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Towards Flexible Learning for Teachers in Kenya: Reforms and Challenges in Higher Education

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Towards Flexible Learning for Teachers in Kenya: Reforms and Challenges in Higher Education

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Abstract

The COVID-19 pandemic triggered significant transformations in higher education worldwide, compelling institutions to re-evaluate conventional approaches to teaching and learning. In Kenya, these changes are particularly more pronounced in teacher education, where universities and teacher training institutions have significantly adopted flexible learning approaches, including open distance and e-learning (ODeL) to ensure continuity of learning, improve access, and respond to the demands of an increasingly digital society. Guided by the perspectives of comparative and international education, and informed by policy and institutional reform frameworks, this paper examines the evolving landscape of teacher education in Kenya in the post-pandemic era. The paper critically reviews the policy and legal frameworks shaping teacher preparation and professional development, as well as the pedagogical and technological innovations introduced by higher education institutions to support flexible learning. It further explores the opportunities presented by ODeL in expanding access to both pre-service and in-service teacher education, enhancing professional growth, and promoting lifelong learning. Additionally, the study analyses the major challenges affecting the effective implementation of flexible learning in teacher education, including inadequate digital infrastructure, persistent inequalities in access to technology, limited institutional preparedness, concerns over quality standards, and gaps in policy implementation. Particular attention is given to emerging developments such as the establishment of the Open University of Kenya (OUK) and its potential contribution to widening access, equity, and quality in teacher education. The paper concludes that although flexible learning offers significant potential for transforming teacher education in Kenya, its long-term success will depend on coherent policy alignment, sustained investment in digital infrastructure, institutional capacity development, and stronger collaboration among government agencies, higher education institutions, development partners, and other key stakeholders.

Keywords: COVID-19 pandemic; flexible learning; higher education; Kenya; open, distance and e-learning (ODeL); teacher education

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Introduction

Higher education appears to be undergoing profound transformation worldwide, with teacher education emerging as a critical area of reform in response to changing educational demands (UNESCO, 2026). The COVID-19 pandemic accelerated these transformations by disrupting traditional modes of teaching and learning, thereby compelling institutions across the globe to rethink how education is delivered, accessed, and sustained (Ul Hassan et al., 2025). In Kenya, as in many developing countries, the pandemic exposed the vulnerabilities of conventional face-to-face learning systems, especially in teacher education, and created an urgent need for more flexible, adaptive, and resilient approaches to learning (Rismawati et al., 2025).

The closure of educational institutions during the pandemic disrupted teaching and learning at all levels, forcing universities and teacher training institutions to rapidly adopt alternative instructional models. In response, many institutions in Kenya embraced open distance and e-learning (ODeL) to ensure continuity of academic programmes and teacher preparation (Miseda & Wanami, 2022). Although initially introduced as an emergency response mechanism, flexible learning has increasingly evolved into a strategic approach for expanding educational access, promoting equity, and supporting lifelong learning. This shift is particularly significant in the country, where geographical barriers, infrastructural inequalities, and socio-economic disparities continue to limit access to higher education, especially among rural and marginalised populations (Nyerere, 2016; UNESCO, 2024).

Flexible learning models including blended learning, online learning, and distance education have become central to the modernisation of teacher education. These approaches provide opportunities for both pre-service and in-service teachers to engage in learning at their own pace and within their professional and personal contexts (Perry et al., 2021). For in-service teachers, flexible learning has become an important avenue for continuous professional development, enabling them to upgrade their knowledge and skills while remaining in their workplaces and balancing their professional responsibilities (Camilleri & Calleja, 2023).

Such integration of flexible learning into teacher education, however, continues to face significant structural and institutional challenges. Existing policy and regulatory frameworks remain largely oriented toward conventional campus-based education, often failing to adequately accommodate digital and flexible modes of learning (Abdelaal, 2024). The gap between policy and practice limits institutional innovation and constrains the ability of teacher education programmes to respond effectively to the evolving needs of 21st-century learners and the teaching profession (Katitia, 2015; Odhiambo, 2021).

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As an emerging institution, the Open University of Kenya (OUK) faces several implementation challenges, including limited digital infrastructure, capacity-building needs, concerns about quality standards, and varying levels of digital literacy among both learners and academic staff (Shisakha et al., 2024). In addition, scepticism surrounding the credibility and acceptance of online qualifications in some academic and professional circles may influence enrolment patterns, graduate employability, and public confidence during its formative years (Muthuprasad et al., 2021).

A comparative and international education (CIE) perspective positions Kenya's transition toward flexible learning within the wider context of global educational transformation. This perspective recognises that education systems are influenced by social, economic, political, and cultural contexts, and that policy reforms should strike a balance between global best practices and local realities (Wolhuter, 2024). Countries such as South Africa and India have made notable progress in integrating digital learning into teacher education through strong policy frameworks, investment in digital infrastructure, and large-scale virtual learning initiatives. These international experiences provide valuable lessons for Kenya on both the opportunities and challenges associated with mainstreaming flexible learning (Department of Basic Education, 2018; Government of India, 2024; Ngubane-Mokiwa, 2017).

Many Kenyan universities have introduced learning management systems, virtual classrooms, online libraries, and other digital learning tools as part of their efforts to modernise teaching and learning, yet adoption remains uneven across institutions (Mutisya & Makokha, 2016; Tarus et al., 2015). Challenges such as unreliable Internet connectivity, limited access to digital devices, inadequate technical support, and disparities in digital literacy continue to hinder effective implementation (Nirmani, 2025). Furthermore, many institutional initiatives remain fragmented, lacking a coordinated national strategy for the integration of flexible learning in teacher education (Wang & Sun, 2022).

Given the increasing demand for qualified teachers in Kenya and across East Africa, flexible learning presents an important opportunity for expanding teacher preparation and professional development in a cost-effective, scalable, and inclusive manner (GPE KIX, 2024). However, realising this potential requires sustained investment in digital infrastructure, institutional capacity development, supportive policy frameworks, stakeholder collaboration, and public confidence in alternative learning pathways (Commonwealth of Learning, 2019).

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The current study, therefore, critically examines the emerging role of flexible learning in teacher education within Kenya's higher education sector. It explores the opportunities created by flexible learning models, analyses the structural and institutional barriers affecting their implementation, and proposes policy recommendations for strengthening teacher education in the digital era. Using the CIE framework, the study argues that the transformation of teacher education in Kenya requires contextually relevant reforms that align global innovations with national educational priorities.

Historical development and context of the OUK

The establishment of the OUK represents one of the most significant milestones in the evolution of higher education in the country. It reflects the country's growing commitment to expanding equitable access to university education through technology enabled learning while responding to the changing demands of the Fourth Industrial Revolution and the knowledge economy. Although ODeL modes of study have existed in Kenyan universities for more than two decades, the creation of a fully-fledged virtual public university marks a fundamental shift from supplementary distance education towards an institutionalised model of flexible higher education (Republic of Kenya, 2023).

The origins of ODeL in Kenya can be traced to the late 1980s and early 1990s when several public universities began offering correspondence courses and external degree programmes aimed primarily at working adults and teachers seeking professional advancement (Nyerere, 2016). Institutions such as the University of Nairobi, Kenyatta University, Egerton University, Moi University and later several private universities progressively introduced distance education units to accommodate increasing demand for higher education amidst limited physical infrastructure and rapidly growing student enrolments (Tarus et al., 2015). Initially, these programmes relied heavily on printed study materials, face-to-face residential sessions, and regional study centres, with minimal integration of digital technologies.

The rapid expansion of information and communication technologies (ICTs), coupled with increasing Internet penetration during the 2000s, gradually transformed the nature of distance education in Kenya. Universities increasingly adopted learning management systems (LMS), virtual classrooms, online libraries, digital assessment platforms, and video conferencing technologies to complement conventional teaching (Mutisya & Makokha, 2016). Nevertheless, implementation remained fragmented, because most universities continued to prioritise campus-based education while treating ODeL as an auxiliary mode

of programme delivery. Consequently, issues relating to quality assurance, institutional capacity, learner support, and technological infrastructure continued to constrain the effectiveness of distance education (Ndibalema, 2022).

The COVID-19 pandemic became a major turning point in Kenya's higher education system. Following the closure of educational institutions in March 2020, universities were compelled to migrate almost all teaching and learning activities to online platforms within a very short period (Ossiannilsson, 2020). The crisis exposed significant inequalities in digital access, institutional preparedness, and technological capacity, while simultaneously demonstrating that technology mediated education could provide a viable mechanism for ensuring continuity of learning during periods of disruption (Ahmed & Opoku, 2022). More importantly, the pandemic accelerated national policy discussions regarding the need to institutionalise flexible learning as a permanent feature of higher education rather than an emergency response mechanism.

Against this background, the Government of Kenya initiated reforms aimed at establishing the country's first fully virtual public university. The OUK was officially chartered in August 2023 under the Universities Act, becoming the first public university in Kenya designed to operate exclusively through ODeL modalities (Republic of Kenya, 2023). The university was established to widen access to higher education, particularly for working professionals, adult learners, persons living with disabilities, learners residing in remote and marginalised areas, and international students who may be unable to attend conventional campus-based programmes. Unlike traditional universities, this institution operates without extensive physical campuses, relying instead on digital platforms, virtual classrooms, electronic learning resources, and online learner support systems to facilitate teaching, learning, and assessment (Open University of Kenya [OUK], 2024).

The establishment of the OUK is also aligned with Kenya Vision 2030, the Bottom-Up Economic Transformation Agenda (BETA), the digital superhighway initiative and broader national aspirations to develop a digitally skilled workforce capable of supporting socio-economic transformation (Republic of Kenya, 2023). At the continental level, the university contributes to the objectives of the African Union's Continental Education Strategy for Africa (CESA 2016–2025), which emphasises expanded access, lifelong learning, and the integration of ICT in education. Globally, it supports the realisation of the United Nations Sustainable Development Goal 4 (SDG 4), which seeks to ensure inclusive, equitable, and quality education and promote lifelong learning opportunities for all (Goyal et al., 2024).

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Academically, the OUK seeks to transform higher education by promoting learner centred pedagogy, competency-based learning, flexible admission pathways, recognition of prior learning, and technology enhanced instructional practices. Through its digital learning model, the university is expected to support continuous professional development for teachers and other professionals while increasing participation among non-traditional learners who have historically been underrepresented in higher education (OUK, 2024). These developments position OUK as a strategic national institution capable of addressing persistent challenges relating to educational access, equity, and lifelong learning.

As noted earlier on, despite these promising developments, the university continues to grapple with several implementation challenges, including inadequate broadband infrastructure in some regions, unequal access to digital devices, concerns regarding the quality assurance of fully online programmes, and lingering public perceptions regarding the credibility of relevant qualifications (Wagner et al., 2026). Addressing these challenges will require sustained government investment, effective regulatory oversight, institutional capacity building, stakeholder collaboration, and continuous monitoring to ensure that flexible learning achieves its intended educational outcomes.

From a CIE perspective, the OUK represents Kenya's adaptation of a globally established model of open universities pioneered by institutions such as the United Kingdom Open University, the University of South Africa, Indira Gandhi National Open University in India, and the Open University of China. While these institutions demonstrate the transformative potential of open and distance education in widening participation and supporting lifelong learning, international experience also shows that the success of such institutions depends on coherent policy frameworks, sustainable financing, strong technological infrastructure, and robust quality assurance mechanisms (Commonwealth of Learning, 2019; Wolhuter et al., 2018). Consequently, the OUK provides an important case through which the opportunities and challenges associated with flexible learning in teacher education can be examined within both national and international contexts.

Thesis statement

The COVID-19 pandemic and the accelerating global digital transformation have significantly reshaped higher education, compelling teacher education systems to adopt more flexible, inclusive, and technology driven approaches. In Kenya, the growing adoption of ODeL reflects both an immediate response to educational disruption and a long-term strategy for expanding access, equity, and quality in teacher education. However,

despite emerging institutional reforms such as the establishment of the OUK, the effective integration of flexible learning continues to be constrained by policy gaps, infrastructural limitations, institutional capacity challenges, and digital inequalities. Guided by the CIE framework, the current study argues that the successful transformation of teacher education in Kenya depends on coherent policy reform, sustained investment in digital infrastructure, capacity building, and the contextual adaptation of global best practices.

Objectives of the study

This study had the following specific objectives:

- To examine the impact of flexible learning modalities on the accessibility of teacher education in Kenya's higher education institutions.
- To evaluate the influence of digital infrastructure and technological preparedness on the effectiveness of online teacher education programmes in Kenya.
- To assess the extent to which existing teacher education policies and legal frameworks support the implementation of ODeL in higher education institutions.
- To investigate how institutional reforms and innovations in pedagogy affect the quality and relevance of teacher training under flexible learning models.

Theoretical grounding

This study is anchored in two complementary theoretical perspectives: the CIE framework and the Technological Pedagogical Content Knowledge (TPACK) model. Together, these frameworks provide both a macro-level and micro-level understanding of the factors shaping the integration of flexible learning in teacher education in Kenya. At the macro level, the CIE framework provides a lens for analysing how educational reforms are influenced by global developments and local contextual realities. The CIE recognises that education systems do not operate in isolation; rather, they are shaped by broader socio-economic, political, cultural, and institutional factors. The framework further suggests that countries can strengthen their education systems by learning from international experiences while adapting external innovations to local needs and realities (Salajan et al., 2023). In the current study, the CIE framework helps to explain how global transformations in higher education, particularly the increased adoption of digital learning during and after the COVID-19 pandemic have influenced reforms in teacher education in Kenya. It also provides a basis for examining how national policies, institutional responses, and emerging initiatives such as the OUK reflect Kenya's efforts to align with international trends in

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flexible learning.

On the other hand, the TPACK framework, developed by Mishra and Koehler (2006), is particularly relevant, because it explains how teachers can integrate technological tools, pedagogical approaches, and subject content to enhance instructional effectiveness in digitally mediated learning environments. The TPACK framework builds upon the earlier concept of pedagogical content knowledge (PCK) developed by Shulman (1986), which emphasised the relationship between subject matter knowledge and pedagogical practice in effective teaching. Mishra and Koehler (2006) expanded this model by introducing technological knowledge (TK), acknowledging the increasing significance of digital competence in contemporary education. The framework comprises three core knowledge domains: content knowledge (CK), which refers to mastery of subject matter; pedagogical knowledge (PK), which relates to instructional strategies, learner engagement, and classroom management; and technological knowledge (TK), which involves the ability to use and evaluate digital tools and educational technologies. The intersection of these domains generates additional forms of knowledge, including PCK, technological content knowledge (TCK), and technological pedagogical knowledge (TPK) which collectively culminate in TPACK, representing the effective integration of technology, pedagogy, and content in teaching practice.

Within the context of teacher education in Kenya, the TPACK framework offers an appropriate lens for examining the competencies required for the successful implementation of flexible learning approaches such as blended learning, online instruction, and ODeL (Uribe-Banda, 2025). The COVID-19 pandemic exposed significant gaps in educators' preparedness to transition from conventional face-to-face teaching to digital learning environments, particularly in relation to technological competence and digital pedagogy (Sysoieva, 2022). Although teacher education programmes in Kenya have traditionally emphasised subject mastery and pedagogical preparation, the integration of technology into teaching practice has often remained underdeveloped (Kajoro et al., 2013). Consequently, many educators experienced difficulties in adapting instructional strategies, assessment practices, and learner engagement approaches to virtual learning environments.

The relevance of TPACK has become increasingly significant with recent institutional reforms, including the establishment of the OUK, which has expanded opportunities for technology-mediated teaching and learning (Republic of Kenya, 2024). In such environments, teacher educators and trainee teachers are expected not only to possess disciplinary expertise and pedagogical competence, but also to make informed instructional

decisions regarding the selection, adaptation, and integration of digital technologies (Mishra & Koehler, 2006). For example, instructors in subjects such as mathematics or science may be required to integrate learning management systems, virtual simulations, digital laboratories, video conferencing platforms, and interactive assessment tools to support meaningful learning experiences (UNESCO, 2023). From this perspective, TPACK promotes reflective, learner-centred, and context-sensitive instructional practice by ensuring that technology use is aligned with pedagogical goals and content requirements (Gatete, 2026).

Despite its relevance, the application of the TPACK framework in Kenya faces several implementation challenges. These include inadequate digital infrastructure, inconsistent Internet connectivity, limited access to digital devices, and insufficient opportunities for continuous professional development, particularly in rural and marginalised institutions (Ndibalema, 2022; Uribe-Banda, 2025). Additionally, many teacher training programmes continue to emphasise basic ICT literacy without sufficiently linking technological competence to pedagogical practice and subject content integration (Harris et al., 2009). As a result, educators may acquire technical skills without developing the integrative knowledge required for effective technology-enhanced teaching (Çam & Koç, 2024; Wagner et al., 2026).

Critically, while the TPACK framework provides a robust model for understanding teacher competence in digital learning environments, it has also been criticised for placing greater emphasis on individual teacher knowledge while giving less attention to broader structural factors such as institutional leadership, policy support, infrastructure, and socio-economic inequalities (Archambault & Barnett, 2010; Valtonen et al., 2017). In developing contexts such as Kenya, these external conditions significantly influence the extent to which educators can effectively apply TPACK in practice (UNESCO, 2023). Therefore, the framework is most useful when interpreted alongside institutional and policy perspectives that account for contextual realities (Koehler et al., 2013).

The TPACK framework provides a strong theoretical foundation for the current study by explaining how teacher competencies, technological integration, and pedagogical innovation influence the quality and effectiveness of flexible learning in teacher education. It also provides an analytical basis for identifying gaps in teacher preparation and informing curriculum reform, faculty development, and policy interventions aimed at strengthening teacher education in Kenya's evolving digital learning landscape.

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Conceptual framework

The conceptual framework is derived from both the CIE framework as well as the TPACK model. Particularly, the CIE perspective places Kenya's experience within the wider context of global educational transformation. This approach enables policymakers and institutions to draw lessons from countries that have successfully integrated digital and flexible learning models while adapting such practices to the country's distinct socio-economic, cultural, and institutional realities. By integrating these two frameworks, the current study conceptualises flexible learning in teacher education as a multidimensional process influenced by both systemic and instructional factors.

At the systemic level, policy frameworks, institutional readiness, funding, infrastructure, and national educational priorities shape the adoption of flexible learning. At the instructional level, educator competence, pedagogical innovation, digital literacy, and technology integration determine the effectiveness of implementation. The interaction of these factors ultimately influences the accessibility, quality, inclusivity, and relevance of teacher education programmes in Kenya. The conceptual framework presents flexible learning in teacher education as the outcome variable, influenced by four key independent variables: policy and regulatory support; institutional capacity; technological infrastructure; and pedagogical competence. Collectively, these factors influence the effectiveness of flexible learning reforms in Kenya's higher education sector.

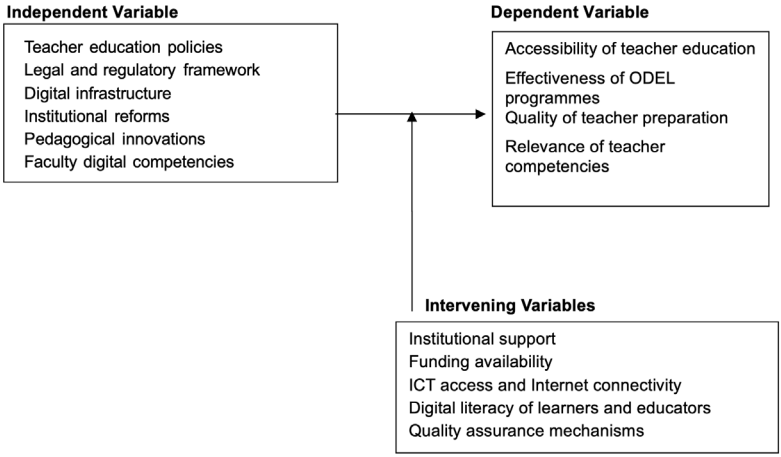


Figure I: Adapted from Mishra and Koehler (2006)

The conceptual framework assumes that the effective implementation of flexible learning in teacher education is shaped by the dynamic interaction between policy support, institutional readiness, technological capacity, and pedagogical innovation. At the policy level, teacher education policies, regulatory frameworks, and national digital education strategies provide the structural foundation that guides institutional adoption and implementation of flexible learning approaches. These policy instruments influence how higher education institutions respond to emerging educational demands and technological transformation.

At the institutional level, factors such as curriculum redesign, faculty capacity development, investment in digital infrastructure, learner support systems, and institutional leadership determine the extent to which ODeL programmes can be effectively implemented. The ability of institutions to integrate these reforms directly affects the quality and sustainability of flexible learning in teacher education.

However, the relationship between policy intentions and institutional implementation is mediated by contextual and operational factors. These include the availability of financial resources, Internet connectivity, access to digital devices, levels of digital literacy among educators and learners, technical support systems, and the presence of effective quality standards mechanisms. Where these enabling conditions are adequately addressed, flexible learning has greater potential to expand educational access, promote equity and inclusion, enhance instructional quality, and strengthen the professional relevance of teacher education programmes.

Methodology

The current study adopted a qualitative research approach, which was considered appropriate for examining the complex and contextual issues surrounding flexible learning in teacher education within higher education in Kenya. Given the study's focus on policy reforms, institutional practices, and technological integration in the post-COVID-19 period, a qualitative approach provided an opportunity for in-depth exploration, interpretation, and critical analysis of emerging educational developments. Qualitative research is particularly useful in examining social and institutional phenomena within their natural contexts, allowing researchers to develop a deeper understanding of policy and practice (Creswell & Poth, 2018; Yin, 2018).

The study employed a documentary research design, relying exclusively on secondary data obtained from policy documents, scholarly publications, institutional reports, and

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legal frameworks related to teacher education, digital learning, and higher education reforms. Documentary analysis was selected because it provides a systematic, reliable, and non-intrusive approach for examining policy developments, institutional practices, and educational reforms without direct interaction with human participants (Bowen, 2009; Cardno, 2018). This approach was particularly appropriate for analysing reforms associated with ODeL in Kenya, where policy documents, institutional reports, and regulatory frameworks provide critical evidence for understanding educational transformation (Bekele, 2021).

Data were collected from both governmental and academic sources to ensure credibility, relevance, and comprehensiveness. Key institutional documents were obtained from agencies such as the Teachers Service Commission, the Commission for University Education, the Ministry of Education, and the OUK. In addition, peer-reviewed journal articles, books, policy reports, and conference papers published between 2018 and 2024 were reviewed in order to capture recent developments in teacher education, particularly those influenced by the COVID-19 pandemic and the broader digital transformation of higher education.

A purposive sampling technique was used to identify and select documents relevant to the objectives of the study (Patton, 2014). The inclusion criteria focused on documents addressing teacher education, flexible learning models, educational technology integration, digital infrastructure, institutional reforms, and policy developments within the Kenyan context. Only publicly accessible, academically credible, and English-language documents were included in the analysis (Hardwicke et al., 2020). Based on these criteria, a total of 35 documents were selected for final review. The final corpus comprised government policy documents, legislative and regulatory frameworks, institutional reports, strategic plans of higher education institutions, and peer-reviewed journal articles. During analysis, each document was coded in NVivo 12 according to the study objectives. Codes that recurred across multiple documents were aggregated into broader themes. The reported findings, therefore, represent patterns consistently identified across the documentary corpus rather than evidence derived from individual publications.

The collected data were analysed using thematic content analysis, guided by the framework proposed by Braun and Clarke (2006). The analysis followed four major stages. First, the selected documents were read repeatedly to enhance familiarity with the content and identify recurring patterns. Second, initial codes were generated based on emerging concepts related to accessibility, digital infrastructure, pedagogical innovation, institutional

reforms, policy implementation, and digital literacy. Third, related codes were grouped into broader themes aligned with the objectives of the study. Finally, the identified themes were interpreted in relation to the study's theoretical frameworks, namely the TPACK framework (Mishra & Koehler, 2006) and the CIE perspective (Wolhuter et al., 2018).

NVivo 12 was utilised during the coding and theme development process to improve data organisation, coding consistency, and analytical rigor. The software supported the systematic management of documentary data and facilitated the identification of thematic relationships across multiple sources (Dhakal, 2022; Phillips & Lu, 2018)

A range of quality assurance strategies were employed to enhance the trustworthiness and credibility of the findings. First, data triangulation was achieved through the use of multiple documentary sources, including policy documents, institutional reports, scholarly literature, and legal frameworks (Denzin, 2017). Second, an audit trail was maintained throughout the research process to promote transparency, consistency, and methodological accountability (Lincoln & Guba, 1985). Third, peer debriefing was undertaken through consultation with scholars in CIE and educational technology, enabling a critical review and refinement of the thematic interpretations (Zairul, 2025).

Since the study relied entirely on publicly available secondary data, formal ethical approval was not required. However, academic integrity was maintained through accurate citation of sources, acknowledgment of all referenced materials, and adherence to APA 7th edition referencing guidelines.

Despite its strengths, this methodology had limitations. The exclusive reliance on secondary data meant that firsthand experiences and perspectives of key stakeholders, such as teacher educators, trainee teachers, institutional leaders, and policymakers, were not directly captured. In addition, documentary analysis depends on the availability, quality, accuracy, and completeness of published records, which may vary across institutions and across time. Nevertheless, the use of diverse, credible, and up-to-date documentary sources provided a comprehensive basis for understanding the evolving landscape of flexible learning in teacher education in Kenya.

Findings and discussion

This section presents the findings of the study based on the four research objectives. The discussion draws on documentary evidence and thematic analysis to examine the extent to which flexible learning is reshaping teacher education in Kenya.

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Impact of flexible learning modalities on accessibility of teacher education

Analysis of the 35 documentary sources selected for this study identified expanded access to teacher education as one of the most consistently recurring themes across government policy documents, legislative frameworks, institutional reports, strategic plans, and peer reviewed scholarly publications. The documentary evidence demonstrates that flexible learning has significantly broadened participation in teacher education by creating learning opportunities for groups that have traditionally experienced barriers to conventional campus-based education. Across the reviewed documents, particular emphasis was placed on improved access for in-service teachers, adult learners, learners from geographically remote and marginalised areas, persons with disabilities, and individuals balancing education with employment and family responsibilities. The documents further indicate that the rapid transition to online and blended learning during the COVID-19 pandemic accelerated the adoption of flexible learning approaches across Kenyan higher education institutions, enabling continuity of teacher education programmes during periods of institutional disruption. These findings are consistent with studies by Ul Hassan et al. (2025) and Rismawati et al. (2025), who argue that the pandemic compelled higher education institutions to adopt more flexible, adaptive, and resilient models of teaching and learning.

Across the documentary corpus, flexible learning was consistently presented as having evolved beyond an emergency response into a long-term strategy for widening participation, promoting educational equity, and supporting lifelong professional learning. Government reports, institutional strategies, and scholarly publications reviewed in the current study emphasise the increasing role of ODeL in enabling both pre-service and in-service teachers to pursue professional development while maintaining employment and personal responsibilities. The reviewed documents consistently portray flexible learning as providing opportunities for learners to determine the pace, place, and mode of study, thereby expanding participation in teacher education and supporting continuous professional development (Camilleri & Calleja, 2023; Nyerere, 2016; Perry et al., 2021). These observations support the argument that flexible learning has become an important strategy for widening participation and promoting lifelong learning in higher education (Commonwealth of Learning, 2019).

The documentary analysis further identified the establishment of the OUK as one of the most significant institutional reforms supporting expanded access to teacher education. Government documents and institutional publications consistently describe the university

as Kenya's first fully virtual public university established to widen participation in higher education through technology enabled learning (Republic of Kenya, 2023; OUK, 2024). The reviewed documents indicate that the university was specifically established to serve working professionals, adult learners, persons living with disabilities, learners residing in remote and marginalised areas, and other non-traditional learners who may not easily access conventional campus-based programmes. These documents further demonstrate Kenya's growing commitment to expanding educational opportunities through virtual classrooms, online learning resources, and technology supported learner support systems. Similar observations are made by Shisakha et al. (2024), who note that the establishment of the OUK represents a significant milestone in institutionalising flexible learning within the country's higher education system.

Despite these positive developments, the documentary evidence consistently identified persistent inequalities affecting equitable access to flexible learning across higher education institutions. Recurring themes generated from policy documents, institutional reports, and scholarly publications highlighted unreliable Internet connectivity, inadequate broadband infrastructure, limited access to digital devices, insufficient technical support, and disparities in digital literacy as major barriers to effective participation. These challenges were particularly pronounced among learners residing in rural and marginalised communities. Similar concerns have been documented by Makokha and Mutisya (2016) and Tarus et al. (2015), who observed that although Kenyan universities increasingly adopted learning management systems and online instructional technologies, implementation remained uneven because of infrastructural limitations and institutional capacity constraints. More recent studies by Nirmani (2025) also identify inadequate technological infrastructure and unequal digital access as continuing obstacles to successful implementation of flexible learning. Furthermore, the reviewed documents indicate that existing policy and regulatory frameworks remain largely oriented toward conventional campus-based education, thereby constraining institutional innovation and limiting the wider integration of flexible learning approaches (Abdelaal, 2024; Katitia, 2015; Odhiambo, 2021).

Institutional reports relating to the OUK similarly identified several implementation challenges despite the university's significant contribution to widening educational access. Across the reviewed documents, the most frequently reported concerns included inadequate broadband infrastructure, unequal access to digital technologies, varying levels of digital literacy among learners and academic staff, quality assurance challenges, and persistent concerns regarding the credibility and public acceptance of fully online

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qualifications (Muthuprasad et al., 2021; Shisakha et al., 2024; Wagner et al., 2026). The consistency of these findings across multiple documentary sources suggests that although flexible learning has substantially expanded educational opportunities, its long-term sustainability depends on continued investment in digital infrastructure, institutional capacity development, supportive policy frameworks, and stakeholder collaboration (Commonwealth of Learning, 2019).

The patterns identified across the documentary corpus are appropriately interpreted through the CIE framework, which emphasises that educational reforms are shaped through interactions between global developments and local socio-economic realities (Salajan et al., 2023; Wolhuter, 2024). The reviewed documents demonstrate that Kenya's expansion of flexible learning reflects broader international developments in higher education while simultaneously revealing the influence of contextual factors such as infrastructure limitations, institutional capacity, policy environments, and socio-economic inequalities. Comparative evidence presented within the reviewed literature further indicates that countries such as South Africa and India have strengthened flexible learning through coherent policy frameworks, investment in digital infrastructure, and robust quality assurance systems (Department of Basic Education, 2018; Government of India, 2024; Ngubane-Mokiwa, 2017). These international experiences provide useful lessons for Kenya in strengthening the implementation of flexible learning within teacher education.

The documentary findings also support the TPACK framework. Across the reviewed documents, improved accessibility through flexible learning was consistently associated with the capacity of teacher educators to integrate technological, pedagogical, and content knowledge within digitally mediated learning environments (Mishra & Koehler, 2006). The documentary evidence suggests that expanding access alone is insufficient unless teacher educators possess the competencies required to design effective learner centred digital learning experiences. This interpretation is reinforced by Harris et al. (2009), who argue that teacher education programmes should move beyond basic ICT literacy towards meaningful integration of technology with pedagogy and subject content. Similarly, Uribe-Banda (2025) emphasises that strengthening teachers' technological pedagogical competencies is essential for effective implementation of flexible learning. Consequently, the reviewed documents collectively suggest that improvements in accessibility should be accompanied by sustained investment in faculty capacity development, continuous professional learning, and technology-enhanced pedagogical training.

The documentary analysis demonstrates that flexible learning has substantially improved accessibility to teacher education in Kenya through policy reforms, institutional innovation, and technology-enabled instructional delivery. However, the evidence consistently indicates that achieving equitable and sustainable access will depend on addressing persistent infrastructural, institutional, policy, and pedagogical challenges that continue to influence participation and learning outcomes across different regions of the country.

Influence of digital infrastructure and technological preparedness

Analysis of the 35 documentary sources consistently identified digital infrastructure and technological preparedness as dominant themes influencing the implementation and effectiveness of flexible learning in teacher education in Kenya. Government policy documents, institutional reports, and peer reviewed publications collectively indicate that institutions with established LMS, reliable Internet connectivity, and adequate technical support services were better positioned to implement flexible learning during and after the COVID-19 pandemic. The reviewed documents further revealed that the increasing adoption of virtual classrooms, online libraries, digital assessment platforms, and video conferencing technologies has transformed the delivery of teacher education by facilitating online instruction, learner interaction, collaboration, and assessment. These findings are consistent with Miseda and Wanami (2022), who observed that the COVID-19 pandemic accelerated the adoption of ODeL across Kenyan universities as institutions sought to sustain teacher education programmes. Similarly, Makokha and Mutisya (2016) and Tarus et al. (2015) demonstrate that Kenyan universities have progressively integrated LMSs and other digital learning technologies into teaching and learning, although implementation has remained uneven across institutions.

The documentary analysis further revealed substantial disparities in digital preparedness across higher education institutions. Across the reviewed documents, the most frequently reported challenges included inadequate ICT infrastructure, unreliable Internet connectivity, insufficient broadband capacity, limited access to digital devices, inadequate technical support services, and varying levels of digital literacy among learners and academic staff. These infrastructural constraints were consistently associated with reduced effectiveness, quality, and continuity of flexible learning. The findings reinforce earlier studies by Tarus et al. (2015) and Mutisya and Makokha (2016), which identify inadequate technological infrastructure and institutional capacity limitations as significant barriers to effective implementation of digital learning in Kenyan universities. More

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recent evidence by Nirmani (2025) similarly highlights unreliable Internet connectivity, limited access to digital devices, and disparities in digital literacy as persistent challenges affecting equitable participation in flexible learning. Furthermore, the reviewed documents indicate that many institutional initiatives remain fragmented because of the absence of a coordinated national strategy for integrating flexible learning into teacher education (Wang & Sun, 2022).

Institutional reports relating to the OUK similarly identified digital infrastructure as a fundamental requirement for successful technology mediated higher education. The reviewed documents indicate that, although, the university was established to operate entirely through digital platforms, virtual classrooms, electronic learning resources, and online learner support systems, its implementation continues to encounter challenges associated with inadequate broadband infrastructure, unequal access to digital technologies, varying levels of digital literacy among learners and academic staff, and quality assurance concerns (OUK, 2024; Republic of Kenya, 2023; Shisakha et al., 2024; Wagner et al., 2026). These findings demonstrate that while the establishment of the OUK represents a significant institutional milestone in expanding flexible learning, the effectiveness of fully online teacher education remains dependent upon sustained investment in digital infrastructure, institutional capacity development, and effective policy implementation.

The thematic analysis also identified teacher technological preparedness as a recurring issue across the documentary corpus. The reviewed documents consistently indicate that many teacher educators experienced difficulties integrating digital technologies into effective instructional practice during the transition to online learning. Although educators generally possessed strong disciplinary knowledge and pedagogical expertise, technological competence and digital pedagogical skills remained uneven across institutions. These findings are consistent with Kajoro et al. (2013), who argue that teacher education programmes in Kenya have traditionally emphasised subject content knowledge and pedagogy while giving comparatively less attention to technology integration. Similarly, Sysoieva (2022) observes that the COVID-19 pandemic exposed significant gaps in educators' preparedness to transition from conventional classroom instruction to digitally mediated learning environments. Consequently, many teacher educators encountered challenges in adapting instructional strategies, learner engagement approaches, and assessment practices to online learning contexts.

These documentary findings strongly support the TPACK framework developed by Mishra and Koehler (2006), which emphasises that effective technology-enhanced teaching

requires the meaningful integration of technological, pedagogical, and content knowledge. The reviewed documents indicate that technological competence alone is insufficient unless educators possess the ability to integrate digital technologies with appropriate pedagogical approaches and subject content. However, the documentary evidence further suggests that many teacher education programmes continue to emphasise basic ICT literacy without adequately linking technological competence to pedagogy and curriculum implementation (Harris et al., 2009). Consequently, educators may acquire technical skills without developing the integrated technological pedagogical content knowledge required for effective technology-enhanced instruction (Çam & Koç, 2024; Uribe-Banda, 2025; Wagner et al., 2026). The reviewed documents, therefore, emphasise the importance of continuous professional development and technology-enhanced pedagogical training for teacher educators.

From a broader theoretical perspective, the documentary evidence also supports the CIE framework, which explains educational reforms as products of interactions between global developments and local contextual realities (Salajan et al., 2023; Wolhuter, 2024). Across the reviewed documents, Kenya's efforts to strengthen digital infrastructure and technological preparedness reflect wider global transformations in higher education following the COVID-19 pandemic. However, the analysis also demonstrates that infrastructural limitations, institutional capacity constraints, policy implementation gaps, and socio-economic inequalities continue to influence the effectiveness of flexible learning. Comparative experiences from countries such as South Africa and India similarly demonstrate that successful implementation of flexible learning depends upon coherent national policies, sustained investment in digital infrastructure, institutional capacity building, and robust quality assurance systems (Department of Basic Education, 2018; Government of India, 2024; Ngubane-Mokiwa, 2017).

The documentary analysis demonstrates that digital infrastructure and technological preparedness constitute the foundation upon which effective flexible learning in teacher education is built. Although the reviewed documents indicate that Kenyan universities have made considerable progress in adopting digital learning technologies, persistent infrastructural inequalities, uneven institutional readiness, limited digital literacy, and inadequate teacher technological competencies continue to constrain the quality, equity, and sustainability of flexible learning. The documentary evidence, therefore, suggests that strengthening technology enhanced teacher education in Kenya will require sustained investment in digital infrastructure, continuous professional development, institutional

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support systems, coherent policy implementation, and coordinated stakeholder collaboration, as emphasised throughout the literature reviewed in the current study.

Policy and legal frameworks supporting ODeL implementation

Analysis of the 35 documentary sources identified policy and legal frameworks as some of the major themes influencing the implementation of ODeL in teacher education in Kenya. Government policy documents, legislative frameworks, institutional reports, and peer reviewed publications consistently revealed that, although Kenya has made considerable progress in promoting digital learning and flexible education, important gaps remain between policy intentions and practical implementation. The reviewed documents indicate that the rapid expansion of flexible learning following the COVID-19 pandemic has not been matched by equally comprehensive policy and regulatory reforms capable of supporting fully digital modes of programme delivery. These findings are consistent with those of Abdelaal (2024), who argues that existing policy and regulatory frameworks remain largely oriented towards conventional campus-based education and therefore, inadequately accommodate flexible and technology mediated learning. Similarly, Katitia (2015) and Odhiambo (2021) observe that the disconnect between policy formulation and implementation continues to limit institutional innovation and the responsiveness of teacher education programmes to emerging educational needs.

The documentary analysis further revealed that although Kenyan universities have increasingly adopted flexible learning approaches, implementation remains fragmented, because institutions often develop independent strategies for curriculum delivery, learner support, assessment, and technology integration. Across the reviewed documents, this institutional variation was consistently associated with the absence of a coordinated national framework for integrating flexible learning within teacher education. Similar observations are reported by Tarus et al. (2015) and Mutisya and Makokha (2016), who note that while universities have progressively adopted LMS, virtual classrooms, and other digital technologies, implementation has remained inconsistent because ODeL has traditionally been treated as a complementary rather than mainstream mode of programme delivery. More recent evidence by Wang and Sun (2022) further suggests that fragmented institutional initiatives continue to hinder systematic integration of flexible learning within higher education.

Institutional documents relating to the OUK emerged as important evidence of Kenya's commitment to institutionalising flexible learning through an enabling legal and

policy framework. The reviewed documents indicate that the university was officially chartered in 2023 as Kenya's first fully virtual public university under the Universities Act, with the primary objective of expanding equitable access to higher education through ODeL (Republic of Kenya, 2023). The documentary evidence further demonstrates that the establishment of the OUK aligns with Kenya Vision 2030, BETA, the Digital Superhighway Initiative, the African Union's Continental Education Strategy for Africa (CESA 2016–2025), and the aspirations of SDG 4, reflecting the country's broader commitment to technology enabled higher education (Goyal et al., 2024; Republic of Kenya, 2023). Furthermore, institutional publications indicate that the university seeks to promote learner centred pedagogy, competency-based learning, recognition of prior learning, flexible admission pathways, and continuous professional development through fully digital learning environments (OUK, 2024).

Despite these significant policy developments, the reviewed documents consistently identified persistent implementation challenges affecting the effectiveness of ODeL. Recurring themes included inadequate digital infrastructure, unequal access to digital devices, quality assurance concerns, varying levels of digital literacy among learners and academic staff and continuing public concerns regarding the credibility of online qualifications (Muthuprasad et al., 2021; Shisakha et al., 2024; Wagner et al., 2026). These findings suggest that although Kenya has established an enabling policy environment for flexible learning, the effectiveness of these reforms depends upon sustained institutional capacity development, adequate financing, supportive regulatory mechanisms, and effective implementation. Similar conclusions are drawn by the Commonwealth of Learning (2019), which emphasises that successful implementation of ODeL requires coherent policy frameworks, sustainable investment, and strong institutional support systems.

From the perspective of the CIE framework, the documentary findings demonstrate that Kenya's policy reforms reflect broader global developments in higher education while remaining shaped by local institutional and socio-economic realities. The reviewed documents indicate that Kenya's transition towards flexible learning has been influenced by international experiences, however, adapted to respond to national priorities relating to educational access, equity, lifelong learning, and digital transformation. This interpretation supports the proposition advanced by Salajan et al. (2023) and Wolhuter (2024) that educational reforms emerge through interactions between global developments and domestic contexts. Comparative evidence presented in the reviewed literature further

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indicates that countries such as South Africa and India have strengthened flexible learning through coherent policy frameworks, investment in digital infrastructure, robust quality assurance systems, and sustained institutional support (Department of Basic Education, 2018; Government of India, 2024; Ngubane-Mokiwa, 2017). These international experiences provide important lessons for strengthening Kenya's policy and regulatory environment for teacher education.

The documentary findings also support the TPACK framework. While the reviewed documents recognise that effective technology enhanced teaching depends upon educators' ability to integrate TPACK (Mishra & Koehler, 2006), they consistently demonstrate that successful implementation extends beyond individual teacher competence. The documentary evidence indicates that inadequate policy guidance, fragmented institutional support, inconsistent digital infrastructure, and limited opportunities for continuous professional development continue to constrain educators' capacity to apply TPACK effectively within flexible learning environments (Ndibalema, 2022; Uribe-Banda, 2025). Furthermore, the reviewed literature supports criticisms of the TPACK framework, which argue that technology integration is influenced not only by teachers' knowledge, but also by broader institutional and policy conditions, including leadership, infrastructure, and quality assurance systems (Archambault & Barnett, 2010; Valtonen et al., 2017).

The documentary analysis demonstrates that Kenya has established an increasingly supportive policy and legal environment for ODeL through national education reforms and the establishment of the OUK. Nevertheless, the reviewed documents consistently indicate that fragmented policy implementation, evolving quality assurance mechanisms, institutional variation, and infrastructural limitations continue to constrain effective implementation of flexible learning. The documentary evidence, therefore, suggests that strengthening ODeL in teacher education will require coherent national policy frameworks, harmonised regulatory standards, sustained investment in digital infrastructure, strengthened institutional capacity, and coordinated collaboration among key education stakeholders.

Effects of institutional reforms and pedagogical innovations on quality and relevance

Analysis of the 35 documentary sources identified institutional reforms and pedagogical innovation as one of the dominant themes influencing the quality and relevance of teacher education in Kenya. Government policy documents, institutional reports, strategic publications, and peer reviewed literature consistently revealed that institutions investing

in faculty development, digital infrastructure, instructional redesign, and learner support systems demonstrated greater adoption of learner centred pedagogical approaches. Across the reviewed documents, flexible learning approaches such as blended learning, online learning, ODeL, competency-based learning, and technology enhanced instruction emerged as key innovations supporting the transformation of teacher education. These documentary findings are consistent with earlier studies indicating that the COVID-19 pandemic accelerated institutional reforms in higher education by compelling universities to redesign teaching and learning through flexible learning approaches and ODeL (Miseda & Wanami, 2022; Ul Hassan et al., 2025). As highlighted in the reviewed literature, flexible learning has progressively evolved from an emergency response into a long-term educational strategy that promotes accessibility, equity, lifelong learning, and instructional innovation (Nyerere, 2016; UNESCO, 2024).

The documentary analysis further revealed that these pedagogical innovations have enhanced the quality and relevance of teacher education by promoting learner centred instruction, self-paced learning, and continuous professional development. Across the reviewed documents, flexible learning consistently emerged as an effective mechanism through which both pre-service and in-service teachers could pursue further education while balancing professional and personal responsibilities (Camilleri & Calleja, 2023; Perry et al., 2021). The reviewed documents further indicate that flexible learning provides opportunities for teachers to upgrade their professional competencies without leaving their workplaces, thereby strengthening lifelong learning and improving the responsiveness of teacher education programmes to emerging educational needs (Commonwealth of Learning, 2019). These findings suggest that institutional reforms supporting flexible learning contribute not only to expanded access, but also to improving the relevance of teacher preparation within rapidly changing educational contexts.

Institutional documents relating to the OUK similarly identified the establishment of the university as one of the most significant institutional reforms supporting improvements in higher education quality and relevance. The reviewed documents indicate that the university was established to promote learner centred pedagogy, competency-based learning, flexible admission pathways, recognition of prior learning, and technology enhanced instructional practices through a fully digital learning model (Republic of Kenya, 2023; OUK, 2024). The documentary evidence further demonstrates that OUK seeks to strengthen continuous professional development for teachers while expanding higher education opportunities for working professionals, adult learners, persons with disabilities,

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learners from remote and marginalised areas, and other non-traditional learners. These developments position the university as an important national initiative supporting equitable access, lifelong learning, and the modernisation of teacher education in Kenya.

Despite these positive developments, the documentary analysis also revealed considerable variation in the implementation of pedagogical reforms across higher education institutions. The reviewed documents consistently indicate that many universities continue to experience fragmented implementation of flexible learning, because of inadequate digital infrastructure, inconsistent Internet connectivity, limited access to digital devices, inadequate technical support, and disparities in digital literacy (Mutisya & Makokha, 2016; Ndibalema, 2022; Nirmani, 2025; Tarus et al., 2015). Existing policy and regulatory frameworks were also found to remain largely oriented towards conventional campus-based education, limiting institutional innovation and slowing the effective implementation of flexible learning approaches (Abdelaal, 2024; Katitia, 2015; Odhiambo, 2021). Institutional reports relating to the OUK similarly identified challenges associated with broadband infrastructure, quality assurance, digital literacy, and public confidence in online qualifications, suggesting that institutional reforms alone are insufficient without adequate implementation capacity (Shisakha et al., 2024; Wagner et al., 2026).

The documentary findings strongly support the TPACK framework. Across the reviewed documents, instructional quality was found to depend not merely on the availability of technology, but on educators' ability to integrate technological, pedagogical, and content knowledge effectively (Mishra & Koehler, 2006). The reviewed literature consistently indicates that teacher education programmes in Kenya have traditionally emphasised subject knowledge and pedagogy while giving comparatively less attention to technology integration, resulting in difficulties in adapting instructional strategies to digital learning environments (Kajoro et al., 2013; Sysoieva, 2022). Furthermore, many teacher education programmes continue to emphasise basic ICT literacy without adequately connecting technological competence with pedagogical practice and subject content integration (Harris et al., 2009). Consequently, educators may acquire technical skills without developing the comprehensive technological pedagogical content knowledge required for effective technology enhanced teaching (Çam & Koç, 2024; Uribe-Banda, 2025; Wagner et al., 2026). The documentary evidence, therefore, reinforces the argument that sustainable improvements in educational quality require continuous professional development alongside supportive institutional environments. At the same time, the findings support critiques of the TPACK framework, which argue that teacher

competence alone is insufficient without complementary institutional leadership, enabling policy environments, adequate infrastructure, and effective quality assurance systems (Archambault & Barnett, 2010; Koehler et al., 2013; Valtonen et al., 2017).

From the perspective of the CIE framework, the documentary evidence demonstrates that institutional reforms and pedagogical innovation in Kenya reflect broader global transformations in higher education while remaining shaped by local socio-economic, political, and institutional realities. The reviewed documents consistently indicate that educational reforms are strengthened when international best practices are adapted to national contexts rather than adopted uncritically (Salajan et al., 2023; Wolhuter, 2024). Comparative experiences from countries such as South Africa and India demonstrate that successful implementation of flexible learning depends upon coherent policy frameworks, sustained investment in digital infrastructure, institutional capacity building, and strong quality assurance mechanisms (Department of Basic Education, 2018; Government of India, 2024; Ngubane-Mokiwa, 2017). Similarly, experiences from established open universities internationally indicate that sustainable flexible learning requires coherent policy frameworks, adequate financing, technological infrastructure, and effective learner support systems (Commonwealth of Learning, 2019; Wolhuter et al., 2018). These comparative experiences reinforce the documentary evidence that Kenya's ongoing institutional reforms, particularly the establishment of the OUK, represent important progress towards strengthening teacher education. However, achieving sustainable improvements in educational quality and relevance will require continued investment in digital infrastructure, institutional capacity development, policy refinement, and continuous professional development to ensure that pedagogical innovations translate into meaningful learning outcomes.

Conclusion

The findings of the current study demonstrate that flexible learning has emerged as a significant driver of transformation in teacher education within Kenya's higher education sector. The disruptions caused by the COVID-19 pandemic accelerated the adoption of ODeL, compelling higher education institutions to reconsider conventional approaches to teacher preparation and professional development. Consequently, flexible learning has expanded opportunities for both pre-service and in-service teachers by increasing access to professional training, particularly for learners in geographically remote, economically disadvantaged, and previously underserved communities.

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The study further establishes that flexible learning has contributed to pedagogical innovation by promoting learner-centred instruction, continuous professional development, lifelong learning, and the acquisition of digital competencies required for contemporary teaching. Institutional reforms, particularly the establishment of the OUK, further demonstrate Kenya's commitment to expanding equitable access to technology mediated higher education while strengthening the quality and relevance of teacher education.

The findings further reveal that although ODeL has significantly expanded access to teacher education and stimulated pedagogical innovation, its implementation continues to be constrained by infrastructural, policy, institutional, and pedagogical challenges. Persistent barriers include inadequate digital infrastructure, unreliable Internet connectivity, unequal access to digital devices, insufficient faculty preparedness, fragmented policy implementation, and continuing concerns regarding quality assurance. These challenges continue to limit the effective institutionalisation and sustainability of flexible learning across higher education institutions.

Guided by the TPACK and CIE frameworks, the study concludes that the effectiveness of flexible learning in teacher education depends upon the successful alignment of technology, pedagogy, institutional capacity, and supportive policy environments (Mishra & Koehler, 2006; Salajan et al., 2023; Wolhuter, 2024). While the TPACK framework underscores the importance of integrating technological, pedagogical, and content knowledge, the CIE perspective highlights the need to adapt international best practices to Kenya's unique educational, socio-economic, and institutional contexts.

The study concludes that the transformative potential of flexible learning in Kenya will only be fully realised through sustained investment in digital infrastructure, continuous professional development, coherent policy implementation, strengthened institutional capacity, robust quality assurance mechanisms, and effective stakeholder collaboration. Continued commitment by the Kenyan government, higher education institutions, development partners, and other education stakeholders will be essential in ensuring that flexible learning enhances equitable access, educational quality, lifelong learning, and the responsiveness of teacher education within an increasingly digital and globally interconnected higher education landscape.

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Recommendations

Based on the findings of the current study, the successful implementation of flexible learning in teacher education in Kenya requires coordinated reforms at policy, institutional, technological, and societal levels. Although ODeL presents significant opportunities for expanding access, promoting equity, and enhancing the quality and relevance of teacher education, its long-term sustainability depends on the establishment of responsive systems that address the realities of Kenya's educational context.

First, there is an urgent need to strengthen policy and regulatory frameworks governing the implementation of flexible learning in teacher education. The Ministry of Education, in collaboration with relevant higher education stakeholders, should develop comprehensive national guidelines specifically addressing the design, delivery, assessment, accreditation, and quality assurance of ODeL programmes in teacher education. These policy frameworks should be informed by established pedagogical models such as the TPACK framework, which emphasises the effective integration of technological, pedagogical, and content knowledge in instructional practice (Mishra & Koehler, 2006). In addition, the guidelines should support institutional innovation while responding to the evolving needs of 21st century learners and the teaching profession (Abdelaal, 2024; Katitia, 2015; Odhiambo, 2021). Clear and coherent policy direction would enhance consistency across institutions while strengthening academic quality, accountability, and institutional credibility.

Second, addressing infrastructural inequalities should remain a national priority. The findings of this study demonstrate that unequal access to Internet connectivity, digital devices, electricity, and technical support continue to limit participation in flexible learning, particularly among learners in rural, remote, and marginalised communities. The government, higher education institutions, and development partners should, therefore, increase investment in broadband infrastructure, institutional learning management systems, and affordable access to digital technologies. Such investments would reduce existing inequalities and strengthen equitable participation in flexible learning (Commonwealth of Learning, 2019; Nirmani, 2025; Shisakha et al., 2024).

Third, the professional capacity of teacher educators to deliver effective online and blended instruction should be strengthened through continuous professional development. The findings indicate that many educators require additional support to effectively integrate technology into teaching and learning. Higher education institutions should establish structured faculty development programmes focusing on digital instructional design, learner engagement, online assessment, virtual classroom management, and technology

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enhanced pedagogy. Such programmes should move beyond basic ICT literacy and emphasise the integration of technology with pedagogy and subject content in line with the TPACK framework (Harris et al., 2009; Mishra & Koehler, 2006; Uribe-Banda, 2025).

In addition, higher education institutions should strengthen collaboration, innovation, and resource sharing in the implementation of flexible learning. Universities and teacher education institutions can benefit from joint curriculum development, shared digital learning resources, collaborative research initiatives, faculty exchange programmes, and the dissemination of best practices in ODeL implementation. The OUK, established as the country's first fully virtual public university, provides an important opportunity for institutional mentorship, innovation, and capacity building that can support the broader expansion of flexible teacher education across the country (Republic of Kenya, 2023; OUK, 2024).

Furthermore, robust monitoring and evaluation systems should be institutionalised at both institutional and national levels. Higher education institutions should regularly collect, analyse, and utilise evidence on learner participation, retention, academic performance, educator preparedness, learner satisfaction, and programme effectiveness. Such evidence can inform continuous quality improvement, strengthen institutional accountability, and guide future policy and strategic planning. Continuous monitoring is also essential for ensuring that flexible learning achieves its intended educational outcomes and maintains public confidence (Wagner et al., 2026).

Finally, public awareness and stakeholder engagement should be prioritised to enhance the long-term sustainability and acceptance of flexible learning in teacher education. Although digital learning has gained wider acceptance following the COVID-19 pandemic, concerns regarding the credibility and recognition of online qualifications continue to influence public confidence. Government agencies, universities, teacher professional bodies, and other education stakeholders should, therefore, implement awareness programmes, stakeholder consultations, and advocacy initiatives highlighting the quality, legitimacy, and value of flexible learning. Such efforts would strengthen public trust and support the long-term success of ODeL in teacher education (Muthuprasad et al., 2021; Wagner et al., 2026).

The transformation of teacher education through flexible learning in Kenya depends on sustained investment, coherent policy implementation, institutional innovation, and active collaboration among key stakeholders. When effectively implemented, these reforms have the potential to enhance access, equity, quality, and relevance in teacher preparation while

positioning Kenya to respond more effectively to the demands of an increasingly digital and globally interconnected educational environment.

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