



The EFL Teacher as a Future-Skills Designer: Pedagogical Roles in an AI-Mediated Knowledge Economy

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Abstract

This study investigates EFL teachers' perspectives on their emerging pedagogical role as future-skills designers in an AI-mediated knowledge economy. As artificial intelligence reshapes how knowledge is accessed, produced, evaluated, and communicated, English language classrooms are increasingly expected to move beyond linguistic accuracy and support learners' autonomy, collaboration, digital communication, critical thinking, and responsible engagement with AI-supported tools [1], [2]. This shift is aligned with future-oriented education frameworks that emphasize student agency, co-agency, lifelong learning, and the development of knowledge, skills, attitudes, and values needed for uncertain futures [3]. A total of 220 responses were analysed using frequencies, percentages, means, and standard deviations, while open-ended responses were examined through qualitative content analysis. Teachers strongly endorsed their expanded role as future-skills designers ($M = 4.35$). Their reported practices were strongest in promoting learner agency and collaboration but less consistent in fostering critical thinking and responsible AI use ($M = 3.74$). Curriculum pressure emerged as the most substantial barrier, while the strongest professional-development needs involved evaluating AI-generated information, redesigning assessment, and addressing ethical issues. Open-ended responses highlighted the importance of critical AI literacy, practical training, clear institutional guidance, and classroom tasks that integrate language learning with problem-solving and evaluation. The findings contribute to discussions on teacher professional development by reframing the EFL teacher's role from a language instructor to a designer of learning environments that foster learner agency, collaboration, digital competence, and responsible participation in the knowledge economy [1], [3], [4].

Keywords: EFL teachers, future skills, AI-mediated learning, knowledge economy, teacher professional development, student agency, learner autonomy, digital communication, collaboration

1. Introduction

Generative artificial intelligence (AI) raises new questions about what EFL teachers need to know and how they design language-learning experiences. UNESCO's AI competency framework situates teachers' preparation within a human-centred approach that connects technological understanding with ethical and pedagogical judgement [1]. Its guidance on generative AI similarly calls for educational uses that protect human agency and are evaluated for their educational suitability [2]. These perspectives invite consideration of how English language teaching can support learners' informed participation in environments where AI contributes to the production and communication of knowledge.

In this study, an AI-mediated knowledge economy refers to a context in which work and social participation increasingly depend on people's ability to use knowledge, with AI shaping how that knowledge is produced and applied. Preparing learners for this context requires language education that helps them exercise informed judgement and communicate responsibly. The OECD Learning Compass 2030 provides a relevant foundation by positioning learner agency within a broader understanding of competence that extends beyond academic knowledge [3]. Within language education, Kohnke, Moorhouse and Zou examine the possibilities and limitations of ChatGPT, emphasizing the digital competencies needed to use it effectively and ethically [4].

The term future-skills designer describes an EFL teacher who designs language-learning experiences that enable students to take greater responsibility for their learning. Such experiences encourage learners to develop understanding through collaboration and question the digital resources they encounter. The term serves as a working conceptualisation of the teacher's pedagogical role. Through a descriptive questionnaire study, this research explores how teachers understand that role and how their perspectives relate to their reported classroom practices. It also examines the professional support they consider necessary to meet these expectations. The study focuses on teachers' accounts of their



work without claiming to establish effects on students' learning outcomes. To address the purpose of the study, the following research questions were formulated:

1. How do EFL teachers perceive their emerging role as future-skills designers in an AI-mediated knowledge economy?
2. To what extent do EFL teachers report integrating learner agency, collaboration, digital communication, critical thinking, and responsible AI use into their classroom practices?
3. What barriers and professional-development needs do EFL teachers report in implementing future-skills-oriented and AI-aware pedagogy?

2. Review of Literature

2.1 Future Skills and Learner Agency in EFL Education

Participation in the knowledge economy increasingly requires individuals to engage critically with information and work with others as circumstances change. In their systematic review, van Laar et al. [17] conceptualized twenty-first-century digital skills as extending beyond technical proficiency to the thoughtful and collaborative use of knowledge. Although their framework focuses on knowledge workers, it offers a useful foundation for EFL education when these competencies are embedded in purposeful language tasks. Technology use alone cannot be assumed to develop them. The OECD Learning Compass 2030 places learner agency at the centre of a broader understanding of competence and responsible participation [3]. In EFL classrooms, this perspective encourages teachers to create opportunities for students to influence their learning and reflect on their decisions. Agency and autonomy are closely related but distinct: agency concerns learners' capacity to shape their participation, whereas autonomy involves taking increasing responsibility for managing their learning.

Evidence suggests that teachers' support for autonomy does not always translate into practice. Borg and Alshumaimeri's survey of 359 teachers in a Saudi university English preparatory programme revealed a gap between desirable and feasible forms of autonomy, reflecting constraints within the teaching context [7]. Alrabai's intervention associated autonomy-supportive teaching with increased classroom autonomy, although its small teacher sample and allocation procedures limit causal interpretation [10]. Together, these studies highlight the importance of examining how teaching conditions enable teachers to act on their beliefs.

Digital environments make pedagogical guidance particularly important. Akayoglu et al. [9] showed why familiarity with digital tools should not be equated with purposeful educational use. More recently, Abdelhalim and Almaneea [18] reported greater achievement and autonomy gains among EFL learners engaged in GenAI-supported collaborative projects. These outcomes relate to the integrated instructional approach; they do not establish AI's independent contribution. Such evidence supports examining how teachers design learning experiences that connect digital participation with the development of learner autonomy.

2.2 Artificial Intelligence and Language Teaching

AI-supported language education encompasses technologies with different capabilities and pedagogical implications. Huang et al.'s systematic review of 25 empirical studies identified technological, pedagogical, and social affordances of language-learning chatbots, alongside challenges involving technical limitations, novelty effects, and cognitive load [11]. Because the reviewed literature predates ChatGPT, its findings provide a foundation for understanding conversational technologies but cannot be transferred directly to contemporary generative AI.

Generative AI expands possibilities for producing language-learning materials, supporting interaction, and providing feedback. Kohnke et al. [4] discuss ChatGPT's affordances and drawbacks and the competencies required for effective and ethical use. Their technology review is valuable for identifying pedagogical possibilities, but it does not itself demonstrate improvements in language proficiency, autonomy, or critical thinking. Evaluating AI integration consequently requires attention to learning objectives, task structure, learner contributions, and the quality of generated content.

UNESCO's guidance emphasizes a human-centred approach, including attention to privacy, ethical responsibility, and pedagogical suitability [2]. These concerns extend beyond checking whether an answer is factually correct. Lee et al. [19] explain how bias can arise throughout the life cycle of large language models and why evaluating generated educational text requires contextual judgment. For EFL instruction, this framework supports examining whose linguistic and cultural perspectives are



represented and whether generated materials are appropriate for particular learners. This is a pedagogical application of the framework, rather than a reported finding about EFL classrooms.

Teachers' perspectives are especially important in this evaluation. Zawacki-Richter et al.'s review of higher-education AI research identified limited educational-theory grounding and critical pedagogical reflection in its 2007–2018 corpus [8]. This historical finding supports attention to educators' roles, although it cannot establish the state of the field in 2026. More recent interviews with university language instructors reveal concerns about preparedness, pedagogical competence, and support for generative-AI integration [13]. Meanwhile, classroom research on collaborative projects illustrates the potential value of embedding AI within structured learning environments [18]. Across these sources, the central question becomes how teachers organize, evaluate, and mediate AI use in relation to learning purposes.

2.3 Teacher Competencies and Professional Learning

Designing future-oriented EFL learning environments requires competencies that combine technological understanding with pedagogical judgment. DigCompEdu provides a broad reference for educators' digital competence and professional-development needs [20]. UNESCO's AI competency framework extends this discussion through five dimensions: a human-centred mindset, AI ethics, AI foundations and applications, AI pedagogy, and AI for professional learning [1]. These frameworks offer complementary organizing principles, but they describe expected competencies rather than establish teachers' actual proficiency.

Empirical research helps explain how preparedness is experienced. Park and Son's interviews with six pre-service EFL teachers examined readiness for computer-assisted language learning through technology experience, self-efficacy, acceptance, and teacher education [12]. In a generative-AI context, Kohnke et al. [13] explored the preparedness of 12 university language instructors, identifying issues involving familiarity, confidence, competencies, and professional support. A subsequent study of 15 pre-service teachers also identified perceived benefits alongside concerns about overreliance, privacy, bias, and insufficient preparation [15]. The latter study provides broader teacher-education evidence; an exclusively EFL sample is not established in its abstract.

Intervention studies provide more direct evidence for professional-learning design. Lee and Jeon [14] examined a chatbot-integrated project involving lesson planning, microteaching, and reflection with 21 pre-service EFL teachers. Their work connects technological pedagogical content knowledge with the practical work of designing instruction. Moorhouse et al. [21] similarly investigated an eleven-week course involving 54 M.Ed students. They reported stronger evidence of development in pedagogical competence and critical awareness than in teachers' capacity to guide learners' effective and responsible AI use. This uneven development indicates the importance of examining which competencies a training programme explicitly addresses.

Huang et al. [22] reported improvements in questionnaire-measured GenAI literacy following a twelve-week intervention with experimental and control groups. These findings support structured preparation while retaining a distinction between measured perceptions or knowledge and sustained classroom performance. Professional learning can also involve collaborative design: Voogt et al.'s synthesis connects teachers' participation in curriculum-design teams with professional learning and curriculum implementation [5]. Taken together, these studies support examining training needs through concrete activities such as evaluating AI outputs, designing language tasks, planning assessment, and guiding responsible learner participation.

2.4 Conceptual Synthesis and Focus of the Study

The concept of teachers as designers has an established pedagogical foundation. Paniagua and Istance [6] position teachers as designers of learning environments, emphasizing their role in selecting and combining pedagogical approaches. Accordingly, "future-skills designer" is used here as a working synthesis that brings this design perspective into dialogue with learner agency, digital collaboration, and responsible AI use.

Collaborative writing offers a concrete illustration. Zhang et al.'s review of 42 studies identified implementation practices involving student grouping, preparation for collaboration and technology use, monitoring, autonomy, feedback, and reflection [23]. These practices demonstrate that providing a shared digital tool is only one component of instructional design. Teachers also organize participation and establish the conditions under which learners can communicate, negotiate meaning, and share responsibility.



Recent research extends this perspective to AI-supported professional roles. Tümen Akyıldız [16] examines professional identity among pre-service and in-service EFL teachers, drawing attention to pedagogical mediation, AI literacy, and professional legitimacy. Ansaree and Uddin [24], through interviews with ten Bangladeshi university English instructors, examine the adaptation of AI-generated materials and the constraints associated with institutional policy, resources, and AI literacy. These studies illuminate teachers' interpretations and decisions; they do not independently establish learner outcomes or universal changes in professional identity.

The literature therefore provides complementary conceptual, perceptual, and intervention-based evidence. Frameworks clarify desired competencies, teacher studies reveal beliefs and constraints, and classroom or training interventions examine particular forms of implementation. Building on these strands, the present study investigates how EFL teachers understand future skills, describe their support for learner agency and collaboration, and identify the opportunities and demands of AI-aware teaching. Its contribution is a context-specific account of the relationship between teachers' stated priorities, reported practices, and professional-development needs.

3. Methodology

3.1 Research Design and Participants

The study employed a cross-sectional descriptive survey design to examine EFL teachers' perceptions and self-reported practices. Participants were recruited through convenience and snowball sampling by distributing an online questionnaire through professional networks. The dataset contained 227 submissions. Seven respondents declined consent and were excluded, leaving 220 eligible responses. Participants taught in public schools, private schools, universities or colleges, and higher institutes across 12 countries. The sample included teachers with varied qualifications, teaching experience, learner levels, and modes of delivery.

3.2 Instrument and Data Collection

The researcher-developed questionnaire was informed by the OECD Learning Compass 2030 [3], UNESCO's AI competency framework for teachers [1], its guidance on generative AI [2], and relevant EFL and educational-technology literature. It contained professional-background questions, 30 five-point scale items, and three optional open-ended questions. The scale items addressed six dimensions: the teacher's future-skills role, student agency and learner autonomy, collaboration and digital communication, critical thinking and responsible AI use, implementation barriers, and professional-development needs. The response anchors were matched to each section and measured agreement, frequency, perceived barriers, or degree of need. Specialists in EFL, curriculum, and educational technology reviewed the instrument for relevance and clarity before distribution. Participation was voluntary, respondents were instructed not to provide names or email addresses, and only responses accompanied by consent were analysed.

3.3 Data Analysis

Closed-ended responses were coded from 1 to 5 and analysed using frequencies, percentages, means, and standard deviations. Composite means were calculated for the six questionnaire dimensions. The three open-ended questions were analysed through qualitative content analysis. Blank entries and responses consisting only of punctuation were removed. The remaining responses were read repeatedly, assigned concise descriptive codes, and grouped into recurring categories concerning pedagogical change, required support, and examples of future-oriented classroom activity. The qualitative findings were used to clarify and extend the descriptive survey patterns rather than to establish prevalence across the full sample.

4. Results

4.1 Participants

The dataset contained 227 submissions. Seven respondents did not provide consent and were excluded, leaving 220 responses for analysis. Participants represented public schools (32.7%), private



schools (31.4%), universities or colleges (30.5%), and higher institutes (5.5%). Most respondents were female (61.8%), and 47.7% were teaching in Saudi Arabia. The remaining participants represented 11 other countries. Most teachers (83.6%) had at least six years of teaching experience, while 62.7% held a postgraduate degree.

Although 64.5% had received formal training in educational technology, only 25.0% had received formal training in using AI for teaching. Nevertheless, 70.0% reported using AI-supported tools often or very often, and a further 20.5% used them sometimes.

4.2 Teachers' Perceptions and Reported Practices

Teachers expressed strong recognition of their emerging future-skills role ($M = 4.35$, $SD = 0.91$). Between 90.0% and 95.0% agreed or strongly agreed with the four statements in this section. The strongest agreement concerned the need to reconsider the design of learning activities and assessments in response to AI ($M = 4.40$).

Reported classroom practices were positive but less consistent than teachers' beliefs. Student agency and learner autonomy received a mean of 4.00 ($SD = 0.65$), while collaboration and digital communication received a mean of 3.96 ($SD = 0.52$). The most frequently reported practices were asking students to monitor their learning progress ($M = 4.21$) and using tasks that required students to work toward a shared outcome ($M = 4.15$).

Critical thinking and responsible AI practices produced the lowest practice mean ($M = 3.74$, $SD = 0.89$). In particular, 49.5% of respondents often or always taught students to acknowledge their use of AI, while 54.5% frequently required students to revise, justify, or improve AI-generated responses. These findings suggest a possible gap between teachers' strong recognition of their future-oriented role and their consistent implementation of responsible AI practices.

Table 1. Summary of Descriptive Results

Dimension	Mean	SD	Selected finding
Future-skills role	4.35	0.91	90.0–95.0% agreed with the four statements
Student agency and autonomy	4.00	0.65	84.5% frequently promoted self-monitoring
Collaboration and digital communication	3.96	0.52	95.0% frequently used shared-outcome tasks
Critical thinking and responsible AI use	3.74	0.89	AI acknowledgement and output revision were less consistent
Implementation barriers	3.25	0.75	Curriculum pressure was the strongest barrier
Professional development needs	3.90	0.73	Strongest needs concerned evaluation and assessment

Note. All dimensions were measured on five-point scales, although the scale anchors differed by questionnaire section.

4.3 Barriers and Professional Development Needs

Teachers perceived moderate barriers to implementing future-skills-oriented and AI-aware pedagogy ($M = 3.25$, $SD = 0.75$). Pressure to complete the prescribed curriculum was the most substantial barrier ($M = 3.70$), with 70.0% rating it as considerable or major. Unclear institutional policies concerning acceptable AI use followed ($M = 3.38$), while insufficient task-design time received a mean of 3.23.

Professional development needs were comparatively high ($M = 3.90$, $SD = 0.73$). The strongest needs concerned teaching students to evaluate AI-generated information critically ($M = 4.00$) and designing assessments suitable for AI-mediated learning ($M = 4.00$). Teachers also reported substantial need for support related to authorship, privacy, academic integrity, and other ethical issues ($M = 3.98$).

4.4 Open-Ended Responses

After blank entries and punctuation-only responses were removed, 65 substantive responses remained for the first open-ended question, 40 for the second, and 32 for the classroom-activity question. The responses indicated that teachers viewed critical AI literacy as the most important educational change. Participants emphasized helping students verify AI-generated information, recognize its limitations, and use it ethically rather than copying its output without evaluation. Several respondents also described a shift from teacher-directed instruction toward facilitation, learner decision-making, and student-centred task design.



Teachers' professional development requests centred on practical workshops for using AI in language instruction, guidance for designing AI-aware assessments, and clear institutional policies governing ethical use. They also identified the need for reliable internet access, appropriate digital tools, ready-to-use teaching resources, and mentoring from experienced colleagues.

Suggested classroom activities commonly combined AI use with problem solving, collaborative discussion, information verification, and oral or written presentation. Examples included evaluating AI-generated writing, checking fabricated references, designing solutions to real-life problems, practising pronunciation with AI-generated models, and creating digital travel plans. Collectively, these responses reinforced the quantitative finding that teachers recognised the value of AI-aware pedagogy but required practical and institutional support to implement it responsibly.

5. Discussion

This study examined how EFL teachers perceived their emerging role as future-skills designers, the extent to which their reported practices reflected this role, and the challenges and professional development needs associated with AI-aware pedagogy. The findings showed that teachers strongly recognised that EFL education should extend beyond language proficiency. Most participants agreed that they were responsible for preparing learners for changing academic and professional environments and that the spread of AI required reconsideration of learning activities and assessment. This perspective supports the OECD Learning Compass 2030, which positions student agency, co-agency, and the integration of knowledge, skills, attitudes, and values as central to education for uncertain futures [3].

Despite this strong recognition, the reported practices revealed differences across the dimensions examined. Teachers frequently promoted learner autonomy and collaboration, particularly through self-monitoring, independent decision-making, and tasks requiring shared outcomes. These findings suggest that future-oriented pedagogy is already partly reflected in EFL classrooms. Collaborative language tasks may be especially suitable for this purpose because they allow students to develop communication skills while negotiating ideas, assuming responsibility, and working toward common goals.

Critical thinking and responsible AI use, however, received the lowest mean among the reported practice dimensions. Teachers were less consistent in asking students to acknowledge AI use or revise and justify AI-generated responses. This distinction indicates a possible belief–practice gap: teachers recognised the educational importance of AI but appeared less prepared to translate that recognition into systematic classroom and assessment practices. This interpretation is also supported by the contrast between AI use and AI-related preparation. Although most participants used AI-supported tools at least sometimes, only one quarter had received formal training in using AI for teaching. Teachers may therefore be adopting these tools through personal experimentation without sufficient pedagogical or ethical guidance.

The findings align with UNESCO's view that effective AI integration requires more than technical familiarity. Teachers also need the pedagogical and ethical competence to evaluate tools, guide students' use, protect human agency, and redesign assessment [1], [2]. Similarly, the reported use of AI tools does not necessarily demonstrate readiness to address inaccurate information, inappropriate dependence, authorship, or academic integrity. Kohnke et al. [4] noted the potential of generative AI to support language learning while emphasising the need for careful task design and critical evaluation. The present findings extend this argument by showing that EFL teachers may need support in moving from general AI use toward intentionally designed AI-aware learning.

The barriers reported by the participants indicate that this transition cannot depend solely on individual teachers. Pressure to complete the prescribed curriculum emerged as the strongest constraint, followed by unclear institutional policies and insufficient task-design time. These findings suggest that teachers may value future skills but struggle to integrate them when curricula prioritise content coverage or when expectations concerning acceptable AI use remain uncertain. Institutional policies should therefore clarify how AI may be used in teaching and assessment while allowing teachers sufficient flexibility to design activities that develop language and future skills together.

Participants' professional development priorities further clarify the support required. The strongest needs concerned teaching students to evaluate AI-generated information, designing assessment for AI-mediated learning, and addressing authorship, privacy, and academic integrity. Professional development should therefore move beyond introductory demonstrations of AI tools. Teachers need practical workshops in which they design, implement, and evaluate EFL tasks that require students to question AI output, verify information, explain their decisions, and acknowledge the assistance they



received. Mentoring, adaptable lesson templates, reliable digital infrastructure, and access to appropriate tools could further support classroom implementation.

The open-ended responses reinforced this interpretation. Teachers proposed problem-solving projects, collaborative evaluation of AI-generated content, source-verification activities, pronunciation practice, digital travel planning, and critical review of AI-generated writing. These examples illustrate the emerging role of the EFL teacher as a designer of learning environments rather than only a transmitter of linguistic knowledge. In this role, teachers select meaningful problems, structure collaboration, guide evaluation, and establish ethical conditions for AI use while maintaining language development as the central learning objective.

The findings should be interpreted in light of several limitations. Convenience and snowball sampling limit the generalisability of the results, while the multinational sample represents varied educational systems and institutional conditions. The study also relied on self-reported practices, which may differ from actual classroom behaviour. In addition, participation in the open-ended questions was limited. Future research could combine questionnaires with interviews, classroom observations, or analysis of teacher-designed tasks. Comparisons across sectors, countries, and levels of AI training may also provide a clearer understanding of the conditions influencing AI-aware EFL pedagogy.

6. Conclusion

The study indicates that EFL teachers broadly accept an expanded professional role in preparing learners for an AI-mediated knowledge economy. They reported frequent use of practices supporting autonomy and collaboration, but responsible AI practices were less consistently integrated. The findings therefore suggest that recognising the importance of future skills is not sufficient by itself. Teachers also require practical training, clear institutional policies, appropriate assessment models, adequate design time, and access to relevant resources.

Reframing the EFL teacher as a future-skills designer does not reduce the importance of language instruction. Instead, it positions language learning within authentic environments in which students use English to collaborate, solve problems, evaluate information, communicate digitally, and make responsible decisions about AI-generated content. With appropriate professional and institutional support, EFL classrooms can contribute to both language development and learners' responsible participation in an increasingly AI-mediated knowledge economy.

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