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RESEARCH ARTICLE

The Role of Artificial Intelligence in Teaching English for Specific Purposes: Opportunities and Challenges

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Abstract. This article discusses the growing role of artificial intelligence (AI) in teaching English for Specific Purposes (ESP). It describes how generative AI tools, chatbots and automated feedback systems can support needs analysis, materials design, vocabulary learning and professional communication practice. The article also considers the main challenges: factual errors in AI output, academic integrity, data privacy, unequal access and the changing role of the teacher. It concludes that AI is most useful when it supports, rather than replaces, the ESP practitioner.

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1. Introduction

English for Specific Purposes is built on one principle: teaching should start from the learner's real need for the language. Hutchinson and Waters (1987) described ESP as an approach in which every decision about content and method is based on the learner's reason for learning. This principle is demanding in practice. ESP teachers must analyse needs, find authentic texts from fields they may not know well, and design tasks for small, specialised groups. Ready-made textbooks rarely fit a particular group of engineers, nurses or lawyers.

In recent years, artificial intelligence has started to change this situation. Large language models such as ChatGPT can produce texts, explain terms, simulate conversations and give feedback in seconds. For the first time, a teacher can create a field-specific dialogue or reading text almost instantly. At the same time, these tools raise serious questions. They can produce confident but wrong information, make cheating easier and collect personal data. The purpose of this article is to examine both the opportunities and the challenges that AI brings to ESP teaching.

2. Artificial intelligence in language education

In education, artificial intelligence refers to computer systems that perform tasks usually associated with human intelligence, such as understanding language, recognising speech or adapting to a learner's level. Zawacki-Richter et al. (2019) group its educational uses into four areas: profiling and prediction, assessment and evaluation, adaptive systems and personalisation, and intelligent tutoring systems.

Earlier AI tools in language teaching were narrow. Spell checkers, grammar checkers, machine translation and automated essay scoring each solved one problem. Generative AI is different because a single tool can write, explain, translate, summarise and hold a conversation.

Kohnke, Moorhouse and Zou (2023) note that ChatGPT can act as a conversation partner, a source of explanations and a generator of teaching materials. It can also adjust the level and style of its language when asked. These features match ESP especially well, because ESP depends on specialised texts and realistic professional tasks.

In ESP classrooms, AI is currently used in three main ways. Teachers use it to prepare materials and assessments. Learners use it for self-study, writing support and speaking practice. Institutions use it in learning platforms that track progress and recommend tasks.

3. Opportunities

Support for needs analysis. Needs analysis is the first stage of ESP course design. AI can help teachers draft questionnaires and interview questions, and summarise learners' answers quickly. It can also list the typical tasks and texts of a profession, which gives the teacher a starting point for discussion with subject specialists.

Faster materials development. Creating authentic-like materials is one of the most time-consuming parts of ESP teaching. With a clear prompt, a teacher can generate a dialogue between a pharmacist and a patient, a short business email or a simplified technical text at a chosen level. The teacher then checks and adapts the result, instead of writing everything from zero.

Personalised learning. ESP groups often contain learners with different levels and different jobs. AI tools can give each learner tasks matched to their speciality and level. A civil engineer and a software developer in the same class can practise the same skill with different vocabulary.

Specialised vocabulary. Terminology is central to every ESP course. AI can explain terms in simple English, give examples in context, produce collocations and create quizzes. Learners can ask follow-up questions as often as they need, which is difficult in a large class.

Speaking practice and simulations. Chatbots can play the role of a client, a patient, an interviewer or a colleague. This gives learners a safe space to practise professional conversations before using them in real life. Voice-based tools also let learners practise pronunciation and listening.

Writing feedback. AI writing assistants give immediate feedback on grammar, vocabulary, tone and structure. This is useful for professional genres such as reports, abstracts, cover letters and emails. Kasneci et al. (2023) point out that such feedback can make learning more individual and more continuous.

In practice, ESP teachers and learners most often use generative chatbots such as ChatGPT, Claude and Gemini, writing assistants such as Grammarly and QuillBot, and machine translation tools such as DeepL. Speech applications and adaptive learning platforms are also becoming common in professional language courses.

4. Challenges

Accuracy of content. AI tools sometimes produce information that sounds correct but is false. This is called "hallucination". In ESP it is especially dangerous, because a wrong term in a medical, legal or technical text can lead to serious mistakes. Teachers who are not experts in the field may not notice such errors.

Academic integrity. Learners can use AI to write essays, reports and even answers to tests. This makes it harder for teachers to see what learners can really do. Kasneci et al. (2023) warn that traditional written assignments lose part of their value when text can be generated so easily.

Over-reliance and weaker skills. If learners depend on AI for every sentence, they may not develop their own writing and thinking skills. Professional communication requires the ability to speak and write without help, for example in meetings or exams.

Bias and lack of authenticity. AI is trained mainly on general internet texts. Its output may reflect cultural bias and may not match the real genres and conventions of a specific workplace. A generated business email can look correct but still sound unnatural to professionals.

Data privacy. Many AI tools store users' input. Learners may share personal information or confidential workplace documents without understanding the risks. Universities need clear rules on which tools can be used and how.

Unequal access and teacher readiness. Not all learners have stable internet or paid accounts. Many teachers have had no training in using AI for teaching. Zawacki-Richter et al. (2019) found that research on AI in higher education gave little attention to the role of educators, which is still a gap today.

5. Recommendations for ESP teachers

First, AI should be treated as an assistant, not as a source of final answers. Every AI-generated text, term or explanation should be checked by the teacher, and when possible by a subject specialist.

Second, teachers should combine AI materials with authentic texts from the field. Real manuals, contracts, research articles and workplace emails remain the best models of professional language. Third, learners should be taught how to use AI critically. Tasks can ask them to compare an AI answer with a real text, find errors in AI output, or improve a generated draft. In this way, AI becomes an object of learning rather than a shortcut. Fourth, assessment should include tasks that AI cannot easily complete for the learner, such as oral presentations, in-class writing, role plays and project defences.

Finally, universities should provide teacher training and clear policies on AI use, data protection and academic honesty. Kohnke, Moorhouse and Zou (2023) stress that teachers need digital competence to use these tools effectively.

6. Conclusion

Artificial intelligence offers ESP teaching real benefits. It saves teachers time, supports needs analysis, personalises learning and gives learners more chances to practise professional communication.

However, AI also brings risks: inaccurate content, academic dishonesty, over-reliance, bias and privacy concerns. These risks are especially important in ESP, where language is closely tied to professional responsibility.

The main conclusion is that AI cannot replace the ESP teacher. Its value depends on a teacher who understands learners' needs, checks the content and designs meaningful tasks. Used in this way, AI can make ESP teaching more efficient, flexible and closer to the real needs of learners.

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