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EXPLORING THE ROLE OF TRAINING OF TRAINERS PROGRAMS IN PREPARING ENGLISH LANGUAGE TEACHERS FOR AI INTEGRATION

Danish Latif Nizamani
danishlatifnizamani@gmail.com
Assistant Professor in English at Government NA College, Tando Adam, Pakistan
Dr. Gohar Zaman
goharzaman@aust.edu.pk
Assistant Professor at Abbottabad University of Science and Technology, Havelian, Pakistan
Khair Un Nisa Nizamani
khairunnisanizamani22@gmail.com
Research Scholar at Quaid-e-Awam University of Engineering and Science and Technology, Nawabshah, Pakistan

Abstract
The rapid advancement of Artificial Intelligence (AI) in education has created new opportunities and challenges for English language teaching. While AI-driven tools offer innovative ways to enhance learning experiences, their effective use depends largely on teachers' preparedness and confidence in integrating them into classroom practice. This study explores the role of Training of Trainers (ToT) programs in preparing English language teachers for AI integration. Using a qualitative research design, data were collected through semi-structured interviews and focus group discussions with trainers and teacher participants involved in AI-focused ToT initiatives. Thematic analysis was employed to examine participants' perceptions, experiences, and challenges in adopting AI for pedagogical purposes. Findings reveal that ToT programs serve as a critical bridge between technological innovation and classroom application by equipping teacher educators with both technical knowledge and pedagogical strategies. Participants highlighted the importance of practical demonstrations, collaborative learning, and continuous mentoring in building AI literacy. However, challenges such as limited access to resources, varying levels of digital competence, and resistance to change emerged as barriers. Despite these constraints, the study found that ToT programs fostered a supportive professional community that encouraged experimentation and innovation in teaching practices. The research underscores the need for sustained and context-sensitive ToT models that go beyond technical training to address pedagogical integration and reflective practice. Ultimately, the study contributes to understanding how professional development structures can empower English language teachers to harness AI effectively, enhancing both teacher agency and student learning outcomes.

Keywords: *Training of Trainers, Artificial Intelligence, English Language Teachers*

Introduction
The rapid advancement of Artificial Intelligence (AI) has significantly reshaped educational practices worldwide, creating both opportunities and challenges for English language teaching. AI technologies such as natural language processing, intelligent tutoring systems, automated assessment tools, and adaptive learning platforms are increasingly integrated into classrooms to personalize instruction, facilitate communication, and enhance student engagement (Gouverneur et al., 2019). In the domain of English language teaching (ELT), AI-driven applications—ranging from automated essay scoring and speech recognition to conversational chatbots and virtual teaching assistants—offer innovative ways to support learners in acquiring linguistic competence and communicative skills (Fadel et al., 2019). While the potential of AI to transform language pedagogy is widely acknowledged, its effectiveness depends largely on teachers' readiness to adopt and meaningfully integrate these technologies into their instructional practices (Chen, Xie, & Hwang, 2020). This dependency underscores the urgent need for targeted professional development programs that not only introduce the technical aspects of AI but also address its pedagogical implications for classroom teaching.
Despite the increasing adoption of AI tools in education, research consistently points to significant challenges in teacher preparedness for AI integration. Teachers often report limited

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digital competence, insufficient confidence in using technology, and concerns about ethical and pedagogical issues related to AI (Luckin et al., 2016). Moreover, the pace of technological innovation frequently outstrips the capacity of existing professional development structures to provide timely and relevant training (Spector, et al., 2022). This creates a gap between the availability of AI-based tools and their actual classroom application, leaving many teachers underprepared to harness their full potential. In the context of ELT, where effective pedagogy relies heavily on interaction, communication, and student-centered approaches, the integration of AI requires not only technical knowledge but also a rethinking of instructional strategies to align with emerging technologies (Rahman, 2021). Consequently, there is growing recognition that traditional teacher training models may be inadequate for preparing teachers to navigate the complexities of AI-enhanced pedagogy.

Within this landscape, Training of Trainers (ToT) programs emerge as a promising approach to professional development. ToT programs are designed to equip teacher educators and trainers with the skills, knowledge, and pedagogical strategies necessary to support frontline teachers in adopting new practices (Pillay, 2019). In the context of AI integration, ToT programs can serve as critical intermediaries, enabling teacher trainers to build AI literacy, model effective pedagogical use of AI tools, and foster collaborative learning communities. This cascaded model of professional development not only multiplies the reach of training but also creates sustainable structures for ongoing support and mentoring (Kirkpatrick & Kirkpatrick, 2016). For English language teachers, ToT programs can help demystify AI technologies, provide hands-on experience with practical tools, and encourage reflective practice in adapting AI to diverse classroom contexts. Such initiatives align with global calls for professional development that is continuous, context-sensitive, and oriented toward both technical and pedagogical dimensions of teaching innovation (UNESCO, 2021).

Nevertheless, the implementation of ToT programs focused on AI integration is not without challenges. Access to resources remains uneven across contexts, particularly in under-resourced schools or regions where digital infrastructure is limited (Kessler, 2018). Furthermore, trainers and teachers alike often exhibit varying levels of digital competence, which can affect the consistency and effectiveness of training outcomes (Baran, et al., 2020). Resistance to change is another barrier frequently identified in educational innovation, as teachers may be skeptical about the pedagogical value of AI tools, concerned about workload implications, or apprehensive about the broader ethical and cultural dimensions of AI in education (Williamson & Eynon, 2020). These barriers highlight the need for ToT programs that go beyond technical instruction to include mentoring, collaborative learning, and opportunities for teachers to critically engage with the pedagogical implications of AI. By embedding reflective practice and contextual adaptation into training, ToT programs can help build not only competence but also confidence and agency among teachers.

The significance of this issue is amplified by the broader educational transformations driven by digitalization and globalization. English, as a global lingua franca, occupies a central role in communication, business, and international collaboration, making the teaching of English a critical priority worldwide (Graddol, 2006). As learners increasingly engage with AI-mediated environments—such as automated translation tools, speech recognition systems, and online learning platforms—English language teachers are tasked with preparing students not only to master linguistic skills but also to navigate and critically evaluate AI technologies. The role of teachers thus extends beyond instruction to include guiding learners in developing digital literacy and critical thinking in relation to AI (Luckin, 2018). This expanded responsibility underscores the importance of preparing teachers to integrate AI effectively, a goal that cannot be achieved without structured and sustained professional development models such as ToT.

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Despite the growing literature on AI in education, there remains a notable gap in research on the role of ToT programs in preparing teachers for AI integration, particularly in the field of English language teaching. Much of the existing scholarship focuses on the technical affordances of AI tools or on general issues of teacher preparedness, without sufficiently examining how professional development structures can mediate the adoption of AI in specific subject areas (Zhai, 2021). Moreover, studies that do address professional development often highlight one-off workshops or training sessions that fail to provide sustained support or opportunities for reflective practice (Voogt et al., 2015). This gap points to the need for empirical studies that explore the experiences and perceptions of trainers and teachers engaged in AI-focused ToT programs, as well as the challenges and opportunities they encounter in practice. By examining these dimensions, research can contribute to a more nuanced understanding of how ToT programs function as a bridge between technological innovation and classroom application.

The present study responds to this gap by investigating the role of ToT programs in preparing English language teachers for AI integration. Using a qualitative research design, it explores the perceptions, experiences, and challenges of trainers and teacher participants involved in AI-focused ToT initiatives. Specifically, the study examines how ToT programs equip trainers with technical knowledge and pedagogical strategies, how participants experience collaborative learning and mentoring, and what barriers they encounter in adopting AI for pedagogical purposes. Through thematic analysis of interview and focus group data, the study aims to illuminate both the strengths and limitations of ToT models in fostering AI readiness among teachers. In doing so, it contributes to the broader discourse on teacher professional development in the digital age, offering insights into how ToT programs can be designed to support sustainable, context-sensitive, and reflective approaches to AI integration in ELT.

In sum, the integration of AI in English language teaching presents both unprecedented opportunities for pedagogical innovation and significant challenges related to teacher preparedness. ToT programs hold promise as professional development models that can bridge these gaps, equipping teacher educators to cascade AI literacy and pedagogical strategies to wider teaching communities. Yet, their effectiveness depends on addressing persistent barriers such as resource constraints, uneven digital competence, and resistance to change. By investigating how ToT programs are experienced and perceived in practice, this study seeks to advance understanding of professional development structures that empower teachers to harness AI effectively, thereby enhancing both teacher agency and student learning outcomes.

Research Questions

Q1. How do English language teacher trainers perceive their preparedness after participating in AI-focused Training of Trainers (ToT) programs in terms of developing both technical competence and pedagogical strategies during the academic year 2025?

Q2. What specific challenges do English language teachers encounter in adopting AI-based tools following ToT participation, and how do they describe the role of mentoring and collaborative learning in overcoming these challenges within six months of training?

Q3. In what ways do AI-focused ToT programs foster reflective practice and professional community building among English language teachers, and how do participants evaluate these outcomes within the first year of program implementation?

Literature Review

Artificial Intelligence in Education and English Language Teaching

Artificial Intelligence (AI) is widely acknowledged as a transformative force in education, reshaping both instructional practices and learner experiences. Its applications range from

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adaptive learning platforms and automated grading systems to chatbots, speech recognition tools, and personalized learning environments (Gouverneur et al., 2019; Shah et al., 2025). In English language teaching (ELT), AI supports linguistic development through tools such as automated essay scoring, intelligent tutoring systems, and conversational agents (Holmes, Bialik, & Fadel, 2019). These technologies offer opportunities to personalize instruction, enhance learner engagement, and provide immediate feedback. Moreover, they reduce teachers' administrative workload, freeing up time for creative pedagogy (Forcier, 2016). However, successful adoption depends on teachers' ability to meaningfully integrate AI into instructional design, highlighting the importance of teacher readiness and professional development (Hwang et al., 2020).

Teacher Preparedness for AI Integration

Teacher readiness for AI integration encompasses digital competence, pedagogical adaptability, and attitudes toward technology. Research shows that teachers often lack adequate training to use AI tools effectively in practice (Rahman, 2021; Shah et al., 2025). Common barriers include limited digital literacy, fear of increased workload, insufficient confidence, and ethical concerns regarding data privacy and bias (Williamson & Eynon, 2020). Unequal access to infrastructure further hinders effective integration (Kessler, 2018). The pace of AI innovation exacerbates these issues, as technology often evolves faster than professional development systems can adapt (Younas, Gunawan, & Spector, 2022). In ELT contexts, where pedagogy emphasizes communication, interaction, and learner autonomy, teachers require more than technical skills; they must adapt instructional strategies to leverage AI effectively (Li & Ni, 2021). These challenges underline the necessity for robust and sustained professional development.

Professional Development and Its Limitations

Traditional models of professional development, such as workshops or short-term training sessions, have limited impact on long-term teacher competence (Voogt, Laferrière, Breuleux, Itow, Hickey, & McKenney, 2015). These programs often prioritize technical demonstrations over deeper pedagogical integration, leaving teachers uncertain about how to adapt AI tools to their classrooms (Tondeur, Scherer, Siddiq, & Baran, 2020). Moreover, professional development initiatives rarely account for contextual differences, limiting their applicability across diverse teaching environments (UNESCO, 2021). Scholars increasingly advocate for professional development that is collaborative, ongoing, and reflective, fostering peer learning and contextual adaptation (Darling-Hammond, Hyler, & Gardner, 2017). Such approaches are better suited to addressing the complex demands of AI integration in education.

Training of Trainers (ToT) as a Professional Development Model

Training of Trainers (ToT) programs have emerged as an effective model for scaling professional development. By preparing teacher educators and trainers, ToT initiatives create a multiplier effect, extending training benefits to broader teaching communities (Pillay, 2019). ToT programs emphasize collaborative learning, mentoring, and practical demonstrations, aligning closely with the requirements for integrating AI into pedagogy (Kirkpatrick & Kirkpatrick, 2016). Importantly, ToT also fosters sustainability by building professional networks that can provide continuous support and reflection (Wenger, McDermott, & Snyder, 2002). These networks encourage innovation, reduce isolation, and promote a culture of shared responsibility for educational change.

AI Literacy and ToT Programs

AI literacy is central to teacher preparedness, encompassing not only technical knowledge but also critical awareness of the pedagogical and ethical dimensions of AI (Luckin, 2018). ToT programs can enhance AI literacy by combining hands-on technical training with reflective dialogue on classroom integration (Zhai, 2021). This dual approach reduces resistance to

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change and fosters confidence among teachers. Studies suggest that when teachers are supported through mentoring and collaborative practice, they are more likely to experiment with AI tools and adapt them creatively (Holmes et al., 2019). Furthermore, ToT programs can serve as platforms for addressing ethical concerns such as algorithmic bias, student data privacy, and the preservation of teacher autonomy (Williamson & Eynon, 2020).

Challenges in Implementing ToT Programs

While ToT programs offer many advantages, their implementation faces persistent challenges. Unequal access to digital infrastructure limits their reach, particularly in under-resourced regions (Kessler, 2018). Trainers and teachers often enter with varying levels of digital competence, making standardization of outcomes difficult (Tondeur et al., 2020). Resistance to change remains a significant barrier, as teachers may perceive AI as either burdensome or threatening to professional identity (Younas et al., 2022). Moreover, without ongoing mentoring and follow-up, ToT programs risk becoming one-off interventions with limited long-term impact (Voogt et al., 2015). Addressing these barriers requires carefully designed, context-sensitive models that emphasize sustainability and continuous support.

ToT in ELT Contexts

For English language teachers, the relevance of ToT programs is particularly high. ELT involves not only teaching linguistic knowledge but also preparing learners to navigate AI-mediated environments such as speech recognition, translation systems, and online platforms (Graddol, 2006). Teachers must therefore integrate AI tools into communicative, learner-centered pedagogies while guiding students to critically evaluate these technologies (Luckin, 2018). ToT programs can equip ELT trainers to provide hands-on experience with AI applications tailored to language learning, such as automated pronunciation feedback, chatbot-based speaking practice, or AI-assisted writing assessment (Rahman, 2021). Collaborative structures within ToT also enable ELT teachers to share strategies, adapt tools to local contexts, and reflect critically on practice.

Identified Research Gap

Although research on AI in education is expanding, few studies explicitly address the intersection of AI-focused ToT programs and English language teaching (Zhai, 2021). Much of the literature emphasizes either the technical potential of AI tools or general teacher preparedness but neglects the role of professional development structures in mediating adoption. Studies that do examine professional development often focus on workshops rather than cascaded models like ToT, which provide sustainability and scalability (Voogt et al., 2015). This gap indicates a pressing need for empirical research investigating how ToT programs prepare ELT teachers for AI integration, what challenges they face, and how collaborative learning structures influence their adoption of AI.

The reviewed literature underscores that AI holds immense potential for enhancing English language teaching but also presents challenges that require targeted professional development. Traditional training models have proven insufficient, while ToT programs offer a promising approach by equipping trainers to cascade AI literacy and pedagogical strategies. Yet, ToT initiatives must overcome barriers such as limited resources, uneven digital competence, and resistance to change. The lack of research focusing specifically on AI-focused ToT in ELT highlights a significant gap. Addressing this gap is essential for designing effective professional development models that empower teachers to harness AI in meaningful and sustainable ways.

Theoretical Framework

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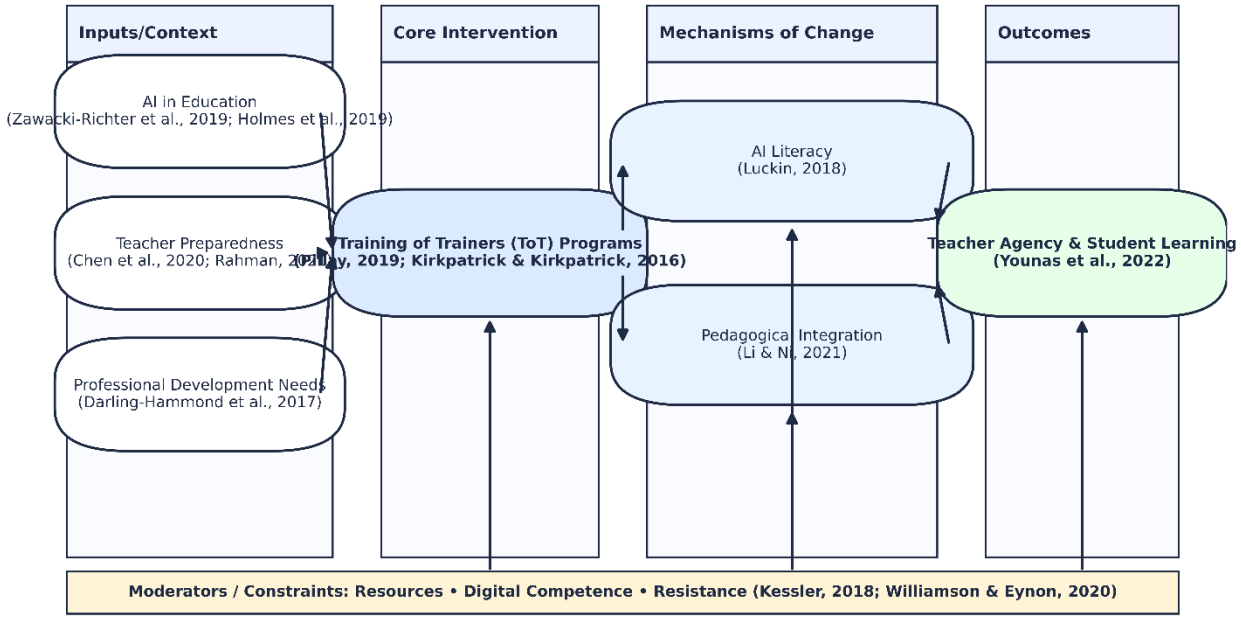
Alternative Logic-Model Framework: From Inputs to Outcomes via ToT



The logic-model framework reads from left to right. The Inputs/Context column captures the forces that create demand for change: rapid growth of AI in education and ELT, current levels of teacher preparedness, and identified professional-development needs. The Core Intervention is the Training of Trainers (ToT) program, positioned centrally because it mediates between those inputs and classroom practice—scaling expertise through cascaded training, mentoring, and ongoing support. ToT activates two Mechanisms of Change: (1) AI literacy (technical understanding and critical awareness of data, ethics, and affordances) and (2) pedagogical integration (designing tasks, assessment, and interaction patterns that meaningfully use AI). These mechanisms, working together, lead to the Outcomes on the right—enhanced teacher agency and improved student learning. The gold ribbon along the bottom marks Moderators/Constraints—resource availability, variation in digital competence, and resistance to change—which can strengthen or weaken every link in the chain. In short, the diagram argues that ToT converts contextual pressures into sustainable practice by building teachers' AI literacy and pedagogical capacity, provided moderating barriers are addressed through mentoring, collaboration, and resourcing.

Research Design

This study adopts an interpretivist, qualitative design to understand how Training of Trainers (ToT) programs prepare English language teachers to integrate AI. A multiple-case approach is used across distinct ToT initiatives to capture contextual variation and enable analytic generalization. The theoretical framework (ToT as a mediator between inputs and outcomes via AI literacy and pedagogical integration, moderated by resources, competence, and resistance) informs sampling, instruments, and analysis. The temporal focus aligns with the research questions: trainers and teachers are studied within six to twelve months after completing AI-focused ToT during the 2025 academic cycle.

Cases comprise accredited teacher-education centers and school clusters that delivered AI-focused ToT within the past year. Two participant groups are included: (a) ToT facilitators/trainers and (b) English language teachers who received training and attempted classroom integration. Inclusion criteria are: direct participation in the named ToT; current role

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in pre-/in-service ELT; and willingness to discuss experiences of AI use. Exclusion criteria are: no subsequent classroom exposure to AI tools or insufficient language proficiency for an interview.

Purposive, maximum-variation sampling is employed to capture diversity in institutional type (public/private), level (primary/secondary/tertiary), technological infrastructure, and participant experience. Recruitment proceeds via program coordinators who distribute invitations; interested volunteers are screened against criteria and provided study information. The target sample is 30–36 participants across three cases: 10–12 trainers and 20–24 teachers (4–8 per case). Sampling continues until thematic sufficiency is reached.

Data collection

Three complementary methods are used:

1. **Semi-structured interviews** (45–60 minutes) with trainers and teachers probe perceived preparedness, AI literacy development, pedagogical integration, mentoring, and barriers/affordances. Protocols are aligned to the research questions and the framework mechanisms (AI literacy, pedagogical integration). Interviews are audio-recorded and transcribed verbatim.
2. **Focus group discussions** (60–75 minutes) with teachers (4–6 participants per group) elicit collaborative sense-making about post-ToT implementation, peer support, and community building. Focus groups are scheduled after at least one term of classroom use to capture enacted practice.
3. **Document/artefact review** collects program syllabi, session slides, micro-teaching tasks, mentoring logs, and any teacher-produced AI lesson plans or reflections. These artefacts contextualize narratives and provide triangulation.

Where sites permit, non-participant observations of one AI-integrated lesson per case (using a low-inference protocol) enrich understanding of enactment; field notes focus on how tools are positioned pedagogically rather than evaluating teaching quality.

Interview and focus group guides are piloted with two teachers from a non-sampled site to refine wording and flow. Questions progress from experience-near prompts (e.g., “walk me through your first AI-supported lesson post-ToT”) to mechanism-focused probes (e.g., “how did the mentoring shape your confidence?”) and moderator prompts (resources, competence, resistance). Data collection follows this sequence per case: document gathering → trainer interviews → teacher interviews → focus group → (where feasible) observation, allowing progressive focusing and member prompts referencing earlier accounts.

Data are analyzed using reflexive thematic analysis following systematic phases: familiarization; open coding; generating initial themes; reviewing and refining themes across cases; and producing a narrative with illustrative extracts. Coding is both deductive (guided by the framework: AI literacy, pedagogical integration, moderators, outcomes) and inductive (allowing emergent subthemes such as assessment redesign, workload trade-offs, or ethics talk). Two researchers independently code an initial 20–25% sample and hold adjudication meetings to develop a shared codebook; subsequent coding is conducted reflexively with periodic peer debriefs rather than mechanical reliability thresholds. NVivo/Atlas.ti is used for data management.

Credibility is enhanced through method triangulation (interviews, focus groups, documents, observations), member reflection (participants receive a brief summary of emergent themes for comment), and peer debriefing. Transferability is supported by a thick description of cases and contexts. Dependability and confirmability are addressed via an audit trail (protocols, codebook iterations, memos, analytic decisions) and reflexive journaling on the researchers’ positionality and assumptions about AI in ELT. Ethical approval is obtained from the host institution. Participants provide informed consent; pseudonyms are used; audio files and transcripts are

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stored on encrypted drives; and any institutional documents are de-identified. Participation is voluntary, with the right to withdraw prior to anonymization without penalty.

As a qualitative, multiple-case study, findings aim for analytic—not statistical—generalization. Self-report bias and uneven AI access across sites may shape accounts; integrating artefacts and observations mitigates but does not eliminate these constraints. Timing the data collection within one academic year prioritizes recall accuracy yet may underrepresent long-term sustainability; a follow-up phase is noted for future work.

Research Findings

Across the three ToT cases, thematic analysis of interviews, focus groups, documents, and limited observations yielded six interlocking themes that collectively explain how AI-focused Training of Trainers (ToT) programs shape teacher preparedness, the challenges teachers encounter, and how reflective practice and professional community develop over the first year after training. The findings are presented to address RQ1–RQ3.

1) From tool familiarity to AI literacy with purpose (RQ1)

Participants consistently reported moving beyond "button knowledge" toward principled evaluation of AI tools. Trainers described ToT as a shift from showcasing tools to curating use-cases against pedagogical goals (e.g., feedback, differentiation, oral fluency). Teachers echoed this, noting they could now judge when AI added value, articulate risks (privacy, bias), and set classroom norms (prompting rules, academic integrity). Preparedness was framed less as mastering many tools and more as being able to ask: *What learning problem am I solving, what AI affordance helps, and how do I scaffold it?* This reframing marked the clearest gain in perceived competence. Still, preparedness was uneven: novice teachers felt confident with feedback and planning support, but less so with assessment redesign and data ethics. Trainers reported needing a second cycle to deepen those areas.

2) Confidence grows through guided experimentation and low-stakes trials (RQ1)

Confidence increased where ToT required participants to plan, micro-teach, and then iterate on a small AI-enabled routine (e.g., a five-minute pronunciation station using speech recognition; an AI-assisted feedback protocol for drafts). Teachers valued "sandbox" time, observation checklists, and post-lesson debriefs with a mentor. Gains were strongest in the first eight weeks post-training, often tied to a clear routine transferred from ToT to the classroom. Confidence dipped when teachers attempted to scale too quickly (e.g., replacing whole-class feedback with AI without student training). Trainers who modeled "start small—stabilize—scale" reported fewer relapses. Where trials were unsupported, teachers reverted to pre-AI methods, citing workload and uncertainty.

3) Emerging design patterns for pedagogical integration (RQ1)

Across cases, four recurring patterns characterized successful integration:

- **Feedback acceleration**: AI used for formative comments on drafts, with teachers adding "human layer" summaries and next steps. Teachers reported time savings and more frequent cycles of feedback, though they cautioned against generic AI phrasing without rubric alignment.
- **Pronunciation and fluency stations**: short, repeated practice with speech recognition or chatbots, coupled with teacher conferences. Students engaged readily when goals were concrete (e.g., target sounds, discourse markers).
- **Differentiation and rehearsal**: AI generated leveled reading or role-play scenarios; teachers reported better participation from quieter learners when paired with reflective prompts.
- **Planning and materials**: teachers leveraged AI for first drafts of tasks and checks for bias or level, then edited for appropriateness. This reduced preparation time but demanded prompt-engineering skill.

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These patterns were more robust when ToT provided exemplars, editable templates, and co-planning clinics. Teachers struggled most with summative assessment (fear of over-reliance, plagiarism detection limits) and with aligning AI use to school policies.

4) Mentoring and community as engines of transfer (RQ2, RQ3)

Mentoring—formal or informal—was the single most cited factor enabling classroom transfer. Teachers highlighted just-in-time support channels (messaging groups, shared resource banks, monthly clinics) and "co-teaching moments" with ToT trainers during first implementations. Communities of practice sustained momentum by circulating quick wins, troubleshooting prompts, and modeling reflective logs. In schools that recognized mentors' time (reduced load or stipends), implementation spread beyond the initial cohort. Where mentoring was absent, enthusiasm waned, and teachers perceived AI as "one more thing." Communities also normalized ethical conversations (e.g., transparency with students, data minimization) and reduced fear by sharing scripts for parent and student communication.

5) Persistent constraints and inequities shaping enactment (RQ2)

Three constraints consistently moderated outcomes:

- **Resources and infrastructure**: patchy devices, bandwidth, or licensing limited adoption, particularly for speech tools and real-time feedback. Workarounds (rotations, offline tasks) helped but reduced frequency of use.
- **Digital competence variability**: within the same school, competence ranged widely. ToT cohorts that embedded peer pairing (tech-confident with less confident teachers) progressed faster than cohorts relying on uniform workshops.
- **Policy and workload**: unclear policies on AI use with minors, data storage, or plagiarism created hesitancy. Time pressures (exam preparation, reporting cycles) pushed AI experimentation to the margins unless principals scheduled it into CPD agendas.

Importantly, constraints did not operate uniformly: when leadership communicated a coherent stance and provided micro-grants for devices or licenses, teachers reported fewer barriers and more sustained use.

6) Reflective practice and teacher agency: conditions for growth (RQ3)

ToT influenced not only technique but also professional identity. Many teachers described a shift from "AI as a threat" to "AI as an extension of my pedagogical judgment." Reflection routines—post-lesson memos, student feedback snapshots, and mentor check-ins—were crucial to this shift. Agency manifested as teachers customizing prompts, modifying rubrics, or pausing tool use when it conflicted with learning aims. Several negative cases were instructive: in two departments, teachers withdrew from an AI-feedback workflow after students over-relied on automated corrections; reflection led them to re-introduce peer review before AI input. Such recalibrations illustrate agency rather than abandonment.

Cross-case contrasts and durability over time

Implementation was most durable where (a) ToT spanned multiple sessions with practice between, (b) mentors observed at least one AI-enabled lesson, and (c) leadership aligned assessment and academic integrity guidance with classroom routines. In contrast, "single-shot" ToT without follow-up produced short-lived trials and limited community building. After six to twelve months, teachers who retained planning and formative feedback use more than high-stakes assessment use. Trainers noted that a second cycle focusing on assessment, ethics, and student metacognition would likely consolidate practice.

Outcomes as perceived impacts

Participants reported perceived gains in student engagement (more participation in speaking tasks; quicker revision cycles) and in teacher workload redistribution (less time on first-pass feedback, more time for conferences). Evidence remained perception-based rather than

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experimental; nevertheless, triangulation from artefacts (lesson plans, student reflection prompts) and observations supported these claims. Teachers repeatedly emphasized that outcomes depended on setting expectations with students—teaching prompt literacy, attribution, and when to *not* use AI.

Synthesis with research questions:

RQ1 (Preparedness): ToT increased preparedness by developing principled AI literacy and confidence through guided experimentation and reusable design patterns. Gains were uneven, strongest in formative feedback and planning, weaker in assessment and ethics without a second learning cycle.

RQ2 (Challenges and supports): The main barriers were infrastructure, competence variability, policy ambiguity, and workload. Mentoring and communities of practice mitigated these, providing just-in-time help and normalizing reflective risk-taking.

RQ3 (Reflective practice and community): ToT fostered reflective routines and communities that strengthened teacher agency. Sustained impact occurred when reflection, mentoring, and leadership alignment were built into the post-ToT year.

Overall, the findings portray ToT as an effective bridge from innovation to practice when coupled with mentoring, templates, and institutional support; absent these, adoption remains fragile and uneven.

Discussion

The findings indicate that AI-focused Training of Trainers (ToT) programs help teachers move from "button knowledge" to purposeful AI literacy, echoing calls to combine technical understanding with pedagogical judgment (Luckin, 2018; Zhai, 2021). Participants' ability to interrogate affordances, risks, and fit-to-purpose aligns with broader reviews showing that successful AI integration hinges less on the number of tools and more on teachers' capacity to align AI with learning problems (Zawacki-Richter, Marín, Bond, & Gouverneur, 2019; Chen, Xie, & Hwang, 2020). In ELT specifically, the shift from tool demos to principled use is consistent with literature arguing that AI's value emerges when it enriches communicative and feedback-rich pedagogy rather than operating as an add-on (Fadel et al., 2019; Rahman, 2021). The design patterns observed—feedback acceleration, pronunciation/fluency stations, differentiated rehearsal, and AI-assisted planning—mirror reported high-yield use cases in language learning (Holmes et al., 2019; Rahman, 2021). Teachers' time savings on first-pass feedback and materials preparation corroborate claims that AI can shift effort from routine tasks to higher-value interactions, while still requiring human curation (Luckin, Holmes, Griffiths, & Forcier, 2016). Yet the relative fragility of summative assessment uses reinforces cautions about ethics, bias, and academic integrity, underscoring the need for clear institutional guidance (Williamson & Eynon, 2020; UNESCO, 2021). This tension helps explain why planning and formative feedback stabilized sooner than assessment redesign in the first post-ToT year.

A central contribution concerns how confidence grows. Guided experimentation, micro-teaching, and mentored debriefs produced rapid, durable confidence gains—findings that resonate with evidence that effective professional development is sustained, job-embedded, and practice-centered (Darling-Hammond, Hyler, & Gardner, 2017; Voogt, Laferrière, Breuleux, Itow, Hickey, & McKenney, 2015). Positioning ToT as the mediator between contextual pressures and classroom practice is theoretically consistent with cascaded capacity-building models (Pillay, 2019) and the logic of evaluating training transfer across levels (Kirkpatrick & Kirkpatrick, 2016). The observed communities of practice—resource banks, peer troubleshooting, reflective logs—align with knowledge-sharing mechanisms known to sustain innovation beyond initial workshops (Wenger, McDermott, & Snyder, 2002).

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At the same time, the study foregrounds moderating constraints. Uneven infrastructure and device access, variable digital competence, and policy ambiguity dampened adoption patterns widely reported in technology-enhanced language education (Kessler, 2018; Baran et al., 2020). Where leadership clarified policies on data, integrity, and age-appropriate use—and where micro-grants addressed licensing or device gaps—teachers reported faster transfer and fewer reversions to pre-AI routines, echoing system-readiness arguments in teacher-AI research (Spector, 2022; UNESCO, 2021). These results reinforce the proposition that ToT alone is necessary but not sufficient; organizational supports must co-evolve for integration to persist.

A noteworthy outcome is the strengthening of teacher agency. Teachers described reframing AI as an extension of professional judgment, pausing or modifying tools when misaligned with learning goals, and crafting classroom norms for ethical use. Such moves parallel work on digital competence in ELT that emphasizes adaptive expertise and critical engagement with technology, not mere operational skill (Li & Ni, 2021). The ethically alert stance observed—discussing bias, privacy, and transparency with learners—answers calls for critical AI literacy in schooling (Williamson & Eynon, 2020; Luckin, 2018). Importantly, agency seemed to grow where reflective routines—post-lesson memos, mentor check-ins, student feedback snapshots—were embedded, underscoring reflection as the connective tissue between ToT inputs and classroom outcomes.

Implications follow directly. Programmatically, ToT should be multi-session with interleaved practice; require a classroom-transfer task (small, routinized use); and bundle templates, exemplar prompts, and rubrics to seed the four emergent design patterns. Structurally, institutions should fund a light-touch mentoring spine (observation + debrief) for at least one term post-ToT and formalize communities of practice for just-in-time support (Darling-Hammond et al., 2017; Wenger et al., 2002). Policy-wise, leaders should publish concise AI use guidelines (data minimization, attribution norms, integrity expectations) and align assessment policies with classroom practice (UNESCO, 2021). Evaluation should track Kirkpatrick levels beyond satisfaction—evidence of classroom transfer and learner impact—while acknowledging that assessment uses will mature more slowly (Kirkpatrick & Kirkpatrick, 2016).

The study's limitations—self-report bias, uneven access across sites, and a 6–12 month window—suggest directions for research. Longitudinal work could examine durability across multiple academic cycles and isolate which ToT components (e.g., micro-teaching vs. mentoring) most strongly predict transfer. Mixed-methods designs linking classroom artifacts to learning outcomes would strengthen claims of student impact. Finally, comparative studies of ToT versus one-off workshops could quantify the added value of cascaded, community-anchored models, building on meta-analytic insights about PD design and digital competence (Tondeur et al., 2020).

In sum, the discussion positions ToT as a credible bridge from technological promise to pedagogical practice in ELT: it cultivates principled AI literacy, scaffolds early wins through design patterns, and converts confidence into agency when coupled with mentoring and organizational alignment. Where constraints are actively managed, ToT delivers not only adoption but reflective, ethical integration—precisely the kind of preparedness envisioned in contemporary AI-in-education scholarship (Zawacki-Richter et al., 2019; Chen et al., 2020; Williamson & Eynon, 2020).

Conclusion

This study shows that AI-focused Training of Trainers (ToT) programs can effectively translate technological promise into classroom practice for English language teaching when they cultivate principled AI literacy and scaffold pedagogical integration. Teachers moved beyond

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tool operation toward purposeful decisions about when and how AI adds value, especially for formative feedback, pronunciation/fluency routines, differentiation, and planning. Confidence grew through guided experimentation, micro-teaching, and mentored debriefs, while communities of practice sustained momentum and normalized ethical reflection. At the same time, uneven infrastructure, variation in digital competence, workload pressures, and unclear policies moderated outcomes, with summative assessment uses proving more fragile than formative ones. Overall, ToT is a credible bridge from innovation to practice, but its impact depends on institutional support, ongoing mentoring, and clear ethical and assessment guidance.

Recommendations

1. **Design ToT as a multi-cycle program:** Implement at least two spaced cycles (introductory and consolidation) with interleaved classroom trials, focusing first on formative uses and then on assessment, ethics, and student metacognition.
2. **Embed guided transfer tasks**: Require each participant to implement one small, repeatable AI routine (e.g., feedback protocol, pronunciation station) with mentor observation and a brief reflective memo.
3. **Stand up a mentoring spine:** Allocate time/stipends for mentors to provide just-in-time support (messaging channels, office hours) and one observation + debrief per teacher in the first term post-ToT.
4. **Provide reusable assets:** Supply editable templates (lesson plans, prompt banks, rubrics, parent/student communication scripts) aligned to the four high-yield design patterns identified.
5. **Address infrastructure pragmatically:** Offer micro-grants or pooled licensing; plan rotation models and offline alternatives where bandwidth/devices are limited; set minimum technical baselines for participating sites.
6. **Differentiate support for digital competence:** Pair tech-confident teachers with peers; include optional clinics on prompt design, data privacy, and accessibility features.
7. **Publish concise policy guidance:** Issue clear norms on data minimization, attribution/academic integrity, age-appropriate use, and teacher discretion to "opt-out" when AI conflicts with learning aims.
8. **Align assessment policy with classroom practice:** Prioritize formative uses initially; pilot summative applications with moderation procedures and human-in-the-loop review before scaling.
9. **Evaluate beyond satisfaction:** Track transfer and outcomes using an evaluation frame (e.g., classroom artifacts, frequency of routines, student work samples) and use findings to refine ToT content.
10. **Build student AI literacy:** Integrate short student lessons on ethical use, prompt quality, and when *not* to use AI, reinforcing teacher expectations.

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