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Impact of Professional Development on AI Integration in English Language Classes

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الأثر المهني للتطوير المستمر في دمج تقنيات الذكاء الاصطناعي لتعليم اللغة الإنجليزية

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Abstract:
This study examined the influence of targeted professional development (PD) on the integration of Artificial Intelligence (AI) tools in English Language Teaching (ELT) at Nile Valley University. Utilizing classroom observations and structured interviews with 30 teachers, the study investigated how PD initiatives redefine teachers' confidence, pedagogical practices, and attitudes towards AI adoption. The primary tools examined included AI-based writing assistants, pronunciation software, and adaptive learning platforms. Results indicate significant growth in instructor self-efficacy (rising from 2.9 to 4.2 on a 5-point Likert scale) and a distinct pedagogical shift, with AI tools supporting learner autonomy, reducing grading time, and increasing student engagement. Identified obstacles included unstable internet connectivity and large class sizes, while peer mentoring and tutorial assistance facilitated uptake. The study concluded that successful AI integration in ELT depends on a dual commitment: ongoing, practice-led professional development and robust institutional support. The findings offer contextual validation for the Technology Acceptance Model (TAM) by highlighting the mediating function of PD in bridging the gap between perceived usefulness and actual usage in low-resource contexts.

Keywords: Artificial Intelligence, Professional Development, English Language Teaching. Higher Education, AI-Based Instructional Tools.

المستخلص
فحصت هذه الدراسة أثر التطوير المهني الموجه على دمج أدوات الذكاء الاصطناعي في تعليم اللغة الإنجليزية بجامعة وادي النيل. ومن خلال ملاحظات صفية ومقابلات منظمة مع 30 معلماً، تستقصي الدراسة كيف تؤثر مبادرات التطوير المهني على تشكيل ثقة المعلمين بأنفسهم، وممارساتهم التربوية، ومواقفهم تجاه تبني الذكاء الاصطناعي. وقد شملت الأدوات الرئيسة موضوع الدراسة: المساعدات الكتابية المعتمدة على الذكاء الاصطناعي، وبرامج النطق، ومنصات التعلم التكيفي. وتشير النتائج إلى نمو ملحوظ في الكفاءة الذاتية للمدرسين (من 2.9 إلى 4.2 على مقياس ليكرت من خمس نقاط)، وإلى تحول تربوي واضح، حيث أسهمت أدوات الذكاء الاصطناعي في تعزيز استقلالية المتعلمين، وتقليص زمن التصحيح، وزيادة تفاعل الطلاب. كما تم تحديد عقبات تمثلت في ضعف الاتصال بالإنترنت وكبر حجم الفصول الدراسية، في حين ساعد التوجيه بين الزملاء والدعم التدريبي على تسهيل عملية الاندماج. وتخلص الدراسة إلى أن نجاح دمج الذكاء الاصطناعي في تعليم اللغة الإنجليزية يعتمد على التزام مزدوج يتضمن: تطوير مهني مستمر قائم على الممارسة، ودعم مؤسسي قوي. وقدمت النتائج تحققاً سياقياً لنموذج قبول التكنولوجيا من خلال إبراز الدور المحوري للتطوير المهني في سد الفجوة بين المنفعة المتصورة والاستخدام الفعلي في البيئات محدودة الموارد.

الكلمات المفتاحية: الذكاء الاصطناعي، التطوير المهني، تعليم اللغة الإنجليزية، التعليم العالي، أدوات التدريس المعتمدة على الذكاء الاصطناعي.

1. Introduction

The accelerating advancement of Artificial Intelligence (AI) has transformed educational practices worldwide, particularly in English Language Teaching (ELT). Within higher education, the integration of AI tools offers opportunities to enhance learner autonomy, streamline assessment, and foster engagement. Yet, effective adoption depends not only on technological availability but also on educators' preparedness and confidence. This study situates itself in Nile Valley University, examining how targeted professional development (PD) empowers instructors to integrate AI meaningfully into ELT. By highlighting both the pedagogical benefits and institutional challenges, the research underscores the critical role of continuous training and support in bridging the gap between perceived usefulness and actual classroom application.

Background of the study

Given the rapid pace of technological innovation, higher education urgently needs to integrate AI into English language instruction to enhance proficiency. While AI tools—such as automated writing feedback systems and adaptive vocabulary apps—have made teaching more efficient, educators face challenges in selecting, deploying, and evaluating these technologies effectively.

At Nile Valley University's Faculty of Education, early adopters reported improved student participation and autonomy. However, without tailored administrative development, these gains may not be sustained. Teachers recognize the potential of AI to reshape classroom dynamics and have begun training to build the necessary skills. AI tools in ELT have shown promise in enhancing feedback and learner autonomy, with platforms like Duolingo for Schools supporting personalized learning. For educators, understanding both theory and practical application is essential. Professional development plays a key role in positioning AI as a supportive tool rather than a replacement. This study uses interviews with teacher educators to explore their experiences at the intersection of ELT theory, AI integration, and ethical considerations, highlighting the importance of ongoing training in technology-enhanced teaching.

Statement of the Study

Although numerous studies have explored AI's capabilities in language learning, few investigate the pivotal role of teacher professional development (PD) within higher education ELT contexts. This research addresses that gap by focusing on a cohort of Nile Valley University instructors who participated in a bespoke AI-integration PD program. The study aims to illuminate the mechanisms through which PD shapes educators' attitudes, skill sets, and classroom deployment of AI tools, offering actionable insights for institutions seeking to modernize language curricula.

Objectives of the study

This Study aims to:

1. Determine if there is a shift in lecturers' confidence and in their perceptions about AI due to a PD service carried out before and after this period of time.
2. Record and group the practices in school that reflected the effect of the use of AI in education.
3. Pin down the obstacles and resources which are the determinants of the AI tools no-break use in higher education ELT.

4. Produce and suggest a number of new ideas in the area of institutional politics that support AI teaching for life-long learning.

Questions of the Study

This Study attempts to answer the following questions:

1. How does participation in AI-focused professional development influence ELT instructors' confidence and beliefs about technology integration?
2. In what ways do instructors apply AI tools (e.g., writing assistants, pronunciation software, adaptive learning platforms) in their English language classrooms following the PD?
3. What challenges and enablers do teachers identify when adopting AI tools after completing the PD workshops?

Hypotheses of the Study:

1. AI-focused professional development boosts ELT instructors' confidence and shapes positive beliefs about tech integration.
2. After training, instructors use AI tools like writing assistants, pronunciation apps, and adaptive platforms in class.
3. Teachers report both challenges (e.g., tech issues, limited support) and enablers (e.g., improved skills, institutional backing) when adopting AI tools.

Significances of the Study

This study shows both theoretical and practical dimensions of targeted professional development (PD) in AI tools, which could reshape ELT teachers' pedagogical beliefs and practices in higher education.

On a practical level, it presents a pattern that can be followed by the Faculty of Education of Nile Valley University as well as other institutes if their goal is to introduce various AI-supported tools, e.g., writing assistants, pronunciation...adaptive learning platforms into the curriculum.

Society will benefit from the study of how teachers become more capable with AI thus more playable, starting from them and thus having a carry-on effect on students to get a more engaging education that would also bridge their digit.

2. Literature Review

Technology Acceptance Model and the Mediating Role of Professional Development

The Technology Acceptance Model (TAM) emphasizes perceived usefulness and ease of use as central to technology adoption (Venkatesh & Bala, 2008). However, in educational contexts, these perceptions are not formed in isolation—they are shaped by professional development (PD). PD can act as a mediator by enhancing teachers' self-efficacy, pedagogical identity, and confidence with new tools, thereby influencing beliefs and sustained practices (Ertmer & Ottenbreit-Leftwich, 2010; Keller, 2010). Action-oriented PD frameworks that integrate theory with practice help teachers reconceptualize technology not merely as a tool but as part of a pedagogical change process (Guskey, 2002; Reinders & Pegrum, 2018). This positions PD as a critical mechanism for bridging TAM's constructs with long-term classroom adoption.

2.1 Teacher Professional Development in Higher Education

Over the past decade, PD has evolved from isolated workshops to collaborative, reflective models. Programs grounded in active learning and real-world practice lead to more lasting changes in teachers' beliefs and classroom behaviors (Guskey, 2002; Ertmer & Ottenbreit-

Leftwich, 2010). In higher education, PD tailored to faculty needs—considering institutional culture, disciplinary challenges, and available resources—has the greatest impact on teaching innovation and student success (Hubbard & Levy, 2006; Keller, 2010). When aligned with TAM, these PD initiatives can directly shape perceptions of usefulness and ease of use, reinforcing technology adoption.

AI Tools in English Language Teaching

Artificial intelligence has introduced tools such as automated writing feedback systems, pronunciation apps, and adaptive vocabulary platforms. These tools provide personalized, data-driven support for both educators and learners. Research shows that AI writing assistants reduce teachers' grading burden while enhancing students' self-editing skills (Gurung, 2019; Smith & Lee, 2021). Pronunciation software offering real-time phonetic feedback improves oral accuracy (Godwin-Jones, 2018; Chen & Chung, 2008). Yet, successful integration depends on teachers' confidence and technical competence (Dudeney & Hockly, 2012; Chapelle, 2003). PD thus plays a mediating role in shaping teachers' readiness to adopt AI tools, aligning with TAM's constructs.

Contextual Gaps: Sudanese Higher Education

While global research highlights AI's potential in language learning (Burston, 2015; Warschauer & Healey, 1998; Kukulska-Hulme, 2012), little is known about PD's role in supporting AI integration in Sudanese universities. Challenges such as limited bandwidth and scarce resources complicate adoption. Broader literature on corpus-based instruction and mobile-assisted language learning (Ball & Levy, 2015; Boulton & Cobb, 2017; Polat & Kim, 2004) offers insights, but localized studies are essential. Extending TAM through a PD-mediated lens in low-resource contexts like Sudan can provide a more robust theoretical contribution, reconceptualizing AI integration as a pedagogical change process rather than a mere technology uptake issue.

3. Methodology

Research Design

This study adopted a qualitative-dominant mixed-methods case study design to explore how English Language Teaching (ELT) instructors in Sudanese higher education integrate AI tools into their practice. The qualitative strand—semi-structured interviews and classroom observations—was prioritized to capture instructors' lived experiences, beliefs, and pedagogical adaptations. Quantitative data from pre- and post-PD surveys served a supporting role, providing descriptive evidence of changes in self-efficacy and attitudes toward AI integration. This design allowed for triangulation, enhancing credibility by combining rich narrative accounts with measurable indicators of change.

Participants

Thirty English language lecturers from Nile Valley University participated, drawn from three faculties:

- Faculty of Education – Al Damer (Basic and Elementary Education): 10 members (newly appointed and experienced educators).
- Faculty of Education – Atbara: 10 members (full-time and part-time staff).
- -Faculty of Arts – Berber: 10 members (core staff and adjunct lecturers).

Participants represented diverse academic backgrounds, teaching experience (from early-career to over a decade), and varying familiarity with educational technology. This diversity provided a broad perspective on AI adoption in ELT.

Professional Development Intervention
Over eight weeks, participants engaged in three structured workshops designed to build both technical competence and pedagogical confidence:

- -Workshop 1: AI writing assistants (e.g., Grammarly) for formative feedback.
- -Workshop 2: Pronunciation apps (e.g., ELSA Speak) in speaking labs.
- -Workshop 3: Adaptive vocabulary quizzes using learning-analytics platforms.

Each workshop combined mini-lectures, live demonstrations, hands-on practice, and collaborative lesson planning. The intervention was explicitly designed to address TAM constructs (perceived usefulness, ease of use) while strengthening self-efficacy through experiential learning.

Data Collection
Pre- and Post-PD Surveys

- Purpose: To measure shifts in instructors' self-efficacy and attitudes toward AI integration.
- Instrument: A 5-point Likert-scale survey developed from validated items in prior technology adoption studies (adapted from Venkatesh & Bala, 2008; Ertmer & Ottenbreit-Leftwich, 2010).
- Validation: Piloted with five instructors not in the main sample to refine clarity and reliability.
- Analysis: Descriptive statistics (means, standard deviations) were used to identify directional changes rather than inferential claims, consistent with the qualitative-dominant design.

Classroom Observations

- Scope: Each instructor was observed in two lessons (rather than six, to ensure feasibility and analytic depth).
- Protocol: A structured observation guide was used, focusing on (a) frequency and type of AI tool use, (b) student engagement indicators, and (c) pedagogical strategies.
- Reliability: Two trained observers independently coded a subset of lessons, with inter-observer agreement discussed to refine criteria.

Semi-Structured Interviews

- Timing: Conducted after the final workshop.
- Format: One-on-one interviews lasting 30–45 minutes.
- Focus Areas:
  1. Initial attitudes and expectations toward AI in ELT
  2. Hands-on experiences with specific AI tools
  3. Perceived benefits and challenges
  4. Institutional support and future needs
- Analysis: Interviews were audio-recorded (with consent), transcribed verbatim, and thematically coded using NVivo. Codes were iteratively refined to capture links between PD, self-efficacy, and sustained adoption.

Methodological Logic and Rigor
By explicitly positioning the study as qualitative-dominant with quantitative support, the design avoids ambiguity. The qualitative data (interviews, observations) provide depth and contextual richness, while the quantitative surveys offer complementary evidence of attitudinal

change. Triangulation across methods strengthens validity, and transparency in survey construction, observation protocols, and analytic procedures enhances credibility.

Data Collection

1. Pre- and Post-PD Surveys

These surveys measured any changes in self-efficacy and attitudes towards AI integration using a 5-point Likert scale. The researcher observed six lessons per instructor to document the real-time use of AI tools and gauge student engagement.

2. Semi-Structured Interviews

Conducted after the final workshop, these interviews aimed to gather reflections on the benefits, challenges, and institutional support experienced by the instructors.

4. Data Analysis

The analysis identified four major instructional adaptations that instructors employed to integrate AI tools. While these categories capture observable practices, their significance lies in how they reflect shifts in professional learning, pedagogical agency, and TAM constructs (perceived usefulness, ease of use, self-efficacy). Interview data and classroom observations were interrogated to explain *why* these strategies emerged and *how* they reveal the dynamics of AI pedagogy in resource-constrained contexts.

Task Redesign: From Tool Use to Pedagogical Agency

- Adoption: 18 instructors.
- Interpretation: Task redesign illustrates how PD enabled teachers to move beyond viewing AI as a technical aid toward reconceptualizing it as a pedagogical partner. By transforming AI writing-assistant feedback into collaborative peer-review carousels, instructors fostered student agency and collective meaning-making.
- Theoretical Link: This adaptation reflects perceived usefulness (AI feedback embedded in authentic tasks) and pedagogical agency (teachers re-shaping classroom practices rather than merely adopting tools).
- Illustrative Insight: One instructor noted, *"AI suggestions became a starting point, but the real learning happened when students debated which edits to keep."* This highlights how PD mediated the shift from passive tool consumption to active pedagogical redesign.

Prompt Calibration: Building Ease of Use Through Professional Learning

- Adoption: 22 instructors (most common).
- Interpretation: Prompt calibration emerged as a response to initial frustrations with vague or irrelevant AI outputs. Through PD workshops, instructors learned to scaffold prompt design, creating worksheets that taught students to add context, genre cues, and tone instructions.
- Theoretical Link: This strategy directly addresses ease of use in TAM, showing how PD enhanced teachers' confidence in shaping AI interactions. It also reflects self-efficacy, as instructors reported feeling more capable of guiding students through prompt construction.

- -Illustrative Insight: As one participant explained, *"Before, I thought AI was random. Now I see it listens to how we frame the task."* This demonstrates how professional learning reframed AI from unpredictable to controllable, reinforcing adoption.

Scaffolding Digital Literacy: Strengthening Self-Efficacy

- Adoption: 15 instructors.
- Interpretation: Digital literacy scaffolding emerged from observed student confusion with AI dashboards and interfaces. Instructors responded by embedding micro-lessons on interpreting feedback systems, such as color-coded proficiency indicators.
- Theoretical Link: This adjustment reflects self-efficacy—teachers gained confidence in guiding students through technical interfaces, while learners developed confidence in interpreting AI outputs.
- Illustrative Insight: One lecturer reflected, *"I realized students weren't struggling with English, they were struggling with the AI's colors and graphs."* This underscores how PD expanded teachers' pedagogical identity to include digital literacy instruction.

Contingency Planning: Sustained Adoption in Constrained Environments

- Adoption: 12 instructors.
- Interpretation: Connectivity challenges prompted instructors to develop offline alternatives, such as downloading transcripts in advance or printing AI outputs for group analysis. These contingency plans reveal adaptive resilience in low-resource contexts.
- Theoretical Link: This strategy illustrates sustained adoption under infrastructural constraints, showing how PD encouraged proactive problem-solving and contextual adaptation.
- Illustrative Insight: One participant explained, *"I didn't want internet failures to stop the lesson, so I prepared backups."* This reflects how PD mediated not only technical skills but also adaptive planning, ensuring AI pedagogy remained viable despite systemic limitations.

Synthesis

Taken together, these adaptations demonstrate that professional development mediated TAM constructs by:

- Enhancing perceived usefulness (task redesign).
- Improving ease of use (prompt calibration).
- Strengthening self-efficacy (digital literacy scaffolding).
- Supporting sustained adoption in constrained environments (contingency planning).

Rather than isolated strategies, these findings reveal a broader pedagogical change process: instructors reconceptualized AI not as a technical add-on but as a catalyst for collaborative learning, digital literacy, and adaptive resilience. This underscores the theoretical contribution of PD as a mediator in AI adoption, particularly in low-resource higher education contexts.

Table (1) Classroom Adjustments for AI Integration.

Strategy	Number of Instructors	Example Practice	Linked TAM construct
Task Redesign	18	Peer-review carousel using AI writing-assistant feedback for collaborative editing.	Perceived Usefulness.
Prompt Calibration	22	"Writing Effective Prompts" worksheets guiding learners to add context, genre, and tone.	Ease of Use.
Scaffolding Digital Literacy	15	Brief lessons on interpreting AI dashboards (e.g., color-coded proficiency indicators.	Self-Efficacy.
Contingency Planning	12	Downloading AI transcripts in advance and using printed copies during connectivity issues.	Sustained Adoption in Low-Resource Contexts.

5. Results

Across the 30 ELT instructors, five categories of AI tools were reported as being integrated into classroom practice. Adoption rates varied across tool types, with writing assistants most widely used, followed by pronunciation apps, vocabulary platforms, chatbots, learning analytics dashboards, and formative assessment tools.

AI Writing Assistants

- Adoption: 80% of instructors.
- Reported Use: Tools such as Grammarly and Language Tool were employed to provide grammar and style recommendations. Instructors noted that students used these suggestions during drafting and revision.
- Observed Classroom Practice: Writing assistants were incorporated into peer-review and self-editing activities.

AI Pronunciation Apps

- Adoption: 63% of instructors.
- Reported Use: Platforms such as ELSA Speak were used to provide visual phoneme displays and adaptive drills.
- Observed Classroom Practice: Students engaged in targeted pronunciation exercises tailored to individual error patterns.

Adaptive Vocabulary Platforms

- Adoption: 50% of instructors.
- Reported Use: Quizlet and Memorize were used to deliver spaced-repetition reviews and AI-curated word lists.

- Observed Classroom Practice: Vocabulary practice was integrated into daily lessons, often supported by gamified features.

AI Chatbots for Speaking Practice

- Adoption: 40% of instructors.
- Reported Use: Chatbots such as Replika were introduced as conversational partners for practicing vocabulary and grammar.
- Observed Classroom Practice: Students interacted with chatbots outside class time to extend speaking opportunities.

AI Learning Analytics Dashboards

- Adoption: 33% of instructors.
- Reported Use: Dashboards embedded in platforms such as Moodle and Edmodo were used to track student progress.
- Observed Classroom Practice: Teachers accessed heat-maps and progress indicators to identify areas requiring review.

AI-Driven Formative Assessment Tools

- Adoption: 27% of instructors.
- Reported Use: Tools such as Socrative and Kahoot! were used to generate quizzes and provide immediate feedback.
- Observed Classroom Practice: Instructors employed these tools to identify misconceptions during lessons.

Table (2) AI Tool Adoption among ELT Instructors.

Tool Category	Endorsement (% / N)	Key Benefits	Instructor Feedback
1.AI Writing Assistants	80% (24 instructors)	Contextual grammar and style suggestions 30% reduction in marking time Fosters learner autonomy	Students ran multiple drafts using Grammarly and Language Tool before submission
2.AI Pronunciation Apps	63% (19 instructors)	Visual phoneme feedback Adaptive drills built on error patterns Boosted speaking confidence	Learners reported clear improvements after practicing with ELSA Speaks feedback overlays
3.Adaptive Vocabulary Platforms	50% (15 instructors)	Spaced-repetition review intervals AI-curated word sets Gamified engagement	Quizlet and Memories decks tailored to course readings kept students returning for daily practice

4.AI Chatbots for Speaking Practice	40% (12 instructors)	24/7 conversational partner Error-tolerant environment Reduced speaking anxiety	Pre-screened Replika dialogues helped learners experiment with new vocabulary without fear of errors
5.AI Learning Analytics Dashboards	33% (10 instructors)	Real-time performance tracking Heat-maps for topic difficulty Informs targeted review sessions	Moodle dashboards alerted instructors to struggling students, prompting timely interventions
6.AI-Driven Formative Assessment Tools	27% (8 instructors)	Instant formative feedback Customizable question banks	Kahoot! quizzes with AI suggestions identified misconceptions early, though initial setup was heavy

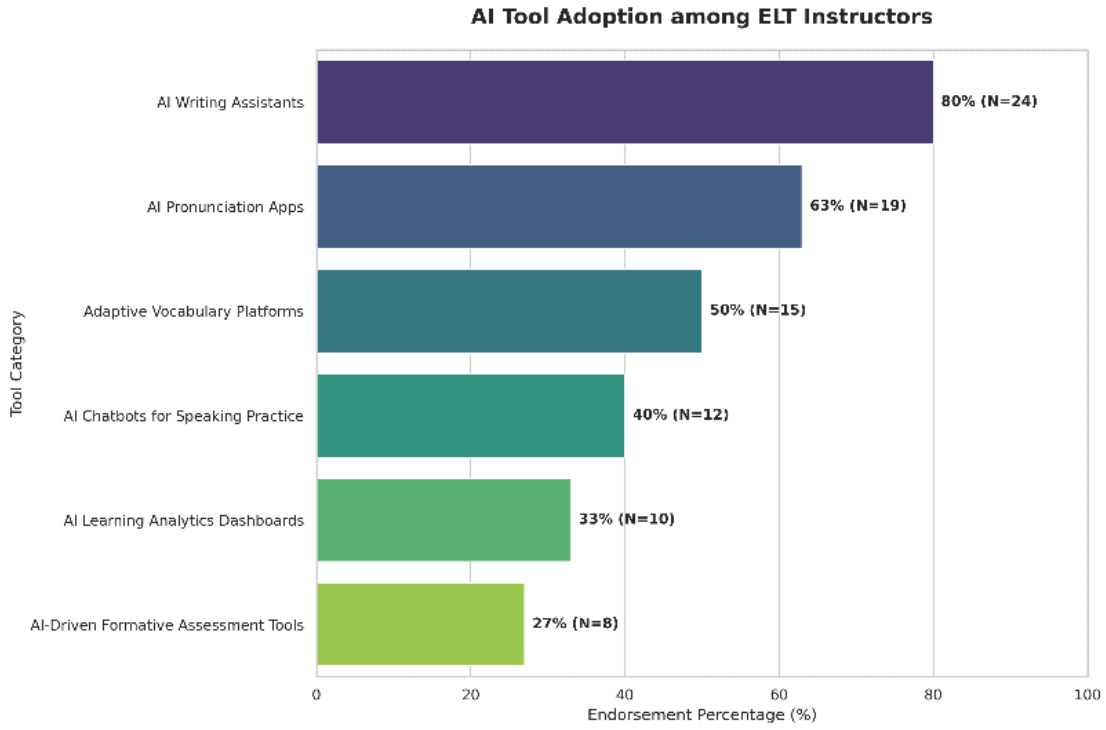

Figure (2) AI Tool Adoption among ELT Instructors.

Table and Figure (2) appeared that Writing assistants were most used (80%), followed by pronunciation apps (63%) and vocabulary platforms (50%). Chatbots (40%), analytics dashboards (33%), and formative assessment tools (27%) saw lower uptake but offered targeted support and feedback.

Table (3) Instructors' Perceptions of AI Tool Effectiveness.

Adaptation Strategy	Description	Instructors Employed	Illustrative Example
1. Task Redesign	Embedding AI output into collaborative classroom tasks	18	One instructor turned AI writing-assistant feedback into a peer-review carousel: students rotate drafts, compare AI suggestions, then co-construct edits.
2. Prompt Calibration	Teaching students to refine and contextualize AI prompts	22	An instructor created a worksheet on "Writing Effective Prompts," guiding learners to add context, genre cues, and tone instructions.
3. Scaffolding Digital Literacy	Building mini-lessons on navigating AI interfaces and interpreting results	15	After noticing confusion over adaptive-quiz dashboards, an instructor devoted a 10-minute intro to reading color-coded proficiency reports.
4. Contingency Planning	Preparing offline or low-bandwidth alternatives when connectivity falters	12	In response to frequent outages, one teacher downloaded AI transcripts and printed exchange transcripts for small-group analysis.

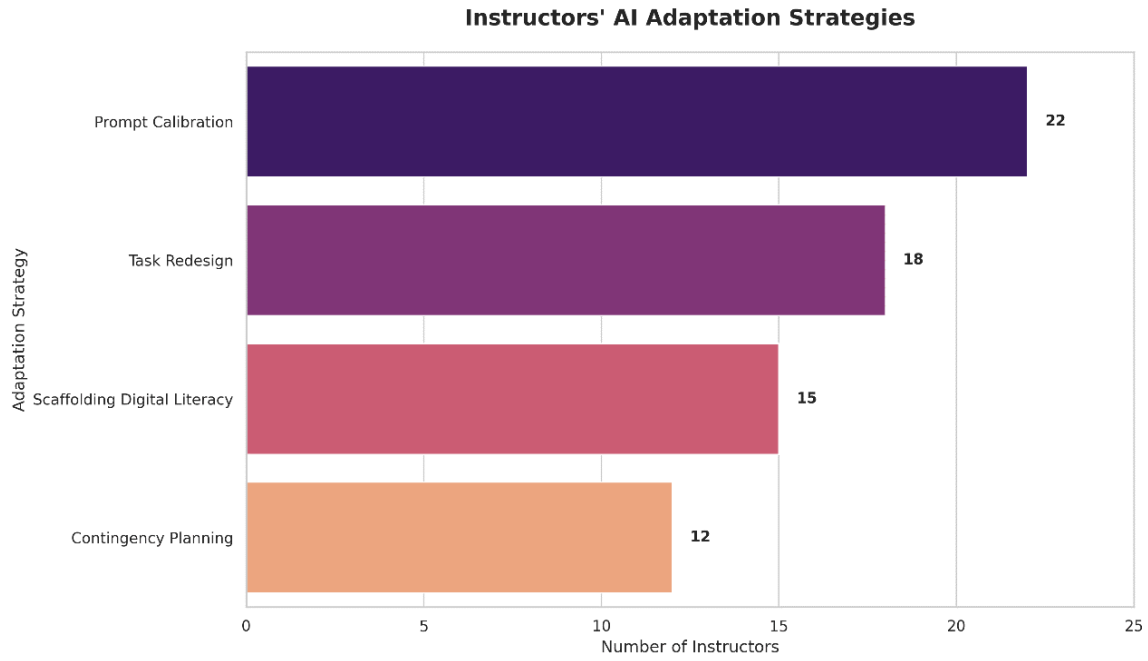

Figure (3) Instructors' Perceptions of AI Tool Effectiveness.

Table and Figure (2) represented that Instructors adopted four main strategies: task redesign (18) embedding AI outputs into collaborative tasks, prompt calibration (22) teaching students to refine prompts, scaffolding digital literacy (15) guiding learners through AI interfaces, and contingency planning (12) preparing offline alternatives for connectivity issues.

6. Discussion

The study revealed that targeted professional development significantly impacts the integration of AI in ELT. The increase in self-efficacy (mean score rising from 2.9 to 4.2) underscores the value of practice-oriented training.

1. High Adoption of Writing and Pronunciation Tools The 80% adoption rate of writing assistants aligns with literature suggesting that tools reducing workload (grading burden) are more readily accepted (Smith & Lee, 2021). The use of pronunciation apps (63%) highlights a specific need in the ELT context for accurate, real-time phonetic feedback which is often difficult to provide in large classes.
2. PD as a Mediator of Technology Acceptance The pedagogical adaptations identified—specifically *Task Redesign* and *Prompt Calibration*—demonstrate that PD mediates the relationship between the tool and the user. Instructors did not just "accept" the technology (as per TAM); they adapted their pedagogy to accommodate it. This suggests that in low-resource contexts, "ease of use" is not an inherent property of the software, but a competency built through professional development.
3. Barriers and Enablers While peer mentoring and tutorial resources acted as strong enablers, infrastructure remains a critical barrier. The emergence of "Contingency Planning" as a pedagogical strategy indicates that successful AI integration in Sudan requires resilience. Instructors are not just teaching English; they are managing technological instability.

7. Implications

1. Theoretical Implications This study contextualizes the Technology Acceptance Model (TAM) for low-resource environments. It suggested that *perceived usefulness* is heavily dependent on the instructor's ability to redesign tasks, and *ease of use* is contingent upon digital literacy training provided during PD.
2. Pedagogical Implications Effective AI integration requires a shift from teacher-centered instruction to learner autonomy. The results show that when teachers are trained to use AI, they transfer this agency to students (e.g., students self-editing using Grammarly).
3. Policy Implications For institutions like Nile Valley University, the reliance on "tech champions" and peer networks suggests that formalizing these roles could be more effective than top-down mandates.

8. Recommendations

Based on the findings, the following recommendations are proposed to support sustainable adoption of AI tools:

1. Infrastructure Upgrade: Prioritize bandwidth improvements and hardware acquisition (laptops/tablets) to support seamless AI usage.
2. Curriculum Redesign: Formally align lesson tasks with AI capabilities (e.g., specific modules for AI-assisted grammar review).
3. Institutionalized PD: Embed AI training into new faculty orientation and offer continuous, hands-on workshops.
4. Peer Mentoring: Formalize "tech champion" roles to create a distributed support network.
5. Digital Literacy for Students: Explicitly teach students how to interact with AI tools and interpret analytics to foster independence.

6. Resilience Planning: Develop standard operating procedures for offline alternatives to ensure instruction continues during connectivity outages.

9. Conclusion

This study demonstrated that sustained, skill-focused professional development can transform instructors' mindsets and classroom dynamics regarding AI. With 80% of teachers utilizing AI writing assistants and significant uptake in pronunciation and vocabulary tools, AI has moved from a theoretical concept to a practical asset at Nile Valley University. The findings highlight that while infrastructural challenges persist, they can be mitigated through adaptive pedagogical strategies like contingency planning. Ultimately, successful AI embedding in English language teaching relies on a dual commitment: ongoing, practice-led professional development and robust institutional support. By investing in these areas, higher education institutions can empower educators to bridge the digital divide and enhance student engagement.

References

[1] Ball, L., & Levy, M. (2015). Teaching with corpora: State of the art and future directions. *Language Learning & Technology, 19*(3), 98–112.

[2] Boulton, A., & Cobb, T. (2017). Corpus use in language teacher education. *Language Learning & Technology, 21*(3), 198–220.

[3] Burston, J. (2015). Twenty years of MALL project implementation: A meta-analysis of learning outcomes. *ReCALL, 27*(1), 4–20. https://doi.org/10.1017/S0958344014000159

[4] Chapelle, C. A. (2003). *English language learning and technology: Lectures on applied linguistics in the age of information and communication technology*. John Benjamins.

[5] Chen, C.-M., & Chung, C.-J. (2008). Personalized mobile English vocabulary learning system based on item response theory and learning memory cycle. *Computers & Education, 51*(2), 624–645. https://doi.org/10.1016/j.compedu.2007.08.004

[6] Dudeney, G., & Hockly, N. (2012). *How to teach English with technology*. Pearson.

[7] Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education, 42*(3), 255–284. https://doi.org/10.1080/15391523.2010.10782551

[8] Godwin-Jones, R. (2018). Using mobile tech to develop language skills and cultural understanding. *Language Learning & Technology, 22*(3), 1–17.

[9] Gurung, B. (2019). AI writing tools in higher education: A critical review. *Journal of Educational Technology Systems, 47*(4), 509–528. https://doi.org/10.1177/0047239519864723

[10] Guskey, T. R. (2002). Professional development and teacher change. *Teachers and Teaching: Theory and Practice, 8*(3), 381–391. https://doi.org/10.1080/135406002100000512

[11] Hubbard, P., & Levy, M. (Eds.). (2006). *Teacher education in CALL*. John Benjamins.

[12] Keller, J. M. (2010). *Motivational design for learning and performance: The ARCS model approach*. Springer.

[13] Kukulska-Hulme, A. (2012). Language learning defined by time and place: A framework for next generation designs. In M. Thomas, H. Reinders, & M. Warschauer (Eds.), *Contemporary computer-assisted language learning* (pp. 62–78). Bloomsbury.

[14] Macaro, E. (2021). *English medium instruction: Content and language in policy and practice*. Oxford University Press.

[15] Norton, B. (2013). *Identity and language learning: Extending the conversation* (2nd ed.). Multilingual Matters.

[16] Polat, N., & Kim, D.-J. (2004). Internet-based language learning: A meta-analysis. *Journal of Distance Education, 19*(2), 71–114.

[17] Reinders, H., & Pegrum, M. (2018). *Innovations in learning technologies for English language teaching*. Palgrave Macmillan.

[18] Smith, J., & Lee, M. (2021). AI writing assistants and student autonomy: A mixed-methods study in tertiary EAP classrooms. *Journal of English for Academic Purposes, 50*, 100944. https://doi.org/10.1016/j.jeap.2021.100944

[19] Thomas, M. (2011). Digital technologies, language learning, and pedagogy: The state of the field. *Language Learning & Technology, 15*(3), 1–12.

[20] Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences, 39*(2), 273–315. https://doi.org/10.1111/j.1540-5915.2008.00192.x

[21] Warschauer, M., & Healey, D. (1998). Computers and language learning: An overview. *Language Teaching, 31*(2), 57–71. https://doi.org/10.1017/S0261444800012970

[22] Zulfukar, A. (2025). *Using AI tools for manuscript writing: A case study at Nile Valley University* (ISBN: 0-3-8463-9922-978). https://sites.google.com/view/kandiqraa/research-studies

Appendices

Appendix A

Structured Interview

1.Can you briefly describe your experience teaching English at Nile Valley University prior to the AI-focused PD?

2.How would you characterize your familiarity with educational technology before the workshops began?

3.What motivated you to enroll in the AI-integration PD program?

4.What were your initial expectations about using AI tools in your classroom?

5. How clearly were the objectives of the PD program communicated to you at the outset?

6. In what ways did the workshop content align with your teaching needs and context?

7.Can you walk me through your first hands-on experience with an AI writing assistant during the PD?

8.How did you feel about experimenting with pronunciation apps in a lab setting?

9.What aspects of the adaptive vocabulary platform training stood out as most useful?

10.How did the combination of mini-lectures and live demonstrations affect your learning?

11.Describe any moments during the workshops when you felt particularly confident—or uncertain—about using AI tools.

12. After each session, what follow-up materials (tutorial videos, guides) did you find most helpful?

13.How did continuous peer mentoring influence your willingness to try new AI-driven activities?

14.Can you share an example of an AI-enhanced lesson you designed post-PD?

15.What student responses did you observe when you introduced AI writing feedback?

16. How did pronunciation apps change the dynamic of your speaking labs?

17. In what ways did adaptive quizzes inform your subsequent lesson planning?

18. Describe a day when internet connectivity hindered your planned use of an AI tool. How did you adapt?

19. How have large class sizes affected your ability to offer individualized AI support?

20. Which institutional resources (or lack thereof) have most impacted your AI integration efforts?

21. How has your confidence in selecting and deploying AI tools changed since the PD program?

22. What barriers—technical, pedagogical, or logistical—remain most pressing for you?

23. Which enablers (e.g., mentoring, video tutorials) do you consider indispensable for sustained AI use?

24. How do you balance AI-driven activities with traditional teaching methods in a single lesson?

25. In your view, what ethical or equity concerns arise when using AI tools in our context?

26. What role do you see AI playing in student assessment and feedback moving forward?

27. How might the Faculty of Education institutionalize ongoing AI-focused PD for new and existing staff?

28. What additional support or training would help you deepen your AI integration?

29. Reflecting on your journey, how has this PD changed your perspective on technology's role in language teaching?

30. What advice would you offer colleagues at other Sudanese universities interested in a similar PD initiative?