

# A CASE STUDY ON BUILDING TEACHER CAPACITY FOR EFFECTIVE ODeL IMPLEMENTATION IN MALAWI

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## Abstract

The Malawian education system faces persistent challenges in delivering equitable access to quality secondary education. Open, Distance, and e-Learning (ODeL) offers a promising solution, but its effectiveness is undermined by teachers' limited digital competencies. This case study explores a professional development programme aimed at enhancing secondary school teachers' capacity to use e-learning platforms such as Moodle. The training, grounded in the TPACK and ASSURE frameworks, employed a blended learning model combining face-to-face and online sessions. Fifty teachers from across Malawi were purposively targeted and invited to participate in the study. Data were gathered through surveys, Moodle course evaluations, participant feedback, facilitator observations, and document analysis. Quantitative data were analysed using descriptive statistics, while qualitative inputs underwent content analysis. Triangulation of these sources strengthened the study's validity. Findings show improvements in digital literacy, instructional design skills, and engagement with Moodle. However, persistent challenges such as poor internet connectivity and limited administrative support hinder sustained implementation. The study underscores the value of structured, continuous professional development and recommends long-term strategies such as mentorship, communities of practice, supportive policies, and mobile-friendly tools to strengthen ODeL delivery and promote educational equity in Malawi.

## Keywords:

*Malawi, Open Distance and e-Learning (ODeL), teacher professional development, digital literacy, community of practice, cascading knowledge model.*

## Introduction

The Malawian education sector grapples with expanding access to quality secondary education. For example, despite concerted efforts, transition rates from primary to secondary education stood at 47.2% in 2023 (Ministry of Education, 2023). Meanwhile, the adoption of Open Distance and e-Learning (ODeL) in Malawi presents a promising avenue for addressing educational inequities; however, challenges hinder its effective implementation.

A critical knowledge gap exists in teachers' preparedness to deliver high-quality digital instruction due to insufficient training in ODeL methodologies (Ministry of Education, 2023). Although the Malawi Government has developed a national ODeL policy, a digitisation policy, and an Open Secondary School strategy - which recognise the need for digital competencies as a prerequisite for realising the benefits of digitising services such as education—current efforts fail to address the specific needs of teachers in Malawi's context. This concern is echoed by Gondwe (2021), whose study on teacher educators reveals disparities in digital literacy among educators as one of the major challenges, highlighting the need for targeted technology professional development to build their competencies. Resource constraints, such as inadequate monitoring systems and limited financial support for educators, further impede effectiveness of ODeL programmes (Moore et al., 2011; UNESCO, 2020).

Many countries, including Malawi, emphasize CPD in national ODeL policies to standardize e-learning practices and enhance quality assurance (Ministry of Education, 2024). The National ODeL Policy of Malawi (Ministry of Education, 2024) underscores ODeL as a crucial mechanism for bridging educational disparities, ensuring learning continuity during crises, and aligning with broader national goals such as MW2063 Vision (Malawi Government, 2021).

The above-highlighted context underlines the pressing need for effective and contextually relevant capacity building efforts to enhance teachers' digital competencies and support ODeL implementation in Malawi. Therefore, considering

the essential role of teacher knowledge in ensuring the effectiveness of ODeL, and the existing gap in evidence to inform sustainable and scalable professional development for teachers in this domain, this case study examines a professional development activity designed to enhance secondary school teachers' use of ODeL platforms in Malawi. The paper highlights issues related to the effectiveness and potential of a blended model of teacher professional development in the domain of ODeL. The significance of the case study lies in its potential to generate insights into new research questions for further larger studies that can generate evidence for sustainable and scalable approaches to building teacher capacity for effective ODeL implementation in Malawi.

## **Literature Review**

### **Challenges of teacher professional development**

Despite the recognition of the importance of digital skills, many teachers face challenges that hinder effective training. According to Ertmer (1999), common barriers include lack of time, insufficient support from administration, and limited access to technology. Additionally, a study by Borko (2014) reveals that many traditional professional development models fail to address the specific needs of educators, leading to a disconnect between training and classroom application. Moreover, teachers' varying degrees of digital literacy present a significant challenge. Research by Teo (2016) suggests that some educators may feel overwhelmed by new technologies, resulting in resistance to adopting digital tools in their teaching practices.

Building on these general challenges, one persistent concern is the lack of sustainability in many professional development interventions. In Malawi, such initiatives are often short lived, fragmented, and project based (Ministry of Education, 2028). According to the Ministry of Education (2018), this calls for a shift towards more contextually grounded programmes that combine formal initiatives such as structured workshops and accredited training with informal approaches including peer mentoring, collaborative lesson planning, and knowledge sharing groups.

A notable example of sustainable initiatives is the Community of Practice, defined as a group in which members develop expertise and enhance their practices through interaction and collaboration (Li et al., 2009). In the context of ODeL, Communities of Practice and Learning serve as dynamic spaces for knowledge exchange, problem solving, and ongoing professional and academic growth. Operating through digital platforms, they enable geographically dispersed educators and learners to collaborate effectively. These communities foster engagement, provide social support, and reduce feelings of isolation (Garrison, 2016). They also promote sustained professional development, enabling educators to refine their teaching and learning strategies through continuous engagement (Lave & Wenger, 2017). Drawing on these principles, the present study seeks to generate insights and questions that can inform the design of sustainable professional development models for teachers in ODeL in Malawi.

### **Characteristics of effective professional development**

To effectively implement ODeL, teachers must engage in Continuous Professional Development (CPD) to develop competencies that enhance online teaching, student engagement, and digital literacy (Williams, 2020; Thurm, Klinger & Barzel, 2015). CPD in ODeL enhances digital and pedagogical competencies; for example, online learning requires teachers to master Learning Management Systems (LMS), virtual assessments, and digital instructional strategies (Anderson, 2008). Teachers that are well-prepared for ODeL can respond to educational disruptions by leveraging digital tools for continued learning delivery, thereby enhancing education system resilience (Hodges et al., 2020). For example, the COVID-19 pandemic demonstrated the need for adaptable educators capable of swiftly transitioning from traditional classrooms to digital platforms (Bozkurt et al., 2020).

The literature highlights certain conditions that must be considered when designing effective CPD programmes and when investigating its effects on teachers' beliefs, classroom practices, and students' competencies (e.g. Thurm, Klinger & Barzel, 2015). For example, a study by Xie et al (2017) revealed that training teachers to evaluate digital contents can be an effective professional development model to improve teachers' capacity in learning technology integration. Participants in this study reported that training sessions that provided hands-on experience with technology led to increased comfort and proficiency in digital teaching. A related study on the implementation of online learning workshops during the COVID-19 pandemic has further highlighted the need for flexible, responsive training frameworks that cater to prepare teachers for emergency and remote teaching, the frameworks are of varying levels of prior knowledge (Al-Naabi et al., 2021). rSeveral studies show that professional development involving peer

collaboration, active support and follow-up, hands-on learning, and real-world technology integration case studies is more effective in preparing teachers to integrate technology (Giblin et al. 2022; Yurtseven Avci, O'Dwyer and Lawson; 2020) .

Related to these design features, some studies highlight the mode of delivery as a key factor in effective professional development for preparing teachers to use technology. Yurtseven Avci, O'Dwyer and Lawson (2020) reviewed some studies (e.g. McDonald & Smith, 2013; Hamdan, et. al, 2013) and reported that the flipped model, for instance, integrates proven teaching strategies with video and audio recordings supported by increasingly accessible digital technologies. This approach allows participants to engage with instructional content anytime and anywhere, freeing up in-person sessions for practice-based activities, collaborative work, and in-depth discussions. Similarly, blended learning approaches that combine face-to-face interaction with online modules have been found to boost teachers' confidence and competence in using digital tools (Karagiorgou, 2016) and provide opportunities for reflection, collaboration, sharing, and participation in authentic contexts.

Although the above aspects are well recognized and inform policy interventions on teacher professional development in several countries, Sims and Fletcher-Wood (2021) argue that greater progress in identifying effective professional development could be achieved by aligning findings from basic research on human skill acquisition with features of rigorously evaluated PD programmes. Building on this perspective, in this case study we examine teacher professional development guided by instructional design and technology integration models as a foundation for human skill acquisition, while incorporating the design features reported in the literature.

### **Impact of training on teacher technological competencies**

Some studies have examined the impact of professional development activities on teachers' technological knowledge, teaching practices, and beliefs. For example, a longitudinal study by Angeli and Valanides (2019), found that pre-service teachers who participated in comprehensive digital skills training demonstrated enhanced ability to integrate technology into their teaching strategies effectively. Furthermore, teachers trained in digital pedagogy reported greater student engagement and improved learning outcomes (DeSantis et al., 2024). Barrett-Greenly (2013) reported on a programme organised into five clusters, each comprising a day of direct instruction and hands-on practice, followed by an opportunity for teachers to design lesson plans that integrated iPads into curriculum content. The programme provided teacher stipends, an iPad for each teacher, and a set of 30 iPads for each participating school. The positive impact of the programme was attributed partly to its design features, which align with recommendations in the literature, such as including demonstrations from experienced K–12 teachers, providing classroom management tips for technology integration, offering solutions for common technical problems, incorporating tested iPad-based lessons and applications, facilitating collaboration and networking among participants, and ensuring follow-up support by qualified personnel. The present study draws upon these insights to examine a case study focusing on building teacher capacity for ODeL in Malawi, as will be elaborated in the methodology section.

### **The Present Study: Research Purpose and Questions**

The preceding literature review indicates that substantial studies have been conducted on capacity building for teachers in the domain of ODeL. Building on this body of work, the present case study emphasises the need for continued dialogue on long-term strategies and the sustained impact of digital skills training for teachers. Such strategies should not only ensure the continuous integration of emerging digital teaching concepts but also expand the pool of educators who acquire these skills.

Further research is required to identify the specific digital skills teachers find most valuable and to understand the contexts in which these skills are applied. Against this background, the purpose of this study was to assess the effectiveness of a teacher capacity-building initiative in equipping Malawian educators with the technical and pedagogical skills required for effective ODeL delivery.

The study was guided by the following questions:

1. What are the promising critical components of an effective CPD for teachers in ODeL in the context of Malawi?

2. What are the common barriers to sustainable digital skills acquisition for teachers in the context of Malawi?

### **Methodology**

The research methods for this case study were framed by the the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006) and the Analyse Learners, State Objectives, Select Methods, Utilise Media, Require Learner Participation, Evaluate and Revise (ASSURE) instructional design model (Smaldino, et al., 2019). According to Mishra and Koehler (2006), TPACK highlights the need for teachers to integrate technology effectively with pedagogy and subject content. It comprises three primary components: Technological Knowledge (TK), which involves understanding and leveraging digital tools for effective teaching; Pedagogical Knowledge (PK), which focuses on mastery of teaching methodologies that facilitate student engagement and learning; and Content Knowledge (CK), which ensures a deep understanding of subject matter and its organisation for instructional purposes. Effective ODeL delivery requires the seamless integration of these components, forming TPACK.

Through the lens of TPACK, the case study assessed technological knowledge to determine the extent to which teachers had acquired and applied digital tools for ODeL, evaluated pedagogical knowledge to examine changes in teaching strategies and student engagement, and investigated content knowledge to explore how subject matter delivery was adapted to digital platforms.

The ASSURE model further guided the research design, particularly in examining how training participants applied systematic, learner-centred instructional planning in ODeL contexts. A crucial aspect of the training involved creating interactive learning activities, such as quizzes, assignments, and discussion forums, to promote engagement and active participation. Participants were introduced to Moodle's interface and core functionalities, including course creation, activity setup, and user management, as well as structuring and organising course modules to enhance the learner experience. In addition, the training emphasised pedagogically sound course design and assessment creation, where participants gained hands-on experience in designing quizzes, assignments, and peer assessments to evaluate student progress.

### **The Case Study**

This case study focuses on an ODeL course design and facilitation training, called the Moodle Master Teacher Trainers Workshop (hereinafter referred to as the training), that was implemented to enhance teachers' capacity by equipping them with essential technical and pedagogical skills for effective online and distance education delivery. The initiative was implemented by the Malawi College of Distance Education (MCDE) with support from the Commonwealth of Learning, aligning with national priorities such as the National Education Sector Investment Plan (2020–2030) and Malawi Vision 2063, which emphasise the integration of technology into education systems. The training was conducted in two phases.

#### *Phase 1: face-to-face workshop*

Held over four days, the initial workshop combined theoretical and practical sessions, with activities designed to enhance learning effectiveness and engagement. It began with a pre-workshop survey, which aligned the content with participant expectations and assessed prior knowledge, ensuring that the objectives were tailored to their needs (Clark et al., 2023). Research shows that pre-assessments enhance learner engagement and increase the relevance of instructional content, leading to better knowledge retention (Knowles, Holton, & Swanson, 2014).

The training focused on key aspects of Moodle, including navigation, course creation, and instructional design using the Analyse Learners, State Objectives, Select Methods, Utilise Media, Require Learner Participation, Evaluate and Revise (ASSURE) and Substitution, Augmentation, Modification, Redefinition (SAMR) frameworks, which have been shown to improve digital pedagogy and course interactivity (Heinich et al., 1999; Puentedura, 2013). In addition, artificial intelligence tools were introduced to support Moodle functionalities, reflecting the growing role of AI in personalised learning (Halkiopoulos et al., 2024).

To foster collaborative learning, participants worked in subject-specialised groups to develop and refine course outlines. Collaboration is a central feature of adult learning, promoting active engagement, peer learning, and

knowledge construction (Bonk et al., 2012). Evaluation and feedback were also integral to the process: participants presented their work for peer and facilitator review, which encouraged reflection, constructive feedback, and knowledge exchange (Erkens, 2019).

A critical factor in this phase was the facilitator's role. Acting as both guide and mentor, the facilitator ensured participant engagement while responding to their learning needs. Facilitators play an essential role in scaffolding learning experiences, addressing challenges, and fostering inclusive environments (Merrill, 2002). Recognising that the workshop's limited time restricted in-depth coverage of all topics, follow-up support was provided for a month through WhatsApp and live online sessions. Sustained support after formal training has been found to enhance both knowledge retention and practical application (Guskey, 2002).

#### *Phase 2: online training*

To ensure continued learning and provide ongoing support, a follow-up online training programme was conducted throughout November. These sessions, held three times a week, were designed to reinforce the workshop content, address challenges encountered during practical application, and build participant confidence in using Moodle for course development and facilitation.

The follow-up sessions were structured to build on the skills introduced during the face-to-face workshop. Training was delivered using a combination of Zoom, WhatsApp, and Moodle. Zoom provided a platform for live sessions, enabling demonstrations, participant interaction, and real-time feedback. WhatsApp supported communication by sharing reminders and updates, while also serving as a space for participants to ask questions. Moodle was the main platform for course development, with activity logs used to track progress and monitor skill acquisition.

Before the training began, participants received a detailed plan to help them prepare in advance. For each session, they were encouraged to practise the scheduled activity beforehand. During the Zoom meetings, participants demonstrated these skills, after which the facilitator used screen-sharing to illustrate the creation of specific Moodle modules, such as resources and activities.

Following each session, reminders were sent through WhatsApp to reinforce upcoming tasks, and participants were encouraged to ask questions when needed. The facilitator also monitored Moodle activity logs to assess participants' progress in course creation and instructional design.

#### **Data and analysis**

Data for this case study were gathered using a combination of pre and post workshop surveys, a review of the courses developed during the training programme, and participant feedback collected during the end of training. The surveys were designed to assess participants' baseline knowledge and skills as well as any changes resulting from the training. They included both quantitative Likert scale questions and open-ended qualitative questions to capture comprehensive insights.

The review of courses developed by participants provided a direct measure of the programme's impact on their ability to design and implement relevant course materials. This review included an assessment of course objectives, content alignment, and pedagogical approaches. Participants were expected to demonstrate their achievement of the training outcomes by completing various tasks. These included designing a basic course outline with at least three modules, uploading sample content, and setting up an assignment. In addition, they were required to add a resource or activity to each module, create a forum, and set up a chat activity. The assessment also covered creating a sample lesson activity, enhancing it for interactivity, and developing a quiz with multiple question types. Participants were further evaluated on their ability to grade sample submissions, provide feedback, apply security settings to course materials and quizzes, set up enrolment options, group students within the course, and adapt an activity to support different learning needs. This comprehensive review ensured that the courses developed were pedagogically sound and aligned with best practices in instructional design.

Qualitative feedback was also collected during the end of the training, where participants shared their experiences and perspectives on the programme. This feedback was documented for analysis.

The use of both quantitative and qualitative data provided breadth and depth of insights. Pre and post workshop surveys enabled a measurable assessment of changes in participants' knowledge and skills, while qualitative feedback captured their genuine perspectives on the training experience. Reviewing the courses developed by participants offered direct evidence of the programme's practical outcomes. This combination of methods was appropriate because it allowed data triangulation from multiple sources, thereby strengthening the validity and reliability of the findings.

The data analysis adopted a mixed methods approach that integrated both quantitative and qualitative techniques. Descriptive statistics such as frequencies and means were used to summarise participants' survey responses, providing insights into general trends in learning outcomes and satisfaction. For qualitative data, thematic content analysis was conducted on open ended survey responses, participant feedback from the end of training meeting, and course materials. Codes were developed inductively and revealed recurring themes related to the effectiveness of the training. These themes included the value of hands-on practice and interactivity, improved digital pedagogy skills, and the integration of instructional design models such as ASSURE and SAMR. Additional themes highlighted participants' appreciation of peer learning and collaborative feedback, the usefulness of artificial intelligence tools such as ChatGPT for Moodle support, and high satisfaction with facilitation. Challenges such as varying levels of digital literacy, limited time, and technical barriers were also identified, alongside a strong desire for extended training and sustained engagement through follow up sessions.

## Findings

### Promising components of effective CPD for teachers in ODeL

A review of the courses developed by the participants, conducted by the facilitator and an official from MCDE, highlighted the outcomes achieved in relation to the stated training tasks and experiences. These outcomes are evidenced by the progress observed in course development, accessible on the MCDE MOODLE platform (<http://41.70.1.82/moodle/login/index.php>).

The analysis of participants' Moodle courses and feedback from the post-workshop survey revealed several strengths in course design and implementation. Many participants demonstrated the ability to use a diverse range of Moodle features, incorporating lessons, quizzes, and discussion forums to create interactive learning environments. For instance, 89% of participants reported acquiring skills in creating assessments such as quizzes, while 86% gained experience in using interactive digital content. The courses also reflected logical structures informed by instructional design principles such as the ASSURE and SAMR models, which were introduced during the workshop. Participants made deliberate efforts to embed multimedia elements (including images, videos, and audio) although some noted technical challenges in this area. One participant remarked on the usefulness of learning to "add multimedia to a course" as a key takeaway. Furthermore, several courses included navigation instructions and support materials aimed at guiding students through the online learning experience, aligning with the broader goal of enhancing accessibility and learner independence in ODeL environments.

Participants were encouraged to consider student accessibility by ensuring that course materials could be accessed on mobile phones and performed well even with limited internet connectivity. This emphasis was particularly relevant given challenges noted in the workshop, such as "*slow internet connectivity and limited access to devices,*" which impacted participants' engagement with the Moodle platform. To align with Open, Distance, and e-Learning (ODeL) principles, facilitators advised participants to adopt a conversational tone and provide clear, structured instructions throughout their course materials. They were also reminded to carefully edit and proofread content to improve clarity and presentation, especially when structuring courses with well-defined introductions and conclusions.

Building on this guidance, participants were introduced to best practices for facilitating an online course. For example, they were encouraged to start with a welcoming introduction that included navigation instructions—something several participants implemented in their draft Moodle courses. Consistent communication with learners was also stressed, with facilitators recommending the use of the platform's announcements and messaging tools to provide regular updates and maintain student engagement.

To monitor learning progress, participants were guided to incorporate assessments such as quizzes, assignments, and peer reviews that were aligned with their stated learning objectives. According to post-workshop survey results, 89%

of participants reported acquiring skills in creating assessments and quizzes, reflecting this instructional focus. Participants also valued feedback mechanisms, which were discussed during peer review sessions. One participant noted, *“The peer feedback helped me improve on accessibility and the way I presented my content.”*

Furthermore, the importance of multimedia was highlighted, with participants embedding audio-visual content into their courses. However, the training also stressed the need to ensure that such elements were optimized for mobile access. As one participant remarked in the feedback, *“Embedding images and videos was challenging due to internet issues, but I now know how to make my content lighter and accessible.”* These reflections underscore the workshop’s strong emphasis on creating inclusive, engaging, and pedagogically sound online learning environments.

#### *Development of a low-fidelity prototype for designing a teacher training activity*

Since this training was also designed to equip the participants to become master trainers, another key outcome was the development of a low-fidelity prototype for designing a training session for their fellow teachers. The facilitator created this prototype in the form of a PowerPoint presentation for participants to consider. The objective of the prototype was to showcase the stages of the Moodle Training for Master Teacher Trainers, serving as an example for participants to design their future teacher training activities. The prototype was based on the design processes followed during this training, with an emphasis on how the ASSURE Model proved to be useful in both designing and facilitating the training.

For example, based on the Analyze Learners stage, the facilitator administered a pre-training questionnaire to assess participants’ familiarity with Moodle, their attitudes toward technology, and their expectations for the training. The responses were then analyzed to tailor the workshop content to meet the specific needs of the participants. This approach resulted in data-driven insights into participants’ baseline knowledge and expectations, which informed the creation of a customized and flexible agenda with learning objectives based on the analysis of pre-training data.

#### **Common barriers to sustainable digital skills acquisition**

Despite positive outcomes, participants encountered several barriers. Attendance was a challenge, with an average of 25 participants attending Zoom sessions. This was mitigated by emphasizing that certificates of completion would be awarded based on both attendance and task completion. This strategy proved effective. Flexibility in meeting times also helped; Zoom sessions were scheduled in the evenings to accommodate participants’ work commitments. To provide participants with additional time for practice, some Zoom sessions were cancelled, and WhatsApp was used to communicate instructions and actions. Regular reminders were also sent in the WhatsApp group to keep participants engaged.

Some participants faced challenges with unstable internet connections and technical malfunctions. To address this, key points from Zoom sessions were summarised and shared on WhatsApp. For sessions involving presentations, the facilitator shared the presentation files on WhatsApp to ensure that those who missed the Zoom session could catch up.

Participants demonstrated diverse learning paces, with some catching up quickly while others required more time. To mitigate this, deadlines were made flexible to accommodate participants who needed more time. Evaluation of the courses developed by participants also considered this aspect to ensure all contributions were fairly assessed, regardless of individual progress rates.

#### **Discussion**

The findings suggest that structured CPD can effectively enhance teachers’ capacity for ODeL through hands-on practice, instructional design, peer learning, and facilitation skills. Participants developed interactive Moodle courses that reflected integration of TPACK principles (Mishra and Koehler, 2006), suggesting that combining technical and pedagogical competencies strengthens teacher preparedness for digital teaching (Xie et al., 2017).

The blended approach of face-to-face workshops followed by online sessions supported gradual skill acquisition and practical application, consistent with evidence that blended learning boosts confidence and competence in using digital

tools while providing opportunities for reflection and collaboration (Karagiorgou, 2016; Yurtseven Avci, O'Dwyer & Lawson, 2020). Peer feedback and collaborative tasks enhanced engagement and knowledge sharing, aligning with the principles of Communities of Practice that foster ongoing professional development and reduce isolation among educators (Li et al., 2009; Garrison, 2016; Lave & Wenger, 2017).

Participants' attention to accessibility and learner-centred course design, including multimedia integration and clear navigation instructions, contributed to more inclusive and engaging learning environments. These outcomes reflect the literature emphasizing that CPD should address diverse educator needs and promote student engagement (Thurm, Klinger & Barzel, 2015; Williams, 2020). Participant reflections highlighted improvements in course structure, interactivity, and communication strategies, demonstrating the practical benefits of these approaches.

Barriers such as uneven digital literacy, limited internet access, and technology disparities reflected challenges identified in previous studies (Ertmer, 1999; Teo, 2016; Borko, 2014). Mitigation strategies, including flexible deadlines, asynchronous support via WhatsApp, and linking certificates to both attendance and task completion, supported sustained participation and effective skill development. These findings are consistent with research showing that context-sensitive CPD frameworks, including ongoing support and flexibility, are critical for successful professional development (Al-Naabi et al., 2021; Giblin et al., 2022).

The creation of a low-fidelity prototype for future teacher training provided participants with a reference model for designing and facilitating training sessions for peers. This approach illustrates a scalable strategy for cascading knowledge, supporting continuous professional development and sustainable skill transfer, in line with literature advocating for contextually grounded CPD that combines formal and informal learning approaches (Ministry of Education, 2018; Li et al., 2009; Lave & Wenger, 2017).

### **Conclusion**

The Moodle Master Teacher Trainers Workshop showed that a blended learning model combining face-to-face workshops with online support can effectively enhance teachers' technical and pedagogical skills for ODeL. Participants developed competencies in course design, interactive learning activities, and the use of digital tools, while collaborative tasks and peer feedback reinforced their learning. Mitigation strategies such as flexible deadlines, asynchronous support, and sharing session materials via WhatsApp helped overcome challenges including limited internet connectivity and varied levels of digital literacy. On the other hand, the findings point to persistent equity challenges, particularly for teachers in rural or under-resourced schools, highlighting the need for mobile-friendly and offline-compatible platforms, as well as mentorship and peer learning networks to sustain engagement and skill development.

Despite these achievements, the study was limited to two workshops with data from pre- and post-tests, course assignments, and participant feedback, making it difficult to assess the long-term impact on professional practice. However, the case study insights raise further questions for research, including the long-term effects of blended CPD on teachers' practice and student outcomes, which digital skills are most critical in different contexts, how mentorship and peer networks can be structured to support sustainability, and what strategies can reduce disparities in access to technology and participation in ODeL.

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