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Massive Open Online Courses (MOOCs) for Ethiopian Educators: Evaluating MOOCs as a global development tool

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ABSTRACT

This study examines how global educational technologies interact with local development priorities through the lens of Massive Open Online Courses (MOOCs) in Ethiopian higher education teacher training. While digital learning platforms promise to democratize education globally, their effectiveness depends critically on alignment with local institutional contexts and development needs. Using survey data from 164 educators across 15 public universities, we investigate how institutional contexts shape technology integration patterns. Our analysis, integrating development theory with technology acceptance models, reveals three critical dimensions: the gap between awareness and participation reflects broader implementation challenges; previous experiences with development initiatives significantly influence adoption patterns; and state support proves crucial for enabling participation. While MOOCs offer potential for professional development in resource-constrained contexts, their effectiveness depends on complex interactions among infrastructure quality, institutional capacity, and material conditions. These findings contribute to the theoretical understanding of how global technological innovations interact with local institutional contexts to produce varied development outcomes, while offering practical insights for educational technology implementation in the Global South.

1. Introduction

The development of higher education is a crucial factor in a country's economic growth. The prominent role of higher education is especially noticeable in the Global South, where university participation rates are significantly lower than in the Global North (Marginson, 2016). Over the past three to four decades, several initiatives have been established to promote internationalization in higher education, such as the European Higher Education Area, mutual student exchanges, regular visiting lecturer programs, and dual and triple degree programs. However, it is important to recognize that while higher education continues to play a vital role in development, traditional paradigms of North-South knowledge transfer are undergoing significant transformation due to the rise of global technological innovations.

The relationship between technological innovation and development outcomes has become increasingly complex in an interconnected world. As Hulme & Horner (2020) argue, the COVID-19 pandemic has

accelerated digital transformation while exposing persistent inequalities in technological infrastructure and institutional capabilities across the Global South. This tension between global technological solutions and local development priorities is particularly evident in higher education, where digital platforms promise expanded access while potentially reinforcing existing disparities. As Horner & Hulme (2019) argue, contemporary development requires understanding complex interdependencies between global tools and local contexts. Halkiyo (2023) expresses this even more sharply, arguing that not only is it necessary to understand local characteristics for implementing global tools, but a bottom-up approach is also required. If only political leaders adopt the goals — often in hopes of benefits expected from international organizations — then those responsible for implementing the specific measures may be unwilling to carry out the innovations due to various conflicting interests.

Massive Open Online Courses (MOOCs) represent a critical case study in this dynamic. While originating in Global North institutions,

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these platforms aim to democratize access to quality education worldwide. However, their effectiveness as development tools depends substantially on how they interact with local institutional contexts and capabilities. This interaction becomes especially significant in resource-constrained environments where higher education plays a crucial role in economic development and social mobility (Marginson, 2016).

To better understand the landscape of technology-enhanced education, it is essential to differentiate between distance education, e-learning, online learning, and MOOCs, as these concepts are interrelated yet distinct. Distance education involves instructional modalities where students and instructors are separated by geography and time, using various communication technologies for content delivery. E-learning, a subset of this model, employs electronic tools such as computers and the Internet, while online learning specifically occurs via the Internet, allowing students to engage with course materials and instructors in a virtual environment (Moore et al., 2011). MOOCs represent a recent advancement characterized by open access, large-scale participation, and structured curricula that often include assessments. Although MOOCs originated from traditional distance education, they offer a unique approach to global educational content delivery, significantly enhancing accessibility in higher education.

MOOCs target individuals globally who possess internet access and basic computer skills. These courses vary in prerequisites, with university-level offerings generally requiring completion of secondary education. Instructors are responsible for developing course content, typically delivered through video lectures, while assessments often include quizzes graded by algorithms and peer reviews that contribute to final grades. MOOCs enhance educational accessibility, particularly when offered at no cost, although the availability of free courses has diminished in recent years (European Commission. Joint Research Centre, 2017).

MOOCs operate on a global scale, largely unaffected by national borders and domestic agreements. However, these borders are highly relevant from the consumer's perspective, as participants are more likely to enroll in a course if they are aware of it, possess the necessary technical capabilities, and believe it will provide professional value and aid in career advancement within their local work environments. Financial feasibility also plays a crucial role in participation. For MOOC providers, support from local administrations and structured efforts are essential for success. The effectiveness of MOOCs relies on integrating global reach with regional relevance, akin to Fischer (2023) analogy of hypermarkets sourcing meat, which emphasizes aligning global supply chains with community-level needs. Similarly, the local implementation of MOOCs mirrors the findings of Nisa (2018), where female Muslim followers promote local events on Instagram, illustrating the blend of regional and global opportunities.

Since the late 2010 s, some universities have begun offering specific undergraduate courses exclusively through MOOCs. Notable examples include Arizona State University, which provides numerous courses on platforms such as edX (ASUx, n.d), and the University of London, which offers a bachelor's program in computer science through Coursera (Bachelor of Science in Computer Science | University of London, n.d.). Additionally, many postgraduate programs are available via MOOCs, such as the University of Illinois's online iMBA (Online MBA (iMBA) | University of Illinois, n.d.). Several institutions also provide micro-credentials, enabling credits earned through online courses to count toward on-campus certifications. For instance, MIT and Harvard University offer micro-credentials in various disciplines through edX (New Arizona State-edX MOOC, n.d.).

MOOC universities are of significant importance in the Global South, where high school completion rates are considerably lower than in the Global North, and the proportion of high school graduates who continue their education is also much smaller (Modise, 2022). Consequently, MOOCs have the potential to enhance university completion rates by addressing these critical challenges. Additionally, MOOCs can be a valuable tool for university instructors' professional development, an

area in which resources are also limited in the Global South. What instructors learn, they can pass on to their students.

However, research by Reich & Ruipérez-Valiente (2019) have shown that initial participation in MOOCs was not representative of the population distribution in various countries, with few students from nations with low Human Development Index (HDI) scores. Additionally, the dropout rate among students from these countries was even higher than the already substantial average MOOC dropout rate, which often exceeds 80 %. This elevated dropout rate has also been observed in some paid courses, primarily due to the independent and self-disciplined learning required by MOOCs. Furthermore, MOOCs typically have much lower tuition fees than traditional brick-and-mortar courses, which has led to increased enrollment among less affluent students from the Global North compared to their wealthier peers. However, for many students in the Global South, even these comparatively affordable MOOCs remain financially out of reach (Digital Learning Edge, 2024).

This adaptation challenge is particularly evident in Ethiopia's higher education system. Despite significant expansion in enrollment—from 142,000 students in 2005 to 762,000 in 2015—Ethiopian universities face severe resource constraints, with student-faculty ratios exceeding 100:1 in some institutions (Molla & Cuthbert, 2014; Salmi et al., 2017). These challenges reflect broader trends across the Global South, where the rapid expansion of higher education often outpaces the development of institutional capacity. While MOOCs have the potential to help address these constraints, their effectiveness is contingent upon the complex interactions between global technological capabilities and local institutional contexts.

The COVID-19 pandemic has accelerated adoption of online learning tools globally while exposing persistent inequalities in technological infrastructure (Maphosa & Maphosa, 2023). Research by Jouicha et al. (2020) and a systematic literature review conducted by Modise (2022) find that a growing number of African students are willing and able to use MOOCs to further their education. According to the authors this shift can be largely attributed to the rising number of universities offering MOOCs and advancements in MOOC methodology. In Ethiopia, government initiatives—such as partnerships between the Ministry of Education and global MOOC platforms—demonstrate a growing interest in leveraging technological solutions for education. However, as Fischer (2023) argues, successful implementation of global tools requires careful attention to local market conditions and institutional contexts.

Recent studies highlight both opportunities and challenges in MOOC adoption across the Global South. While platforms like Coursera partner with institutions worldwide (European Commission. Joint Research Centre, 2017), participation rates remain low in many developing contexts despite growing awareness (Ma & Lee, 2019; Yunusa & Umar, 2018). This gap between awareness and adoption raises important questions about how global technological innovations contribute to development outcomes. In particular, the adoption and impact of MOOCs in the Global South, especially in countries like Ethiopia, have been relatively understudied.

This study investigates how the adoption and integration of MOOCs interact with Ethiopia's local educational landscape, contributing to broader discussions about effectively adapting global innovations to meet local development needs. Drawing on technology acceptance models (Davis et al., 1989; Venkatesh et al., 2003) and innovation diffusion theory (Rogers, 2004), we examine how Ethiopian educators' engagement with MOOCs is shaped by institutional capabilities, individual factors, and broader development contexts. Additionally, we consider the complex interplay between global educational tools and local contexts, as emphasized in a general sense by Fischer, (2023) and specifically from an educational perspective by Halkiyo (2023). This approach enables us to explore how MOOCs, as a global phenomenon, align with the specific needs and challenges of the Ethiopian higher education system.

Our central research question asks: How do interactions between global educational technologies and local institutional contexts shape

development outcomes in the resource-constrained higher education system of Ethiopia? This question addresses a crucial gap in understanding how global technological innovations contribute to development outcomes in specific institutional contexts. While existing research has examined MOOC adoption patterns globally (Ma & Lee, 2019; Yunusa & Umar, 2018), less attention has been paid to how these platforms interact with local development priorities and institutional capabilities in the Global South.

This research makes three key contributions. First, it provides empirical evidence on factors influencing MOOC adoption in resource-constrained environments. Second, it develops a theoretical framework for understanding how global technological innovations interact with local development contexts. Third, it offers practical insights for policymakers seeking to leverage global educational tools for development outcomes.

The remainder of this paper proceeds as follows: Section 2 reviews the literature on globalization in education and development, focusing on technological innovation in the Global South and the background of higher education in Ethiopia. Section 3 describes the environment of Ethiopian higher education, highlighting the efforts made in training university instructors. Section 4 describes how we conducted our survey, Section 5 contains the survey results, and finally, the last section discusses implications for policy and practice, concluding with reflections on adapting global innovations to meet local development needs.

2. Literature review

This literature review explores papers on the intersection of global development theory, educational technology adoption, and higher education transformation to examine the potential of MOOCs as development tools in resource-constrained environments.

2.1. Globalization, MOOCs, and higher education development

Globalization has transformed higher education from unidirectional North-South knowledge transfer to complex patterns of technological adoption and local adaptation (Kwiek, 2001; Porter & Vidovich, 2000; Vaira, 2004). The temporal compression of development timeframes (Walker, 2009) and the centrality of higher education in knowledge-based economies (King et al., 2011) have heightened the significance of digital education for development, while digital contexts pose new challenges for knowledge flow across development boundaries (Marginson & van der Wende, 2007).

In the 2010 s, MOOCs were heralded as transformative tools for democratizing education, offering free or low-cost access to high-quality educational resources worldwide (Liyanagunawardena et al., 2013). However, the effectiveness and accessibility of MOOCs reveal significant disparities between the Global North and the Global South. While the Global North leads in creating and delivering MOOCs, users in the Global South often face unique challenges that impact their access and engagement with these resources.

MOOCs emerged primarily from institutions in the Global North, driven by prestigious universities such as Harvard, MIT, and Stanford (Daniel, 2012). As these courses became available internationally, they raised hopes of bridging educational divides. Yet, MOOCs often failed to account for contextual factors such as language barriers, cultural relevance, and local educational standards, which can limit their effectiveness for students in the Global South (Reisberg & Rumbley, 2011). Research by Czerniewicz et al. (2014) suggests that MOOC content largely reflects Western perspectives, which can make it less relevant and engaging for learners in diverse global contexts.

However recent research shows that MOOCs are increasingly adapting to meet the needs of learners in the Global South. In response to critiques that early MOOCs reflected primarily Western perspectives, many platforms have begun to tailor content for diverse global contexts, recognizing the distinct needs of learners outside the Global North.

Recent studies highlight these adaptations. For instance (Rolfe, 2015) argues that this shift reflects a broader trend toward “glocalization” in MOOC design, where global content is adapted to resonate with local learners. Zhang et al. (2019) emphasizes the importance of culturally relevant examples and language accommodations in MOOCs, noting that more institutions are now partnering with local experts in the Global South to co-create MOOC content.

Infrastructure and accessibility continue to be significant challenges for MOOC adoption in the Global South. Recent studies highlight that students in low- and middle-income countries often face technological limitations, such as low bandwidth, unreliable internet connections, and limited access to devices capable of streaming educational content. For instance, Zawacki-Richter (2023) discusses how these infrastructural constraints impede the effectiveness of MOOCs in these regions.

The evolution of educational mobility from colonial-era movements to market-driven flows positions MOOCs as a form of virtual mobility with the potential to democratize access to global educational resources (Varghese, 2008, 2013). However, persistent infrastructure and cost barriers constrain this potential in developing contexts. Recent scholarship reveals tensions between the educational potential and market-driven limitations of MOOCs (Dabbagh et al., 2016; Carnoy, 2016), highlighting the need for context-specific approaches that prioritize local needs and constraints. National MOOC implementation strategies, from India’s state-led SWAYAM platform (Chauhan & Goel, 2017) to South Africa’s institutional partnerships model (Czerniewicz et al., 2017), reflect diverse development approaches shaped by factors such as infrastructure quality and cultural norms (Fadzil et al., 2015). However, the paradox of low participation despite high awareness in many Global South countries (Ma & Lee, 2019; Yunusa & Umar, 2018) reveal persistent challenges in translating global solutions into local engagement.

2.2. North-South knowledge transfer and development dynamics

MOOCs in developing contexts illuminate tensions in contemporary development processes, as global innovations interact with local institutional realities to shape outcomes, highlighting how international development is transforming into global development (Horner and Hulme, 2019). Their framework, particularly relevant post-COVID, suggests successful development requires reconceptualizing how global tools are localized and adapted to meet context-specific needs and constraints.

Power relations significantly influence knowledge transfer and technological adoption outcomes, particularly in educational development, where institutional capacity mediates technology integration (Alami et al., 2021). The multi-dimensional framework of infrastructure readiness, human resource capabilities, and institutional governance structures helps explain varied MOOC adoption patterns across contexts.

Fischer’s (2023) theorization of “glocalization” provides crucial insight into how a global tool becomes embedded within local contexts. Rather than viewing adoption as binary success or failure, this framework reveals complex processes of adaptation and reconstitution that reflect local needs, constraints, and capabilities. The Ethiopian case exemplifies these dynamics: Mengistie’s (2021) detailed institutional analysis reveals how infrastructure limitations and organizational practices create distinctive patterns of technology adoption that differ significantly from Global North models.

2.3. Crisis response and educational development transformation

Global crises reshape development trajectories and expose vulnerabilities in educational systems (Hulme & Horner, 2020). Ethiopia’s pandemic response demonstrates the complex interplay of crisis-driven digitalization, infrastructure weaknesses, and institutional innovation (Ferede et al., 2022), with MOOCs playing a significant role in resilience (Sanchez-Gordon & Luján-Mora, 2014). Political instability compounds

these challenges, creating a “double burden” of increased need and constrained response capacity (Teferra et al., 2022)). Demissie et al.’s (2021) analysis of differential crisis impacts underscores the need for integrated resilience strategies that address immediate needs and longer-term development goals. Their findings suggest that successful crisis response requires careful attention to institutional capacity differences and existing resource distribution patterns.

Recent studies highlight the critical role of institutional capacity in shaping the effectiveness of crisis responses in educational development. In a crisis context, it is essential for technological adaptation to support educational advancement. Peters & Besley (2024) examine how power dynamics and institutional readiness influence the adoption of digital technologies in education during crises, emphasizing the need for robust frameworks to support technological integration. Similarly, Forkosh-Baruch et al. (2024) discuss the impact of technological advances and power structures on educational practices, highlighting the importance of institutional readiness for effective technology adoption.

2.4. Theoretical framework for global educational development

Our analysis integrates the Technology Acceptance Model (Davis et al., 1989; Venkatesh et al., 2003), Innovation Diffusion Theory (Rogers, 2004)), and development theory to examine how global technological innovations contribute to development outcomes in resource-constrained environments. Olaiya’s (2022) critique of convergence theory and Dawes’ (2020) analysis of weak network effects caution against assuming uniform adoption patterns and underscore the need for sustained state support Alami et al. (2021).

Horner’s (2020) framing of knowledge as a global public good and Ostrom and Ostrom’s (2019) analysis of “toll goods” illuminate tensions similar to those existing between the democratizing potential and access barriers of MOOCs. The emphasis is on treating certain developmental issues as global public goods that require collective action and benefit all countries, not just those traditionally considered part of the “developing world”.

Taking into account the ideas listed in the literature review and by examining MOOCs as manifestations of global development processes that simultaneously enable and constrain local agencies, we further lay the groundwork for a nuanced analysis of their potential as tools for educational transformation in resource-limited contexts. The Ethiopian case particularly demonstrates how infrastructure constraints, institutional capacity, and political economy shape technology adoption outcomes in developing contexts. These insights contribute to a broader understanding of how global technological innovations can effectively support development while accounting for local institutional realities and constraints.

3. Higher education policy and university instructor training in Ethiopia

In recent decades, Ethiopia has rapidly expanded and reformed its higher education system to increase access and meet rising demand. This growth has been tremendous in scale, though it still falls short of fully meeting demand. Ethiopian tertiary enrollments increased nearly sixfold between 2005 and 2015, with over 85 % of students attending public universities (Salmi et al., 2017). Although the World Bank found that Ethiopia’s gross enrolment rate in tertiary education barely exceeded 10 % in 2018, this is far more than the 3 % recorded in 2005. This improvement is, however, tempered by a high dropout rate and significant youth unemployment (Woldegiorgis & Doevenspeck, 2013). According to the Ethiopian Ministry of Higher Education’s 2022 data, the unemployment rate for recent graduates exceeds 40 %.

As of 2022, the country had 50 public universities and 278 private higher education institutions (Woldegiorgis & Adamu, 2022), a significant increase from the earlier period when Addis Ababa University (formerly Haile Selassie University), founded in 1950, was the nation’s

sole university for many years. This expansion, guided by the Higher Education Proclamation (Federal Democratic Republic of Ethiopia, 2009; Solomon et al., 2023), aims to broaden access to higher education, promote socioeconomic development, and address historical marginalization.

The rapid expansion of higher education in Ethiopia has not been matched by adequate investment in faculty recruitment and development (Molla & Cuthbert, 2014). Several studies have highlighted significant deficiencies in resources, facilities, research output, and teaching quality in Ethiopian higher education institutions (Halkiyo, 2023; Saint, 2004; Semela, 2014; Tessema, 2009). One of the key problems, as stated in the introduction, is the shortage of qualified academic staff, with 100 or even more students per teacher at some universities (Molla & Cuthbert, 2014). However, from a human resources perspective, the biggest problem in higher education is not primarily the shortage of teachers but rather the lack of motivation among teachers to improve the quality of education. As Halkiyo (2023) describes, university instructors are underpaid and struggle with everyday financial difficulties. Taking on side employment is a generally accepted lifestyle. In many cases, students also value teachers who do not want to introduce new methods that require intensive student effort but rather choose the traditional, teacher-centered forms of education that demand less effort from students. According to Halkiyo (2023), this can be explained by the fact that students are focused on obtaining their degrees as quickly as possible and securing their place in the job market, which they believe is better ensured by taking on various jobs while still students rather than relying on the benefits of quality education.

In terms of external factors, education is hindered by numerous circumstances. These include chronic political instability, massive internal displacement, and migration. Protracted conflicts, such as a two-year border war with Eritrea (1998–2000), recurrent ethnic violence, and civil war, including ongoing hostilities, make education impossible in some regions of the country from time to time. The conflict in Northern Ethiopia, initially centered in Tigray but also affecting the Amhara and Afar regions, has had far-reaching consequences. Additionally, active conflicts persist in both the Amhara and Oromia regions, with the most intense fighting currently occurring between Amhara Fano forces and the federal government in the Amhara region. These conflicts have directly affected the areas where fighting has occurred and profoundly shaped Ethiopia’s broader economic and social landscape. The widespread displacement, destruction of infrastructure, and diversion of resources have created challenges that extend well beyond the immediately impacted regions. Meanwhile, brain drain siphons off many highly qualified university instructors who have grown weary of difficult living conditions, constant uncertainty, and the authoritarian behavior of education policymakers (Teferra et al., 2022). Political instability, conflicts, and brain drain create a “development trap” (McCann et al., 2020).

External barriers to improving higher education also include challenges stemming from broader gaps in information and communication technology (ICT) infrastructure, resources, and digital literacy within Ethiopian universities (Mengistie, 2021). Abera (2020) notes in a blog post that many Ethiopian universities operate with limited financial resources, and ICT infrastructure — including hardware and reliable internet access — remains inadequate. Additionally, a lack of technical support for instructors further exacerbates the challenges of implementing effective online learning.

From the instructors’ perspective, the actions of education policymakers can also be viewed as an external factor, as policymakers attempt to modernize higher education through top-down reforms. Measures that overlook the interests of instructors and students limit academic freedom and further reduce the appeal of a career in higher education. Both instructors and students have repeatedly protested against these centralized policies, resulting in prolonged university closure (Oliso, 2023).

Training university instructors can only be effective if it takes into

account their specific circumstances. However, the Higher Diploma Program (HDP), introduced in 2003 at seven public universities, primarily focused on modernizing education and did not consider the instructors' specific needs (Wondem, 2022). After the pilot, the federal Ministry of Education mandated the program at an additional 45 public universities. The training lasted nine months and included two in-person sessions each week. During the program, university faculty were taught Active Learning Methods (ALM), which shift from teacher-centered pedagogy to teaching methods that require active student participation. According to Popova et al. (2022), similar programs have been implemented in several countries across the Global South, but many African nations have yet to experiment with Active Learning Methods. Therefore, Ethiopia stands among the leading countries in efforts to modernize higher education training.

According to Halkiyo (2023), however, the HDP program did not achieve its goal, as nearly all university instructors continue to teach using traditional, teacher-centered methods. Halkiyo (2023) partly attributes the program's lack of success to its top-down approach to implementation. Education policymakers were interested in adopting modernization efforts from the Global North, as this allowed them to access financial resources for both the institutions they managed and personal benefit. Although Ethiopia was never a colony, its modern history has been shaped by ongoing efforts from Global North countries to exert influence.

No matter how valuable the tools of the ALM method may be considered, they cannot be imposed from above; their implementation depends on university instructors who interact directly with students. While the Global North can offer useful methods to countries in the Global South, it is crucial who receives these instructions firsthand. If politicians are the primary recipients of these methods and accompanying support, then bridging the gap between policymakers and those responsible for implementation becomes essential to ensure feasibility.

In terms of adopting the ALM, the gap between politicians and implementers is of significant importance. Even if we accept Fischer's (2023) idea that realizing a global principle requires considering local characteristics, this remains ineffective if we overlook the various levels of these local characteristics. Ethiopian education policymakers indeed represent one local level; however, when local levels are layered, it is essential to reach the level where the actual processes occur. In the context of higher education, this specifically refers to university instructors. A well-designed measure, coordinated with participants, can still be effective even if initiated from the top down. While ministry-led initiatives and international cooperation agreements of this kind have been established, they are not always well-designed.

Despite the issues discussed above, numerous initiatives and quality improvement programs have ultimately contributed to a noticeable enhancement in the quality of Ethiopian higher education. For example, e-learning and distance learning have advanced significantly since the Higher Education Proclamation of 2009 established the Higher Education Strategy Centre, tasked with laying the groundwork for and expanding these two educational methods (UNHCR, 2009). Under the Higher Education Quality Enhancement Project, Ethiopia received a \$140 million grant and a \$300 million loan from the World Bank to improve teaching quality and enhance graduates' employment opportunities through the implementation of digital tools, online platforms, and virtual classrooms (Kirill, 2017). The ongoing Ethiopian Education Development Roadmap for 2018–2030 outlines achievements, challenges, and plans across various levels of Ethiopia's education system, with a particular emphasis on higher education. The roadmap aims to transform Ethiopia's education system to support the country's goal of becoming a middle-income economy by 2025 (Teferra et al., 2022). To develop higher education and education in general, Ethiopia has engaged in multiple international collaborations. A partnership with the World Bank, Voluntary Services Overseas (VSO), United Nations Development Programme (UNDP), and other organizations has supported initiatives that brought foreign educational staff to Ethiopia to

work for extended periods within public institutions, thereby strengthening teaching and management capabilities.

In another international partnership, in 2009, the Dutch government initiated a collaboration through the Centre for International Cooperation at VU University, Amsterdam (CIS/VU). Within this framework, it provided financial support for a leadership and management development program and established academic resource centers at nine public universities (Wondem, 2022). This initiative marked the first step toward developing the Higher Diploma Program.

In 2020–2021 when Ethiopia's former Ministry of Science and Higher Education (MoSHE), now part of the Ministry of Education, partnered with Coursera to offer free access to 3,800 courses. This initiative aimed to counteract pandemic-related educational disruptions and extend learning opportunities to university educators and students who might be financially barred from participating in MOOCs. Before this pandemic-era initiative, these courses were available for a fee that, despite being acceptable by the standards of a highly industrialized country, was enough to serve as an entry barrier to Ethiopian learners. Despite the above measures, however, one of the most significant challenges in Ethiopian higher education remains the resistance of instructors to new teaching methods and their lack of pedagogical knowledge (Adamu, 2024).

4. Our survey

4.1. Data and survey topics

This section outlines our methodological approach to examining the adoption of MOOCs for further training among Ethiopian educators, contributing to a broader understanding of how global educational tools can be effectively implemented in developing contexts. We collected our data through an online survey conducted among faculty members at Ethiopian public universities.

The questionnaire was distributed online from September 2022 to April 2023 to over 400 educators in 15 different universities nationwide. These universities, all public institutions, were chosen due to our coauthor from Bahir Dar University having contacts within them, which facilitated participant recruitment. A total of 164 completed questionnaires were received, yielding a response rate of 41 %, which is notably high given the challenges of survey distribution. This strong response rate may be partly attributed to the survey's deployment via Google Forms, ensuring continued accessibility online despite political unrest and internet blackouts in Ethiopia. The respondents, representing various public universities across the country, provided a small yet diverse sample, though the distribution of responses across universities was uneven (see Table 1 for details). This dataset is sufficiently large to allow us to investigate factors influencing educators' willingness to enroll in MOOCs and enhance their teaching skills through these courses.

In our survey, the primary research question aimed to explore the connections between MOOCs, as a global tool, and local institutions from a development outcomes perspective, as outlined in the introduction. The survey included items assessing respondents' awareness, perceptions, and use of MOOCs. These items were adapted from established instruments for measuring technology acceptance, following Davis et al. (1989) and Venkatesh et al. (2003). Additionally, questions addressing barriers to MOOC adoption were included, drawing on the innovation diffusion theory proposed by Rogers (2004). These frameworks were chosen for their relevance to understanding technology adoption in educational settings and their applicability in diverse cultural contexts, aligning with our focus on global development tools in local settings.

To aid in answering our primary research question, we formulated four additional questions that also served as sub-objectives supporting the main question. First, we aimed to investigate the level of awareness of MOOCs as a training category among Ethiopian university teachers. A lack of knowledge about MOOCs is a significant barrier to their adoption

Table 1
The Descriptive Statistics of the Participants in Our Survey.

Characteristic	Number (%)
Age (years):	
18 – 25	6 (3.66)
26 – 40	134 (81.71)
41 – 60	24 (14.63)
Sex:	
Female	10 (6.1)
Male	154 (93.9)
Marital Status:	
Single	43 (26.22)
Married	120 (73.17)
Divorced	1 (0.61)
Academic Rank:	
Assistant Lecturer	10 (6.10)
Lecturer	99 (60.37)
Assistant Professor	41 (25.00)
Associate Professor	11 (6.71)
PhD Candidate	3 (1.83)
Level of Education:	
BA/BSc/MD	9 (5.49)
MA/MSc	126 (76.83)
PhD	28 (17.07)
Others	1 (0.61)
Name of the University Where the Respondent Works:	
Bahir Dar University	71 (43.29)
Jimma University	18 (10.98)
Arba Minch University	10 (6.10)
Gondar University	8 (4.88)
Debre-tabor University	14 (8.54)
Woldia University	6 (3.66)
Metu University	7 (4.27)
Other Universities*	30 (18.29)

* The universities grouped under “Other Universities” and the number of responses received from each are as follows: Woldiya University – 5 (2.7%), Addis Ababa University – 4 (2.17%), Debarik University – 4 (2.17%), Debre-markos University – 3 (1.63%), Wollega University – 2 (1.09%), and 1 (0.54%) from each of the following: Ambo University, Gambella University, Haramaya University, Wollo University, Arsi University, Bule Hora University, Dembi Dolo University, Dire Dawa University, Hawassa University, Injibara University, Mekelle University, and Selale University.

worldwide, particularly in developing nations (Ma & Lee, 2019). Educators cannot enroll in MOOCs if they are unaware of their existence. Our survey measured MOOC awareness with a single yes/no question: “Are you aware of Massive Open Online Courses (MOOCs)?” While this provides a basic indication of familiarity with the concept, it does not capture the depth of respondents’ understanding. Some participants who reported being aware of MOOCs may have had limited knowledge of what they entail or how they function. As a result, our survey may have overestimated MOOC awareness. Nonetheless, it is clear that raising awareness among educators about the benefits of MOOCs and equipping them with the technical skills to utilize these resources is essential for their global adoption, especially in developing nations (Ma & Lee, 2019).

The study’s second sub-objective was to investigate teachers’ perceptions of the usefulness of MOOCs for their continuing education, based on their previous participation in a MOOC. Perceived usefulness is a key factor in adoption intentions and actual usage, as predicted by technology acceptance models (Davis et al., 1989; Park, 2009). Teachers must believe that MOOCs will provide value and enhance their performance to increase the likelihood of adoption. Proper organization and structure of MOOCs are crucial to ensure that instructors find participation useful. Our second set of questions focuses on these aspects.

Our third objective was to examine the constellation of factors that lead to differing attitudes towards MOOCs, with some educators viewing them favorably and others having reservations. Through this exploration, we aimed to determine which aspects of education policy should be emphasized to maximize the effective implementation of MOOCs.

Our final objective was to evaluate the potential of MOOCs as an effective tool for global development in the context of Ethiopian higher education, specifically in teacher training within higher education. We aimed to explore how MOOCs, as a product of globalization, can help address the challenges in Ethiopian higher education and what this reveals about the broader debate on global versus international development. We sought to understand how the adoption and impact of MOOCs in Ethiopia reflect the intersection of global educational tools with local contexts and needs. This analysis contributes to the ongoing discussion on the role of global educational innovations in developing countries and their implications for educational policy and practice in the Global South.

The questionnaire used in this study underwent validation through expert review by selected faculty members and a pilot test involving specific instructors, resulting in an improved final version. Each participant was given a link to a self-administered questionnaire in English, the primary language of instruction in Ethiopian universities.

The survey covered five topics:

1. Computer and Internet literacy
2. Knowledge of MOOC training and participation in the training
3. Subjective perception of the impact of MOOCs
4. Possible links between active participation in MOOC training and teaching skills
5. Demographic issues.

The descriptive statistics for the responses received in each question group are presented in the parts below.

4.2. Basic statistics from our survey results

Our online questionnaire revealed that 96 % of respondents possess at least intermediate Internet and computer literacy, which is more than sufficient for MOOC participation. However, it is important to note that the analysis does not cover the topic of Internet literacy for the entire university teachers’ community. For the latter purpose, we probably needed to administer the questionnaire in person or at least through telephone interviews. However, we were not able to do this. So, we left out the topic of Internet literacy from our analysis. For other questions, we report our findings further in this paper.

While our study focuses primarily on educators’ perspectives and experiences with MOOCs, we acknowledge that the ultimate goal is to improve student outcomes. By enhancing educators’ skills and knowledge through MOOCs, we anticipate a positive impact on teaching quality, which could enrich student learning experiences. Future research could examine the direct effects of educators’ MOOC participation on student outcomes.

Table 1 presents the descriptive statistics of the survey participants. The responses were collected from multiple universities, most from Bahir Dar University, where one of our coauthors is a faculty member. The universities with at least seven instructor responses are explicitly listed in Table 1. The remaining institutions are grouped under “Other Universities,” with the full list provided in the table’s footnote. One institution contributed five completed questionnaires, while most provided only one response. Table 1 and its accompanying footnote presents a detailed breakdown of these institutions.

The survey results demonstrate that participants possess significant work experience in higher education, averaging 8.53 years with a standard deviation of 4.39. Although this information is not included in Table 1, it is evident that participants’ opinions are well-informed and based on a solid foundation of experience.

Given that over 80 % of our survey respondents fell between the ages of 26 and 40, we can assume that they were at least familiarized with information technology in school (if not necessarily trained extensively in its use). While only 28 % of the participants held a doctoral degree, they all had at least a bachelor’s degree. Most respondents (over 60 %) belonged to the lecturer category, indicating they had already begun their ascent on the university career ladder but were still at an intermediate level. Interestingly, full professors did not respond to our inquiries at all.

Over 90 % of the respondents were male, which suggests that most Ethiopian university instructors (or at least those with Internet access and a reasonable degree of technical literacy) are male. The exact distribution of total university instructors at Ethiopian universities could not be found; however, [Eshete \(2003\)](#) discovered a comparable outcome in the higher education teacher training institutions she examined, finding that only 5.1 % of the teachers were female. Even though Eshete’s survey was conducted over 20 years ago, it is reasonable to assume that the proportion of female university teachers has not changed radically. Interviews by [Halkiyo et al. \(2023\)](#) further support this assumption.

5. Discussion

5.1. Descriptive analysis of the survey results

University educators unfamiliar with MOOCs’ techniques, anticipated costs, and benefits may not be interested in participating in them and reaping the accompanying benefits. Our findings reveal a significant gap between MOOC awareness and participation among Ethiopian educators. While 50.61 % of respondents reported being familiar with MOOCs, only 29.88 % had enrolled in such courses ([Table 2](#)). This discrepancy aligns with previous studies on MOOC adoption in Global South countries, which have consistently shown low participation rates despite widespread awareness ([Ma & Lee, 2019](#); [Yunusa et al., 2021](#)).

The relatively high level of awareness is encouraging, indicating that information about MOOCs has, to some extent, penetrated the Ethiopian higher education sector. However, the lower participation rate highlights barriers preventing educators from turning this awareness into action. These barriers may include lack of time, limited resources, or perceived irrelevance to their specific needs — factors often exacerbated in resource-constrained environments common in many Global South contexts.

Enrolment rates compared to awareness rates reveal the importance

Table 2
MOOC Awareness, Participation Rates, and Perceptions of the Future of MOOCs.

Characteristic	Number (%)
Familiar with MOOCs:	
Yes	83 (50.61)
No	81 (49.39)
MOOCs Enrolment:	
Yes	49 (29.88)
No	115 (70.12)
Believe MOOCs Will Be the Primary Form of Educators’ Further Training:	
No answer	117 (70.48)
Yes	34 (20.48)
No	15 (9.03)
MOOC Recommendation (“Will you recommend MOOC to your colleagues and students?”):	
No Answer	117 (70.48)
Slightly Likely	2 (1.20)
Moderately Likely	7 (4.22)
Likely	26 (15.66)
Very likely	14 (8.43)

of promotional efforts in encouraging MOOC uptake. It is worth noting that over 60 % of MOOC participants enrolled via the Coursera platform, which can be attributed to Coursera hosting the largest number of MOOCs and the efforts of the Ethiopian government. As we wrote earlier, the Ethiopian Ministry of Education provided free access to all Coursera courses during the COVID-19 pandemic. Only around 15 % of the MOOC participants took an edX course, and LinkedIn courses were the third most popular, with just over 10 %. Our sample revealed that those enrolled in a MOOC typically took multiple courses. MOOCs have proven to be a valuable learning resource for teachers keen on expanding their knowledge. Their personal preferences largely influence the appeal of MOOCs to this group. Our analysis of these preferences is presented in this section of the paper.

The gap between MOOC awareness and participation suggests that, although educators are generally familiar with MOOCs, obstacles hinder their involvement. These challenges may include a lack of time, resources, or perceived relevance, which we will examine further in our analysis. The data indicate that 76 % of those enrolled in a MOOC completed the course, including the tests. While this ratio is not low compared to average MOOC completion rates, it underscores the challenges in effectively utilizing MOOCs, even when staff choose to enroll.

Educators with greater knowledge of MOOCs tend to participate more frequently than their less-informed peers. [Christensen et al. \(2011\)](#) observed that those who are better informed about educational innovations are better equipped to make advantageous decisions regarding their professional development and are more likely to engage in it actively. Our research supports this finding. However in our sample despite that 50.6 % of respondents being aware of MOOCs, over two-thirds have never enrolled in such courses. This fact is supported by a global survey conducted in 2015 by Statista ([Statista, 2015](#)). As noted in the literature review, the survey revealed moderate support for MOOCs among university instructors. On average, only 35 % of faculty members endorsed using MOOCs, compared to 65 % support for universally accessible open educational resources. Our survey further confirmed this moderate level of acceptance within the Ethiopian context.

This documented low level of support reinforces the assertion that MOOCs still have a long way to go before achieving widespread academic acceptance. These findings align with previous studies on MOOC adoption in Global South countries, which have shown low participation rates despite general awareness ([Yunusa et al., 2021](#)). Addressing these challenges is essential to fully realizing the potential of MOOCs in Ethiopia. Despite the high level of awareness, the low participation rate likely reflects, at least in part, the technical difficulties learners face in Ethiopia, where power outages are common and local conflicts can lead to prolonged internet disruptions.

Regarding the representativeness of our findings, we note that a significant proportion of respondents (43.29 %) are from Bahir Dar University, with additional overrepresentation from universities in the Amhara region. For a direct comparison of MOOC awareness and participation between respondents from Bahir Dar University and other institutions, refer to [Table 3](#). This skew is primarily due to the researchers’ (authors’) affiliations and networks, making access to these institutions’ participants more feasible. While this distribution limits the generalizability of our findings at the national level, it offers a detailed snapshot of MOOC awareness and adoption in a specific region of Ethiopia. To mitigate potential bias and assess the broader relevance of our findings, we conducted a comparative analysis between responses from Bahir Dar University and those from other universities in our sample.

Table 3
Comparison between “Bahir Dar University” and “Other Institutions”.

Name of the University	MOOCs Awareness (%)	MOOCs Enrollment (%)
Bahir Dar	63.38028	35.21127
Other	40.86022	25.80645

Our analysis revealed significant differences in MOOC awareness between Bahir Dar University and other institutions ($\chi^2 = 7.2928$, $df = 1$, $p = 0.0069$). Since the p-value is below the common significance threshold of 0.05, the difference in awareness between Bahir Dar University and other institutions is statistically significant based on the Chi-square test. In other words, the observed difference in awareness (approximately 22.5 percentage points) is unlikely to be due to random chance.

However, we found no statistically significant difference in MOOC enrollment between Bahir Dar University and other institutions ($\chi^2 = 1.2805$, $df = 1$, $p = 0.2578$). Despite a difference of approximately 9.4 percentage points in enrollment rates, the p-value (0.2578) is much higher than the common significance level of 0.05. This suggests that we cannot confidently conclude there is a real difference in enrollment rates between the two groups, as the observed difference is likely due to random variation in the sample rather than a true difference in the population. In simple terms, the test did not show a statistically significant difference between the two subsamples regarding MOOC enrollment.

These findings suggest that while the overrepresentation of Bahir Dar University in our sample may influence overall awareness levels, it likely does not significantly bias our MOOC enrollment and participation results. The consistency in enrollment patterns across institutions provides some confidence in the broader relevance of our findings regarding the challenges and opportunities of MOOC adoption. However, we acknowledge that our study cannot make definitive claims about MOOC adoption at the national level.

We aim to explore the preferences of MOOC participants by referring to Table 2. This table indicates that 40 respondents from our survey are likely or very likely to recommend MOOCs to their colleagues and students. All these individuals participated in MOOCs themselves. This high satisfaction rate establishes that 40 out of 49 MOOC participants were pleased with the MOOC format and were willing to recommend it to potential participants.

To gain deeper insight into the opinions of survey participants regarding MOOCs beyond the data presented in Table 2, we asked them to evaluate various potential learning benefits. Participants rated the extent to which they agreed that MOOCs provided these specific advantages using a five-point Likert scale. Our analysis found no substantial difference between the 'strongly agree' and 'agree' responses nor between the 'strongly disagree' and 'disagree' responses, so we combined these categories. The results are presented in Table 4.

The most commonly agreed-upon benefits were acquiring relevant materials for instructional goals and developing research expertise. This suggests that MOOCs are viewed as valuable tools for career advancement and staying updated with advancements in one's field. However, the responses show notable polarization, with many "Disagree" responses across all categories, indicating diverse experiences or perceptions of MOOC benefits.

Table 4 also reveals that, for each benefit, such as "To advance knowledge in my discipline," "To develop my research expertise," et cetera, at least 45 % of MOOC participants agree that their participation provided the stated benefit. The most striking contrast is evident in the case of "To develop my research expertise," with 43 % of the sample disagreeing that the MOOC had enhanced their skills. In comparison,

almost 49 % agreed to some extent—an almost perfectly bimodal distribution. It is crucial to consider that respondents' agreement or disagreement with each statement also depended on the specialties of the MOOCs they had taken. While drawing general conclusions is challenging due to the small number of MOOC participants, it is notable that many participants perceived their involvement as useful in some way or another.

Of the respondents who had not previously enrolled in a MOOC, 75 % reported lacking adequate information about the MOOCs (see Fig. 1 below). Many respondents indicated they had no plans to participate in MOOCs without external support or incentives from their university. After asking those who work at Bahir Dar University why external support is so important, it became clear that they consider the cost of participating in MOOCs to be high and feel that completing a course is not recognized by their university. They believe pursuing it solely based on their internal motivation is difficult.

Despite this and the low participation rate of Ethiopian learners in MOOCs, more than 70 % of respondents who were aware of the existence of MOOCs viewed them as likely to become one of the most important forms of instruction in the future. They cited increased accessibility, flexibility, cost-effectiveness, self-paced learning, and alignment with technological development as reasons for the predicted rise of MOOC-based learning. Approximately 80 % of those who had participated in a MOOC reported a positive experience, with 71 % likely to recommend MOOCs to students because of the benefits to learning, research, and teaching.

Fig. 1 shows the highest percentage in the "Did not receive information about particular courses" category. This finding underscores the importance of individuals familiar with the concept of MOOCs being given specific course information to facilitate their participation, as they are unlikely to seek such opportunities proactively. Moreover, tuition, registration, or any other fees discourage potential students from participating in MOOCs, with free options being strongly preferred. Notably, almost 20 % of participants plan to participate in a MOOC in the future. Therefore, leveraging this willingness to participate and making MOOCs available to educators is worthwhile.

To overcome barriers and increase engagement, respondents recommended improving Internet infrastructure, integrating MOOCs into university curricula, allocating time for participation within workloads, providing training and incentives for staff and students, addressing computer/Internet accessibility issues, and raising awareness about MOOC opportunities. These recommendations align with the cited barriers related to workload, infrastructure, and a lack of information and institutional support.

5.2. A more comprehensive analysis of the survey results

In addition to simple descriptive statistics, we aimed to adopt a comprehensive approach to understand the factors influencing the participation of Ethiopian teachers in MOOCs and the effectiveness of their engagement. To achieve this, we constructed a logistic regression model that considers the personal characteristics of the respondents and their MOOC participation and satisfaction.

Logistic regression is suitable for predicting categorical outcomes based on continuous and categorical predictors (Wooldridge, 2010). In

Table 4
The Extent to which MOOC Participants Agreed that the MOOC Gave Them an Advantage in Specific Areas.

	To advance knowledge in my discipline	To develop my research expertise	To address challenges with teaching in the classroom	To acquire relevant materials for instructional goals	For the sake of self-satisfaction	For career promotion	It contributes to performance appraisal
Disagree	18	21	15	20	17	14	15
Neutral/Not Sure	2	4	11	7	10	8	8
Agree	29	24	23	22	22	27	26

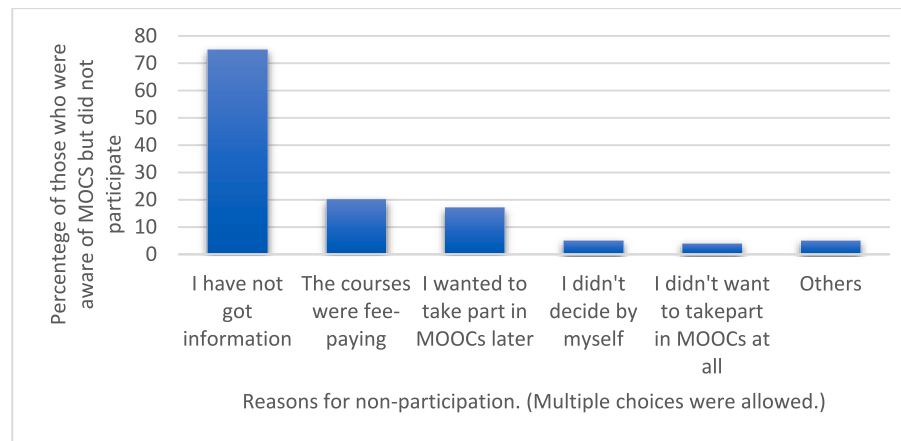


Fig. 1. Reasons Identified by Participants for Non-Enrolment or Non-Participation in MOOCs. (By Percent).

Table 5

Logistic Regression Results Predicting MOOC Enrolment.

MOOCs Enrolment	Coefficient	Standard Error	t-value	p-value	Sig
Age	−0.0534	0.026	−2.043	0.041	**
Experience	0.084	0.05	1.68	0.093	*
MOOCs Awareness	0.081	0.624	0.13	0.896	
Digital Literacy	0.242	0.232	1.05	0.296	
Benefit Awareness	0.6653	0.197	3.380	0.001	**
Motivation	0.207	0.207	1.00	0.316	
Professional Obligation	−0.216	0.197	−1.10	0.273	
Free or sponsored	0.474	0.231	2.05	0.04	**
Recognition/Certificate	0.494	0.215	2.29	0.022	**
Infrastructure	0.5012	0.218	2.298	0.022	**
Teaching Engagement	−0.399	0.236	−1.69	0.091	*
Constant	−1.9893	0.473	−4.202	<0.001	***
Chi-square (χ^2) = 77.798		Probability > χ^2 = 0.046			

The meanings of variables in Table 5 are as follows:

Age: Age of the educator, in years.

Experience: Work experience as an academic staff in the university (in years).

MOOCs: Awareness: Whether the participant is aware of MOOCs—yes or no.

Digital Literacy: Average computer and Internet literacy level on a five-item scale.

Benefit Awareness: The extent to which the respondent agrees that the MOOC expands their professional knowledge, rated on a five-item Likert scale.

Motivation: Respondent interest in participating in a MOOC, rated on a five-point Likert scale.

Professional Obligation: The extent to which the respondent thinks that participation in MOOCs is a professional obligation, expressed on a five-point Likert scale.

Free or Sponsored: How much the respondent's participation is influenced by whether the course is free or sponsored by someone, rated on a five-point Likert scale.

Infrastructure: The quality of infrastructural facilities, like Internet connection and electricity, on a five-point Likert scale.

Teacher Engagement: The extent to which the participant wants to address classroom teaching challenges, rated on a five-point Likert scale.

* $P \leq 0.1$.

** $P \leq 0.05$.

*** $P \leq 0.01$.

the logistic model, let P_i represent the probability of MOOC enrolment for educator, i . The unadjusted model is given by:

$$\log\left(\frac{P_i}{1 - P_i}\right) = \beta_0 + \beta_i \text{Explanatory_Factors}_i + \epsilon_i$$

Where β s are the regression coefficients, and ϵ is the error term.

The dependent variable is a categorical measure indicating whether respondents have enrolled in MOOCs (1 = Yes, 0 = No). Statistical analysis was conducted using Stata 18. Before analysis, multicollinearity between predictors was tested using variance inflation factors (VIF), and no issues were detected ($VIF < 5$). The regression analysis revealed five statistically significant predictors of MOOC enrolment: age, benefit awareness, sponsorship, recognition, and infrastructure. These results underscore the role of perceptions, barriers, and academic factors in shaping MOOC use among university educators in Ethiopia. The regression results are presented in Table 5.

The results in Table 5 indicate that the age of the participant had a

statistically significant negative coefficient, suggesting that younger participants were more likely to enroll in MOOCs. *Perceived Benefit* had a significant positive coefficient, with higher benefit awareness associated with an increased probability of enrolment. The availability of infrastructure was similarly positively related to enrolment status, suggesting that access to electricity and technology enables participation. The results also show that free or sponsored MOOCs and recognition/certificates were statistically significant predictors of MOOC enrolment while controlling for other factors. The overall logistic regression model predicting MOOC enrolment was statistically significant ($\chi^2 = 77.8$, $p < 0.005$), indicating that the predictors reliably distinguished between those who did and did not enroll in MOOCs.

Notably, *Professional Obligation* was not significant within this group of variables, whereas *Benefit Awareness* was. This relationship suggests that perceived benefits influence individual participation decisions more than professional obligations. Additionally, it is worth highlighting the importance of the *Certificate* variable in MOOC participation, indicating

that participants value receiving appropriate recognition for their learning activities.

6. Conclusions

The attitude and knowledge of teachers primarily are primary determinants of education quality. Therefore, continuous professional development for university instructors is crucial, especially in resource-constrained regions of the Global South. Although MOOCs were originally designed for student education, they have also proven highly effective for professional development. As a professional development tool, MOOCs offer instructors an excellent opportunity to expand their knowledge while promoting this training format to their students. MOOCs provide cross-border opportunities and are not constrained by rigid time requirements. After paying tuition, discipline and internet access are the only necessities for learning. MOOCs, a hallmark of global development, began spreading rapidly in 2011. While MOOCs are a truly global tool, their creation and operation have largely been shaped by academic professionals from the Global North. As a result, the lack of consideration for local conditions often presents challenges in the Global South.

Due to the relatively favorable financial conditions significant growth driven by affordability. MOOCs enable educational institutions to shift from a high-margin, low-volume model to a low-margin, high-volume one. This shift manifests in two key areas: within the framework of university education and in the professional development of adult practitioners, in our case, university instructors. By leveraging economies of scale, MOOCs offer participants competitive advantages and increase profitability. According to [Mordor Ltd. \(2024\)](#), the MOOC market is projected to reach USD 22.80 billion in 2024. However, our survey revealed that the effective use of MOOCs requires adaptation to local specificities. In the Ethiopian context, this involves recognizing the role of MOOC-based professional development in promoting university instructors and addressing participation costs. Additionally, practical experience shows that the worst-case globalization scenario outlined by [Porter & Vidovich \(2000\)](#)—the complete “homogenization” of thinking and lifestyle—is not a concern, as deeply rooted local characteristics remain resilient. [Fischer \(2023\)](#) supports this, demonstrating that local paths cannot be bypassed at the intersection of local and global influences.

Our survey, along with our prior study of Ethiopian higher education reform, revealed that global tools undergo multiple levels of local integration. For these tools to be effective, it is essential to consider the customs and habits of each local level involved in their use. These levels include individuals with different vested interests: one stakeholder group may decide to adopt a global tool, while another is responsible for its implementation. It becomes ineffective if one group approves a tool but another group resists its implementation. Each stakeholder group's actions are also influenced by their past experiences. For instance, the use of MOOCs for training university instructors was preceded by the introduction of the Higher Diploma Program (HDP), in which university instructors demonstrated varying levels of engagement. The living conditions that discouraged educators from participating fully in the HDP remained unchanged when MOOCs were introduced.

MOOCs are considered global, not international, as they do not involve the Global North providing development aid to promote education in the Global South. Instead, MOOCs operate as global tools, with participants from both the Global South and the Global North. However, MOOCs must meet the needs of the Global South, and the target audience in these regions should be aware of the opportunities MOOCs provide, be willing to participate, and be able to do so. Government sponsorship and organizational efforts in the Global South can be highly beneficial. Additionally, the living conditions and personal interests of potential MOOC participants cannot be overlooked, especially for university instructors. This also means that the “glocalization” of MOOCs in Ethiopia must take into account the interests of university instructors.

Our findings align with previous research showing that individuals are more likely to adopt new technologies if they perceive them as useful for enhancing their teaching and research capabilities ([Davis et al., 1989](#); [Park, 2009](#); [Zhang et al., 2017](#)). Therefore, awareness campaigns, testimonials, and training on classroom integration strategies could catalyze engagement by making the advantages of MOOCs more evident to educators. It is particularly important for participants to experience benefits not only in personal fulfillment but also in improved material well-being.

Despite the limited number of responses and the non-representative sample, we identified basic correlations between lecturers' circumstances, personal attitudes, and MOOC participation. While awareness of MOOCs was relatively high, actual participation was lower. However, those who tried a MOOC generally had a positive experience and often pursued additional courses, suggesting high potential for repeat engagement once participants become familiar with these platforms. Younger individuals, those conscious of the benefits of MOOCs, those with access to sponsored or free courses, and those with adequate infrastructure and resources were more likely to engage with MOOCs. Free participation remains a significant factor, requiring either government support or contributions from MOOC platforms. Here again, the semi-public nature of MOOCs as non-excludable resources (in an international context) becomes evident, as noted by [Horner \(2020\)](#).

Respondents generally found their participation beneficial in various ways, unique to each course. They would also recommend MOOCs to others, underscoring that many Ethiopian educators would enroll in well-targeted and well-promoted MOOCs. This conclusion is supported by the popularity of Coursera courses funded by the Ministry of Education during the COVID-19 pandemic.

However, ongoing conflict in Ethiopia places its higher education system at a disadvantage compared to more stable countries in the Global South. While the war affects only certain regions physically, it threatens national political stability, territorial integrity, and regional relationships. Many Ethiopian universities face frequent disruptions and unreliable internet access. Rebuilding teaching capabilities after resolving these conflicts will be crucial for national development, though challenging.

In this context, MOOCs could play a vital role in reconstructing higher education by providing access to quality learning resources. Successfully implementing MOOCs across the nation will require coordinated efforts from MOOC providers, government agencies, and institutional leaders. Tailored programs that enhance technological readiness, teaching skills, and integration will be essential to unlock the potential of MOOCs while addressing persistent disparities. However, based on [Halkiyo's \(2023\)](#) findings, promoting MOOC participation is a futile effort if university instructors feel the need to supplement their income outside of higher education. Therefore, it is essential that participation in MOOCs—like the adoption of any modernization tool—improves their living conditions.

Finally, while this study provides valuable insights into factors influencing MOOC participation among university educators in Ethiopia, several limitations must be noted. The relatively small sample size of 164 respondents, with a disproportionate number from the country's northern regions, limits the generalizability of the findings. Additionally, as a cross-sectional study, it offers only a snapshot, not longitudinal insights into evolving perceptions and usage. Self-reported data may also be influenced by social desirability bias. Follow-up research with larger national samples and longitudinal impact assessments would strengthen these conclusions. Future studies could also include personal interviews to explore Ethiopian university instructors' training needs and MOOC participation in depth. Such research would enable continuous refinement of strategies and demonstrate MOOCs' contributions to national and global educational development. Future research should assess the effectiveness of proposed interventions rigorously, examining impacts on teaching practices and student outcomes over time.

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CRediT authorship contribution statement

Éva Berde: Writing – review & editing, Writing – original draft, Validation, Supervision, Project administration, Methodology, Investigation, Formal analysis, Conceptualization. Seyoum Teffera Mengesha: Validation, Software, Formal analysis. Belaynew Asrie Mola: Data curation. Sándor Remsei: Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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