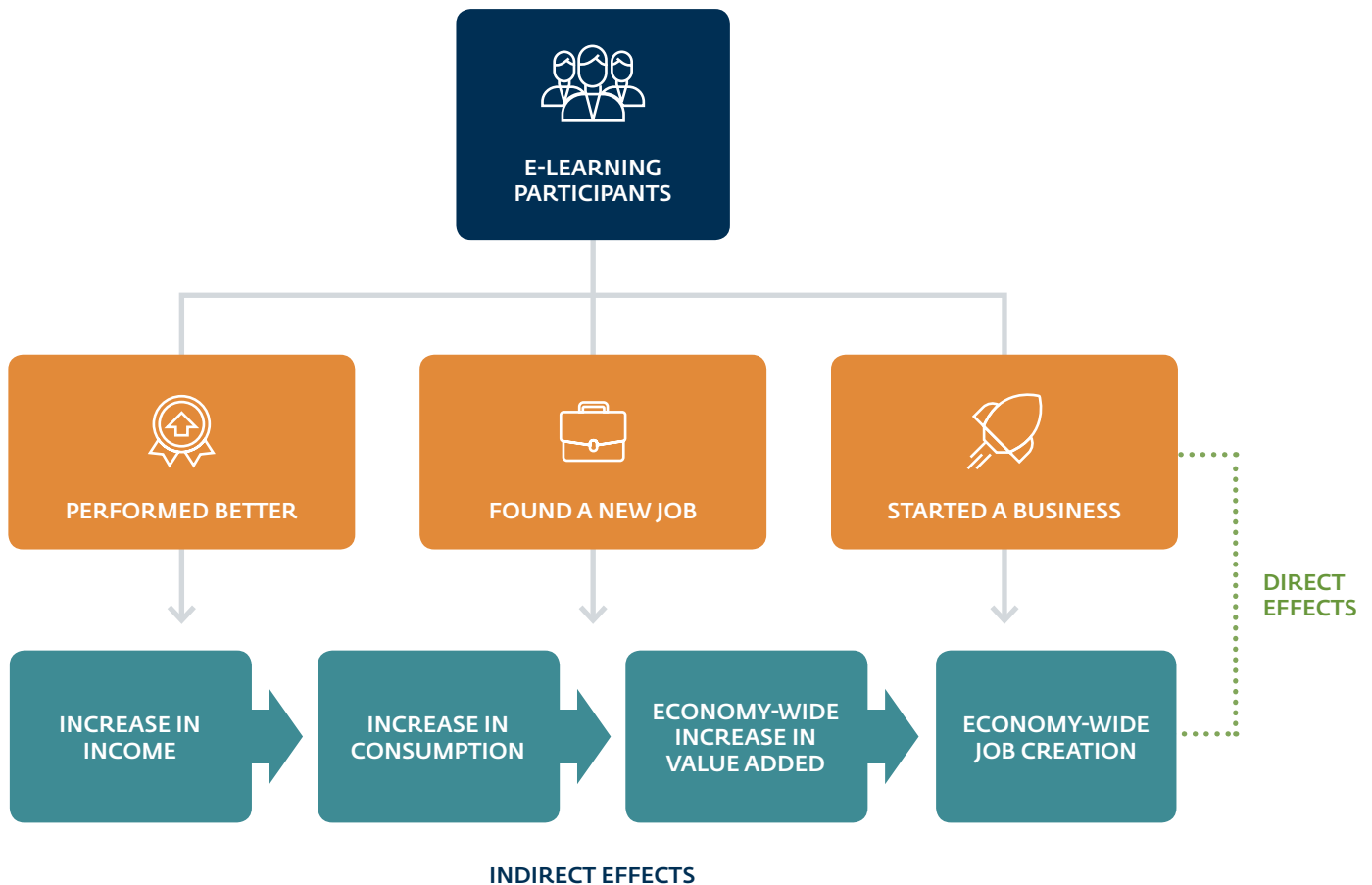
^{qq} This includes HoloniQ, Markets and Markets, Data Bridge, Technavio, 360i Research, Infinity Research, Global Industry Analysts, and Reports and Data.

SECTION II: LINKING ONLINE LEARNING AND JOB CREATION

Online Learning Supports Job Creation through Direct and Indirect Effects

E-learning programs can play a critical role in building competitive skills by addressing existing skills gaps, labor market mismatches, and gender barriers discussed in Chapter 1. These gaps affect the ability of firms and the wider economy to maximize outcomes.

Figure 3.6: Theory of Change for Economy-Wide Job Creation



Online learning impacts job creation through direct and indirect effects. It improves learners' employability in the labor market while also creating jobs in the economy through direct job creation and indirect effects driven by increased consumption. Improved employability refers to all those learners who found a new job or secured a promotion with their current employer. The analysis assumes that improved skills enabled these individuals to successfully compete for jobs that were created independently of online training programs. In estimating the effects, the analysis looks at direct job creation which it defines as participants who started a business and added jobs to the economy and not at improved employability (for details see Annex: Methodology). Indirect effects arise from greater household consumption which stem from the increased earnings of learners who report a new job and/or a promotion, start a new business, and better manage their business. These increases in household consumption have a multiplier effect on value added and employment throughout the economy (see Figure 3.6).

One Job is Created for Every 30 Learners Trained by Coursera in the Four Focus Countries

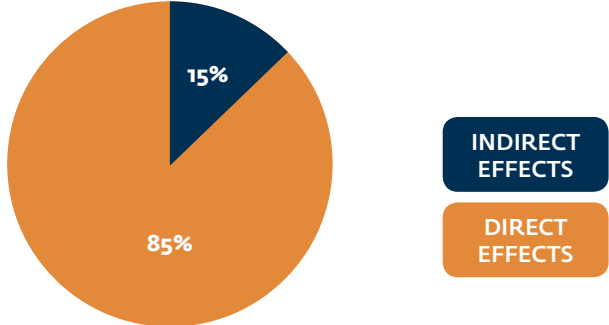
 **One new job** is added to the economy for every **30 people** trained by Coursera in the four markets surveyed

For every 30 people trained by Coursera in the four focus countries, one new job is created. Job creation, including direct and indirect effects, varies substantially across the countries. This is largely due to the direct effects driven by new business creation across all countries and accounts, on average, for more than 80 percent of total economy-wide job creation (see Figure 3.7). The data show that male and female learners have similar rates of creating jobs directly by opening new businesses across all sectors (see Figure 3.8). However, the rate at which male learners find new jobs is approximately 1.3 times higher than that for women. At the same time, more than 30 percent of these new businesses reported being registered or paying taxes so can be considered formal. The sex disaggregation of direct effects reveals that similar shares of men and women (among employed respondents in their respective groups) become entrepreneurs. Indirect effects vary widely across countries due to differences in job outcomes, wages, and reported income increases in the survey as well as the structure of the economy, resulting in large variations in

the additional consumption responsible for spillover effects throughout the economy. For example, the indirect effects are smallest in Nigeria which to some extent, is caused by relatively lower wages compared with the other countries. All these are lower bound estimates which do not include potential gains of increased productivity for firms benefiting from the improved skills of their online trained workers. The benefits of job creation can be maximized by encouraging enrollment in courses that build high-demand skills in the economy and by strengthening the links between educational opportunities and the labor force.

This analysis estimates job creation as a result of online learning using a first of its kind approach based on an economic modeling framework. Given the underlying differences in economic structures across countries and the conditions for job creation in different contexts, robust extrapolation cannot be produced. Further research that focuses on job creation in connection with online learning is needed to develop comparison benchmarks and build a broader economic case for online learning that extends beyond the scope of this research and the four markets.

Figure 3.7: Shares of Job Creation through Direct and Indirect Channels

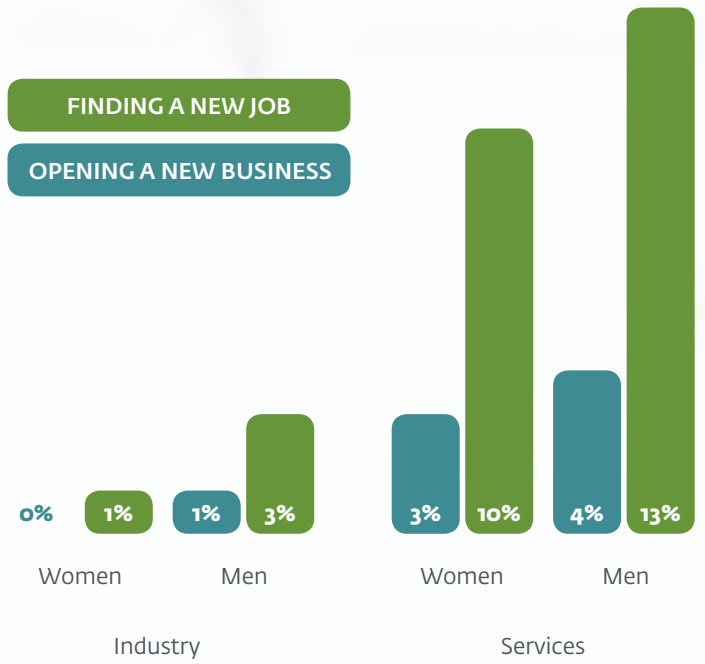


DIRECT AND INDIRECT JOB CREATION ACROSS COUNTRIES

SOURCE: IFC estimates based on the Coursera Survey Data and IFC's Economic Modeling Framework.



Figure 3.8: Starting a New Business and Finding a New Job, by Industry and Gender (% in total number of men and women)



SOURCE: IFC computations based on the Coursera Survey Data.



Chapter 4:

Conclusion and Recommendations

Online learning is here to stay, not only as a stand-alone educational tool but also as an increasingly integral complement to traditional in-person learning. This research found that women represent a minority of online learners on the Coursera platform. The COVID-19 pandemic has boosted women's enrollment, and more than 70 percent of learners reported the intention to continue learning online even after the pandemic. This presents a unique opportunity to retain new women users and close gender gaps.

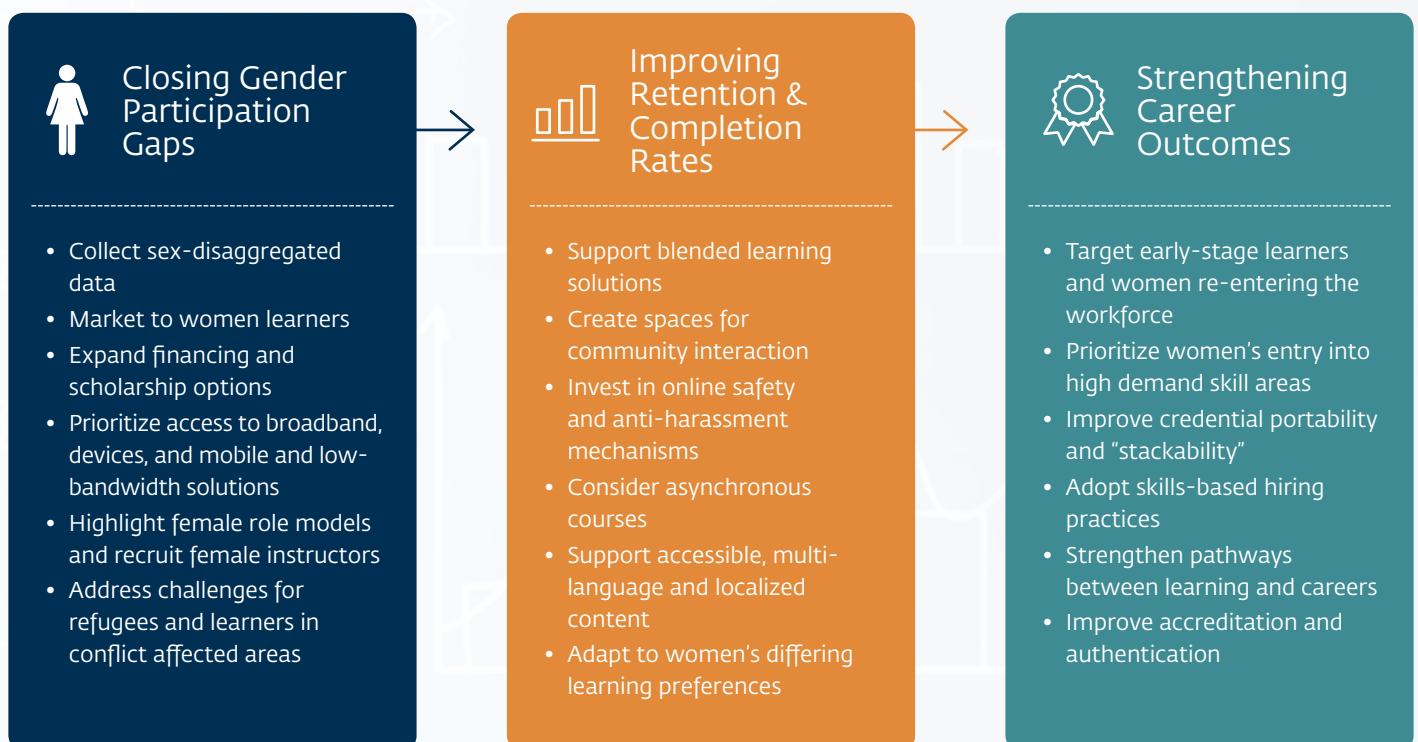
Closing gender participation gaps in enrollment makes business and economic sense. Reaching women learners would not only help address longstanding gaps in educational access for women, but also contribute to improved market and development outcomes. Already, a new job is created in the economy for every 30 people trained on Coursera (see Chapter 3, Section II). This

report finds the market for online learning in emerging markets could increase by up to 10 percent by 2026 if gender gaps were closed (see Chapter 2, Section I).

Men and women engage differently with online learning platforms and there are clear gender differences in learning and completion patterns, and objectives, and career outcomes. Further, learners with disabilities, LGBTQ+ learners, and learners without tertiary education are making use of online learning opportunities.

Urgent action is needed to ensure that women and other underserved learners around the world can benefit equally from the expanded opportunities offered by online learning. Table 3 outlines key recommendations to ensure that online learning can become a universally valuable tool.

Table 4.1: Recommendations to Improve Opportunities for Women Online Learners



Recommendations to Improve Online Learning for Women in Emerging Markets

Closing participation gaps of women and underserved populations	Collect sex-disaggregated data	<p>Tracking women’s engagement in online learning requires collecting and analyzing sex-disaggregated data. Similarly, asking users to voluntarily identify gender and disability status, while applying the necessary safeguards, can support outreach and impact the tracking of all identities as well as underserved learners.</p>
	Market to women learners	<p>Currently, women are less likely to discover online learning through online research. Targeted marketing can ensure women are aware of the range of new educational formats available. This is particularly essential for STEM courses and long-term, multi-course certifications that are most likely to support career outcomes but where women are underrepresented. Highlighting female instructors in ads can also boost enrollment. Additionally, the representatives of institutional and government initiatives who were interviewed during this study report successes in using female-only cohorts to boost women’s participation, particularly in STEM courses.</p>
	Expand financing and scholarship options	<p>Women face challenges to financial inclusion across all sectors and regions. Women learners are simultaneously more likely to depend on free courses and are less likely to apply for financial aid.</p> <p>Platforms can analyze their financial aid and scholarship applications and conduct research to understand gaps in applications. Moreover, platforms need to ensure that the promotion of existing aid opportunities is reaching women effectively. Platforms, institutions, and governments can introduce payment schemes, and/or dedicate a given percentage of scholarships to women learners. Employers should also ensure that development opportunities target women. Pricing models that allow for deferred tuition and income sharing schemes can unlock further options for cash-strapped, career-focused learners. Geo-pricing is another tool that platforms and educational institutions offering online courses can use to help ensure pricing accommodates middle- and low-income countries.</p> <p>At the ecosystem level, the public sector should also revisit post-secondary funding models to ensure that loans or subsidies, or loans for tertiary or other post-secondary education are available for online training. They should also ensure that women are able to take advantage of emerging skilling and reskilling programs. This would benefit all learners, but especially women.</p>
	Prioritize access to broadband, devices, and mobile and low-bandwidth solutions	<p>Women across all markets are more likely to access learning via mobile devices and are more likely to face challenges related to the cost of connectivity, as well as other forms of digital exclusion. Focusing on formats of learning that enable mobile access will support women’s participation. Designing media that can use low bandwidth, allowing downloadable content, and creating partnerships with carriers to reduce or eliminate the cost of data for online learning (also known as zero rating) can increase accessibility for learners with connectivity challenges.</p> <p>Supporting learners with lower digital literacy and learners without access to devices can also be a solution to help address gender gaps by establishing help desks and creating centers where learners can use devices, access a reliable connection, and get support with digital tools.</p> <p><i>“During the pandemic governments intervened to facilitate online education by providing help desks for learners. When targeted support is provided for online learning, we see wider adoption. Governments need to come up with policies in collaboration with the private sector to facilitate better access to online learning.”</i></p> <p>Prof. Asha Singh Kanwar, President and CEO, Commonwealth of Learning</p>

	<p>Highlight female role models and recruit female instructors</p>	<p>Women are more likely than men to enroll in classes with female instructors. Particularly in STEM and other courses for sectors where women are underrepresented, supporting female instructors, and using gender-inclusive visuals and language can help close gender gaps.</p> <p><i>“People want to see examples in online courses that look like themselves.”</i></p> <p>Karen Feeley, CEO of Comprehensive Learning Solutions</p>
	<p>Address challenges for refugees and learners in conflict affected areas</p>	<p>While this report focuses on women and provides insights on selected underserved populations, the experts consulted who work with refugees and in fragile and conflict affected areas have underscored the potential of online learning for displaced learners.</p> <p>UNHCR and the Connected Learning in Crisis Consortium work to provide access to education for refugees through online learning.¹⁷ Several platforms have special programs that target refugees such as Coursera’s Coursera for Refugee initiative and Na’amal and Techfugees which exclusively target refugees. Furthermore, some of the existing refugee education and training programs have integrated online learning into their programming because of the pandemic. Riad Nashashibi, Livelihoods Project Manager, Norwegian Refugee Council, Jordan reflects that, “Since COVID-related restrictions have eased, we have decided to continue with the online delivery model of our programs due to its flexibility and wider reach.”</p> <p>However, more research is needed to understand and address barriers to wider access for refugees and persons in fragile and conflict affected areas, where making platforms available without further interventions is not enough. Francis Randle, Connected Higher Education Specialist at UNHCR says, “Refugee learners face a multitude of challenges when it comes to accessing devices, regular internet, higher bandwidths and stable electricity. The immediate pressure on their livelihoods and unclear prospects in the job market due to restrictions on the job market make it difficult to retain learners. However, the courses remain popular with refugee learners and where they have the potential to be linked with job opportunities could have real impact.”</p>
<p>Improving retention and completion rates</p>	<p>Support blended learning solutions</p>	<p>Women are more likely to both value blended learning solutions and prioritize a sense of community through learning. Creating offline meetups, small group connections among learners, and other forms of personal engagement can strengthen women’s learning experiences. Disabled learners also expressed a slight preference for blended learning.</p> <p><i>“Female participation in our programs tripled when we switched to online learning and feedback was very positive. Feedback, however, indicated a strong preference to face-to-face education leading us to explore hybrid learning solutions.”</i></p> <p>Riad Nashashibi, Livelihoods Project Manager, Norwegian Refugee Council, Jordan</p>

¹⁷ More information at <https://www.unhcr.org/en-us/connected-learning.html#:~:text=Coordinated%20by%20UNHCR%20and%20Arizona,and%20displacement%20through%20connected%20learning>.

	<p>Create spaces for community interaction</p>	<p>Women value social interaction and are more likely to draw on learning partners for motivation. By including options for direct interaction with instructors, such as synchronous sessions, Q&A sessions, office hours and mentorship opportunities, and creating spaces where women can interact with other learners, such as forums and group work, platforms can make online learning less isolating while maintaining the flexibility that learners value.</p> <p>However, platforms need to ensure the safety of these spaces and allow mechanisms for women to report online gender-based violence as well as violence targeting other vulnerable groups.</p>
	<p>Invest in online safety and anti-harassment mechanisms</p>	<p>As participation in online learning grows, platforms need to invest in safeguarding mechanisms against online harassment and gender-based violence. Committing to safety controls and establishing clear procedures for reporting violations is important to ensure women, learners with disabilities, learners who identify as LGBTQ+ and other underserved groups continue to feel safe while learning online.</p>
	<p>Consider asynchronous courses</p>	<p>Women are more likely to prefer courses that can be completed on their own schedules, reflecting higher care responsibilities.</p>
	<p>Support accessible, multi-language and localized content</p>	<p>Multi-language and localized content will allow platforms to reach a wider audience of underrepresented learners who are less comfortable learning in English. Furthermore, having accessibility features available by default will allow platforms to better support learners with disabilities who may not be comfortable in coming forward and requesting special accommodations.</p>
	<p>Adapt to women's differing learning preferences</p>	<p>Online learning content creators can adopt strategies that adapt to the differing needs and preferences of women. Platforms can conduct analyses of their learners to understand behaviors and success factors of men and women. For example, practice quizzes, personalized content recommendations, listing common mistakes for peer-reviewed assignments, and distributing assignments throughout the course have been found to increase women's enrollment.</p> <p>Shorter learning sessions also make it easier for learners to learn consistently in shorter intervals, something from which time-constrained women can benefit. Supporting learners to keep up to date with assignments through reminder prompts, peer-support, and ascending assignment difficulty levels can make it easier to complete courses.</p> <p>Using AI technologies in assessments, testing, and content to gain insights based on student interactions can provide instructors with personalized feedback on how to motivate and improve the engagement of different groups of learners.</p> <p><i>"In the future, we hope AI can give insights based on student interactions and provide instructors with feedback to improve and motivate engagement in ways that can level the playing field even more."</i></p> <p>Marie A. Cini, Ph.D., Provost and Chief Academic Officer, University of the People</p>

Strengthening entrepreneurship and labor market outcomes	Target early-stage learners and women re-entering the workforce	<p>Many of the learners surveyed had already completed some post-secondary education. Targeting learners who are just starting to explore their careers or are re-entering the workforce can support women's entry into high-demand skill sets. Professional certifications can provide employment pathways to learners who have not pursued higher education degrees. Credentials can offer easier entry points into higher education than four-year degrees. Targeting this growing learner-base can support women who are less likely to enroll in tertiary education.</p> <p><i>"In a world of work that is rapidly developing, women returning to the workforce after a long absence need to show that the skill sets they carry are relevant and enough to handle the job requirements of today. Online learning is best placed to support them with this."</i></p> <p>Shantanu Rooj, Founder and CEO, TeamLease EdTech, India</p>
	Prioritize women's entry into high-demand skill areas	<p>Women's underrepresentation in STEM learning re-inforces widespread labor market segregation. Encouraging women learners to explore individual courses, and eventually, longer term certifications and leveraging the growth of remote work in tech fields could help address this longstanding barrier and set women up for success in emerging priority sectors in their local economies.</p>
	Improve credential portability and stackability	<p>Students learning across multiple platforms, or completing a selection of courses over time, can struggle to complete degrees. Improved portability and stackability (combining courses to achieve a credential) both within and between platforms can lower barriers to degree completion. This may particularly benefit women, who are more likely to be exploratory learners and who are currently less likely to invest in multi-course certifications and credentials. Having more stackable courses can enable women to balance affordability and time constraints so they can take the time they need to work towards completing a degree or certificate.</p>
	Adopt skills-based hiring practices	<p>Companies that assess job applicants based on skills assessments create opportunities for diverse candidates, women, and other underrepresented groups who develop their skills through online learning and who may not have the typical learning journey of other candidates. A shift to skills-based hiring can level the playing field and allow those with credentials earned online the chance to compete, fostering wider acceptance of online learning.</p> <p>Further research to look at employers' perceptions and experiences when it comes to the value of online credentials is needed.</p>

	<p>Strengthen pathways between learning and careers</p>	<p>Learners have articulated the need for opportunities to practically apply their knowledge through capstones, internships, and connections with companies. Experts interviewed in this study highlighted that online learning is particularly suited to the needs of employers. By partnering with companies to provide experiential opportunities, platforms can help learners to boost their employment opportunities.</p> <p><i>“Providing a link between online education and employment opportunities is crucial as learners continue to invest time in enhancing their skillsets and knowledge, they are able to witness the tangible impact and result of their efforts.”</i></p> <p>H.E. Sumaya Abdulaziz Al Hosani, Dean of the Abu Dhabi School of Government</p> <p>Platforms can look to employer consortium, bootcamps, and other emerging models which give employers access to a pool of candidates to boost learners’ employment opportunities.</p> <p>Furthermore, governments, employers and platforms can collaborate to identify and develop high-demand courses, certificates, and degree programs in growing and prioritized sectors. For example, SkillsFuture Singapore,⁵⁵ is an initiative that supports and encourages learners to develop in-demand and emerging skills, based on industry needs.</p>
	<p>Improve accreditation and authentication</p>	<p>Employers voiced concerns over authentication and the quality assurance of credentials. Moreover, both learners and experts expressed a need for more extensive accreditation of credentials earned online. Platforms can address these concerns by using new and emerging technologies and promoting foolproof ways to verify achievement to help sway reluctant employers.</p> <p>Policy makers, institutional actors, and governments need to work together with platforms to establish solutions and roadmaps for credential verification, expand accreditations, and recognize trusted sources of online credentials. Examples of such work include the EU’s common approach to recognize micro-credentials,⁵⁶ the Velocity Network Foundation’s Internet of Career Consortium which aims to enable portable personal credentials,⁵⁷ and SkillsFuture in Singapore, a government agency that provides information to individuals on trusted online learning options.</p>

⁵⁵ More information at <https://www.skillsfuture.gov.sg/>

⁵⁶ More information at <https://education.ec.europa.eu/education-levels/higher-education/micro-credentials>


⁵⁷ More information at <https://www.velocitynetwork.foundation/>




Country Deep Dives

 **Egypt**

 **2X** Women in Egypt are **twice as likely as men to list family obligations** as a driver for online learning

 **29%** of women in Egypt report **feeling safer or more comfortable** as a leading reason for learning online, more so than other focus countries

 **25%** of women in Egypt cite **more language options** as a feature that would make online learning more appealing, the highest among the focus countries


 **21%** Learners with disabilities are well-represented in online learning in Egypt - **21% of survey respondents report having some form of disability**

 **32%** of online learners in Egypt report **positive career outcomes and one new job is added to the Egyptian economy for every 30 people** trained by Coursera

 **Mexico**

 **48%** of women online learners in Mexico **paid for their online courses out of their personal savings**, more than any other focus country

 **66%** Online learning is making an impact for underserved populations; 66% of learners **have a monthly household income below the 50th percentile of less than 15,000 Mexican pesos**

 **40%** Learners in Mexico experienced the greatest job and business outcomes - **40% of women and 44% of overall learners** secured a new promotion or job, set up a new business, performed better at their current job, or learned to manage their business better

 **50%** In Mexico, the pandemic pushed women's online learning enrollment rates to parity - **women's share of enrollment jumped from 47% in 2019 to 50% in 2020**

 **44%** of online learners in Mexico report **positive career outcomes and one new job is added to the Mexican economy for every 20 people** trained by Coursera

 **Nigeria**

 **24%** of learners in Nigeria cite **accommodations to limited connectivity and 28% cite mobile-friendly course content** as key features that would make online learning more appealing, more than any other focus country

 **92%** Learners in Nigeria believe in the potential of online credentials - **92% of learners find that online credentials are valued by employers to some extent**, a level higher than all other focus countries. However, more can be done - 55% of learners report that **increased acceptance among employers for online learning credentials would make online learning more appealing**

 **70%** of women who joined online learning **with the goal to set up and manage their own business reported achieving their goal**, the highest of all focus countries

 **38%** of online learners in Nigeria report **positive career outcomes and one new job is added to the Nigerian economy for every 30 people** trained by Coursera

Annex: Egypt Country Deep Dive



Key Gender Indicators



102,334

POPULATION

(World Bank, 2020³³¹)



\$3,569

GDP PER CAPITA

(World Bank, 2020³³²)



15%

LABOR FORCE PARTICIPATION
RATE, FEMALE (% OF FEMALE
POPULATION AGES 15+)

(ILO, 2020³³³)



31%

EMPLOYED FEMALE POPULATION
IN SELF-EMPLOYMENT

(ILO, 2019³³⁴)



66%

LITERACY RATE, ADULT FEMALE
(% OF FEMALES AGES 15 AND
ABOVE)

(UNESCO, 2017³³⁵)



40% **38%**

SCHOOL ENROLLMENT,
TERTIARY, GROSS

(UNESCO, 2018)



68% **67%**

EDUCATIONAL ATTAINMENT, AT LEAST
COMPLETED UPPER SECONDARY,
POPULATION 25+

(UNESCO, 2017³³⁶)



76% **91%**

GENDER GAP IN MOBILE
PHONE OWNERSHIP

(Gallup, 2019³³⁷)



22% **2%**

PROPORTION OF TIME SPEND ON
UNPAID DOMESTIC AND CARE
WORK

(UN Statistics Division, 2015³³⁸)

Country Context

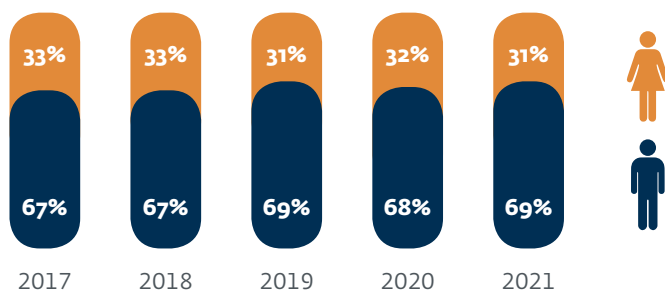
Egypt's EdTech market experienced an influx of new users as the pandemic accelerated the digitalization of education.¹⁴⁰ While the majority of venture capital investments in Egypt in 2020 were in fintech and e-commerce,¹⁴¹ despite user growth, Egyptian EdTech startups such as Orcas are growing and securing funding for regional expansion.¹⁴² Higher Education and Technical and Vocational Education in Egypt is provided by public institutions on merit-based admissions, and at no cost to students.¹⁴³ The tertiary enrollment ratio^w for men and women in Egypt is 40 percent,¹⁴⁴ the second highest in this study's focus countries and women's tertiary enrollment rate is over one percentage point higher than men's.¹⁴⁵ In 2019 and 2020 women represented 53 percent of graduates of higher education.¹⁴⁶ In fact, women's and girls' enrollment either exceeds or is equal to men's and boys' in all stages of education.^{147,148}

Despite the gains in educational attainment made over the last four decades, female labor force participations remains low, a phenomenon often called the MENA Paradox.¹⁴⁹ Since the World Bank first coined this term in 2013, participation has further plummeted—15 percent of the female population in Egypt is in the labor force compared with 67 percent of the male population.¹⁵⁰ While there are many factors other than education that affect labor market outcomes, research shows that the labor force in Egypt lacks appropriate skills which impedes firms' development and reveals a mismatch between educational outcomes and labor market needs.¹⁵¹

“Technology is a great supporter for empowering women generally to learn and develop and to work and be financially independent.”

Dalia Ibrahim, EdVentures, Egypt

Figure E-1: Women's Enrollment in Egypt



SOURCE: Coursera Platform

^w Gross enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to tertiary education.



SOURCE: GETTY IMAGES

Soha, a digital marketer and entrepreneur from Egypt

Soha is a visual artist by training who now works in the Digital Marketing field. In 2020, at the height of COVID-19 restrictions in Egypt, there were no art exhibitions, her main line of work. She started her online learning journey and attended courses in visual arts, graphic design, photography, and journalism. She used online learning to access courses that are not available locally in Egypt such as visual arts courses provided by the Museum of Modern Art (MoMA) in New York.

During the pandemic, she set up a small business with a friend and relied on online courses to learn how to manage it; *“Online learning also gave me the confidence to set up my business”*.

She also built her portfolio as a visual artist. As restrictions eased, she started seeing the impact of her learning: *“I was able to work online in social media and graphic design thanks to the skills I learned which had a positive effect on my income”*.

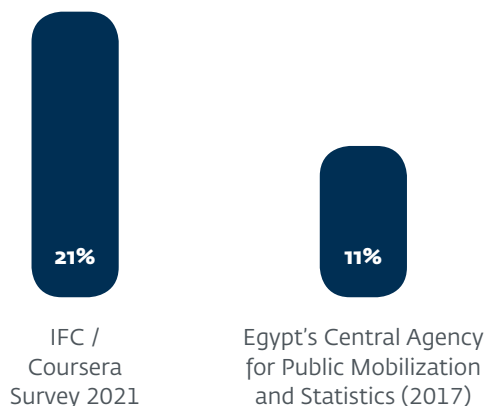
She believes the artistic community values her credentials earned online saying, *“You need a lot of knowledge in this field which isn't always available locally”*.

Country Results

Women represent a minority of online learning participants in Egypt. As of December 2021, Egypt has around 1.7 million total registered learners on Coursera’s platform. Platform data shows that enrollment by women learners was 31 percent in 2021, participation has not grown since 2017, and the impact of the pandemic on women’s enrollment has been minor compared with the other focus countries. Platform data shows that 60 percent of all Coursera learners in the Middle East are in the workforce, and since women’s labor force participation in Egypt is low, this may explain the lower enrollment trends. Furthermore, adult women in Egypt are 28 percent less likely than men to have access to the internet, which represents a key barrier to online learning.¹⁵²

Survey findings indicate that learners with disabilities are particularly well represented in Egypt. Twenty-one percent of survey respondents cite some form of disability, compared with an average of 17 percent across the four countries. National data^{www} shows that as of 2017, 11 percent of the population are persons with disabilities, of which only 12.5 percent have access to the internet.¹⁵³ Nine percent of male and female survey respondents in Egypt say that more accessible content would make online learning more appealing to them, compared with only one percent or two percent in the other four focus countries.

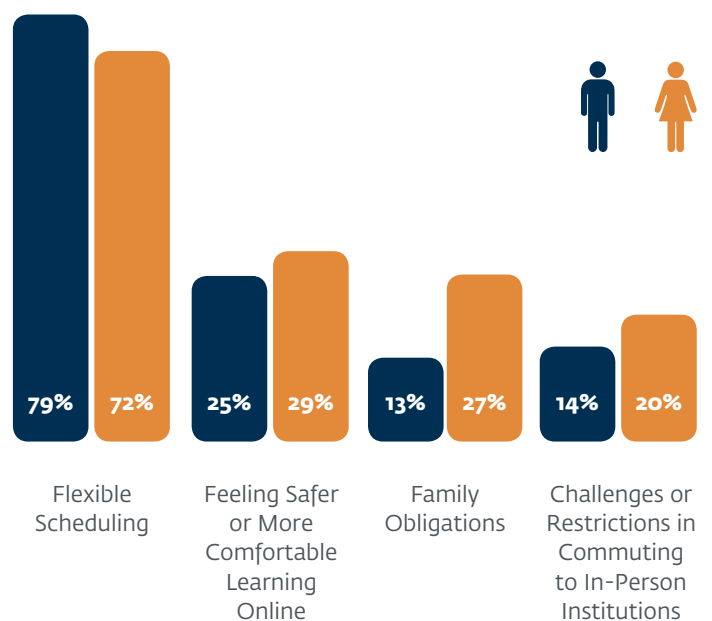
Figure E-2: Survey Respondents Citing Some Form of Disability



SOURCE: IFC/Coursera Survey

While men and women choose online learning for a variety of reasons, family obligations, safety, and commute restrictions are bigger drivers for women. Among those who report choosing online learning as a personal preference rather than choosing online learning because of the pandemic, flexibility was the highest driver with well over 70 percent of women and men citing it as a top reason. Twenty-seven percent of women, over twice the proportion of men (13 percent), list family obligations as a driver for online learning. Women are also more likely than men to list safety as a top consideration. Twenty-nine percent of women and 25 percent of men cited safety as a leading reason for learning online. Women in Egypt are also more likely to face restrictions on their commute—20 percent of women, compared with 14 percent of men, report commute restrictions as a top reason for studying online.

Figure E-3: Reasons for Choosing Online Learning in Egypt



Differences for flexible scheduling, family obligations statistically significant at 5 percent level, safety and commute at 10 percent level

SOURCE: IFC/Coursera Survey

“In Egypt, married women spend seven times as much time on unpaid care work as married men; while unmarried women spend 6.5 times as much as unmarried men.”

ERF and UN Women, Progress of Women in the Arab States 2020: The role of the care economy in promoting gender equality.¹⁵⁴

^{www} Egypt’s Central Agency for Public Mobilization and Statistics uses the Washington Group Statistics Implementation Guidelines. IFC’s survey deployed the same guidelines.

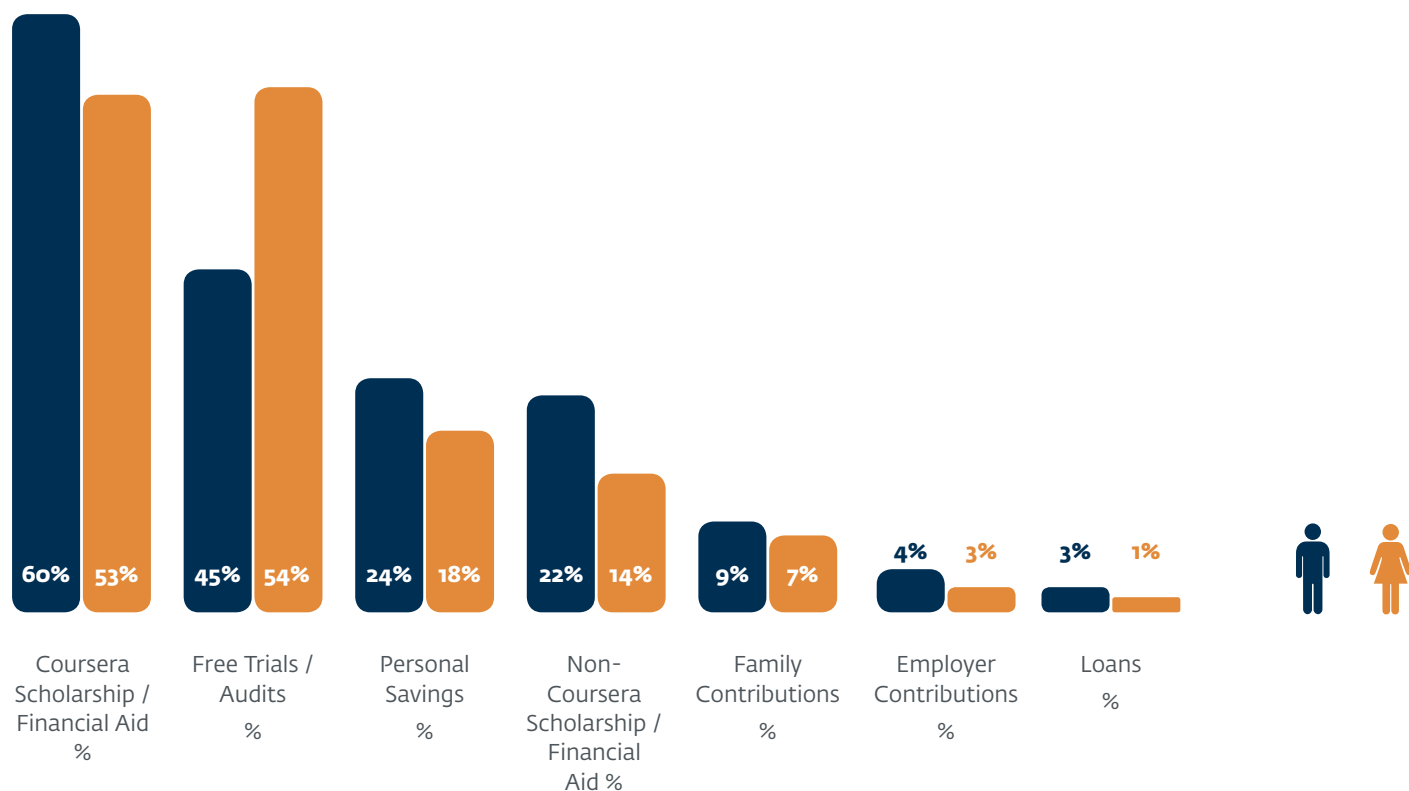
Greater affordability, more language options and simpler registration are among the ways to make online learning more appealing to women in Egypt. The majority of learners in Egypt list affordability as a challenge and rely on free trials or auditing courses to learn online. However, women surveyed are less likely than men to rely on any type of financial aid both on and off Coursera and represent only 25 percent of financial aid applications in Egypt. While women learners in Egypt also valued flexibility and mobile friendly course content, they are more



Over 20% of women learning online in Egypt list **more language options and simpler registration** as one way to make online learning more appealing

likely than learners in other countries surveyed to list simpler registration and more language options as ways to make online learning more appealing.

Figure E-4: How Learners Pay for Online Education in Egypt



HOW LEARNERS PAY FOR ONLINE EDUCATION IN EGYPT

Differences in free trials/audit, personal savings, Coursera scholarship/financial aid, Non-Coursera Scholarship/financial aid statistically significant at 5 percent level, remaining categories are not

SOURCE: IFC/Coursera Survey

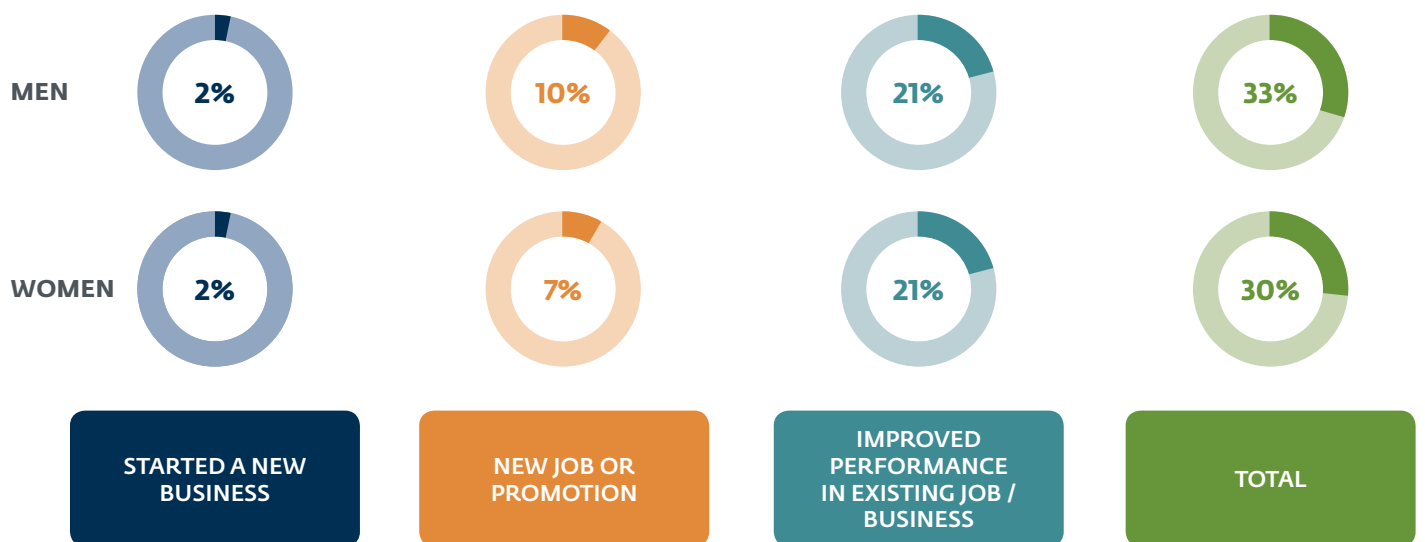
“Financial aid was a key deciding factor in choosing which platform I study on. For a new graduate like me with limited financial resources, finding scholarships was essential.”

Sama, learner from Egypt

Thirty-two percent of online learners in Egypt report positive job or business outcomes as a result of online learning. Thirty-three percent of men and 30 percent of women report experiencing positive job or business outcomes, while 16 percent of men and 20 percent of women improved their potential by building skills to prepare for a new job application. These outcomes are notable since women are less likely to join online

learning with career outcomes in mind. Twenty-one percent of women entrepreneurs started a new business or received a new job or promotion as a freelancer, while 13 percent of women employees received a new job or a promotion. Regardless of employment type, 21 percent of both men and women improved their performance in their existing job or business after learning online.

Figure E-5: Positive Career Outcomes in Egypt



Differences for new job or promotion statistically significant at 5 percent level, remaining are not

SOURCE: IFC/Coursera Survey

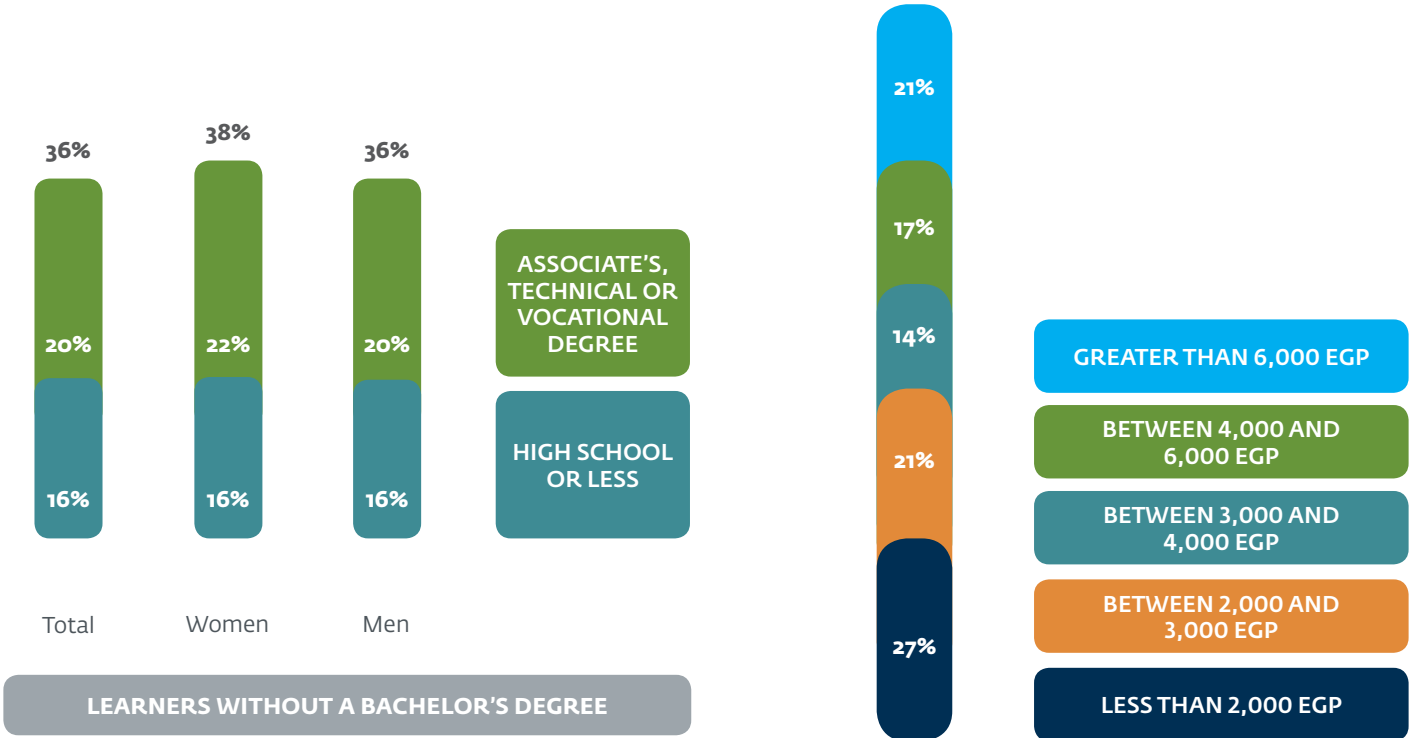
"I find that online learning is more tailored to what employers are looking for, and because of that I believe it complemented my education and made me a better candidate for the jobs I applied for."

Sama, learner in Egypt

In Egypt one new job is added to the economy for every 30 people trained by Coursera. In addition to individual learners who get new or better jobs, online education also produces gains within the broader economy. Improved skills and qualifications create new jobs directly through the creation of new businesses. Jobs are also created indirectly through increased consumption and economic activity driven by higher incomes. These results reflect learners at multiple stages of engagement with online learning, from new enrollees to those completing credentials.

People without a higher education degree are well represented on the Coursera platform in Egypt. Platform data shows that 16 percent of learners in Egypt hold a high school degree or less while 20 percent have some post-secondary qualification but not a bachelor's degree. Moreover, over a quarter of learners surveyed have a household income below the 50th percentile of less than 2,000 Egyptian pounds (approximately \$127), which is the national minimum wage.

Figure E-6: Education and Income



SOURCE: Coursera Platform and IFC/Coursera Survey



Annex: Mexico Country Deep Dive



Key Gender Indicators



128,982

POPULATION

(World Bank, 2020¹³¹)



\$8,329

GDP PER CAPITA

(World Bank, 2020¹³²)



41%

LABOR FORCE PARTICIPATION RATE, FEMALE (% OF FEMALE POPULATION AGES 15+)

(ILO, 2020¹³³)



33%

EMPLOYED FEMALE POPULATION IN SELF-EMPLOYMENT

(ILO, 2019¹³⁴)



94%

LITERACY RATE, ADULT FEMALE (% OF FEMALES AGES 15 AND ABOVE)

(UNESCO, 2020¹³⁵)



44%

42%

SCHOOL ENROLLMENT, TERTIARY, GROSS

(UNESCO, 2019)



38%

40%

EDUCATIONAL ATTAINMENT, AT LEAST COMPLETED UPPER SECONDARY, POPULATION 25+

(UNESCO, 2020¹³⁶)



71%

74%

GENDER GAP IN MOBILE PHONE OWNERSHIP

(Gallup, 2019¹³⁷)



28%

11%

PROPORTION OF TIME SPEND ON UNPAID DOMESTIC AND CARE WORK

(UN Statistics Division, 2019¹³⁸)

Country Context

Tertiary education attainment of adults (those aged between 25 and 64) in Mexico is 19.4 percent as of 2020.¹⁶⁷ Overall, adult men in Mexico are more likely than women to have attained tertiary education, but this trend is reversed for the younger generation—women aged between 25 and 34 have a four percent higher tertiary attainment rate than men in the same age group.¹⁶⁸

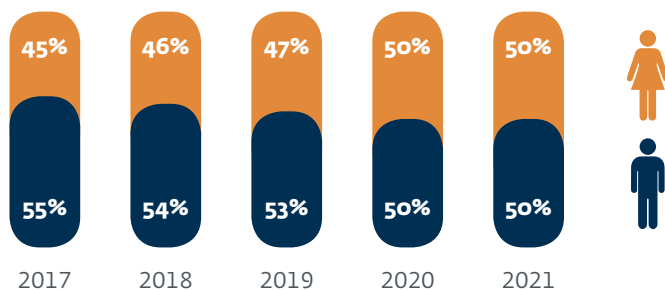
Mexico has one of the highest earnings premiums for tertiary-educated workers in the OECD. Young tertiary-educated workers can earn 78 percent more than those with only upper-secondary education.¹⁶⁹ Employment rates increase in tandem with higher tertiary attainment, and tertiary-educated young adults have a higher employment rate than those with only upper-secondary education.¹⁷⁰ However, women do not equally benefit from the tertiary education earnings premium. Tertiary-educated women earn on average 66 percent of their male tertiary-educated counterparts, net of income tax.¹⁷¹ Women also have a lower overall labor force participation rate of 41 percent, compared with 72 percent for men.¹⁷²

Country Results

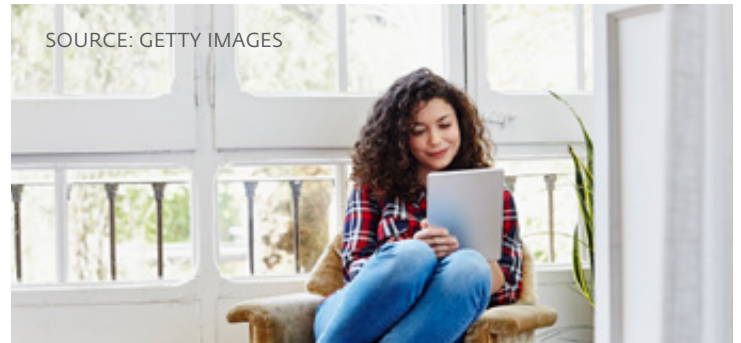
Digital learning is expected to be in high demand over the next decade in Mexico and across Latin America, as growth is expected for bootcamp models, upskilling, and university partnerships for technology training.¹⁷³

The share of women learning online has increased over the last five years, from 45 percent in 2017 to half of the Mexican online learning market in 2021. Seventeen percent of online learners say they have some type of disability. As of December 2021, Mexico has around five million registered learners on Coursera's platform.

Figure M-1: Online Learning Enrollment in Mexico



SOURCE: Coursera Platform



SOURCE: GETTY IMAGES


Ana Lilia, a chemical engineer and working mother from Mexico

Ana Lilia is a chemical engineer and working mother who lost her job during an economic downturn that affected Mexico between 2015 and 2017. She started taking classes with Coursera in 2018, initially out of personal interest, but then discovered a course from Stanford on scientific writing. Since taking this course, Ana Lilia was able to apply what she learned through Coursera to a new job as a freelance consultant editing scientific texts. She has been doing this since 2019 and has worked from home, completely remotely.

"I didn't originally think it would help my career. I did it because I was unemployed and I needed something to do, but then when I began trying out courses, I felt the need to keep learning. I didn't start to find a job, but with the desire to learn. It has opened a whole new panorama for my career. I have found people who need English-Spanish translation, or colleagues who invite me to collaborate on research, and now I've been included in publications. It has pushed my career forward a lot."

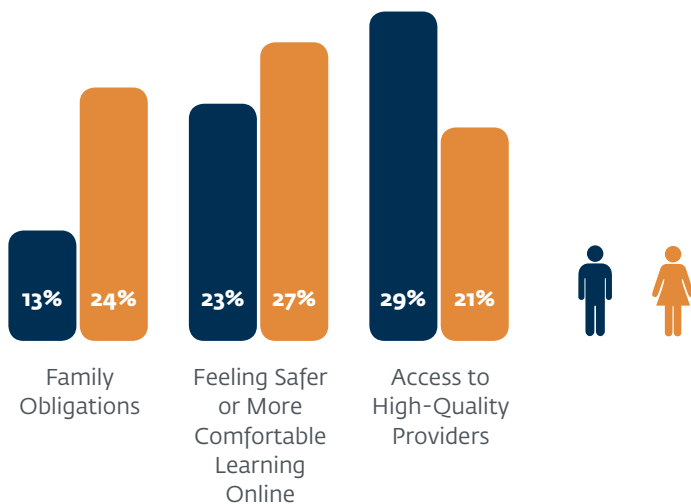
The flexibility of online learning has also helped her with care work in taking care of her son, which has been particularly helpful in the context of the pandemic. *"I have a son. It can be unpredictable and care work requires a flexible schedule, and you can pick the day and the time you want to learn."* The income from the freelance work now constitutes the main share of Ana Lilia's income. *"It is part of my principal income. Once I took the course, it opened up this new possibility, and it is an income that helps a lot."*

In Mexico, the COVID-19 pandemic pushed more women than men toward online learning, and this trend is expected to continue following the pandemic. Seventy-two percent of women and 79 percent of men reported they will continue online learning following the COVID-19 pandemic. Furthermore, online learning has provided access to education to learners who would otherwise not be able to study—48 percent of learners say they would have postponed studies or not studied at all in the absence of online learning.

 **47%** of LGBTQ+ learners report feeling more comfortable voicing their opinions when learning online than in-person

Despite legislative amendments¹⁷⁴ prohibiting discrimination on the basis of sexual orientation, LGBTQ+ learners in general report being subject to bullying, which results in truancy, depression, suicide attempts, or the discontinuation of education altogether.¹⁷⁵ Learners in Mexico who identify as LGBTQ+ are more likely than non-LGBTQ+ learners to ask for the help they need and voice their opinions when learning online. Forty-seven percent of LGBTQ+ learners report feeling more comfortable voicing their opinions when learning online than in-person, compared with 40 percent of non-LGBTQ+ learners. Thirty-six percent of LGBTQ+ learners report being more likely to request help and ask questions as needed when learning online rather than in-person, in contrast to only 30 percent of non-LGBTQ+ learners.^w

Figure M-2: Reasons for Choosing Online Learning in Mexico



Differences statistically significant at 5 percent level

SOURCE: IFC/Coursera Survey

^w Differences between LGBTQ+ and non-LGBTQ+ learners statistically significant at 5 percent level

“I did not have the chance to study what I wanted because it was too far from my house and my health conditions would not allow that. Online learning has allowed me to study what I want, it’s more accessible and they even offer scholarships.”

Natelli, Learner from Mexico

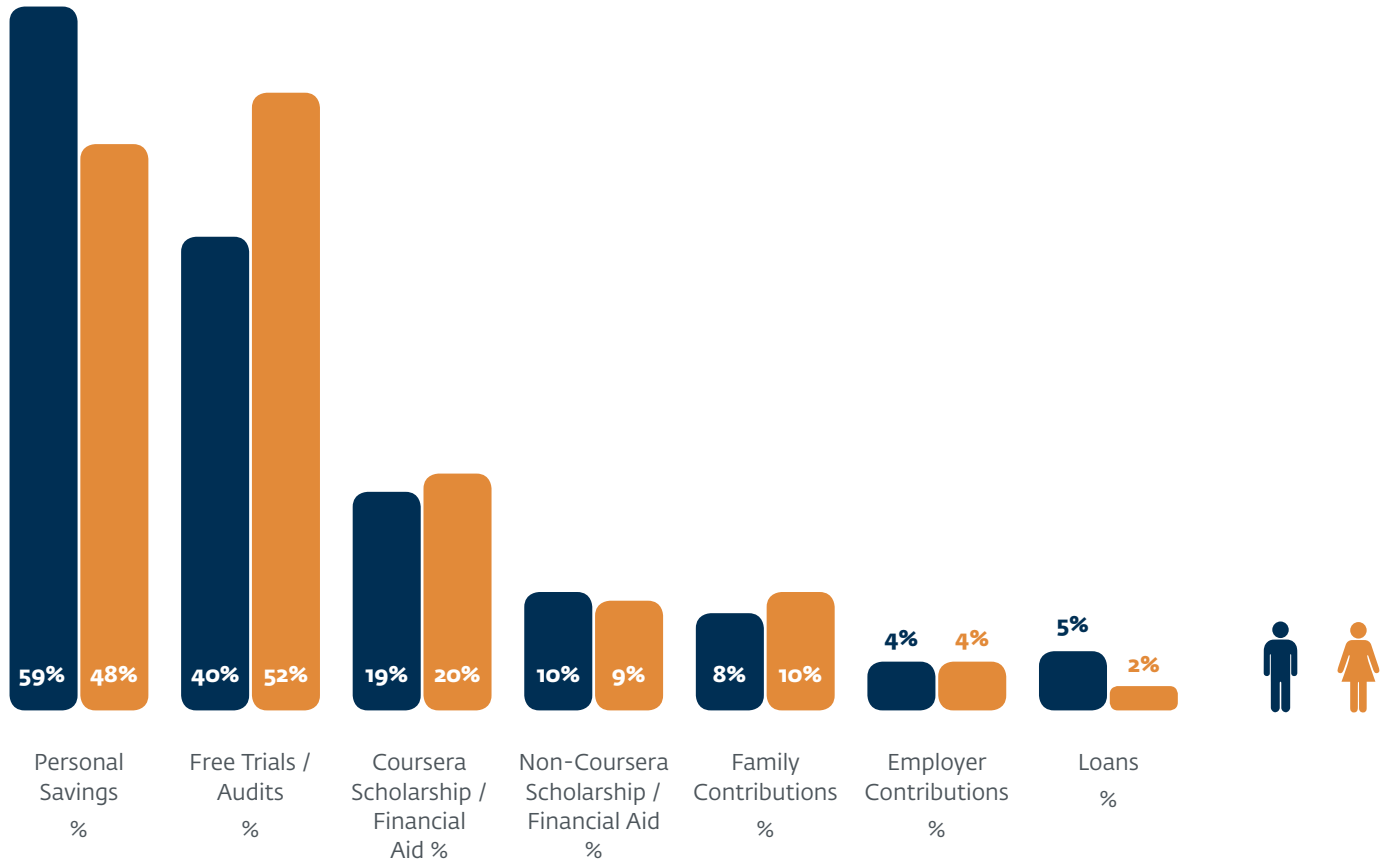
Women in Mexico are more likely than men to be driven to online learning by family obligations and safety. Women in Mexico carry a disproportionate burden of unpaid work and undertake three-quarters of all unpaid work at home, including childcare. Twenty-four percent of women and 13 percent of men in Mexico cite family, childcare, or other obligations in the home as one the top three reasons for studying online. Women are also more likely than men to feel safer learning online than in person. Safety is a more common reason for women (27 percent) than men (23 percent) to choose to learn online out of personal choice. Twenty-nine percent of men and 21 percent of women list access to higher quality providers as factors that led them to prefer to study online.

“As a working mother, my schedule can be unpredictable, and care work requires a flexible schedule. During the pandemic lockdown, my son was at home, so I made space for him next to me. I work at my computer, and I can get up and help him as necessary.”

Ana Lilia, learner from Mexico

Greater affordability, flexible scheduling, mobile-friendly course content, and accommodations for low internet connectivity can draw more women in Mexico into online learning. The majority (91 percent) of all learners in Mexico cite flexible scheduling as the top reason for studying online. Over half of women in Mexico access course content through their mobile phone, and women are more likely than men to cite mobile-friendly course content and accommodations for low internet connectivity as factors that could make online learning more appealing. While both men and women surveyed cite affordability as a way to make online learning more appealing, fewer women than men find online learning to be affordable. Women are more likely to rely on free trials and to audit courses without credit, while men are more likely to rely on personal savings to pay for their online education. Nevertheless, men consistently make up the majority of financial aid applications for online learning—nearly 60 percent of financial aid applications in 2021 were submitted by men.

Figure M-3: How Learners Pay for Online Education in Mexico



HOW LEARNERS PAY FOR ONLINE EDUCATION IN MEXICO

Differences in personal savings and free trials/audit statistically significant at 5 percent level, remaining categories are not

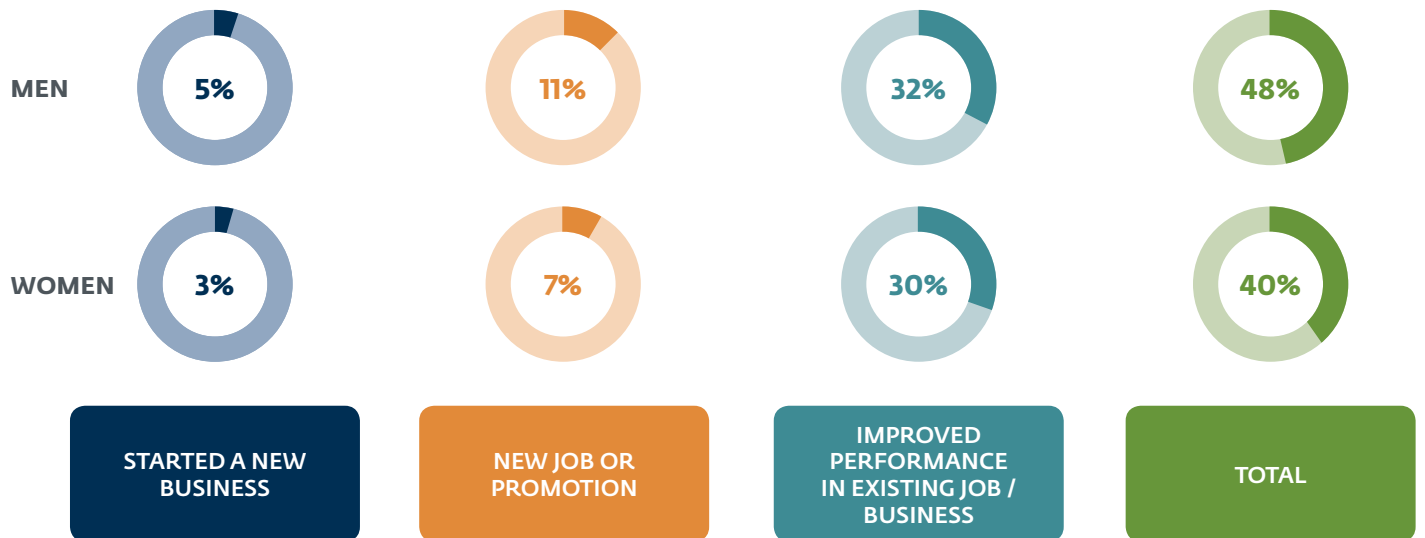
SOURCE: IFC/Coursera Survey

 **12%** of women entrepreneurs of women entrepreneurs started new businesses or secured a new job or promotion

Forty-four percent of online learners in Mexico report positive job or business outcomes as a result of online learning. Forty-eight percent of men and 40 percent of women report experiencing positive job or business outcomes, while 14 percent of men and 17 percent of women improved their potential

by building skills to prepare for a new job application. The gender difference is notable since women are less likely to join online learning with career outcomes in mind. Eighteen percent of women entrepreneurs started a new business or received a new job or promotion as a freelancer, while 12 percent of women employees received a new job or a promotion as a result of online learning. Regardless of employment type, 32 percent of men and 30 percent of women improved their performance in their existing job or business.

Figure M-4: Positive Career Outcomes in Mexico



Differences for new job or promotion and started new business statistically significant at 5 percent level, remaining are not

SOURCE: IFC/Coursera Survey

In Mexico one new job is added to the economy for every 20 people trained by Coursera. In addition to individual learners who get new or better jobs, online education also produces gains within the broader economy. Improved skills and qualifications create new jobs directly through the creation of new businesses. Jobs are also created indirectly through increased consumption and economic activity driven by higher incomes. These results reflect learners at multiple stages of engagement with online learning, from new enrollees to those completing credentials.

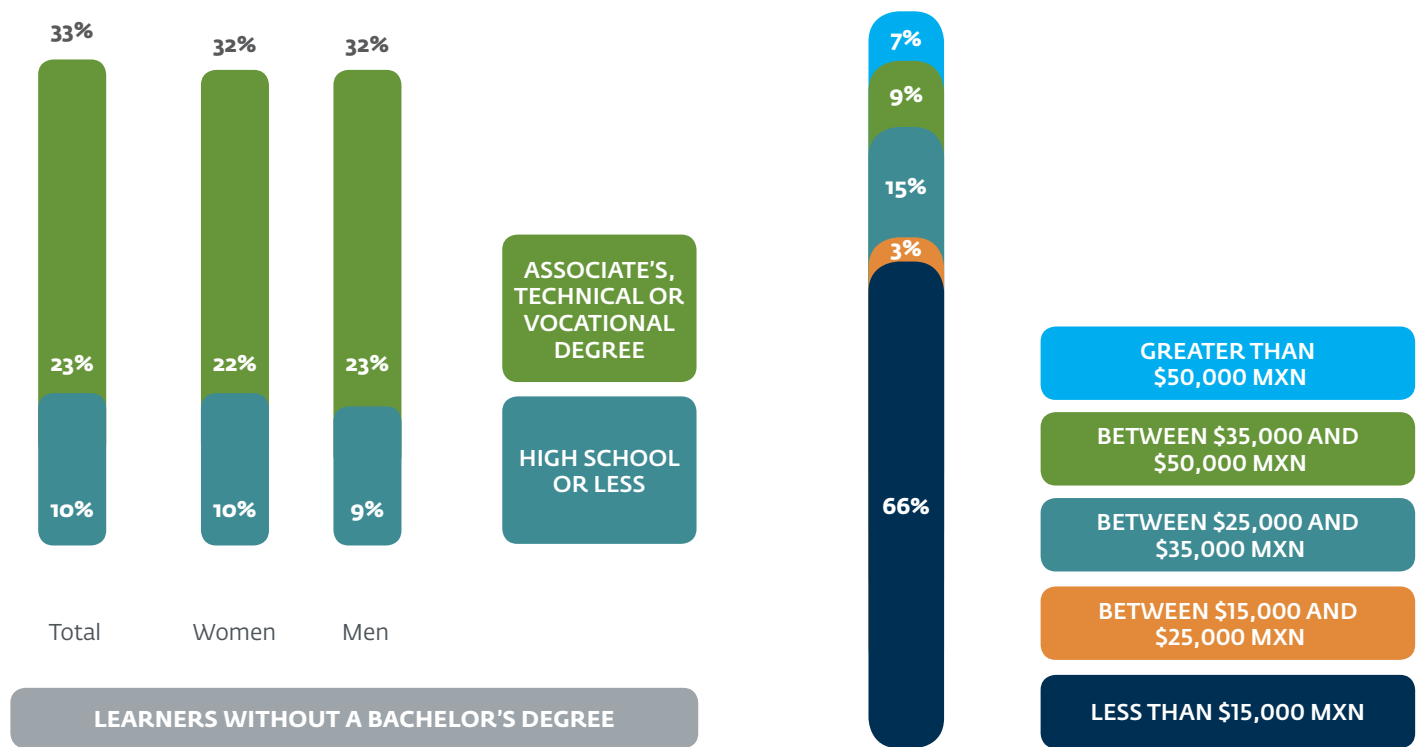
Online learning has the potential to make an impact for underserved populations in Mexico. Platform data shows that

of all Mexican learners on the platform, 10 percent have a high school degree or less and another 23 percent hold a post-secondary qualification but not a bachelor’s degree. Mexico has the highest proportion of learners reporting a household income below the 50th income percentile among the focus countries—66 percent of online learners report a monthly household income below the 50th percentile at 15,000 Mexican pesos (approximately \$747) or less, suggesting that learners with diverse backgrounds are utilizing online learning opportunities. Undergraduate programs can cost around 30,000 Mexican pesos at public higher education institutions and between 125,000 Mexican pesos to 930,000 Mexican pesos at a private university.¹⁷⁷

“The course I took on administration helped my mother, and I have more clarity and control on the payments we receive in her business. The results have been very positive.”

Adillene, learner from Mexico

Figure M-5: Education and Income



SOURCE: Coursera Platform and IFC/Coursera Survey



Annex: Nigeria Country Deep Dive



Key Gender Indicators



206,139

POPULATION

(World Bank, 2020³³¹)



\$2,097

GDP PER CAPITA

(World Bank, 2020³³²)



48%

LABOR FORCE PARTICIPATION RATE, FEMALE (% OF FEMALE POPULATION AGES 15+)

(ILO, 2020³³³)



85%

EMPLOYED FEMALE POPULATION IN SELF-EMPLOYMENT

(ILO, 2019³³⁴)



53%

LITERACY RATE, ADULT FEMALE (% OF FEMALES AGES 15 AND ABOVE)

(UNESCO, 2018³³⁵)



8%

12%

SCHOOL ENROLLMENT, TERTIARY, GROSS

(UNESCO, 2011)



39%

51%

EDUCATIONAL ATTAINMENT, AT LEAST COMPLETED UPPER SECONDARY, POPULATION 25+

(UNESCO, 2016³³⁶)



25%

42%

GENDER GAP IN MOBILE PHONE OWNERSHIP

(Gallup, 2019³³⁷)



(NOT AVAILABLE)

PROPORTION OF TIME SPEND ON UNPAID DOMESTIC AND CARE WORK

(UN Statistics Division, 2019³³⁸)

Country Context

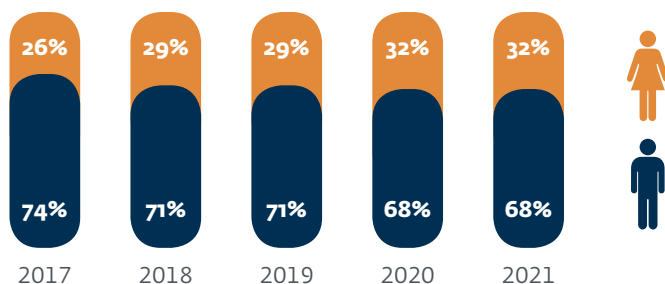
Nigeria is home to an ecosystem of EdTech startups such as PrepClass, PassNowNow, and uLesson which have filled in educational and learning gaps.¹⁷⁸ Nigeria has a high degree of variability in educational enrollment rates and other educational indicators across regions, income groups, and genders.¹⁷⁹ The secondary gross enrollment rate^{zz} was 43.5 percent as of 2018, with 42.4 percent of girls and 44.6 percent of boys enrolled in secondary education.¹⁸⁰ Recent growth in higher education enrollment has surpassed projections.¹⁸¹ Public higher education institutions are tuition free, but in practice are more accessible to those who can test into the public system, speak better English, and afford incidental fees.¹⁸² Irregular power supplies, particularly in rural areas, and the high cost of internet are some of the barriers faced by online learners in Nigeria.¹⁸³

“Most times I audit the courses, because I am mainly interested in learning the skills. But I also audit to keep my costs low, since the price for courses when converted to Nigerian naira can be high.”

Arit, learner from Nigeria

A high population growth rate combined with low job creation rates has led to increases in unemployment and underemployment, as well as the growth of the informal economy.¹⁸⁴ As of the fourth quarter of 2020, Nigeria has a 33.3 percent unemployment rate—35.2 percent of women and 31.8 percent of men in the labor force are unemployed,¹⁸⁵ and 24.2 percent of women and 21.8 percent of men are underemployed.¹⁸⁶ A large portion of the Nigeria’s labor force is low-skilled with only 50 percent of workers having a primary education or less, as of 2019.¹⁸⁷

Figure N-1: Online Learning Enrollment in Nigeria



SOURCE: Coursera Platform

^{zz} Gross enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown.



SOURCE: GETTY IMAGES

Confidence, a data analyst and aspiring genomic data scientist from Nigeria

Confidence is a Nigerian data analyst and biologist who learned about online learning during the pandemic. Armed with a degree in Biological Sciences, Confidence set out to find a job after finishing her education. During her time job hunting she decided to use online learning to develop her data analytics and data science skills and undertook a professional certificate with Google Data Analytics. While she misses the active interaction of face-to-face classes, the flexibility of online learning meant that she has been able to take classes at leading universities without needing to travel. After searching for a job for two years, she found one thanks to her studies on Coursera.

“Pursuing the data analytics professional certificate track helped me develop job-relevant skills that were helped me find a job after a long stretch of unemployment.”

Her ultimate goal is to work with genomic data science, a field she is deeply passionate about. She recently completed a Genomic Data Science Specialization with John Hopkins University through Coursera and is using online learning to prepare herself to pursue a post-graduate degree in that field.

Country Results

Men make up the majority of online learners in Nigeria, but the share of women in online learning has increased over the last five years, from 26 percent in 2017 to 32 percent in 2021. As of December 2021, 756,000 learners were enrolled on the Coursera platform in Nigeria, with 13 percent reporting having some type of disability.

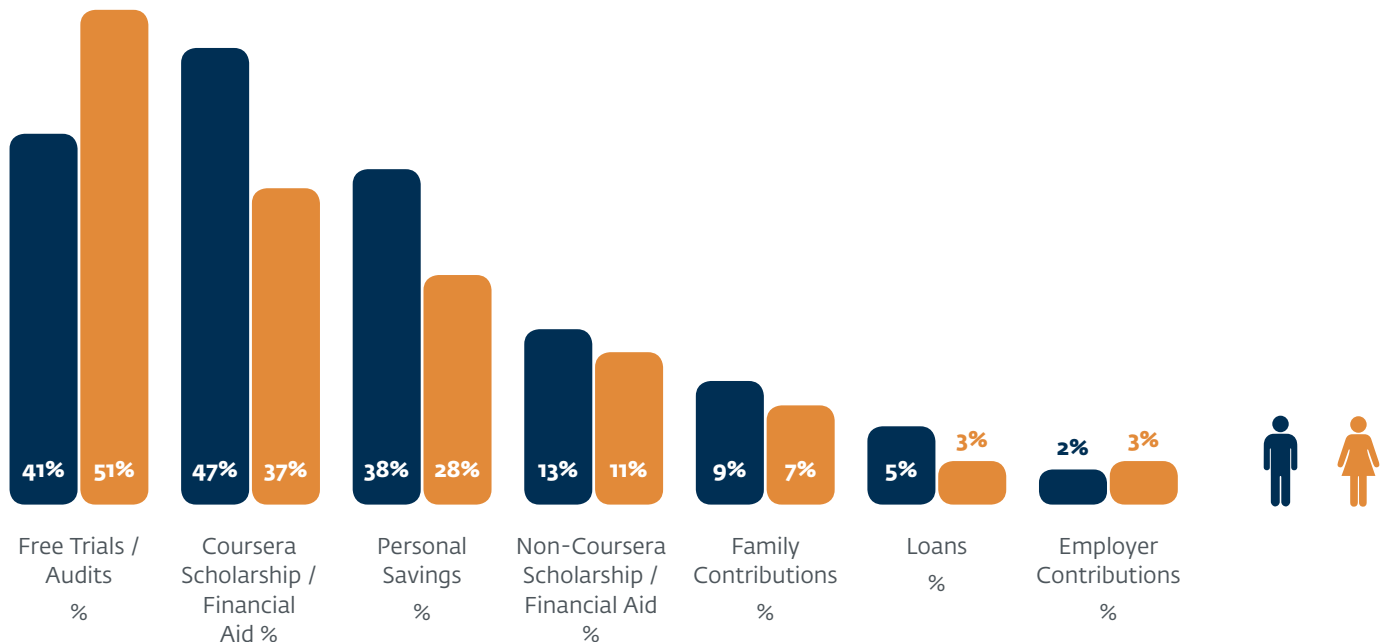
In Nigeria, family obligations disproportionately figure in women's decisions to learn online. Regardless of whether they were driven to online learning by the pandemic or by personal choice, women were twice as likely as men to cite family and childcare obligations as the reason behind their choice.^{aaa} Twenty-seven percent of women motivated by the pandemic and 20 percent of women motivated by personal preferences say family obligations is a factor.

Greater affordability and credential acceptance can draw more women in Nigeria into online learning. While all learners report a greater need for affordability, men seem to benefit more from scholarships and financial aid. Only 24 percent of financial aid applications on the Coursera platform in Nigeria are made by women. Moreover, over half of all learners surveyed believe credential acceptance is a key way to make online more appealing. This is notable since Nigerian learners rate the credibility of online learning highest compared with learners from the other countries in the study, with 92 percent believing that their degrees are valued to some extent.



2X women are 2x as likely as men to cite family and childcare obligations as a top reason for learning online

Figure N-2: How Learners Pay for Online Education in Nigeria



HOW LEARNERS PAY FOR ONLINE EDUCATION IN NIGERIA

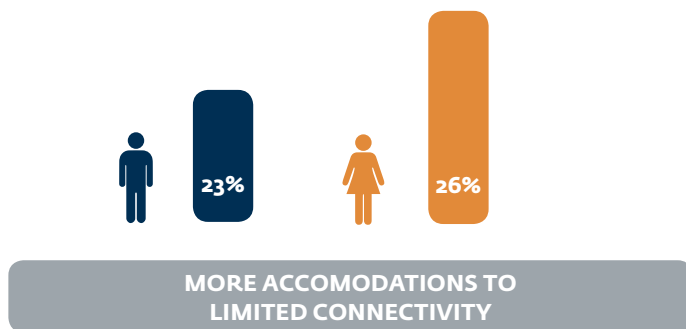
Differences in free trials/audit, Coursera scholarship/financial aid and personal savings statistically significant at 5 percent level, remaining categories are not

SOURCE: IFC/Coursera Survey

^{aaa} Differences in family obligations statistically significant at 5 percent level.

Despite challenges in internet connectivity, online learning will continue to play a key role for learners in Nigeria. Limited or irregular connectivity is particularly important for learners in Nigeria with 26 percent of women and 23 percent of men reporting that accommodations for limited internet connectivity would make online learning more appealing, the highest out of all surveyed countries. Forty percent of people living in urban areas remain unconnected to mobile internet, and this figure rises to 63 percent for those in rural areas in Nigeria.¹⁸⁸ Despite these challenges 65 percent of women and 76 percent of men report that they will continue learning online exclusively in the future.

Figure N-3: Improving Online Learning



Differences not statistically significant

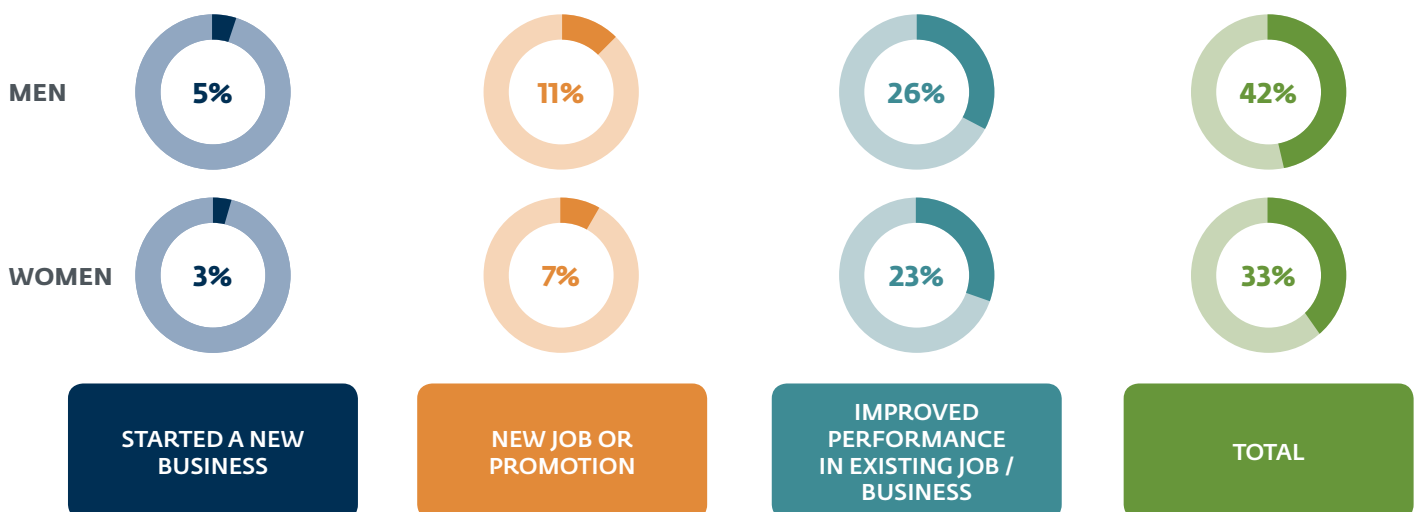
Thirty-eight percent of online learners in Nigeria report positive job or business outcomes as a result of online learning. Forty-two percent of men and 33 percent of women report experiencing positive job or business outcomes, while 22 percent of men and 27 percent of women improved their potential by building skills to prepare for a new job application. Despite the gender differences, women's results are notable since women are less likely to join with career outcomes in mind. Nineteen percent of women entrepreneurs started a new business or received a new job or promotion as a freelancer. Moreover, 14 percent of women employees received a new job or a promotion. Regardless of employment type, 26 percent of men and 23 percent of women improved their performance in their existing job or businesses.

 **19%** of women entrepreneurs started new businesses or secured a job or promotion as a freelancer

"I have done many courses on Coursera which helped me improve me skills and do a better job, I am still working on getting a better job. Without financial aid this would not have been possible, it is difficult to afford it unless I get a better job."

Gaadi, learner from Nigeria

Figure N-4: Positive Career Outcomes in Nigeria



Differences for new job or promotion statistically significant at 5 percent level, remaining are not

SOURCE: IFC/Coursera Survey

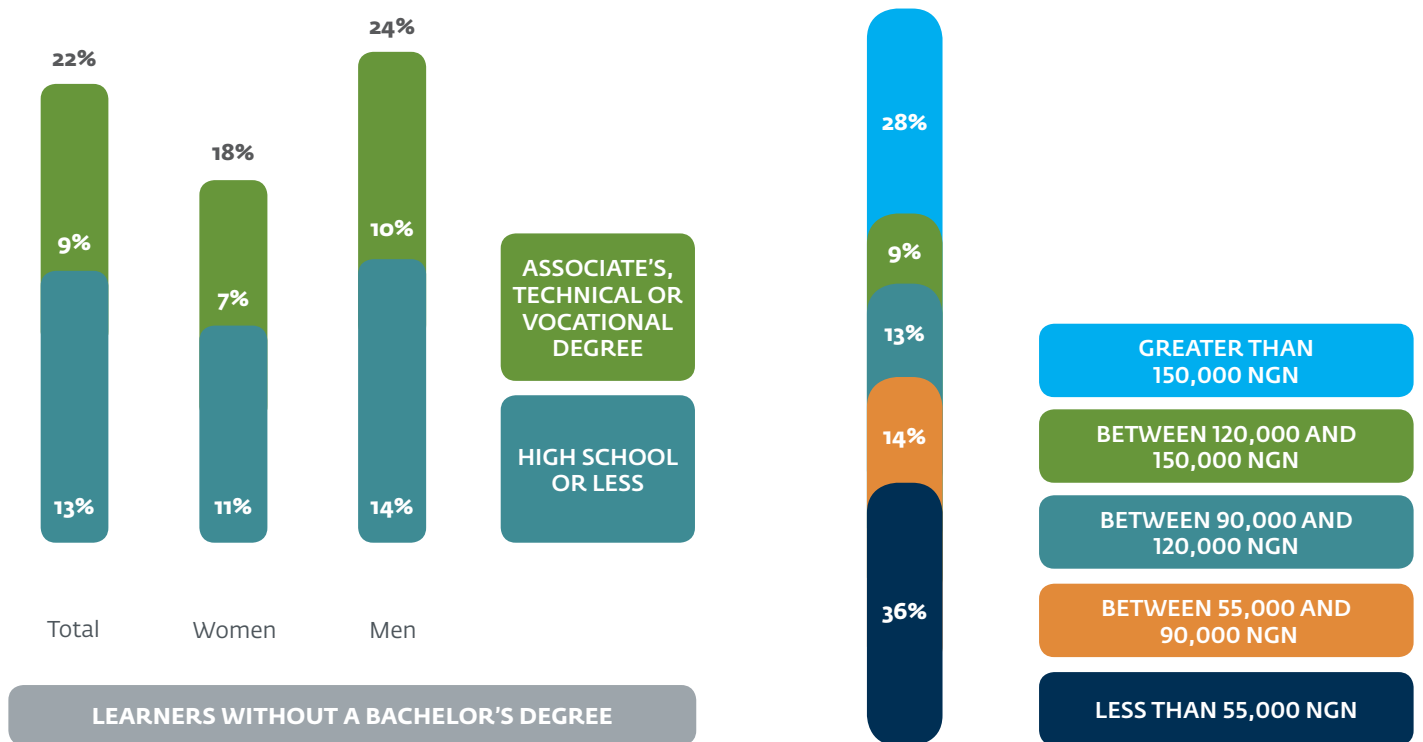
“After losing my job during the pandemic, I forged an entrepreneurial pathway with the help of online learning. I started by own optometry practice, learned business skills and now I even employ others in my practice.”

Jovita, learner from Nigeria

In Nigeria one new job is added to the economy for every 30 people trained by Coursera. In addition to individual learners who get new or better jobs, online education also produces gains within the broader economy. Improved skills and qualifications create new jobs directly through the creation of new businesses. Jobs are also created indirectly through increased consumption and economic activity driven by higher incomes. These results reflect learners at multiple stages of engagement with online learning, from new enrollees to those completing credentials.

Online learning has the potential to further reach underserved populations in Nigeria. While there is a diversity of learners from different socioeconomic backgrounds, the largest category of learners in Nigeria (36 percent) report a monthly household income below the 50th percentile at 55,000 Nigerian naira (approximately \$132). To put this in context, the monthly minimum wage is 30,000 Nigerian naira.¹⁸⁹ Moreover, 22 percent of learners on the Coursera platform do not have a bachelor’s degree. Eighteen percent of women learning online do not have a bachelor’s degree, in comparison with 24 percent of men, which suggests that more can be done to reach and support women in that group to access online learning.

Figure N-5: Education and Income



SOURCE: Coursera Platform and IFC/Coursera Survey



Annex: Methodology

Introduction

This report represents the first global study focusing on women and online learning in emerging markets. It benefits from access both to global user data from the Coursera platform and learner surveys in four focus countries—Egypt, India, Mexico, and Nigeria. Combined with a literature review and extensive interviews with learners and industry experts, it presents a uniquely comprehensive view into user experiences with online learning around the world and identifies the opportunities and challenges for the future of online learning. This section provides an overview of data sources and limitations and details approaches used in the business case projections and job creation estimates.

Data Sources and Limitations

The report leverages a variety of research methods and data sources:

- *Coursera learner data:* This research uses sex-disaggregated data from Coursera's global user database. Platform data allows insights into topics such as registration and completion rates and engagement patterns across courses and regions. Coursera's platform included approximately 96.9 million learners from more than 190 countries at the time of writing this report.^{bbb} The sample used for this analysis includes learners from across the global platform for cross-regional comparison. It excludes Enterprise learners whose studies were sponsored directly by business or government programming as well as Coursera for Campus learners who are enrolled in degrees through university providers and take select courses online. This means that this research focuses on independent learners. Sex disaggregation in platform data is based on learner self-identification.
- *Surveys from four focus countries:* Surveys were completed by 9,551 Coursera learners from Egypt, India, Mexico, and Nigeria, and targeted learners who completed at least one graded item between January 2019 to end of June 2021. Surveys captured learner motivations and aspirations, perceptions of the online experience, and post-learning career outcomes. Learners who answered the survey received a free guided project as a reward. Enterprise and Coursera for Campus learners were also excluded from survey invitations. Learners who chose not to identify their gender were included in the total responses but not included in sex-disaggregated responses. Surveys in Mexico and India offered respondents the opportunity to self-identify sexual orientation and gender identity and all four markets offered the opportunity for respondents to identify disability status. Demographic profiles of survey respondents are in Chapter 2 and chapters focusing on results from individual markets are in country-specific Annexes.
- *Learner Interviews:* Semi-structured interviews were conducted with 27 women learners from across the four focus countries. Discussions with learners detailed individual learner journeys.
- *Expert interviews:* Semi-structured interviews were conducted with over 50 experts on education policy, digitalization, accessibility and/or gender equality.
- *Market and development data:* External data on the state of the online learning market, development statistics on education, employment, connectivity, gender, and other relevant factors were used both to contextualize report findings, to project the future value of online learning in emerging markets, and to determine impacts of online learning on economic development.

^{bbb} For country-specific data: 14.9 million learners for India; 5 million learners for Mexico; 1.7 million learners for Egypt; 1.1 million learners for Nigeria.

Platform and survey data was sex-disaggregated to highlight differing experiences among men and women learners. Additionally, survey respondents had the option to self-identify their disability status and/or gender identities in the learner survey. These insights were used to highlight opportunities to better reach underserved groups.

Platform data and surveys targeted learners at all stages of learning, including those who had completed portions of courses through to those who had completed full courses or certifications. This selection ensured that a wide variety of learning experiences were captured, including learners who were unsuccessful or were just starting to explore online learning. Therefore, impacts, including gains in job and entrepreneurship at both the learner and economy level should be considered conservative.

While the research benefits from a large and unique data set, it also faces limitations. Research into online learning, and into EdTech more broadly, is limited by the diversity of business models, which challenges systematic analysis of learner experiences and outcomes. Given widely differing content, payment, and delivery models (see Table 1.1 in Chapter 1) and varying target populations and regional differences, one-to-one comparisons across platforms and would require large data sets from multiple companies operating in the same markets. This study only uses Coursera's learners and findings may not necessarily be applicable to all online learners across platforms. Further, wherever survey data was used, it was based on four core markets which are not representative of the global picture. This study adds to existing literature on online learning by providing comparable data across different geographies, demographic profiles and subjects studied in one specific business and delivery model with a wide global presence—the Coursera platform. Future research would benefit from similar gendered approaches focusing on different business models and particularly on those platforms that consider other forms of technical and vocational education. Finally, while results may be influenced by the immediate effects of the pandemic, future work will be able to benchmark against this study to understand which trends persisted well beyond the COVID-19 pandemic and which did not.

The increasing integration of online and offline learning adds to this challenge. Particularly following the COVID-19 pandemic, even those who are not pure online learners may have an element of online learning in their curricula. While this study focused on the online learning experience, in practice many learners may be experiencing different learning environments. Surveys took place during the COVID-19 pandemic and reflect the limited mobility that many learners faced during this period.

SECTION I: BUSINESS CASE METHODOLOGY

1. Estimating the Size of the Adult Online Learning Market

A demand model was used to estimate the size of the market. There are different approaches used in the literature to estimate the number of individuals in the online learning market. The most common approaches include narrowing the target market by applying a cascade of assumptions that need to hold true for a representative individual of the market, for example, share of individuals with internet access. The research team opted for the demand model as it allowed the flexibility to separately identify the unique number of female and male users targeted.

The estimation of the addressable market leverages survey data collected from 6,300 of Coursera users in emerging markets, matched with platform data on usage and revenue.

The survey data was collected during the fourth quarter of 2021 from Coursera's B2C users living in Egypt, India, Mexico, and Nigeria who enrolled in at least one course between 2017 and 2021. The sample of surveyed users did not include users in the B2B segment,^{ccc} which naturally constrains the size of the market. Specifically, the market size includes the following offerings: MOOCs,^{ddd} online non-degree certificates,^{eee} micro-credentials,^{fff} and other online individual courses. It does not capture online degrees, online program management (OPM) offerings,^{ggg} or any business-to-business offering.

^{ccc} These include university partnerships given the added complexity to seek approvals from additional entities to survey their customers.


^{ddd} MOOCs are massive open online courses. The term is typically used in reference to courses that are free or very low-cost, and available for anyone to enroll.

^{eee} Non-degree certificates refer to programs that offer professionally oriented training and can grant a certification but not a degree.

^{fff} Micro-credentials are mini qualifications often gained by participating in short, free or low-cost online courses.

^{ggg} Online Program Managers provide products and services on which educational institutions can run online courses. They have allowed universities and other institutions to enter the online education business and gain market share without the need to build their own platform.

The core of the demand model consists of estimating the relationship between income and willingness to pay for online courses. However, because willingness to pay is unobserved, the number of paid courses per paying user is used as a proxy. The model also uses age, income, education, and the average price per course paid as additional determinants for the willingness to pay (see Equation #1 and Annex: Methodology Table 2).




EQUATION #1^{hhh}

of online paid courses taken over the lifetime =

$$\beta_0 + \beta_1 \text{ income} + \beta_2 \ln(\text{educ}) + \beta_3 \text{ age} + \beta_4 \text{ age}^2 + \beta_5 \text{ price} + \beta_6 \text{ country} + \epsilon_c$$

The demand model allows the separate identification of women and men in each of the four countries in the sample, and the minimum household income level at which individuals are willing to pay for a course. To do this, regression coefficients from the demand model are used to predict the number of online courses that an individual who is on the margin of participation (a marginal individual) is willing to pay for. This individual is around 18 years old and has upper-secondary education. By then setting the prediction to be greater than zero paid courses, the income levels are calculated for the marginal individual in each of the four countries (see Equation #2 and Annex: Methodology Table 1).



EQUATION #2

$$\text{income} > - \left(\frac{\beta_0 + \beta_2 \ln(\text{educ}) + \beta_3 \text{ age} + \beta_4 \text{ age}^2 + \beta_5 \text{ price} + \beta_6 \text{ country}}{\beta_1} \right)$$


^{hhh} This regression was run after aggregating the survey plus platform data by country, age, income group and gender. These aggregation categories reflect the answer options available in the survey, for example, for age, individuals had to choose between 6 different categories (below 18 years, 18-24, etc.). For income, individuals had 5 categories to choose from and from education 8 categories. Technically this would result in a database of 960 observations (6 x 5 x 8 x 4 countries), however, because of missing data points, or categories with very few observations, the final number of observations utilized was 160 (57 for women and 103 for men).

Methodology Table 1: Min. Monthly Household Income of Individuals willing to Pay for Online Courses ('000 \$2020 PPP)

Egypt		India	
Men	Women	Men	Women
\$2.5	\$3.0	\$1.7	\$1.4
Mexico		Nigeria	
Men	Women	Men	Women
\$2.1	\$3.7	\$0.7	\$2.6


SOURCE: IFC's estimates obtained through a demand model analysis leveraging survey and platform data (see Box 7 in Chapter 3 for methodology details)

To obtain the number of people in the addressable market, the minimum income threshold of the marginal individual is compared with the national income distribution for every country in the sample. To do this, the research team leveraged World Bank's Povcal tool, which allows the identification of the population share that lives below or above a given income threshold. Additional triangulations with government sources were also conducted. To compute the number of people in the market the population shares obtained from Povcal are multiplied by the total number of individuals in the addressable market, which are defined as adult individuals with at least upper-secondary education (Equation #3). The result is then multiplied by the average revenue per paying user (ARPPU) in each market to obtain the market value (Equation #4).



EQUATION #3

$$TAM_p(\#) = (\% \text{ of pop. willing to pay for a course}_p) \times (\# \text{ with at least upper secondary}_p)$$



EQUATION #4

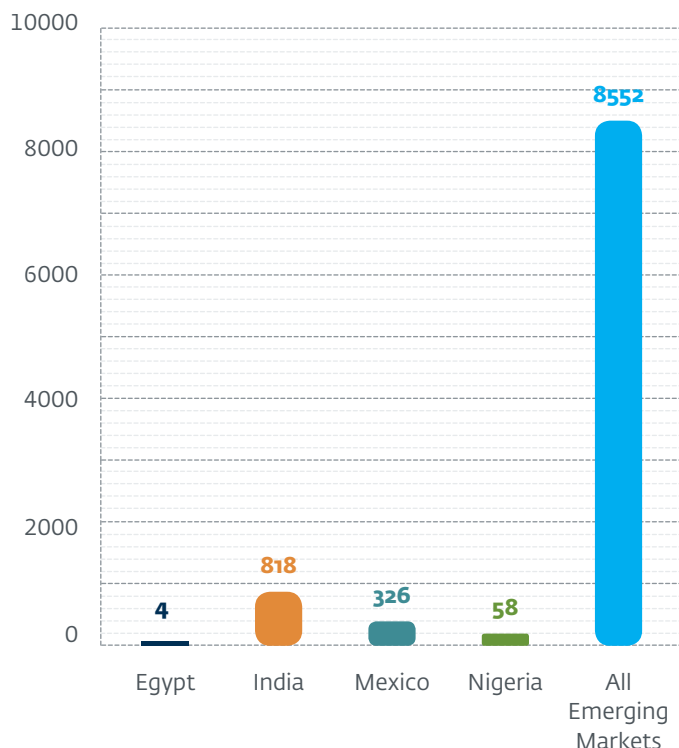
$$TAM_p(\text{US\$}) = ARPPU_p \times TAM_p(\# \text{ of people})$$

To compute the size of the market across all emerging markets, market size estimates for Egypt, India, Mexico and Nigeria are extrapolated by GDP. The basic assumption used is that the market size is proportional to the GDP. The total value for emerging markets is therefore obtained by multiplying the TAM value for Egypt, Nigeria, Egypt and India by the ratio of the GDP in all emerging markets to the GDP in the selected geographies (see Equation# 5 and Annex: Methodology Figure 1).

EQUATION #5

$$\sum_{EM} TAM(\$) = \sum_P TAM(\$) \times \frac{\sum_{EM} GDP(\$)}{\sum_P GDP(\$)}$$

Methodology Figure 1: Total Market Size by Country 2021 (\$ million)



SOURCE: IFC's estimates obtained through a demand model analysis leveraging survey and platform data

The market of adult online courses sized should be considered a subset of the market of online degrees and micro-credentials which was estimated by the market research firm HolonIQ to be around \$62 billion globally in 2021. This market includes online degrees, non-degree certificates, micro-credentialing, MOOCs, and OPMs. It is estimated to reach \$117 billion by 2025, growing at a 17 percent CAGR.ⁱⁱⁱ The MOOCⁱⁱⁱ market estimates range between \$7 billion and \$30 billion, with an average CAGR of 35 percent (see Annex: Methodology Table 2). Market estimates available are typically obtained using a combination of top-down (analyses of the revenue contribution of key vendors) and bottom-up approaches (end-user trends analyses).

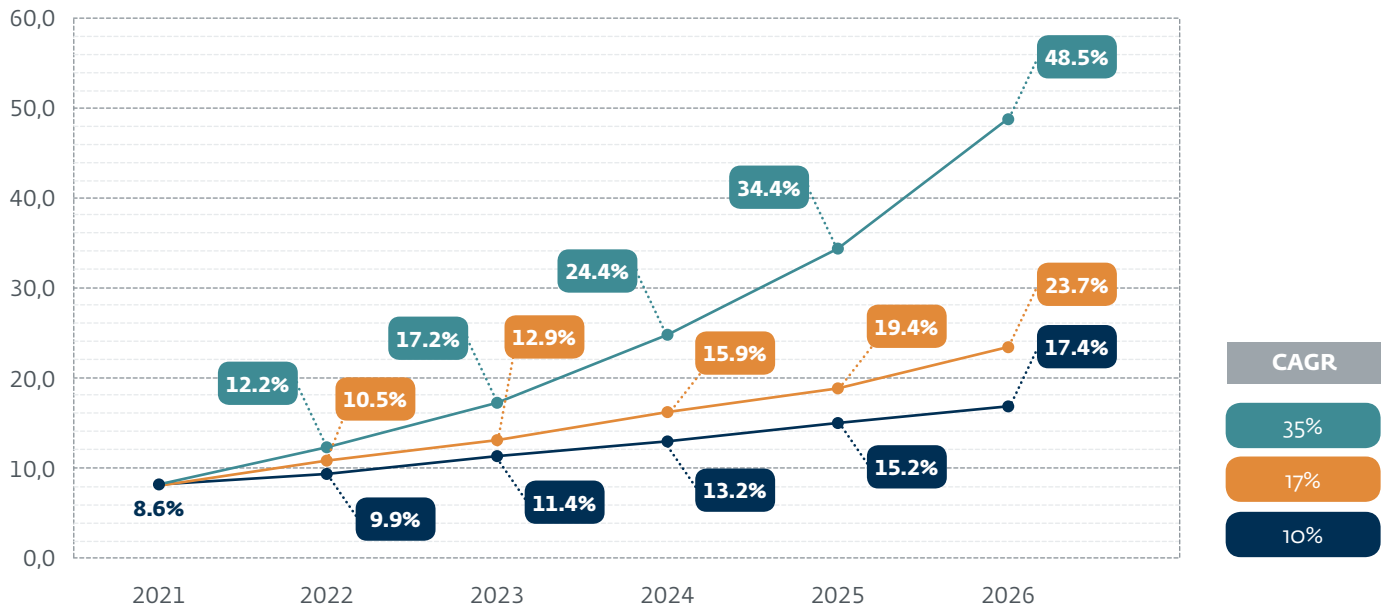
Methodology Table 2: EdTech Market Size Estimates – World Total

Segment	Market Size 2021	CAGR %	Source
Online Degrees & Micro-Credentials	\$62 billion	17	HolonIQ (2021) ^{kkk}
OPM	\$8 billion	14	HolonIQ (2021) ^{jii}
MOOCs	\$8 billion	35	Average across multiple sources ^{lgo}

To project the size of the market in the next five years, the research team considered three compounded annual growth rate (CAGR) scenarios for the average revenue per paying user metric: i) 10 percent, ii) 17 percent, and iii) 35 percent. The first scenario is informed by Coursera's growth expectations in emerging markets driven by improvements in population income growth. The second and third scenarios correspond to the CAGR assumed by other market research firms for the growth trajectory of the online degrees and micro-credentials market globally, and for the MOOCs market globally. As the market sized in this report is an intermediate between the MOOCs market and the online degrees and micro-credentials market, these two CAGR figures are used, in addition to the 10 percent scenario.

ⁱⁱⁱ Online Degree and Micro-Credential Market to reach US\$117 billion by 2025.
^{jii} MOOCs are massive open online courses. The term is typically used in reference to courses that are free or very low-cost, and available for anyone to enroll.
^{kkk} HolonIQ (2021). Online Degree and Micro-Credential Market to reach US\$117 billion by 2025.
^{lgo} HolonIQ (2021). Online Degree and Micro-Credential Market to reach US\$117 billion by 2025.

Methodology Figure 2: The Market Size for Emerging Markets (\$ billion), 2021 - 2026



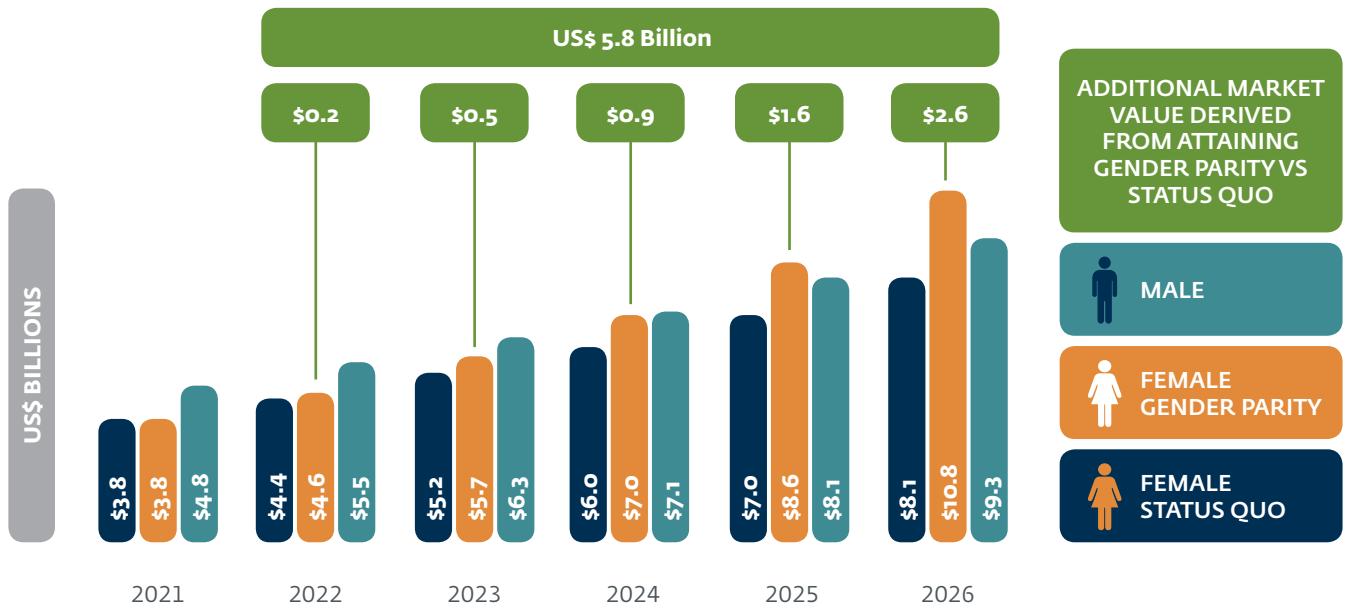
SOURCE: Coursera Platform

2. Financial and Economic Impacts from Closing the Gender Gap in Access to Online Learning Platforms

To compute the business opportunity arising from closing the gender gap, a hypothetical scenario in which the gender gaps are closed is compared with the status quo. The first scenario assumes the status quo is maintained, with no action taken to close the gender gaps. The second scenario assumes that every year the gender gap will be progressively closed until achieving full equality by 2026 (see Annex: Methodology Figure 3).

To compute the scenario where providers progressively close the gender gap, this study assumed an equal propensity to participate in the online paid market across genders. This does not mean that an equal number of women and men will pay for courses, but rather that women are as likely to pay for a course as men, if their characteristics are comparable (for example, similar household income). In fact, if more women with a certain level of education are projected to be part of the country's population, the market value derived from women may be larger than that of men. The additional revenue generated in the latter scenario when compared with the status quo represents the business opportunity arising from closing the gender gap. For example, for the year 2025, the total size of the market is projected to be \$15.1 million, however if the gap is progressively closed, the total market size will be \$16.7 million, which means that around \$1.6 million will be added to the market in 2025 alone (see Annex: Methodology Figure 3).

Methodology Figure 3: Market Size if Gender Gap is Progressively Closed (Base Case, ARPPU CAGR = 10%)



SOURCE: IFC's estimates obtained through a demand model analysis leveraging survey and platform data (see Box 7 in Chapter 3 for methodology details)

To evaluate the socio-economic effects from closing the gender gap the study leveraged answers on income benefits derived from using Coursera from the survey. Income outcomes asked in the survey included two questions, one inquired whether the income had increased, remained the same, decreased, or whether it was too early to tell. The second question asked by what percentage the income had increased. Using the first questions answered, a regression is estimated on whether the woman had experienced an income hike. The explanatory variables include whether the woman had taken paid courses, the employability status prior to using Coursera, country fixed effects, and socio-demographic variables (gender, age, and year of education). The basic specification is described in Equation #6 and the results are presented in Annex: Methodology Table 3.

The size of the income bump is calculated as 11 percent and is obtained as described by Equation #7.

EQUATION #6

Income Increase_i (yes/no)
 = $\beta_0 + \beta_1 \text{paid courses taken}_i + \beta_4 \text{year of education}_i + \beta_5 \text{age}_i + \beta_6 \text{age square}_i + \epsilon_i$
 = individual → only run for women

EQUATION #7

% of women experiencing 1-5% pay increase
 x (midpoint between 1% and 5%)
 + % of women experiencing 5-10% increase
 x (midpoint between 5%-10%) +
 % of women experiencing 10-20% increase
 x (midpoint between 10%-20%) +
 % of women experiencing > 20% increase x (20%)

From the survey: Of those women who experience an income increase, 29% report a 1 - 5% pay increase, 17% report a 10 - 20% pay increase, 23.1% report a 5 - 10% increase and 31% report more than 20% pay increases.

3. Other Key Estimations

- **Size of the gender gap in paid enrollments:** to test whether there was an enrollment gap between men and women in paid courses, the paid rate by country and gender is estimated as a function of the average age, labor force participation and years of education, variables which are also disaggregated by country and gender (see Equation #8 and Annex: Methodology Table 4).



EQUATION #8

$$\text{Paid rate}_{git} = \beta_0 + \beta_1 \text{ average age}_{git} + \beta_3 \text{ labor participation}_{git} + \beta_4 \text{ years of education}_{git} + \beta_5 \text{ gender}_{git} + \epsilon_{it}; g = \text{gender}; i = \text{country}; t = \text{year}$$

- **Country-level drivers of the paid rate:** the paid rate is defined as the number of paid enrollments over the number of total enrollments in each country and was estimated through a regression as a function of a country's internet access, population's labor force participation, age, education, and volume of EdTech investments (see Equation #9 and Annex: Methodology Table 5). To this end, a country-level dataset on over 200 countries from Coursera was merged with data from World Development Indicators and UNESCO.



EQUATION #9

$$\text{Paid rate}_{it} = \beta_0 + \beta_1 \text{ average age}_{it} + \beta_3 \text{ labor participation}_{it} + \beta_4 \text{ years of education}_{it} + \beta_5 \text{ Log(EdTech volumes)}_{it} + \epsilon_{it}; i = \text{country}; t = \text{year}$$

- **Country-level drivers of the gender gap:** to estimate the determinants of the gender gap, an econometric model was specified of the paid rate as a function of the volume of

EdTech investments and other gender gaps^{mmmm} in the country such as education, labor force, and access to internet. As there is no specific data for the EdTech penetration by country, EdTech penetration is proxied with the volume of VC EdTech investments divided by GDP (see Equation #10 and Annex: Methodology Table 6).



EQUATION #10

$$\begin{aligned} \text{Paid Rate Enrollment Gap}_{it} &= \beta_1 + \beta_2 \text{ average age}_{it} + \beta_3 \text{ labor participation}_{it} \\ &+ \beta_4 \text{ years of education} \\ &+ \beta_5 \text{ EdTech Penetration (Volume GDP)}_{it} \\ &+ \beta_6 \text{ years of schooling gap}_{it-2} \\ &+ \beta_7 \text{ access to internet gap}_{it-2} \\ &+ \beta_8 \text{ labor force participation gap}_{it-2} + \beta_9 \text{ Year}_{it-2} \\ &+ \beta_{10} \text{ Country}_{it-2} + \epsilon_{it}; i = \text{country}; t = \text{year} \end{aligned}$$

4. Limitations

The approach used to estimate the business case and the effects of closing the gender gap has three main limitations:

First, estimations are based on Coursera's data but extrapolate conclusions to the entire online learning market.

To the extent that Coursera's users differ from the target user of other online learning providers, the estimates will be biased. In addition, analyses are done on a reduced sample of users with complete data on relevant variables. To the extent that these users differ from the average target user, such as for example, being more willing to pay, results will be biased.

Second, the demand model approach is not able to capture drivers of growth beyond population growth trends and course price trends. This implies that aspects such as countries' income growthⁿⁿⁿ and vendors' innovation are not being directly captured. To partially adjust for this, estimates include different scenarios for market growth using growth expectations from other market research firms.

^{mmmm} The gap is calculated as the difference between men and women. For example, for the paid rate enrollment gap is calculated as follows: Paid rate enrollment gap_{it} = Paid rate men_{it} - Paid rate women_{it}

ⁿⁿⁿ While this is a strong assumption, given the time period considered, and the difficulty to credibly predict income increases for the given geographies, we opted to keep this as a conservative assumption.

Third, the income distributions used to derive the share of population addressable per country leverage data sources that do not properly identify top incomes. Calculations mainly rely on the World Bank's Povcal tool which has been built to identify the population below the different poverty lines, not populations at the top. While using this tool circumvents the issue of comparability across countries and the lack of publicly

available information on the matter, it limits the possibility to properly identify top incomes both in the survey and the estimations.

5. Regression Results

Estimating the Size of the Adult Online Learning Market

Methodology Table 3: Demand Model

Variables	Number of paid courses per user			
	Women	Men	Women	Men
Average price per paid course	-0.003 (0.004)	-0.002 (0.005)	-0.003 (0.004)	-0.003 (0.005)
Income	0.000** (0.000)	0.001*** (0.000)		
Log income			0.485** (0.195)	1.025*** (0.256)
Log years of education	1.342** (0.600)	1.364** (0.561)	1.417** (0.609)	1.276** (0.562)
Age	0.138 (0.084)	0.104 (0.086)	0.123 (0.083)	0.114 (0.085)
Age squared	-0.002 (0.001)	-0.001 (0.001)	-0.002 (0.001)	-0.001 (0.001)
Mexico	-0.146 (0.290)	0.223 (0.201)	-0.250 (0.326)	0.208 (0.209)
Nigeria	0.112 (0.338)	0.894*** (0.213)	0.121 (0.336)	1.139*** (0.239)
India	0.409 (0.283)	0.392 (0.324)	0.273 (0.326)	0.275 (0.327)
Constant	-5.472*** (1.555)	-5.581*** (1.392)	-8.409*** (2.084)	-12.023*** (1.867)
Observations	57	103	57	103
R-squared	0.424	0.309	0.429	0.310

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

SOURCE: IFC's calculations using survey data merged with individual-level platform data

Estimating the Size of the Gender Gap and its Determinants

Methodology Table 4: Size of the Gender Gap in Paid Enrollments, Country Level

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Paid rate	Paid rate	Paid rate	Paid rate	Paid rate	Paid rate	Paid rate
Women	-0.023*** (0.002)	-0.019*** (0.002)	-0.013*** (0.002)	-0.013*** (0.002)	-0.013*** (0.002)	-0.013*** (0.002)	-0.013*** (0.002)
Age		0.003*** (0.001)	0.002*** (0.001)	0.002*** (0.001)	0.002*** (0.001)	0.002*** (0.001)	0.002*** (0.001)
Ind. access to internet (lag 2)			-0.007 (0.024)	-0.007 (0.025)	-0.007 (0.025)	-0.009 (0.025)	-0.007 (0.025)
Avg. years of schooling (lag 2)				-0.005 (0.007)	-0.005 (0.007)	-0.005 (0.007)	-0.005 (0.007)
Labor force participation (lag 2)					-0.154 (0.132)	-0.158 (0.132)	-0.154 (0.132)
Log EdTech investments						0.000 (0.000)	
EdTech investments / GDP							-0.000 (0.000)
Constant	0.086*** (0.002)	0.015 (0.020)	0.007 (0.025)	0.074 (0.094)	0.172 (0.126)	0.171 (0.126)	0.173 (0.126)
Observations	1,138	1,136	828	816	816	816	816
R-squared	0.695	0.764	0.824	0.827	0.828	0.828	0.828
Country FE	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

SOURCE: IFC's calculations using country-level platform data

- Results from Annex: Methodology Table 4 show that women's paid rate⁰⁰⁰ is 1.3 percentage points lower than men's paid rate, after controlling for certain country level characteristics.

⁰⁰⁰ Number of paid enrollments over the total number of enrollments.

Methodology Table 5: Country Level Drivers of the Gender Gap in Paid Enrollments

Variables	(1) Paid rate gap (Men vs Women)	(2) Paid rate gap (Men vs Women)	(3) Paid rate gap (Men vs Women)
Labor participation rate (lag 2)	-0.341** (0.162)	-0.330** (0.162)	-0.344** (0.162)
Avg years of schooling (lag 2)	-0.004 (0.008)	-0.004 (0.008)	-0.004 (0.008)
Avg internet access (lag 2)	0.027 (0.028)	0.030 (0.028)	0.028 (0.028)
Gender gap in labor participation (lag 2)	-0.165 (0.135)	-0.157 (0.135)	-0.168 (0.135)
Gender gap in years of schooling (lag 2)	0.014*** (0.005)	0.013*** (0.005)	0.014*** (0.005)
Gender gap in internet access (lag 2)	-0.009 (0.029)	-0.010 (0.029)	-0.008 (0.029)
Log EdTech investments		-0.000 (0.000)	
EdTech investments / GDP			-0.000 (0.000)
	(0.003)	(0.003)	(0.003)
Constant	0.288* (0.156)	0.283* (0.156)	0.295* (0.157)
Observations	401	401	401
Country FE	YES	YES	YES
Year FE	YES	YES	YES
R-squared	0.093	0.098	0.095
Number of id	142	142	142

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

SOURCE: IFC's calculations using country-level platform data

- Results from Annex: Methodology Table 5 show that the education attainment gap at the country level is the largest driver explaining the paid rate gap between men and women at the country level. Other factors such as the gender gap in labor participation or internet access didn't appear as significant, possibly because the first stages of online learning access reach those populations who are already

economically active and digitally connected. The volume of EdTech investments appears negatively correlated with the paid rate gap, however it is not statistically significant. This is probably because for over half of the countries in the sample there is either no information regarding the invested volumes in the segment or there have been no investments yet.

Economic Impacts from Closing the Gender Gap

Methodology Table 6: Effects of Paid vs Unpaid Enrollment Status Over Income Increases, Women Only

Variables	(1) Income change (yes/no)	(2) Income change (yes/no)
Paid (yes/no) - marginal effect (delta method)	0.043*** (0.020)	0.041*** (0.020)
Country fixed effect	YES	YES
Previous employment fixed effect	NO	YES
Number of observations	1,533	1,529

SOURCE: IFC's calculations using survey data merged with individual-level platform data

- In Chapter 3 it is shown that 11.3 percent of women who have enrolled in paid courses have experienced income benefits, whereas only 6.8 percent of women who have enrolled in free courses have. The difference between the two is 4.5 percentage points (11.3 minus 6.8).
- The results from the Annex: Methodology Table 6 complement these results by showing that even after controlling for a number of demographic characteristics the percentage difference between the two groups stays relatively the same—4.3 percent vs 4.1 percent.

SECTION II: ECONOMIC CASE METHODOLOGY

Job Impact Estimation Methodology

This section discusses IFC's approach for estimating direct and indirect job creation of e-learning programs conducted by Coursera in four countries—Egypt, India, Mexico, and Nigeria. This estimation approach uses data on nearly 10,000 learners collected by Coursera through an online survey in December of 2021. The survey asked respondents to provide multiple answers (if relevant) to questions related to employment status and career impact as shown below. These questions are used to construct employment and career impact categories as shown in Annex: Methodology Tables 7 and 8.

What is your current employment status? (Select all that apply)

- I am employed full-time
- I am employed part-time
- I am an independent contractor/freelancer
- I own my own business
- I am unemployed and looking for employment
- I am not employed and not looking for employment
- Other (Specify)

How did online learning help you advance your career? (Select top one to three) (Priority)

- I performed better at my current job
- I secured a promotion or a new job with my current employer
- I found a new job with a new employer
- I switched careers/sectors
- I re-entered the labor force after a career break
- I built my skills to prepare for a new job application
- I started a new business
- I learned to manage my business better
- Online learning had no impact on advancing my career
- Too early to say

Methodology Table 7: Construction of Variables Related to Current and Previous Employment Status

Assumptions
All those respondents who answered yes to either being a contractor or owning a business and answered yes to having a part-time job and no to having full-time job are grouped together as Contractor or Own Business, Part-time . This category includes everyone who answered yes to the questions above even those who also answered yes to being either unemployed seeking or not seeking a job. The reason for this is that they might have perceived being unemployed as someone who doesn't have wage employment.
All those respondents who answered yes to either being a contractor or own a business and are not included in the group above are classified as Contractor or Own Business, Full-time .
All those who answered yes to being unemployed seeking or not seeking a job and are not in the group above are classified as Unemployed .
All those who answered yes to being a full-time employed and are not in the groups above are classified as Employed Full-time .
All those who answered yes to being a part-time employee and are not in the groups above are classified as Employed Part-time .
All those who didn't provide any answer to the current employment questions are still included in the sample and career impact assessment analysis. For the career impact analysis, all those who are considered unemployed are excluded from the analysis.

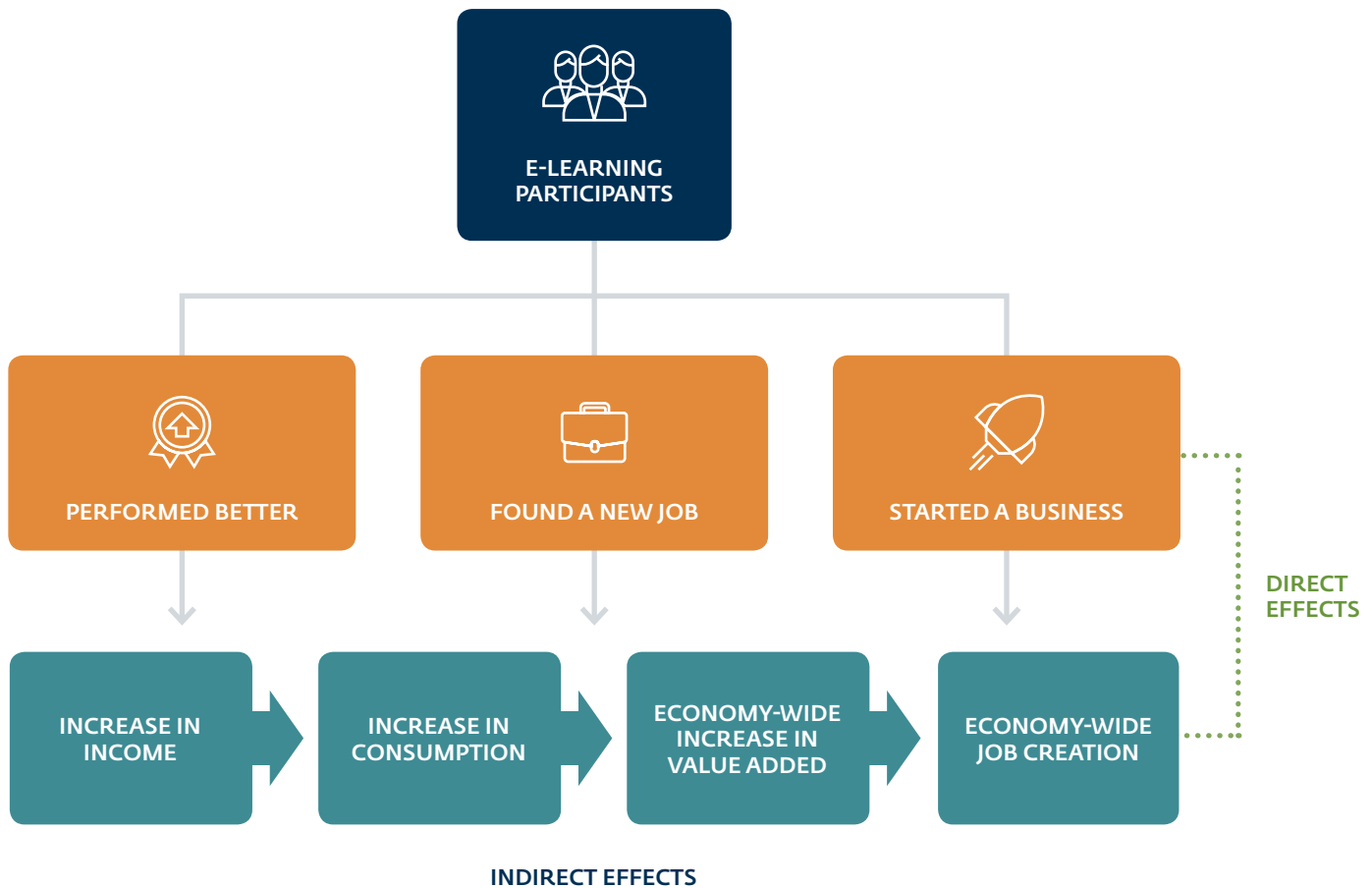
Methodology Table 8: Construction of a Job Impact Variable

Assumptions
All those who reported that (1) online learning had no impact on advancing their career or (2) it is early to say are considered those with no impact on their career .
All those who reported (1) starting a new business, (2) are not in the group above, and (3) reported being a contractor/owning business for the current employment status or had missing values, are considered those who added to/ created jobs for the economy .
All those who reported (1) finding a new job with a new employer, or (2) securing a promotion or a new job with the current employer and (3) are not in the above groups are considered those with improved employability .
All those who (1) performed better at the current job or (2) managed business better and (3) are not in the groups above are considered those with impact but no change in the job status .

Economy-wide job creation captures e-learning programs' total direct and indirect effects. Direct effects pertain to jobs created as a result of improved skills through online training and include new businesses that opened because of entrepreneurs' skills obtained from Coursera training (Annex: Methodology Figure 4). Indirect effects arise from household consumption linkages, that is, greater labor earnings of trainees with improved job outcomes translate into higher household expenditures which imply multiplier effects on value added and employment throughout the

economy. Online program participants who experienced positive job outcomes such as finding a new job or securing a promotion with a current employer are assumed to have competed for jobs that created or existed in the economy independent of e-learning programs administered by Coursera. The job impacts from these positive career outcomes and from those who managed their businesses better and reported increases in income materialize through indirect effects.

Methodology Figure 4: Theory of Change for Economy-Wide Job Creation



To estimate indirect effects, IFC developed an economic modeling framework that uses a Social Accounting Matrix (SAM) multipliers approach which is based on an extension of the classic Leontief input-output model to SAM tables. The difference between these two models is that SAM multipliers endogenously include institutions like households and thus cover consumption spillovers throughout the economy. Both types of multipliers have a couple of strong assumptions. Economic impacts are computed under the premise that technologies and prices are fixed,^{PPP} and that the economy's responses to shocks are unconstrained by resource and factor availability. This means, that the multipliers assume a linear response of an economy to a shock, not altered by secondary

price effects or changes in the structure of the economy. Other models, such as Computable General Equilibrium (CGE) models, can represent many of these feedback mechanisms, such as non-linearities in agent responses, effects of commodity, input and factor prices, non-linearities and substitution in production and consumption functions, as well as defined endogenous structural changes. However, for the purpose of estimating economic impacts of relatively small interventions the strong assumptions behind multipliers are usually acceptable as these interventions do not significantly affect relative prices and realize their benefits over a relatively short term where technological and structural changes are less likely to occur on a large scale. In addition, large-

^{PPP} Multipliers assume that the monetary flows between sectors, for example an intermediate input of \$100mn dollars of seedlings to produce \$1bn worth of agricultural output, can be interpreted as a fixed quantity of tons of seedlings using a constant price that does not change relatively to the sector's physical output. This means that technologies are assumed to be constant and there is no substitution of goods in production and consumption.

scale models, such as CGEs, are expensive to build and maintain. SAM multipliers offer a simpler, much more manageable alternative. The multipliers used in this estimation are computed based on SAM tables extracted from the Global Trade Analysis Project (GTAP) database. GTAP10 contains data to build SAM multipliers for 141 mutually exclusive countries and regions, with a disaggregation level of 65 sectors.⁹⁹⁹ Each of these tables contains a snapshot of an economy for 2014.

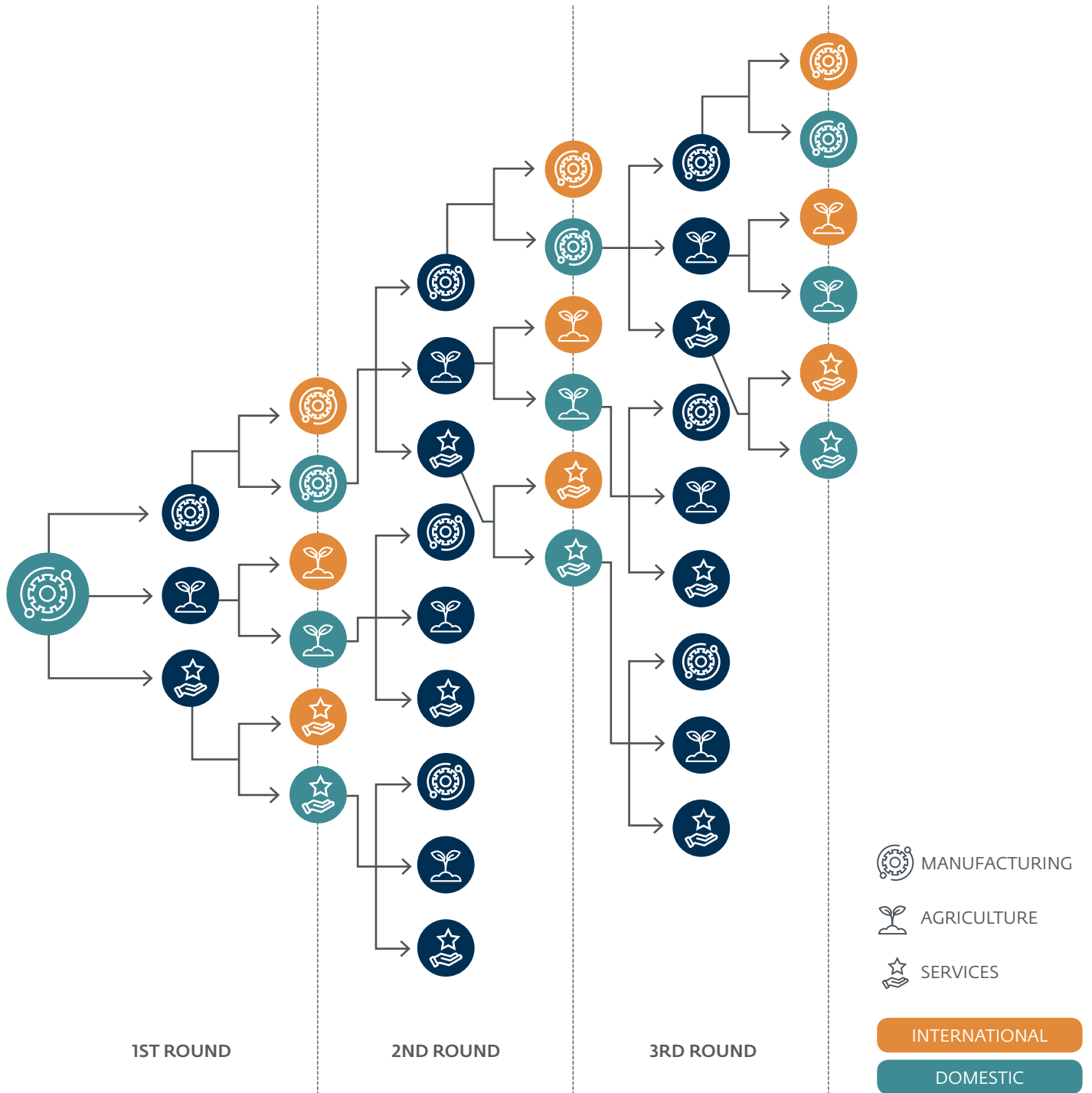
Annex: Methodology Figure 5 depicts the intuition behind the multipliers in an economy with three broad sectors (manufacturing/mining [M], agriculture [A], and services [S]). For instance, in a first round, the increase of the manufacturing sector's output—resulting from a project—will create direct value added within the sector according to its value added to output share. It will also create demand for additional intermediate inputs stemming from all three sectors in accordance with their input shares in the sector under consideration. The increase in intermediate demand is then split into additional supply from imports and domestic production for each commodity with the same ratio as observed in the data.¹⁰⁰⁰ Increasing the output of the domestic suppliers will create second round of indirect value added and demand for further domestic intermediate inputs. This iterative process is repeated for an infinite number of additional rounds. The effects decline in size in every iteration, and hence the total value-added creation converges towards a single multiplier value. Computing consumption effects follows a similar logic, where the increase in wage receipts through direct and indirect effects are assumed to increase the demand for goods and services according to household expenditure shares as reported in the SAM. This induced demand similarly causes an iterative ripple effect.

⁹⁹⁹ This version of the GTAP database also includes 8 types of factors, household, government, investment and rest of the world for 2014 and covers 121 single countries and 20 aggregate regions.

¹⁰⁰⁰ In IFC's framework, the share of different intermediate inputs and the import share of these inputs is taken from the GTAP data as a default, but is usually updated using more specific project or client information.



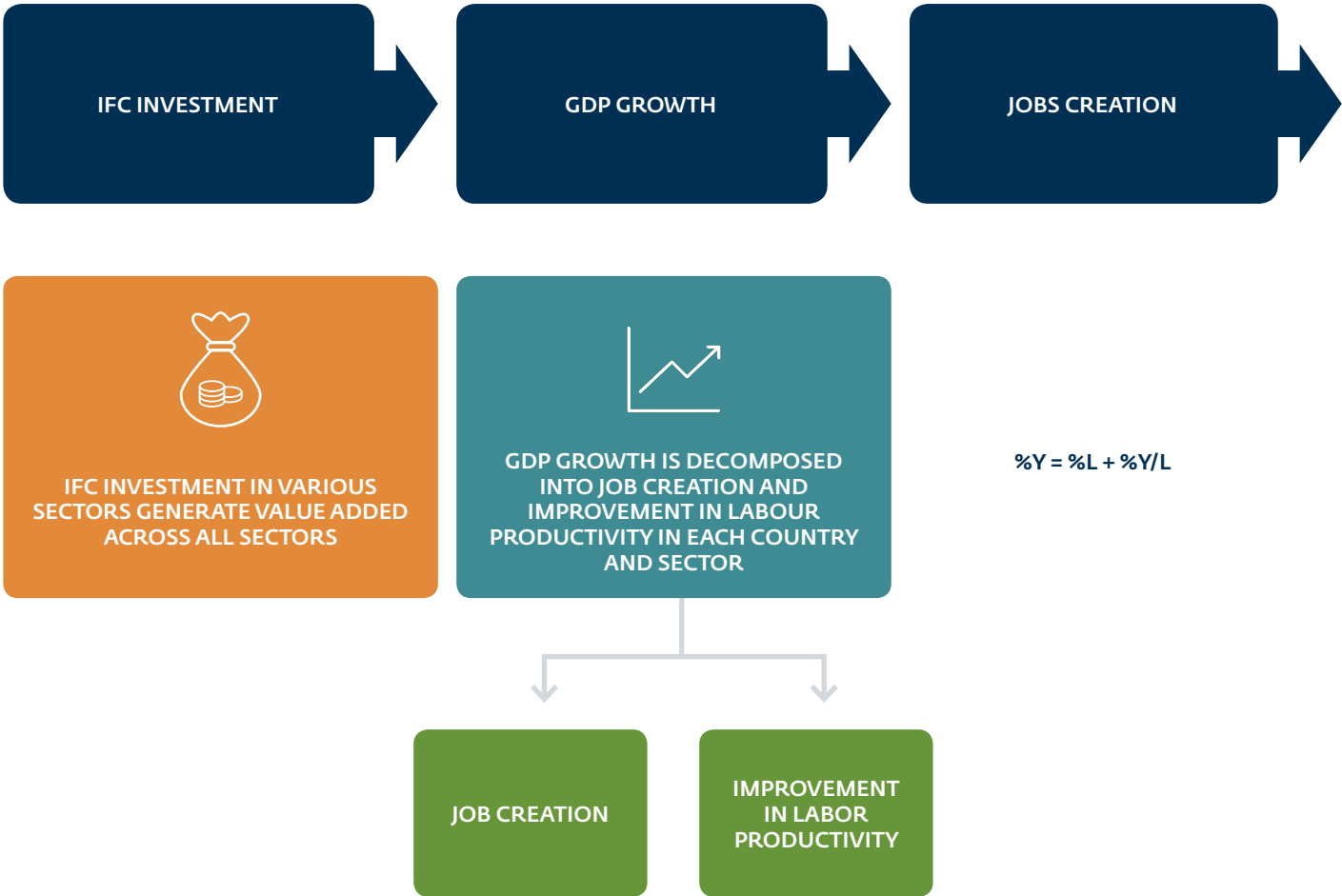
Methodology Figure 5: Indirect Effects



To assess the job creation from indirect effects, IFC’s approach applies a GDP growth decomposition approach to construct country- and sector-specific GDP-employment elasticities which allow an estimation of the number of jobs created aligned with

historical trends. These elasticities are constructed for three broad sectors—agriculture, manufacturing, and services—via GDP growth decomposition into job creation and improvements in labor productivity (Annex: Methodology Figure 6).

Methodology Figure 6: Job Creation



The estimate of indirect job creation is based on IFC’s impact estimation framework discussed above and information from the survey data collected by Coursera and labor force surveys for the four countries included in this study. The Coursera survey provides information on the demographic profiles of workers across all categories of job impact that include education, gender, and industry affiliation. The survey also asks participants if they had any increase in income and, if yes, the range of that income increase. However, there is no information available on individual labor earnings of workers in the survey. To fill this gap, the analysis uses average wages of workers by education, gender,

and industry affiliation from the labor force surveys in each of the four countries and combines it with the income increase data collected in the Coursera survey to assess the changes in the labor earnings that would generate consumption spillovers throughout the economies. For all those entrepreneurs who started new businesses, the indirect effects include their full labor income instead of changes, as these are jobs added to economies. Finally, the consumption multipliers from the SAM approach are applied to the total increase in labor earnings to assess the indirect effects. Direct and indirect effects combine to provide economy-wide job creation across the countries.





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Market	Market Size 2021	CAGR	Source
MOOCs	US\$10 billion	37%	Market Digits (2020). Global Massive Open Online (MOOC) Market Report 2020 - 2026
MOOCs	US\$10 billion	36%	Data Bridge (2020). Global Massive Open Online Courses (MOOCs) Market
MOOCs	US\$29 billion	40%	Markets and Markets (2018). MOOC Market by Component
MOOCs	US\$7 billion	35%	Reports and Data (2021). Massive Online Open Course (MOOC) Market
MOOCs	N/A	32%	Technavio (2021). Global MOOCs Market 2021-2025
MOOCs	US\$8	33%	360i Research (2022). Massive Open Online Course Market Research Report
MOOCs	US\$8	33%	Global Industry Analysts (2021). Massive Open Online Course – Global Market Trajectory & Analytics
MOOCs	N/A	32%	Infinity Research Limited (2021). Global MOOCs Market 2021 – 2025

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