

## **Artificial Intelligence in the Service of English for Specific Purposes**

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**ABSTRACT:** *English for Specific Purposes (ESP) plays a vital role in preparing learners to use English effectively in professional, academic, and technical contexts. Fields such as medicine, engineering, and aviation require not only general language proficiency but also mastery of specialised terminology and communication patterns. Traditional approaches to ESP teaching, while valuable, often face challenges in addressing learners' diverse needs and adapting to rapidly changing professional requirements. Recent developments in Artificial Intelligence (AI) provide new opportunities to enhance ESP instruction. AI-powered tools, including chatbots, generative AI, and language processing applications, can support learners through personalised feedback, adaptive practice, and exposure to authentic domain-specific materials. These technologies also assist instructors in curriculum design and needs analysis by processing learner data and identifying areas for targeted support. While the integration of AI raises important considerations such as data privacy, ethical use, and potential bias, its contribution to more flexible and effective ESP teaching is undeniable. AI stands as a promising ally in bridging the gap between language learning and professional expertise.*

**KEYWORDS:** English for Specific Purposes, Artificial Intelligence, Language Learning, Curriculum Development

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## **Introduction to English for Specific Purposes**

English for Specific Purposes (ESP) focuses on the nature, characteristics, and effectiveness of English language learning in non-language fields. For example, it highlights the extensiveness and efficiency of English language learning for Architecture students in drafting architectural drawings. In this field, English language learning is inseparable from practice, as textbooks, manuals, standard provisions, and many drafting-related documents are presented in English. Students in architectural drafting must be able to write and present their findings in English, both as part of their coursework and in preparing scientific studies such as theses and final projects. This ability requires not only an understanding of English vocabulary commonly used in architectural drafting but also the skill to produce correct, concise, and accurate writing. Such competencies are expected to be developed through teaching and learning activities at the university level.

ESP is the study and practice of language teaching and learning in non-literary or non-empirical fields. In practice, the focus of language teaching activities determines the goals and learning conditions. Language teaching in non-language departments differs from that in language departments, which are generally associated with “general English.” For students in non-language departments, knowledge is primarily grounded in their chosen profession rather than in language itself, which shapes the focus of English instruction. According to Nining (2019), ESP can be divided into three categories: English for Academic Purposes (EAP), English for Occupational Purposes (EOP), and English for Science and Technology (EST). Overall, ESP provides opportunities to improve learning outcomes and allows for diverse perspectives depending on the teacher, learner, and context.

### **1. The Role of Artificial Intelligence in Language Learning**

Artificial intelligence (AI) has become widespread and has also found a place in education. With the growing popularity of immersive language courses and the diversification of English curricula across schools, completing traditional language courses is not always sufficient, and students often do not reach the desired level of proficiency. On the other hand, private language courses are expensive, and hiring a tutor is often necessary. Advances in technology have made educational content accessible anytime and anywhere. Such achievements not only support language learning but also encourage learners to develop consistent study habits. Major AI models, which form the basis of natural language processing, are now widely used in language learning.

Due to people’s widespread and increasing reliance on AI-driven tools and computerized systems, languages in contact are altered very quickly, making it necessary for learners to constantly keep up with changes. One of the biggest impacts of technology on English is the rapid emergence of a large volume of spoken and written texts across different genres, which often exceeds what learners can easily manage. In moving from reading and understanding subject content to deeper engagement, students need to learn how to analyze texts in order to summarize and highlight key information.

However, such analyses and summaries often sound “artificial” and unlike those produced by native speakers. This frequently encountered problem can be addressed through practice and refinement. Another important benefit is that these analytical outputs not only reflect students’

language skills but also demonstrate the combined influence of “scientific English” conventions, discourse patterns, and writing principles that enable engineers to express themselves effectively.

### **1.1. AI-Driven Language Learning Tools**

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## **2. Curriculum Development for ESP**

This step represents the interface between planning and implementation in designing an English for Specific Purposes (ESP) course at the university level. Course creation was carried out at both the faculty and institute levels, with adaptations made to align with the individualized needs of learners. It is considered a potential resource to be enacted depending on demand, corresponding with the suggestion by GMC that “the course designer teacher [acts] as a role model.” The framework of the designed course also serves as a guide for similar courses unless a demand for strategic devolution arises. At UFAS, such a demand may be expressed in the form of a potential decolonization strategy initiated at the faculty level.

A new dimension is introduced at the stage of applying the learning needs analysis process (LNAP), which follows a user-centered design model consisting of a learner profile, exigencies, selection of student models, and feedback. This process is used to monitor the ongoing adaptation of the course design to internal and external changes in the learning environment. From a pedagogical perspective, this branching process offers continual refinement of teaching and learning strategies. At the level of activities, the conjoint ICEE is applied, as described by its designers (World English Journal, 2021).

The activity is structured as a free accompanying component, either FAC or AVE, implemented at two-week intervals. This is intended for use by other participants in the course in order to encourage both supply and demand within this conjoint framework. Compliance with this scheme, supplemented by ISD components (to be detailed in a subsequent document), not only ensures quality ESP instruction at the university level but also guarantees alignment with Littell’s recommendations. Training needs for ESP course design in Algiers still require further investigation. However, while this model can assist practitioners in addressing existing gaps, constructive and cooperative responses remain essential, particularly for potential adaptations to EFL programs in other academic contexts.

### **2.1. Needs Analysis in ESP**

The purpose of learning English has expanded beyond general English to English for Specific Purposes (ESP). Students are now required to study English specialized to their professional fields, such as English for Business Purposes, Maritime English, and Medical English. Students who studied ESP reported that participation in ESP lectures greatly increased their opportunities and skill levels compared to those in general English education. In contrast, students who did not study ESP and therefore lacked professional English learning skills emphasized the

importance of active learning methods to acquire English specific to their profession. Teachers, in turn, made efforts to develop more practical and interactive teaching materials.

Needs analysis is a preliminary stage that provides valuable information before implementing a program of learning intervention. In education, needs analysis is particularly important for addressing issues such as the divergent aptitudes of learners. It provides critical insights before applying specific strategies in language education program design. In ESP, the domain of needs analysis has been extensively examined and has made significant contributions to the development of related knowledge in the field over the past three decades. For example, needs analysis was designed to explore the distinctive features of English for Academic Purposes (EAP) participants (Faller, 2018). Its purpose is to guide changes toward more effective programs, particularly in the processes of program design and delivery.

## **2.2. Integrating AI into Curriculum Design**

English for Specific Purposes (ESP) has recently attracted increasing interest in the use of artificial intelligence (AI) to explore practical ways of integrating AI into classroom management and online learning systems. In particular, adaptive learning assistant technologies have been developed to improve learning outcomes for English as a Foreign Language (EFL). This topic is addressed in a manner similar to a professional academic English program. The design sequence is based on an iterative process between curriculum development and classroom implementation, with a strong reliance on technological and data-driven tools to inform decision-making. AI is believed to have the potential to more quickly and efficiently extract information for use in the design of educational systems in general, and specifically in English as a Second Language (ESL) teaching and learning. Because the AI development culture is rooted in continual improvement, AI technologies are expected to evolve and improve over time. Research has primarily focused on AI solutions that have been practically implemented, with particular emphasis on the learning environment and students' academic performance.

There has been considerable excitement about the potential ways AI could transform the education sector. Although incorporating and adopting AI in diverse educational contexts is still in high demand, its potential use is enormous. Recently, AI has also been recognized as a vital tool for expanding scientific knowledge and supporting mastery of the English language. This paper is based on a comprehensive review of the literature, focusing on the importance of AI in English language education, the connection between AI and ESP, and the potential benefits of integrating AI with online learning systems. It presents a strategy for curriculum design in ESP education, particularly for improving formal English proficiency for academic work and supporting scholarly publication writing. Furthermore, several AI-based teaching systems such as automated text summarization, keyword extraction, and essay scoring have been designed for integration into online learning platforms for use outside the classroom. Considering the importance of bridging the expectation gap in disciplinary communicative competence, a pedagogical design for an online discussion series was subsequently implemented using an English learning platform that was accessible to both students and AI developers.

### **3. AI Technologies in ESP**

The availability of cutting-edge AI technology has elevated English reading comprehension to an advanced level. AI tools, such as commercial and academic translation engines as well as natural language processing (NLP) applications (Dong et al., 2022), have played a significant role in this progress. Features including optical character recognition, text-to-speech, speech-to-text, tonal analysis, and other AI algorithms can be effectively applied to enhance the learning process. One of the primary purposes of these technologies is to facilitate English translation through highly accurate automated translation engines.

Translation is widely regarded as an advanced method of learning, processing, and understanding, particularly for second-language learners. Numerous websites now exist to support EFL/ESL students, and the development of AI has made translation more seamless and accessible. Tools such as instant in-page translators or in-chat translation features assist learners when they encounter difficulties understanding sentences in the target language, as these tools allow them to quickly translate content into their native language. This process ensures a more complete comprehension of reading materials. In other words, EFL/ESL learners can now translate and understand texts in their first language almost instantly.

With the integration of sophisticated machine learning algorithms, translation has become more dynamic and flexible (World English Journal & Mudawy, 2024). Importantly, machine-powered translation is not without errors; however, such errors can serve as valuable opportunities for practice and critical reflection. The ongoing development of AI technology continues to aim at improving learning outcomes, particularly in the domain of language learning.

#### **3.1. Natural Language Processing**

Willis currently has a personal interest in augmenting the role of corpora in ESP classrooms, now that it is much easier and quicker to manipulate a corpus. Natural language processing (NLP) is the discipline within the field of AI that deals with the computational treatment of natural languages both written and spoken. It draws on methods and techniques from a wide variety of fields, including linguistics, AI, and statistics. Intelligent tutoring systems (ITS) offer a wide range of possible applications in the NLP field.

When it comes to written language, no system evaluates essays more effectively than the human brain, which relies not only on the quality of the final product but also on the thought processes throughout production something AI models still struggle to replicate. Indeed, one might make many errors and still demonstrate great potential as an English professor. Furthermore, some errors carry more weight than others, as certain aspects syntax in particular are considered more revealing of underlying proficiency. Like all teachers, evaluation also depends on their environment, including beliefs and experiences that are unique to them.

Similarly, grading spoken work at a distance represents an additional level of complexity beyond its already challenging written counterpart. For these reasons, it is hardly surprising that there is no definitive system and that further research is still needed. Research on this issue has typically been divided into two camps: one focusing on improving holistic essay quality by treating essays as complete products, and another adopting a pointed approach that examines

specific language aspects. Much of the pre-existing research has been conducted within the second approach. In general, holistic approaches base their models on several human-scored essays. For example, Rest Controller evaluates essays and attempts to replicate human grading (Antoniadis et al., 2013).

With advancements in technology, corpus analysis has become easier to manage and implement, leading to its increased use in computer-assisted language learning (CALL). Because it intersects with numerous issues in linguistics, corpus analysis similar to learner language in general represents a relatively new domain of study (Shaik et al., 2023).

### **3.2. Machine Learning Applications**

Machine learning usually refers to the study of methods that enable systems to learn. These systems are capable of leveraging data to improve their performance on specific tasks. While machine learning is a branch of artificial intelligence (AI), its approach differs from AI in general. AI systems are typically created through the insertion and integration of knowledge into a system to generate further knowledge. In other words, AI broadly generates knowledge by integrating information, whereas machine learning focuses on identifying patterns from raw data and applying those patterns to enhance performance on other tasks. A system capable of learning from raw data and improving its performance accordingly is typically classified as a machine learning system (Russell & Talukder, 2023). This distinction marks the fundamental difference between AI and machine learning.

In its common usage, machine learning involves recognizing similarities or differences between data points. For instance, given a collection of grayscale satellite images, one might classify the images according to whether they depict land, sea, or clouds. This clustering of raw data creates semantical groups that represent the dataset descriptively. In this example, the data points have ground truth, and the differences are easily identifiable. However, when categories are less obvious or not provided, machine learning methods can still identify patterns in the data and transfer those patterns to other problems or tasks (Dong et al., 2022).

This process is sometimes referred to as Machine Learning-powered Artificial Intelligence (MPpAI), which represents the second meaning of the AI acronym. Depending on factors such as time, user, number of layers, type of decay, model architecture, and number of filters, MPpAI can be adapted to transition between classification and regression problems, provided that appropriate filters are applied. Taken together, these descriptions encompass what Anderson defines as MPpAI in the holistic sense.

### **3.3. Chatbots and Virtual Tutors**

The development of artificial intelligence (AI) applications, such as corpora annotation, computer-based interactive exercises, and sophisticated text analysis tools, opens new perspectives for English for Specific Purposes (ESP). For example, chatbots simulated conversational agents are widely used in e-commerce, marketing, and customer service on social media or various websites. In education, intelligent virtual agents are effectively employed in teacher training, course enhancement, and virtual fieldwork, but they are used much less often in English language teaching. Meanwhile, a chat interface establishes a two-way communication channel in which both parties human and AI can derive benefits.

The primary aim of this paper is to present a perspective on using a chatbot as a virtual tutor that supports the teaching and learning of ESP. A virtual tutor can provide automated, computer-based learning scaffolds for individualized training with novel texts. It may also offer feedback, hints, alternative solutions, or questions to promote further thinking and clarification, while addressing competencies necessary for text comprehension. A virtual tutor may take the form of a chatbot a program that enables conversations with users through natural language. Such a chatbot may rely on predefined answers developed within a closed domain of questions, or it may be designed as a more advanced application that uses AI, natural language processing (NLP), and machine learning to interpret user intentions (Talukder, 2023).

#### **4. Assessment and Evaluation in ESP**

In everyday language, evaluation refers to a judgment of quality. In the context of education, it is understood as the application of a set of criteria to determine an outcome. These criteria are typically expressed in the form of grades or marks, and evaluation ultimately reveals whether an individual has achieved the objective of completing a task or participating in a course, as assessed by a tutor or testing institution (Kavaliauskienė & Anusienė, 2014). Although some authors have used the terms interchangeably, it is important to clarify at the outset of this discussion that evaluation and assessment, while closely related, are not identical processes.

Two key distinctions can be made. First, evaluation most often involves the assignment of a score, whereas assessment may yield formative outcomes that do not necessarily result in a grade. Second, the same assessment criteria may carry different weight depending on whether the purpose is assessment or evaluation. In many contexts, the two concepts may be treated as near synonyms; however, formal evaluation generally occurs only at the end of a course. For the purposes of the following chapters, the focus will be on assessment, while evaluation will be regarded as a broader concept. This distinction will only be emphasized in a few specific instances (Ma & Slater, 2015).

##### **4.1. AI for Formative Assessment**

Due to the COVID-19 pandemic, language learning practices have increasingly been carried out through various tools and technologies in both online and offline environments. These practices are expected to accelerate the integration of artificial intelligence (AI) into pragmatic learning processes in the coming years. The primary objectives of these developments are to create AI-driven English for Professional Purposes (EFP) services, apply AI in post-training processes, and facilitate communication with subject matter specialists from certified English training divisions (Gao et al., 2023).

A key area of AI expertise in this context is the development of AI chatbots. AI chatbots are artificial intelligence applications that employ natural language processing to interact with individuals through automated messaging systems. The efforts of English as a Foreign Language (EFL) learners to improve their writing skills have been well documented. Although generating meaningful or human-like exchanges remains challenging, AI-powered conversational systems are capable of supporting the communicative functions of chatbots (Pitychoutis, 2024).

Cloud computing refers to the virtualization and centralization of resources through statistical programs that provide solutions for users operating online servers. Online educational conferences increasingly make use of cloud conferencing to strengthen communication with internationally recognized scholars, establish academic networks, promote knowledge distribution, and share practical insights. However, conference strategies and conceptual frameworks for implementing AI in English for Specific Purposes (ESP) services remain unclear in recent global contexts.

## **5. Successful Implementations**

Since the arrival of the digital computer in the 1940s, it has been recognized that computers can be programmed to accomplish complex tasks quickly and efficiently. With the advancement of artificial intelligence (AI) techniques, computers are now capable of performing tasks that require human-like intelligence. Some expert systems have even achieved performance levels comparable to those of human specialists in specific domains.

Today, AI is embedded in many aspects of daily life, including smart devices, voice recognition, search engines, medical diagnosis, the judiciary, and automated monitoring systems such as overhead cattle grids. More recently, AI has advanced into generative writing through models capable of producing test sentences, reviews, and poetry. These systems have already appeared in legal patents, academic publications, and allegations of misuse, demonstrating that their methods have been financed, refined, and evaluated.

Currently, AI is widely employed in writing software, which refers to computer programs designed to generate written text, including novels, poetry, short stories, and academic papers. Within academic contexts, writing software assists in the production of research papers and essays. Unlike literary writing, academic writing requires not only the generation of text but also adherence to research processes and standardized conventions in order to be accepted by journals. Academic writing must be formal, structured, clear, and concise, and its tone differs significantly from conversational or essay-based writing. To meet these requirements, AI writing software incorporates features such as research support, grammar checking, tone analysis, and localization. These tools help reduce users' cognitive load, enhance productivity, and improve overall writing quality.

In the field of Teaching English as a Foreign Language (TEFL), AI technology has played a significant role in capacity development. A growing industry has emerged around AI tools designed for English as a Foreign Language (EFL) instruction. Recently, AI-powered writing assistants have gained increasing attention from educators, who find them effective for supporting student writing tasks. For non-native English writers, such assistants are often considered more effective than conventional approaches. However, encouraging teachers to adopt these tools remains a challenge. Many educators are hesitant to engage with emerging technologies, and the market is saturated with products of varying quality, some of which are ineffective (Mudawy, 2024).

### **5.1. Challenges and Limitations**

AI has made rapid advances in developing systems capable of understanding and generating natural language. Such systems, known as large language models, present challenges regarding how naturally one can distinguish between text generated by a system and text written by a human gradually refining and saving a document in stages. In language teaching, interest in the possibilities that AI offers has been growing. One widely discussed application of AI is the use of automatic essay-scoring programs, designed to improve text at both the sentence and paragraph level in an effort to better mimic human writing.

A major limitation of these systems lies in their ability to understand discourse. They often struggle to grasp the subtleties of nuanced and emotive language and, in general, lack a strong understanding of context. This limitation encourages formulaic responses and discourages more creative explorations of language. For developing writers, gaining an understanding of audience expectations and appropriate depth typically requires trial and error. Feedback, especially when delivered in a timely manner, helps writers critically evaluate their work during the writing process. Genuine learning, therefore, takes place through the act of writing itself, engaging with feedback, and revising iteratively.

AI systems, however, are often programmed to provide repetitive and nearly identical feedback regardless of a student's engagement with prior comments. This assumes that students already know what a text should look like, rather than supporting the development of nuanced perspectives or conceptual growth. Expecting students to fully understand a topic and produce a complete essay that satisfies multiple AI-driven criteria on the first submission is unrealistic. Instead, meaningful writing development should emerge from drafting, redrafting, and engaging substantively with the topic, rather than from producing a series of superficially well-structured paragraphs in a single attempt.

## **6. Ethical Considerations in AI for ESP**

A new class of chatbots, known as the GPT-3 series, has become one of the most popular and widespread forms of AI in recent years. Among these, ChatGPT trained on the GPT-3.5-turbo model allows users to interact through both individual and group conversations. The ethics of these AI systems are currently under examination, as learning-based chatbots can generate lengthy sentences containing complex, but sometimes inaccurate or inappropriate, information. While some view the question-answering abilities of AI chatbots as a measure of truthfulness, ChatGPT has also been trained to assist students in writing essays.

This inquiry begins by discussing the strengths and weaknesses of conversational AI for the rapidly expanding English Language Learning population. Following this, a dialogue between a university professor and a student concerning the student's use of AI is presented. The academic community's role in developing ethical guidelines for using AI to support English for Specific Purposes (ESP) is also addressed, with particular attention to artificial intelligence chatbots and plagiarism detection tools (Anders, 2023). Finally, the moral and theoretical implications of English-writing AI are considered in relation to educational, psychological, and social contexts. Before concluding remarks, both academicians and instructors emphasize the necessity of AI literacy for students and scholars.

## **6.1. Data Privacy Issues**

In the Western world, most individuals engage in daily activities that raise questions about the privacy of their personal data. Online behaviours are tracked and analyzed by search engines, social networks, shopping platforms, websites, mobile applications, and other systems with the aim of enhancing user satisfaction. Each day, terabytes of data are generated about individual users. These data represent one of today's most valuable assets, driving the growth of multimillion-dollar companies and informing political decisions.

Research indicates that this vast amount of data can be leveraged not only to increase satisfaction either by improving utilities or mitigating dissatisfaction but also to reduce risks of privacy breaches. However, data privacy has become a major concern in digital processing. Legal frameworks for managing consumer data focus on users' knowledge, consent, and access to their information, while also imposing restrictions and limitations on its use. The socio-political context has intensified debates about how to safeguard online privacy and ensure greater transparency in applications.

## **6.2. Bias in AI Algorithms**

Artificial intelligence (AI)-based algorithms are trained using sample data. AI with a neural network structure is extremely complex, meaning that not all AI representations can fully explain how the network has acquired its knowledge or how it interprets training samples during prediction. This limitation may be problematic, especially if the training samples contain syntactic or semantic bias (perhaps unintentionally). In such cases, unexpected inputs may be analyzed according to that bias. The prediction of trained samples based on a neural network is referred to as a statement, and the AI within the relevant network is labeled accordingly. More broadly, the training dataset includes all entities presented to the underlying neural network. This approach highlights the importance of inspecting relevant training samples before presenting statements to the neural network structure (Englert & Muschiol, 2020).

Prediction statements are automatically generated by an AI system introduced to the public via Twitter on March 24, 2016, called Tay. Tay was designed to converse with 18- to 24-year-olds in order to better understand digital society. Tay was automatically trained through conversations with unknown users. Unfortunately, it absorbed biased statements related to gender and, additionally, racist statements. This example clearly demonstrates that AI-generated statements can be biased (often unintentionally) and therefore must be carefully inspected before training the underlying neural network structure. At present, there is no common guideline to automatically identify this type of bias in training datasets. One method to detect semantic bias is the so-called root-out-bias approach, introduced in March 2017. This method requires a human expert with deep knowledge of the modeling domain. Furthermore, the human expert must independently ask critical questions during the inspection by carefully delimiting assumptions.

## **7. Future Trends in AI and ESP**

The results revealed that the annual ESP trends in Asia were on the rise, with the majority of publications appearing in 2013. Therefore, the present study focused on international academic trends during that year. The International ESP Journal published the largest number of

documents, while Science Direct accounted for the highest number of publishers. The three most prominent research themes in ESP were biotechnology, environment, and agriculture. The USA and EU-15 frequently studied one another; however, limited information existed on the USA's research concerning other regions. Southeast Asian countries need to increase their investment in EFL education to improve economic mobility (Jantaravipark & Sa-ngiamwibool, 2015).

Japanese corporations, for instance, have established subsidiaries in Eastern Asian countries such as China, Indonesia, the Philippines, Malaysia, Singapore, and Thailand since the end of World War II. Japan's current economic mobility and strategy, including its provisional free trade agreements with these countries, resemble the European Union model in Europe. Findings further showed that computers and software requests were primarily exchanged between the USA and EU-15, dominating the major links between these industrialized regions. Clear trends emerged regarding economic shares involving ESP, suggesting that outcomes will continue to develop over the next 10 years.

When comparing competitive regions, North-South and North-North disparities in economic mobility were evident. In contrast, East Asia did not follow the EU's trends and represented the least focus on ESP-driven economic mobility. Additionally, the analysis of prominent exports and imports particularly through technological platforms highlighted the onset of the Asian currency crisis.

### **7.1. Emerging Technologies**

Since the emergence of intelligence in the form of artificial neural networks, many scenarios have been proposed that link the concept of artificial intelligence with employment. These range from a rapid decline in the demand for human labour due to the viability of ultra-intelligent machines, to the gradual replacement of workers by robots creating extreme uncertainty in the labour market to the preservation of specific jobs exclusively for humans. Such expectations and scenarios are influenced by the development plans of the so-called Fourth Industrial Revolution, in which tasks previously performed by humans are increasingly taken over by intelligent machines powered by AI and connected to the Internet (Dong et al., 2022). Viewed in this way, humans have little chance of competing with mechanisms that continuously learn, self-educate, and improve their performance without requiring rest or wages.

Adequate theoretical and practical preparation may allow for more accurate comparisons and clearer distinctions between the types of work that machines can perform and those that remain the responsibility of humans. This issue is particularly significant in post-industrial cities on the Silesian–Czech border, where it remains unresolved despite its short-term urgency. Furthermore, it shapes the social, economic, and national security of the region, with implications for other areas worldwide. Rather than providing simple answers to this complex question, the present article aims to outline an approach to AI-related workforce transformation from the perspective of English for Specific Purposes (ESP), which is generally practice-oriented and more specialized than general English.

## Conclusion

The integration of artificial intelligence (AI) into English for Specific Purposes (ESP) has transformed language learning by providing innovative tools, personalized learning experiences, and efficient assessment methods. AI-driven technologies such as natural language processing, machine learning, and virtual tutors enhance curriculum design and address learners' specific needs. While AI offers numerous advantages, challenges such as data privacy, algorithmic bias, and ethical concerns must be carefully managed. As AI continues to evolve, emerging technologies will further shape ESP instruction, necessitating continuous professional development for educators. By embracing AI responsibly, ESP can become more effective, adaptive, and accessible for learners worldwide.

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