

Harnessing Generative AI for Developing ELT Materials: Striking a Balance Between Innovation and Ethical Use

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Abstract

Developing high-quality English language teaching (ELT) materials, particularly in ESL and EFL contexts, presents significant challenges. Teachers often face obstacles such as ensuring cultural relevance, addressing diverse learner needs, and aligning assessments with standards, all while managing limited resources and time constraints. Generative artificial intelligence (AI) offers a promising solution by streamlining the development process and enabling the creation of adaptable, inclusive ELT materials. This paper explores how generative AI can be leveraged to develop ELT materials for ESL or EFL students, specifically examining its role in facilitating materials development. The discussion primarily focuses on how ChatGPT can be used to refine learning objectives, support differentiated instruction, and assist with brainstorming, as well as help source multimodal texts, generate sample images, refine assessments, and provide automated feedback. Other AI tools, such as StoryToolz and Grammarly, are also explored for their supplementary role in adjusting text complexity and editing materials for clarity, precision, and linguistic accuracy. Despite the efficiency generative AI introduces, challenges may arise from the lack of human nuance, potential bias, and inaccuracies in AI-generated content. As such, human oversight remains crucial to ensure ethical practices and cultural relevance. This paper concludes with reflections on these insights and recommendations for future pedagogical directions, emphasizing the importance of equipping language teachers with AI literacy and balancing technological innovation with ethical responsibility.

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1 Introduction

English language teaching (ELT) materials, such as textbooks and lesson plans, are crucial components of language pedagogy. They provide structured content and enriching learning experiences (Tomlinson, 2023), ensure consistency in instruction by aligning with curriculum goals and proficiency standards across diverse contexts (Garton & Graves, 2014), and expose learners to authentic language use that promotes contextualized language learning (Gilmore, 2019). For language teachers, they offer valuable support, including pedagogical strategies, lesson plans, and assessments, which improve instructional effectiveness (Tomlinson, 2023). By incorporating activities that address various learning styles—visual, auditory, and kinesthetic—ELT materials cater to diverse student needs (Lee, 2015; Tomlinson, 2023). Furthermore, these materials introduce cultural contexts, promoting both language proficiency and intercultural competence (Keles & Yazan, 2023).

While the benefits of ELT materials are well-established, their development is not without challenges. Teachers often struggle to align content with national curriculum standards while also ensuring that the materials are engaging and relevant to their students (Bhutto et al., 2022). These challenges are especially pronounced in resource-limited educational environments, where time and material constraints inhibit the development of high-quality resources (Sukyng & Barrot, 2025). Personalization and differentiation for diverse learner groups, critical for effective teaching, remain difficult to achieve (Mishan, 2022). Toledo-Sandoval (2020) noted that ELT textbooks lack cultural representation and that teachers struggle to localize their content. In terms of creating these materials, teachers and developers face difficulties in selecting accurate and relevant content, sequencing activities based on complexity, designing and laying out the materials, obtaining rich resources, incorporating different learning styles, selecting materials appropriate for target learners, and getting immediate feedback during the actual development (Barrot, 2019; McGrath, 2016; Rahman, 2023; Tomlinson, 2023). Additionally, many language teachers, especially those new to the profession, may lack the expertise required to develop high-quality ELT materials (Mukundan, 2022).

Current technologies are reshaping the way ELT materials are developed, making it easier for teachers to create adaptable and personalized content. These technologies not only streamline the creation of instructional materials but also facilitate updates and revisions, ensuring that content remains relevant in an ever-evolving educational landscape. One of these technologies is generative artificial intelligence (AI), which can analyze vast amounts of data, generate personalized feedback, assist in the creation of adaptive learning materials, and hold immense potential for language teaching (Jo, 2023). This is particularly evident in the development of ELT materials, where careful alignment with curriculum standards, cultural sensitivity, and adaptability to various learning styles and proficiency levels are crucial. However, despite these advancements, the use of AI raises important ethical questions, including concerns over data privacy, algorithmic bias, and the need to preserve the human element in teaching (Fui-Hoon Nah et al., 2023; Michel-Villarreal et al., 2023). Addressing these ethical challenges is essential to ensure that AI is

used responsibly in educational contexts. In light of the growing impact of generative AI on ELT materials development, this paper explores how this technology can be harnessed to innovate the development process while maintaining ethical standards. It presents an overview of the affordances of ChatGPT as a tool for both language learning and teaching, followed by a detailed description of integrating generative AI and other AI tools into the development process. The paper concludes with reflections and insights into future pedagogical and research directions.

2 ChatGPT for language learning and teaching

2.1 Overview of ChatGPT and its capabilities

ChatGPT, developed by OpenAI, is a state-of-the-art language model that employs deep learning techniques to generate human-like text based on the input it receives (OpenAI, 2024a). Built upon the large language model architecture, ChatGPT is capable of processing and producing natural language across a wide range of contexts, making it a versatile tool for text-based communication, content generation, and problem-solving. The model is trained on vast datasets, allowing it to respond to prompts with coherent and contextually relevant answers, simulate conversations, and perform tasks such as summarization, translation, and content drafting. Its ability to engage in interactive dialogue and adapt to various user inputs has made ChatGPT a prominent example of how artificial intelligence can augment human communication. As a tool in education, ChatGPT offers transformative potential due to its accessibility, scalability, and capacity for personalized interaction (Glaser, 2023).

2.2 Evolution of ChatGPT versions

The development of ChatGPT has introduced four distinct versions, each representing a significant advancement in the model's capabilities (OpenAI, 2024b). ChatGPT 3.5 Legacy served as the foundational iteration, employing the GPT-3.5 architecture for tasks such as text generation and translation, though it exhibited slower performance due to the extensive text processing. ChatGPT 3.5 Default represents an enhanced variant of GPT-3.5, offering improved accuracy with slightly reduced precision compared to the Legacy version. ChatGPT-4, available through the ChatGPT Plus subscription, introduced notable advancements in both speed and accuracy, surpassing its predecessors. The ChatGPT-4o model, characterized by its "Omni" capability, integrates the processing of text, images, audio, and video, featuring advanced memory functions that improve learning from previous interactions. ChatGPT 4o Mini provides a cost-effective and efficient alternative to GPT-4o, demonstrating superior performance in both textual and multimodal reasoning tasks and supporting diverse applications such as real-time customer support and data extraction.

Recently, OpenAI released GPT-5 (August 2025), which is now the default model in ChatGPT. GPT-5 consolidates ChatGPT into a unified, auto-switching system and reports markedly higher reliability (e.g., ~45% fewer factual errors than GPT-4o, with further gains when "thinking" is enabled) and an expanded effective context window in GPT-5 Thinking (up to ~196k tokens). For ELT materials development, these changes chiefly affect the feasibility of longer, integrated prompt sequences (e.g., multi-stage lesson packets), cross-lingual planning/evaluation, and the amount of post-editing needed due to reduced hallucination rates. While the recommendations in this paper remain model-agnostic, acknowledging GPT-5 maintains the paper's currency and alerts practitioners to rapidly improving affordances.

2.3 Applications of ChatGPT in language learning

In the language learning context, ChatGPT has emerged as a promising tool for enhancing students' proficiency and engagement with language in both written and spoken forms (Barrot, 2024; Law, 2024). One of the key strengths of ChatGPT is its ability to provide learners with real-time feedback on their language use, offering corrective suggestions for grammar, syntax, and vocabulary. This form of feedback can help learners identify and correct their errors, which is essential for language acquisition (Barrot, 2023; Su et al., 2023). Moreover, ChatGPT can simulate conversational practice by engaging learners in interactive dialogues that mimic real-world communication scenarios. This provides learners with opportunities to practice language in a low-stakes environment, fostering both fluency and confidence (Agustini, 2023; Bin-Hady et al., 2023). The model's capacity to adjust its responses based on the learner's proficiency level also ensures that learners receive input that is appropriately challenging. Furthermore, ChatGPT can assist with writing exercises by providing scaffolding for composition tasks, helping learners generate ideas, organize their thoughts, and refine their written output (Barrot, 2023). These features position ChatGPT as a valuable tool for language learners seeking individualized practice and feedback.

2.4 Applications of ChatGPT in language teaching

From a teaching perspective, ChatGPT offers several innovative applications that can augment traditional instructional practices. ChatGPT can help teachers reflect on and recalibrate their teaching practices and systematically integrate ChatGPT into the critical stages of instructional delivery (Barrot, 2024; Ji et al., 2023). Teachers can also use this AI tool to create customized strategies tailored to the specific needs of their learners, adjusting content to align with different proficiency levels or thematic focuses. ChatGPT's ability to simulate different registers of language makes it a useful tool for creating diverse linguistic inputs, exposing learners to formal, informal, and specialized language styles (Wang et al., 2024). Beyond materials development, ChatGPT can serve as an adaptive tool for formative assessment by generating personalized feedback for students (Barrot, 2023; Su et al., 2023). This functionality allows teachers to offer immediate, targeted feedback, which can enhance the learning process by addressing specific areas of need. Finally, ChatGPT can provide administrative support by assisting teachers with scheduling, grading, and managing classroom tasks (Ji et al., 2023).

3 Integrating generative AI into ELT materials development

3.1 Rationale for innovation

Integrating generative AI into the development of ELT materials may be motivated by several challenges that language teachers must carefully navigate. These challenges span pedagogical, practical, and contextual dimensions. The following subsections outline the major hurdles that generative AI has the potential to address.

3.1.1 Selecting accurate and culturally relevant content

One of the first challenges is selecting accurate and relevant content, which requires balancing instructional objectives with learners' needs, linguistic proficiency, and cultural relevance. Teachers must sift through vast amounts of information, selecting only the most pertinent topics while avoiding potentially biased or inappropriate content. A failure to do so may result in content that either confuses or alienates learners, ultimately hindering their language acquisition process. As Tomlinson (2023) posits, ELT materials must not only align with pedagogical goals but also resonate with learners' backgrounds and experiences to ensure effective learning outcomes.

3.1.2 Sequencing activities based on complexity

Another important challenge is sequencing activities based on complexity, as this demands careful consideration of learners' developmental stages and cognitive load (Sukyng & Barrot, 2025). Activities that are too advanced can overwhelm learners, while those that are too simplistic may fail to engage them meaningfully. Effective sequencing involves a gradual increase in difficulty that allows learners to build on prior knowledge and skills. Mishandling this progression risks creating cognitive overload, which impairs retention and engagement.

3.1.3 Designing functional and aesthetically engaging materials

Designing and laying out the materials is also a crucial concern in ELT materials development (Roberts et al., 2020). It involves not only creating an aesthetically appealing design but also ensuring functionality that enhances learning. The design should facilitate ease of use and guide learners' attention to key information, while an improper layout can create confusion and impede comprehension. Effective materials consider typographical choices, spacing, and visual elements to support learning processes. Behnke (2018) suggests that when materials are designed without regard to these factors, learners may struggle with navigation and engagement, thus diminishing their learning experience.

3.1.4 Accessing rich and up-to-date resources

Obtaining rich and relevant resources for ELT materials development can be particularly challenging, especially in contexts where access to quality resources is limited (Rahman, 2023). Language teachers must curate materials that reflect contemporary language usage and cultural contexts, often navigating paywalls, intellectual property concerns, and outdated resources. Failure to source diverse and up-to-date materials may result in instruction that is disconnected from real-world language use, as pointed out by Gilmore (2019). Thus, securing appropriate and rich resources is not just an administrative task but a pedagogical imperative for creating engaging and authentic learning experiences.

3.1.5 Addressing diverse learning styles and learner characteristics

Another significant challenge involves incorporating different learning styles into ELT materials development. Language teachers must cater to a diverse group of learners, each with unique preferences and cognitive tendencies (Kırkgöz, 2010). Some learners may excel through visual aids, while others benefit from kinesthetic activities or auditory input. Understanding learners' specific language proficiency, age, and cultural background is also important. Materials that are too advanced can alienate learners, while those that are too simplistic may bore them. McDonough et al. (2013) and Gardner (1999) suggest that misalignment between the materials and the learners' characteristics and learning style can impede learning and may result in learners' disengagement or frustration.

3.1.6 Lack of immediate feedback in the development process

Obtaining immediate feedback during the actual development of ELT materials is also a critical issue. Due to logistical constraints such as time limitations and a lack of reliable feedback loops from both learners and peers, developers often proceed with materials that are ineffective or problematic. Continuous feedback is essential for identifying areas of improvement and ensuring that ELT materials remain relevant and functional. According to Richards (2014) and Harmer (2007), immediate feedback mechanisms are crucial for adaptive material design, yet many materials developers operate in environments that do not support such real-time interaction.

3.1.7 Insufficient expertise among novice teachers

Finally, many language teachers, particularly those new to the profession, may face the challenge of lacking the expertise required to develop high-quality ELT materials (Mukundan, 2022). Materials development often demands a deep understanding

of both pedagogical theory and practical classroom application. Novice teachers may not have sufficient training in instructional design, leading to materials that fail to engage learners or meet educational standards. Richards (2014) argues that professional development in materials creation is crucial, as inexperienced language teachers may otherwise rely on overly prescriptive, generic materials that do not meet the specific needs of their learners.

3.2 The innovation

The innovation primarily involves the use of ChatGPT-4o in developing ELT materials and the prompts provided below. The following sub-sections outline the key applications of this technology in supporting pedagogical design, differentiation, multimodality, assessment, and evaluation.

3.2.1 Clarifying and aligning learning competencies

One key application of this technology lies in its ability to interpret and clarify learning competencies from national English syllabi. By refining and making these competencies more precise, ChatGPT enhances the accuracy with which teachers can implement them. This alignment not only strengthens the foundation for instructional content but also ensures that competencies are consistently and coherently represented across lesson plans. When discrepancies or overlaps emerge within the competencies, ChatGPT assists in grouping related ones to create a more structured and interconnected learning experience. This supports a coherent instructional approach that allows teachers to design lessons that address multiple objectives simultaneously.

Prompt: *Explain the following learning competency: React intelligently and creatively to the text listened to*

ChatGPT Response:

This competency refers to the learner's ability to show understanding of a text they have listened to by responding with thoughtful insights and original ideas. It involves analyzing the content and expressing reactions in creative ways, such as through personal reflections, imaginative interpretations, or artistic outputs.

Fig. 1. Prompt used in clarifying and aligning learning competencies

3.2.2 Supporting differentiated instruction

When it comes to differentiated instruction, ChatGPT offers insights for tailoring lessons to diverse learner needs. The tool suggests varied activities and materials that cater to various learning styles, proficiency levels, and interests, which could facilitate the creation of inclusive learning environments. Adapting instructional content to accommodate the broad spectrum of learner variability promotes equitable access to learning resources. This adaptability also enables students to engage meaningfully with materials that are aligned with their individual learning trajectories, a cornerstone of contemporary pedagogical practices (Blaz, 2016).

Prompt: *Suggest strategies to enhance the lesson's alignment with the principles of differentiated instruction.*

ChatGPT Response:

Here are concrete strategies to help the lesson better reflect differentiated instruction, addressing readiness levels, learning profiles, and student interests:

- *Offer summarized or annotated versions of Daphne and Phoebus or Aeneas and Dido for students who need more support, while allowing others to engage with the full original translations.*
- *Allow students to choose how they demonstrate understanding (e.g., oral retelling, infographic, written reflection, dramatic reenactment).*
- *Let students choose a modern love story or personal experience to compare with classical texts in the Venn diagram or poetry-writing tasks.*
- *Use sentence starters and transition word banks to help struggling writers with cohesion and coherence.*

Fig. 2. Prompt used in supporting differentiated instruction

3.2.3 Facilitating creative brainstorming

During ELT materials development, ChatGPT can facilitate simulated brainstorming by acting as a creative collaborator and providing a range of perspectives that promote innovation (Barrot, 2024; Kipp et al., 2024). This process allows language teachers to explore diverse approaches to content design, resulting in the enhancement of learning materials. By generating a variety of suggestions and creative ideas, ChatGPT assists teachers in transforming traditional materials into dynamic and interactive resources. Language teachers can thus craft lessons that could increase student engagement, motivation, and deeper participation.

Prompt: *How can I make the lesson more engaging?*

ChatGPT Response:

To make the lesson more engaging for Grade 10 students, consider integrating these interactive, student-centered, and tech-enhanced strategies across the lesson flow:

- *Start with an inquiry question or a provocative statement. Ask, "Can love be dangerous?"*
- *Incorporate videos, interactive slides, or online tools. Replace static reading with digital storytelling using Canva, Storybird, or Google Slides.*
- *Let students choose content, product, or process. Allow students to select whether to write, perform, draw, or create a digital artifact as output (e.g., comic strip, poem, video, infographic).*
- *Integrate dynamic group or pair tasks. Use jigsaw activities: assign each group a different text (Ovid, Virgil, Arcillana), then have them teach their section to others.*
- *Link classical themes to contemporary issues. Create prompts like "Compare Daphne's response to Phoebus with modern conversations around consent and boundaries."*

Fig. 3. Prompt used in facilitating creative brainstorming

3.2.4 Simplifying texts and adjusting readability

Ensuring the comprehensibility of materials is another vital function of ChatGPT. By simplifying complex content, this AI tool makes learning resources more comprehensible in order to facilitate better student learning and engagement. This process of text modification allows students of varying proficiency levels to access the same content without being overwhelmed by linguistic complexity. The ability to adjust text complexity helps create a more equitable learning environment where all students can fully participate in the learning process. Aside from ChatGPT, AI tools like StoryToolz also enhance the precision of ELT materials by assessing the readability of selected texts. By matching text difficulty to student capabilities, AI tools prevent texts from being either too challenging or overly simplistic.

Prompt: *Simplify the following text: Daphne, the daughter of a River God was first beloved by Phoebus, the great God of glorious light. 'Twas not a cause of chance but out of Cupid's vengeful spite that she was fated to torment the lord of light. For Phoebus, proud of Python's death, beheld that impish god of Love upon a time when he was bending his diminished bow, and voicing his contempt in anger said: "What, wanton boy, are mighty arms to thee, great weapons suited to the needs of war?"*

ChatGPT Response:

Daphne, the daughter of a river god, was the first to be loved by Phoebus, the powerful god of light. It was not by chance, but because of Cupid's revenge, that she was destined to reject him. Phoebus, proud after killing the serpent Python, once saw Cupid with his tiny bow and mockingly asked, "You foolish boy, what use do you have for such powerful weapons meant for war?"

Fig. 4. Prompt used in simplifying texts and adjusting readability

3.2.5 Creating multimodal learning resources

The integration of ChatGPT and AI tools like DALL-E significantly advances the development of multimodal learning resources by generating visual elements that complement textual content, creating a more holistic learning environment. These visual aids do more than simply support multimodal learning; they foster deeper cognitive processing by aligning with dual coding theory, which suggests that learners retain information more effectively when it is presented through both verbal and visual channels (Sadoski & Paivio, 2013). This multimodal approach enriches the overall learning experience as it bridges abstract concepts with concrete representations. Research highlights that such integration of modalities not only enhances comprehension but also sustains learner engagement by catering to diverse learning preferences and cognitive styles (e.g., McClanahan & Nottingham, 2019; Zhou & Yadav, 2017).

Prompt: *Make an image that reflects the content of the story “Aeneas and Dido” (Part II). Below is the summary of the text.*

ChatGPT Response:



Fig. 5. Prompt used in creating multimodal learning resources

3.2.6 Sourcing supplementary and multimodal texts

Another valuable role of ChatGPT lies in its ability to assist language teachers in sourcing multimodal texts and supplementary online resources. This capability not only expands the range of materials available for instruction but also introduces learners to diverse perspectives and more interactive resources that go beyond the limitations of traditional textbooks. Exposure to such varied materials fosters a richer and more dynamic learning environment, allowing students to engage with content in different formats—visual, auditory, and textual—each enhancing different cognitive pathways (AlShaikh et al., 2024). This diversification of resources could promote a deeper, more critical exploration of the subject matter and encourage learners to draw connections between different sources and contexts. The inclusion of these varied perspectives also helps learners develop a more nuanced and holistic understanding of language and content, as they are encouraged to analyze and synthesize information from a wide array of formats and viewpoints.

Prompt: *Suggest online activities related to pronoun reference. Do not fabricate links.*

ChatGPT Response:

1. Khan Academy – Grammar: Parts of Speech

- Topic: Pronouns and their usage
- Activity: Interactive lessons and practice exercises that cover personal, reflexive, and relative pronouns with a focus on reference and clarity.
- Link: <https://www.khanacademy.org/humanities/grammar/parts-of-speech-the-pronoun>

2. Purdue Online Writing Lab (OWL) – Pronouns

- Topic: Clear pronoun reference
- Activity: Read explanations, do quick practice quizzes, and review common pronoun reference errors.
- Link: https://owl.purdue.edu/owl/general_writing/grammar/pronouns/index.html

3. Grammar Bytes – Pronoun Reference Exercises

- Topic: Vague, ambiguous, and broad pronoun references
- Activity: Online interactive exercises with fun feedback and explanations.
- Link: <https://chompchomp.com/exercises.htm>

Fig. 6. Prompt used in sourcing supplementary and multimodal texts

3.2.7 Providing simulated conversational samples

To promote authentic language learning experiences, teachers can utilize simulated conversations generated through ChatGPT as language samples in ELT materials. This approach reflects a shift toward communicative language teaching, where the focus lies on using language in real-world contexts rather than on isolated grammar exercises (Jones, 2022). These simulated interactions provide learners with exposure to dialogues that mimic natural conversations, incorporating nuances such as idiomatic expressions, turn-taking, and contextualized language use. The inclusion of these language samples reinforces the principle that language acquisition involves not just structural knowledge but also the ability to navigate social and cultural elements embedded in everyday conversations.

Prompt: *Make a 10-line dialogue between two students talking about the life lessons learned from Aeneas and Dido.*

ChatGPT Response:

Lena: I just finished reading about Aeneas and Dido. That ending hit hard.
Marcus: I know, right? Dido's story is so tragic. I think it teaches how unchecked emotions can cloud judgment.
Lena: Yeah, and Aeneas shows how duty sometimes means making heartbreaking choices.
Marcus: True. He didn't want to leave her, but he had a bigger purpose to fulfill.
Lena: It's like he had to choose between love and destiny—and destiny won.
Marcus: Meanwhile, Dido lost everything by holding on too tightly.
Lena: I guess the lesson is to find balance between emotion and reason.
Marcus: And not to let someone else's path define your worth or happiness.
Lena: Exactly. Also, how powerful decisions are—not just for ourselves, but for others too.
Marcus: Aeneas sailed away, but the consequences stayed behind.

Fig. 7. Prompt used in providing simulated conversational samples

3.2.8 Enhancing assessment design and rubrics

Assessment represents a critical area where ChatGPT demonstrates significant value. This tool helps in ensuring that assessment activities align precisely with specified learning outcomes. This alignment is essential for maintaining validity and reliability in assessments, which in turn are crucial for effectively measuring student achievement and informing future instruction (Hasrol et al., 2022; Loughlin et al., 2021). It can also create test items and enhance initially drafted test items to align with the lesson or text content (Shin & Lee, 2023). Furthermore, AI-generated indicators for rubrics introduce greater precision and clarity in assessment. Traditional rubrics often provide broad or generic criteria that may not fully capture the complexity or nuances of certain tasks. ChatGPT can generate highly specific rubric indicators that are closely aligned with the learning objectives and the nature of the assignment. ChatGPT is also particularly useful in creating rubrics for less common or non-traditional activities that lack pre-existing assessment frameworks. It can create custom rubrics that take into account the specific skills and outcomes required by these innovative tasks. Lastly, language teachers can use ChatGPT to adjust the difficulty of assessment tasks to suit the target learners. This adaptation ensures that assessments challenge all learners appropriately without overwhelming or causing undue strain on them.

Prompt: *Evaluate whether the assessment activities match their corresponding learning objectives.*

ChatGPT Response:

To ensure that assessment activities effectively support student learning, it's important to evaluate how well they align with their intended learning objectives. The table below provides a quick evaluation framework that compares specific objectives with corresponding assessments. It helps determine whether each activity appropriately measures the targeted skill or knowledge and explains the reasoning behind the match or mismatch.

Learning Objective	Assessment Activity	Match?	Why / Why Not
Interpret themes in <i>Aeneid</i>	Essay explaining lessons from Aeneas and Dido	✓	Both require interpretation and explanation
Recall events in <i>Book 4</i>	Multiple-choice quiz on plot details	✓	Objective and assessment both focus on recall
Express personal reflection on Dido's fate	Write a journal entry as Dido	✓	The activity allows emotional and reflective expression
Compare Dido and Aeneas's leadership	Label a map of Carthage	✗	The activity doesn't assess comparison or leadership traits

Fig. 8. Prompt used in enhancing assessment design and rubrics

3.2.9 Providing automated evaluation and feedback

ChatGPT can offer immediate feedback on newly developed ELT materials, functioning as a valuable alternative to experienced ELT materials evaluators. Through real-time analysis, ChatGPT evaluates the content's alignment with pedagogical goals, language appropriateness, and learner proficiency levels. It provides detailed insights on various aspects, such as the clarity of instructions, the relevance of exercises, and the suitability of language used for different learning stages. Hence, it supports a more dynamic and iterative materials development process. Though not a replacement for human expertise in terms of deep pedagogical insight and nuanced cultural considerations, ChatGPT offers a highly efficient and accessible alternative.

Prompt: *Carefully read the attached lesson. Evaluate the appropriateness of the assessment activities for Grade 10 students.*

ChatGPT Response:

The assessment activities in the lesson are generally appropriate for Grade 10 learners in terms of cognitive demand, relevance to the learning objectives, and engagement. The tasks require students to analyze texts, identify literary elements (e.g., tone, mood, technique), apply grammar rules, compare texts using Venn diagrams, and write essays or outlines. However, there are a few minor concerns: (1) The quiz bee in the warm-up is heavily content-driven. While motivating, it may prioritize recall over deeper understanding. (2) The rubrics referenced (e.g., Rubric 007, 008) are not included, so it is difficult to fully evaluate the fairness and clarity of assessment standards. (3) Some group activities might overwhelm quieter students or those with limited oral communication skills unless roles and participation are clearly managed by the teacher.

Fig. 9. Prompt used in providing automated evaluation and feedback

This kind of real-time feedback supports teachers in making immediate revisions and adjustments, ultimately improving the pedagogical effectiveness and accessibility of their materials. Other AI-powered editing tools, such as Grammarly, also play a critical role in refining the final version of educational materials by ensuring grammatical accuracy, coherence, and overall quality. This final layer of review contributes to the production of polished, professional-grade educational resources that meet the high expectations of both teachers and learners.

4 Challenges and ethical considerations

The integration of generative AI in developing ELT materials showcases the transformative power of technology in language teaching and learning. AI tools can facilitate the development of quality, personalized, and engaging materials aligned with curricular goals while addressing the diverse needs of learners. Their efficiency and cost-effectiveness make them valuable assets in the materials development process, particularly in resource-constrained settings. However, several challenges and ethical considerations must be addressed as language teachers utilize these tools.

4.1 Limitations in addressing contextual and cultural nuances

One significant challenge lies in the tool's limitations in understanding contextual and cultural nuances, which are critical in ELT. While generative AI can generate grammatically correct language exercises or explanations, it often lacks sensitivity to the cultural and contextual factors that shape language use in diverse settings (Liu, 2025). English, as a global language, involves complex variations, and generative AI may fail to account for these varieties in a manner that reflects authentic usage, especially in contexts where World Englishes or localized variations are prevalent.

4.2 Inaccuracies and oversimplifications

Another challenge involves the reliability of the information produced by generative AI. Since the model generates content based on patterns found in its training data, it can inadvertently produce inaccuracies or oversimplifications (Barrot, 2023; Tyson, 2023). For instance, ELT materials require precise explanations of grammar rules or pronunciation patterns. Generative AI may oversimplify these rules, leading to misleading instructions or misunderstandings. In a field where accuracy and clarity are crucial, this unreliability makes the tool less effective unless carefully monitored by language teachers.

4.3 Misalignment with pedagogical frameworks

Generative AI does not inherently and automatically align its output with pedagogical theories or ELT frameworks, such as task-based language teaching or process-oriented pedagogy. It operates as a linguistic model, not an educational tool grounded in these frameworks. As a result, it produces materials that might not be founded on solid ELT principles. For example, it might focus on grammatical accuracy without fostering the kind of authentic interaction that underpins sociocultural theory or the interaction hypothesis. This concern is particularly relevant for language teachers with a limited theoretical background in ELT. However, generative AI has the capacity to make some adjustments when explicitly instructed to incorporate certain theories and frameworks into the materials.

4.4 Limited support for cognitive and affective engagement

The use of generative AI in ELT also presents challenges in addressing learners' cognitive and affective needs. Effective ELT materials must not only impart language skills but also engage learners on an emotional and cognitive level, facilitating meaningful interaction, critical thinking, and authentic language production. While AI can produce grammatically accurate and structured content, its impersonal nature limits its capacity to connect with learners in ways that stimulate deeper engagement (Matusov et al., 2023). AI-generated materials often lack the emotional resonance and cultural sensitivity that human teachers bring, which are essential for fostering affective learning. This absence of human intuition and empathy can result in a learning experience that feels mechanical. Critical thinking, which thrives on complex, real-world problem-solving and nuanced

discussions, is also less effectively promoted when the content lacks personal relevance or fails to connect learners to the broader social and cultural contexts of language use.

4.5 Teacher de-skilling and over-reliance on AI

The ethical implications of relying on generative AI for materials development are also of utmost concern (Hua et al., 2024; Stahl & Eke, 2024; Tawfeeq et al., 2023). The use of generative AI in educational settings raises concerns about the de-skilling of language teachers and the potential for over-reliance on automated tools. While generative AI can save time, it risks diminishing the role of language teachers in designing tailored, contextually appropriate lessons. Thus, using generative AI, particularly ChatGPT, in ELT materials development requires a thoughtful approach to ensure that ethical practices are upheld. One fundamental approach is transparency, wherein language teachers explicitly inform learners and stakeholders about the role of AI in the creation of instructional materials. This transparency not only fosters an environment of trust but also underscores the importance of honesty in educational practices. By openly disclosing the involvement of AI, teachers enable learners to critically understand the origins of their learning resources and appreciate that AI serves as a tool to enhance, rather than replace, the expertise of the language teachers. Such openness is particularly crucial in addressing any potential biases or inaccuracies that may arise in AI-generated content, ensuring that learners are aware of the limitations of the technology.

However, while transparency fosters ethical awareness and accountability, it may not fully prevent uncritical reliance on generative AI or the erosion of teachers' pedagogical skills. Teachers may still use generative AI unreflectively, even when disclosing its role. Therefore, additional measures are recommended to support teachers' critical engagement and skill development. These include restricting generative AI use in novice teacher training until foundational skills are established, implementing regular audits of teachers' independent materials development skills, and requiring reflective writing on their use of generative AI. Such practices ensure that transparency is complemented by pedagogical safeguards, preserving teacher agency and fostering professional growth.

4.6 Necessity of human oversight

Another critical consideration involves positioning generative AI as a supportive tool rather than a replacement for pedagogical judgment and critical thinking. Generative AI can efficiently generate content and can approximate differentiation and cultural relevance by drawing on patterns in its training data. However, these approximations are inherently imperfect and may miss critical nuances of individual learners' contexts or perpetuate oversimplified or biased representations. Its errors differ in nature and pattern from those a human teacher might make. Therefore, while generative AI is a valuable starting point for designing differentiated and culturally responsive materials, human oversight is essential to refine and adapt the output to the specific needs and backgrounds of the learners. Language teachers, therefore, must play an active role in reviewing, adapting, and refining the AI's output to ensure alignment with the learners' proficiency levels, learning objectives, and contextual realities. This practice is informed by the understanding that while AI can assist in automating repetitive tasks, such as creating grammar exercises or comprehension questions, the refinement of content for relevance and engagement remains a distinctly human responsibility. Without critical oversight, the risk of over-reliance on AI could lead to the production of generic materials that fail to meet the unique demands of specific learner groups.

4.7 Intellectual property and academic integrity

The integration of AI in materials development raises important questions about intellectual property and academic integrity (Rao, 2023). While generative AI tools do not inherently produce plagiarized content, language teachers must remain vigilant in their use of external sources or references suggested by the AI. By ensuring proper attribution of sources, teachers not only uphold academic integrity but also model ethical research practices for learners. This practice reinforces the importance of critical engagement with source material, which is a cornerstone of academic discourse. The potential of AI to generate large volumes of content should not obscure the need for language teachers to emphasize the responsible use of information where learners are simultaneously developing their language skills and their understanding of ethical academic practices.

4.8 Learner privacy and data security

The ethical use of generative AI in ELT also extends to considerations of learner privacy and data security (Wu et al., 2024). As AI-generated materials can sometimes be personalized to meet individual learner needs, it is essential that teachers remain mindful of protecting sensitive or personal data. Safeguarding learner confidentiality not only complies with data protection regulations but also respects the ethical obligation language teachers have to protect their students' privacy. The use of AI in educational settings should thus be governed by stringent data security protocols to prevent the misuse of or unauthorized access to personal information.

4.9 Inclusivity and bias

Inclusivity remains a vital concern when employing AI in ELT. Language learning materials must reflect and respect the diverse backgrounds, identities, and experiences of learners. However, generative AI models are trained on vast datasets that may contain embedded cultural or gender biases, which can manifest in the content they produce (Fujimoto & Takemoto, 2023). Language teachers, therefore, have a responsibility to critically assess AI-generated materials for any biased or exclusionary language that might alienate or disadvantage certain learner groups. By actively reviewing and revising content, teachers can ensure that the materials foster an inclusive learning environment, one that promotes equality and reflects the pluralistic nature

of the global English-speaking community. In doing so, AI can be harnessed not only as a tool for efficiency but also as an instrument for promoting equity and diversity in language education.

Beyond inclusivity in content, justice-based ethical concerns also arise in terms of equitable access to and use of generative AI tools. Justice, understood as the fair distribution of benefits and burdens, suggests that under-resourced teachers and the students they serve, who are often at a disadvantage, should particularly benefit from generative AI. Indeed, these tools could help mitigate inequalities by providing free or low-cost support to those with fewer resources. However, there is also a risk that better-resourced teachers, with greater access to training and institutional support, may leverage generative AI more effectively, thereby widening existing gaps. Addressing this tension requires intentional policies and capacity-building initiatives to ensure that the benefits of generative AI are distributed fairly and that under-resourced teachers are empowered to use these tools effectively.

The challenges and ethical considerations associated with generative AI in ELT materials development are significant. However, as AI technology continues to evolve, there is potential for these issues to be addressed, and generative AI may also support language teachers more effectively by augmenting their expertise rather than replacing it, ensuring that human oversight remains a central part of the process. With careful integration, generative AI tools also have the potential to overcome their current limitations and pave the way for more ethically sound, culturally relevant, and pedagogically robust applications in ELT materials development.

5 Future pedagogical and research directions

This section outlines recommendations for enhancing teaching practices while identifying key areas for research to explore the long-term implications of AI integration in ELT. To foster innovative practices and address existing challenges, several pedagogical directions are proposed. Future directions in ELT must prioritize comprehensive AI literacy for language teachers, facilitated through targeted training programs that enable the effective and ethical use of generative AI tools in the development of instructional materials. These programs should explore the capabilities and constraints of AI to equip teachers with the critical skills necessary to discern when and how to integrate these technologies into their pedagogical practices. Establishing rigorous guidelines for the ethical use of AI in educational content creation is imperative to ensure that materials uphold cultural sensitivity and pedagogical integrity while addressing complex issues such as data privacy, algorithmic bias, and the indispensable role of human oversight in maintaining the quality and relevance of instructional content. The development of dynamic, AI-enhanced resources must also be foregrounded, as these tools hold the transformative potential to create interactive, multimodal content that can be tailored to meet the diverse needs of learners, fostering greater engagement and deeper learning. Such innovation should include the strategic use of simulated dialogues, personalized feedback, and adaptive learning pathways that not only enrich the learning experience but also align with contemporary theories of language learning. Finally, actively involving both students and teachers in the iterative evaluation and refinement of AI-generated materials is crucial to ensure that these resources are responsive to the evolving demands of educational contexts and continue to support meaningful learning outcomes. This collaborative approach will help bridge the gap between technological innovation and pedagogical efficacy and ensure that the integration of AI in ELT contributes to more equitable, inclusive, and effective language education.

Research into the use of generative AI for ELT materials development also requires a comprehensive approach. A key area for investigation is the effectiveness of AI-enhanced materials in promoting language learning and proficiency across various instructional levels, cultural backgrounds, and teaching environments. Further research could explore AI's role in facilitating differentiated instruction, examining how well these technologies can adapt to individual learner needs, including those of students with special educational requirements or diverse learning styles. Studies might also focus on how effectively generative AI reflects established ELT frameworks and principles when these are explicitly incorporated into prompts. Another significant research direction is the exploration of prompt engineering, which could significantly enhance ELT materials development. Prompt engineering involves designing specific, well-structured inputs to guide AI models, such as ChatGPT, in producing more targeted, accurate, and contextually appropriate content. Ethical considerations represent another critical avenue for research, as AI's potential biases, stemming from the data used to train these models, require careful scrutiny. Researchers should focus on identifying and mitigating biases related to race, gender, or socioeconomic status to ensure that AI-generated ELT materials remain inclusive and culturally sensitive. The intersection of AI and human expertise also deserves attention. While AI can assist in automating content creation and assessment, it is vital to explore how teachers perceive and interact with these technologies. Research could examine how AI affects teacher autonomy, professional development, and instructional design, as well as how teachers can integrate AI into their teaching without losing the essential human element. Additionally, research could investigate the implications of over-reliance on AI, particularly its effects on teachers' skills, critical thinking, and the personalization of teaching materials.

Building on concerns about the limitations of generative AI in recognizing World Englishes and the biases embedded in its training data, another promising direction for researchers and practitioners is exploring the fine-tuning of generative AI models for specific ELT contexts. Fine-tuning involves supplying additional, contextually appropriate prompts and responses to adapt the model's final layers. This process enhances its sensitivity to local linguistic and cultural realities. It could also help mitigate bias, foster inclusivity, and improve the authenticity of AI-generated materials by aligning them more closely with the learners' sociolinguistic environments. As such, fine-tuning represents a technical and pedagogical innovation worth investigating to ensure that generative AI supports rather than undermines diverse English language practices. In addition to fine-tuning, there are increasing efforts to develop region-specific large language models that embed local linguistic and cultural contexts. For example, SEA-LION (Southeast Asian Languages in One Network) is an open-source multilingual model family trained on diverse Southeast Asian languages. Its development represents an important attempt to address cultural bias by ensuring that localized varieties of English, along with indigenous languages, are represented in the training corpus.

Harnessing generative AI for ELT materials development offers unparalleled opportunities for innovation, efficiency, and personalization. However, it also raises critical ethical concerns that must be addressed to ensure responsible and equitable use

in educational contexts. While AI has the potential to enhance the creation of adaptive, engaging, and culturally sensitive materials, it should complement, rather than replace, the expertise and critical judgment of language teachers. As AI technology evolves, its potential to transform language teaching will depend on achieving a careful balance between innovation and ethical use, ensuring that human oversight, pedagogical integrity, and cultural inclusivity remain central. By maintaining this balance, educators and researchers can unlock AI's full potential to enrich the language learning experience.

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