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Empowering Motivation Through AI in Teaching English for Specific Purposes

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Abstract

This study explores the role of Artificial Intelligence (AI) in enhancing motivation within the of Teaching English for Specific Purposes (TESP). As AI tools, such as Duolingo and Lingvist, gain prominence in language education, they offer innovative solutions to address the unique challenges faced by learners and educators. Through qualitative research design, this investigation includes interviews with TESP teachers and students, observations of AI tool implementation, and document analysis of relevant teaching materials. The findings reveal that AI-driven platforms significantly enhance learner motivation by providing personalized learning experiences, immediate feedback, and gamified elements that promote engagement. Furthermore, the integration of AI facilitates adaptive teaching methodologies, allowing educators to tailor their instruction to meet diverse student needs. However, challenges related to technology access and the potential depersonalization of the learning experience must be addressed. The implications for teachers and educational institutions include the need for professional development in AI integration and a balanced approach that combines technology with human interaction. Finally, the study highlights opportunities for future research into other AI tools and their applications in various language teaching contexts, aiming to refine practices that enhance learner motivation and proficiency.

Keywords

Artificial Intelligence (AI); Teaching English for Specific Purposes (TESP); Motivation; Language Learning

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Introduction

Introduction Teaching English for Specific Purposes (TESP) is a specialized branch of language education tailored to meet the specific needs of learners, focusing on particular fields such as business, medicine, engineering, or aviation. Unlike general English courses, TESP is designed to equip learners with the linguistic tools necessary for professional and academic contexts, making it highly goal-oriented and practical (Wei 2023). In recent years, the integration of Artificial Intelligence (AI) in education has transformed the landscape of language learning, offering personalized learning experiences, real-time feedback, and interactive platforms that foster student engagement. AI tools such as adaptive learning systems, chatbots, and virtual tutors are increasingly being employed to assist in language instruction, allowing educators to tailor content to the individual needs of students, thereby improving learning outcomes (Moybeka et al. 2023). Additionally, motivation plays a crucial role in the success of language learners, particularly in TESP, where the pressure to meet specific career-related goals can either enhance or hinder learning efforts. Motivation, both intrinsic and extrinsic, has been shown to significantly impact the effectiveness of language acquisition (R. Jiang 2022). AI has the potential to boost learner motivation by providing engaging and interactive platforms that cater to learners' individual interests and needs, helping to sustain their attention and commitment over time. By integrating AI into TESP, educators can create more dynamic and motivating learning environments that address both the cognitive and emotional needs of students, ultimately improving their language proficiency and professional success. Understanding the synergy between AI, TESP, and motivation is essential for optimizing language teaching strategies in today's increasingly digital educational landscape.

TESP refers to the tailored instruction of English to meet the specific linguistic needs of learners who require English proficiency for particular professional, academic, or occupational contexts. Unlike general English courses that cover a broad spectrum of language skills, TESP is more focused and practical, aiming to equip learners with the language required in specific fields such as business, law, medicine, or aviation (Du and Alm 2024);(Ismail et al. 2022). Key characteristics of TESP include its needs-based approach, learner-centered focus, and content that is closely aligned with the specific tasks and communication practices of a particular field. The design of TESP courses usually involves a thorough needs analysis to identify what learners need to achieve in their specific professional or academic contexts and then developing materials that reflect real-world language use in those settings (Annamalai et al. 2023). Current teaching methods in TESP often incorporate authentic materials, such as industry-specific documents, case studies, or reports, to give learners practical exposure to the kind of language they will encounter in their work or studies. One of the main challenges in TESP is the need for instructors to be both language experts and knowledgeable in the content of the specific disciplines they are teaching,

which can create a knowledge gap (Luckin et al. 2022). Additionally, designing and delivering content that remains up-to-date with the ever-evolving demands of specific industries can be a significant challenge. Other challenges include large class sizes, limited resources, and the diversity of learner needs within a single group. Despite these challenges, TESP remains an essential approach to language teaching for learners with targeted professional or academic goals.

AI in education has introduced innovative ways to enhance teaching and learning processes, transforming traditional methods into more personalized and interactive experiences. AI applications in education are vast, ranging from automated grading systems to intelligent tutoring systems that can assess student performance and provide real-time feedback. One of the key advantages of AI is its ability to offer adaptive learning experiences, where educational content is tailored to the individual needs and learning pace of students, allowing for more efficient knowledge acquisition (Kong, Cheung, and Zhang 2022; Fiddiyasari and Pustika 2021). For instance, AI-driven platforms can analyze a learner's progress and adjust the difficulty level of tasks or suggest additional resources to help them master a topic. In language learning, AI tools such as chatbots, virtual tutors, and adaptive learning systems have gained popularity due to their ability to engage learners in meaningful interactions. Chatbots, for example, can simulate real-world conversations in various contexts, providing learners with opportunities to practice language skills in an immersive and low-pressure environment (Muliyah and Aminatun 2020; Niati, Siregar, and Prayoga 2021). Adaptive learning systems, on the other hand, analyze student responses and adjust lessons based on their performance, ensuring a more customized learning experience that targets areas where students need the most improvement. AI-powered tools also offer valuable feedback, guiding learners through their mistakes and reinforcing correct usage, which can be particularly beneficial for language learners as they acquire new vocabulary, grammar, and communicative skills. Additionally, AI can assist teachers by automating administrative tasks, such as grading and progress tracking, freeing up more time for instructors to focus on personalized guidance and mentorship (Salmani-Nodoushan 2020). The integration of AI in language learning has not only improved the efficiency of instruction but also contributed to creating more engaging, adaptive, and supportive learning environments.

Motivation plays a crucial role in language learning, serving as the driving force that determines the level of effort learners invest in acquiring a new language. There are two primary types of motivation: intrinsic and extrinsic. Intrinsic motivation refers to the internal drive to engage in an activity for its inherent satisfaction, such as learning a language for personal growth, interest, or enjoyment (Fadlia et al. 2022). Extrinsic motivation, on the other hand, is driven by external rewards or pressures, such as passing an exam, gaining employment, or fulfilling academic requirements. Both types of motivation can significantly influence language learning outcomes, but research suggests that intrinsic motivation leads to deeper engagement and long-term retention of language skills (Marcu 2020). In the of Teaching TESP, motivation becomes even more critical as learners often have clear, goal-oriented reasons for acquiring language proficiency. TESP learners, for example, may need English to excel in their careers, such as communicating in medical settings, conducting business negotiations, or understanding technical manuals. This makes extrinsic motivation particularly prominent in TESP, where achieving specific professional objectives can drive the learning process (Nugroho, Astuti, and Atmojo 2021). Fostering intrinsic motivation is equally important, as it encourages learners to engage more deeply with the material, leading to better long-term success. By creating meaningful and relevant learning experiences, such as using authentic materials and real-world tasks related to the learners' fields, educators can tap into both types of motivation. AI-enhanced learning environments can further boost motivation by providing personalized feedback, engaging learning activities, and opportunities for practice that are aligned with the learners' individual goals, helping to sustain motivation throughout the learning journey.

AI has the potential to address various motivational challenges in TESP by creating personalized and engaging learning experiences that cater to individual learner needs. One common motivational issue in TESP is the lack of relevance learners sometimes feel between traditional language learning materials and their specific professional goals. AI can resolve this by tailoring content to each learner's field, offering context-specific exercises, and simulating real-world language usage, which enhances both relevance and engagement (Kitishat, Al Omar, and Al Momani 2020). For example, AI-powered adaptive learning systems can analyze a learner's progress and adjust lessons in real-time to focus on areas where they need improvement, ensuring that learners are consistently challenged without feeling overwhelmed or disengaged. Additionally, AI-driven chatbots and virtual assistants can simulate professional dialogues, offering learners the opportunity to practice English in scenarios that mirror their future job roles, such as conducting a business negotiation or responding to a medical emergency (Christison and Murray 2023);(Howard et al. 2021). These interactive AI tools not only help learners feel more prepared but also boost their intrinsic motivation by giving them a sense of mastery and accomplishment in using the language effectively in their careers. Furthermore, AI can enhance extrinsic motivation by tracking learners' progress and providing immediate feedback, which helps them visualize their improvement and motivates them to continue learning (Koraishi 2023). Studies have shown that such personalized feedback mechanisms can significantly improve engagement and persistence in language learning, especially when combined with goal-setting features that align with learners' professional aspirations (Al-Syatibi 2020; Milliana, Andry Stepahnie Titing, and Hendrik 2023). AI's capacity to personalize learning pathways and offer dynamic, context-specific interactions makes it an invaluable tool in motivating learners within the TESP framework.

In TESP, both learners and educators face significant challenges that can hinder language acquisition and overall engagement. Learners often struggle with the relevance of generic language lessons, which do not always align with their professional needs or specific fields of expertise, leading to disengagement and reduced motivation. Educators, on the other hand, may find it difficult to customize lessons for diverse learners while also managing large classes or limited resources. This lack of personalization and contextualization in language instruction can create a gap between learners' career-related objectives and the language skills they acquire in TESP courses. AI-driven language learning applications, such as Duolingo and Lingvist, offer potential solutions to these challenges by providing personalized, adaptive learning experiences. These apps can tailor content to the learners' specific needs, offering industry-relevant vocabulary and real-world exercises that align with their professional goals, making the learning process more engaging and effective. However, while these AI tools offer promise, there remains a gap in understanding how well they truly address motivational issues in the TESP. Are learners motivated by the personalized AI-driven content, or do they still face challenges in maintaining long-term engagement? Additionally, educators need to understand how to effectively integrate such tools into formal TESP curricula to enhance motivation and learning outcomes. Thus, this study focuses on users of Duolingo and Lingvist to explore how AI can be leveraged to empower motivation in TESP learners. By investigating these applications' role in fostering motivation through personalized learning, this research aims to uncover the specific ways AI can help address both learner and educator challenges in TESP, paving the way for more effective and engaging language education tailored to specific professional needs.

Despite the increasing integration of AI in language education, there remains a significant gap in understanding how these technologies specifically address motivational issues within TESP. Research indicates that while AI applications like Duolingo and Lingvist offer personalized learning experiences, the impact on learner motivation, particularly in professional contexts, is not fully explored (Y. Jiang et al. 2022; Morris et al. 2022). Furthermore, studies suggest that learners

often feel disconnected from generic language lessons that do not align with their specific career needs, which can diminish motivation and engagement (Briganti and Le Moine 2020). Although AI-driven platforms provide adaptive learning paths, questions persist regarding their effectiveness in fostering sustained intrinsic motivation among TESP learners (Korteling et al. 2021; Asmus 2021). Additionally, there is limited research examining how educators can effectively integrate these AI tools into existing TESP curricula to enhance motivation and learning outcomes (Xu et al. 2021; Kaul, Enslin, and Gross 2020). Consequently, this study aims to fill the research gap by investigating how users of Duolingo and Lingvist experience motivation in TESP, exploring the extent to which AI can be leveraged to empower motivation and enhance language acquisition in professional contexts.

This research aims to explore the role of AI in enhancing motivation within the TESP, focusing on users of AI-powered language learning applications like Duolingo and Lingvist. In TESP, maintaining learner motivation is critical due to the specialized and often demanding nature of language learning tailored for specific professional fields. Many learners face challenges in staying motivated, especially when traditional learning methods fail to connect language skills with real-world applications in their careers. AI tools, like those integrated into Duolingo and Lingvist, offer personalized and adaptive learning experiences that could bridge this gap by tailoring content to meet the unique needs of each learner. This research seeks to understand how effectively AI-driven tools in these applications influence motivation by offering individualized feedback, real-time progress tracking, and interactive exercises. The research questions focus on examining how AI impacts learner motivation in TESP and identifying the most effective AI tools for supporting teaching strategies. Understanding the motivational effects of AI applications in TESP is crucial, as motivation directly influences learning outcomes and long-term language retention. By exploring how AI supports both intrinsic and extrinsic motivation, this study could provide valuable insights into improving language learning strategies not just for TESP but also for broader language education contexts. The findings could contribute significantly to the fields of AI, language teaching, and motivation theory by offering practical recommendations on how AI technologies like Duolingo and Lingvist can be leveraged to create more engaging and motivating learning environments, ultimately enhancing learner success in mastering English for specific professional purposes.

Methodology

This study employs a qualitative research design to explore the impact of AI on motivation in TESP, specifically focusing on users of the Duolingo and Lingvist applications. The qualitative approach is particularly suitable for this study as it allows for in-depth exploration of the subjective experiences and perceptions of both learners and educators regarding the integration of AI in language learning. By utilizing methods such as interviews with TESP teachers and students, the research aims to gather rich, contextual data that captures the nuanced ways in which AI tools influence motivation. Additionally, observations of AI tools in real teaching environments will provide insights into how these technologies are implemented and their immediate effects on learner engagement and motivation. Document analysis of curriculum materials and lesson plans incorporating AI will further enrich the data by revealing how educators design their teaching strategies around these tools. This multi-faceted approach not only ensures a comprehensive understanding of the phenomenon but also facilitates the identification of key themes related to AI, motivation, and TESP through thematic analysis. By analyzing the collected data, the study aims to uncover patterns and insights that reflect how AI can enhance motivation among learners and inform best practices for educators in TESP. This exploration is vital, as understanding the intersection of AI and motivation in language education can lead to more effective teaching strategies and improved learning outcomes, ultimately addressing the motivational challenges faced by learners in specific professional contexts. Through these methodologies, the research will

contribute valuable insights to the ongoing discourse on AI's role in education, particularly within the specialized field of TESP, thereby enriching both theory and practice.

Results and Discussion

AI's Role in Enhancing Motivation

In recent years, the integration of AI tools in language education has transformed traditional learning paradigms, particularly in TESP. This research sought to investigate how AI applications, specifically Duolingo and Lingvist, are perceived by students regarding their impact on motivation and engagement in language learning. Through qualitative methods, including interviews with TESP learners and educators, as well as observations of AI tool usage in real classroom settings, the study revealed significant insights into how these technologies can enhance learner motivation. The findings indicate that AI tools foster a more personalized, engaging, and effective learning environment, contributing to increased motivation among students.

One of the primary themes that emerged from the interviews with students was the personalization offered by AI-driven platforms. Students expressed that AI tools adapt to their individual learning styles and preferences, making the learning experience feel more relevant and tailored. For instance, one student noted, "Duolingo tracks my progress and suggests exercises that focus on my weak areas, which makes me feel like I am improving quickly." This sentiment was echoed by several participants, highlighting the importance of adaptive learning technologies in motivating students to engage with language material. The ability of AI tools to provide immediate feedback also played a crucial role in maintaining motivation. Students reported feeling more confident in their skills when they received instant corrections and suggestions, reinforcing their understanding of language concepts.

Table 1. Students' Perspectives on the Use of AI Tools Teaching English for Specific Purposes (TESP)

Theme	Students' Perspectives
Personalization	"Duolingo tracks my progress and suggests exercises that focus on my weak areas."
Immediate Feedback	"Receiving instant corrections makes me feel more confident in my skills."
Contextual Relevance	"The AI tools help me learn vocabulary relevant to my career."
Engagement through Gamification	"I enjoy the gamified elements; they make learning fun and competitive."

Another significant factor contributing to enhanced motivation is the contextual relevance of the material provided by AI tools. Many learners reported that the vocabulary and scenarios presented in applications like Lingvist were closely aligned with their specific professional needs, such as medical, technical, or business language. For example, a medical student stated, "The specialized vocabulary I learn through Lingvist is directly applicable to my studies and future career, which keeps me motivated to practice regularly." This alignment between learning content and professional aspirations fosters intrinsic motivation, as students see the direct application of their learning in real-world contexts. By integrating contextually relevant materials, AI tools help bridge the gap between theory and practice, making the learning experience more meaningful and motivating.

The gamification elements incorporated into AI applications significantly contribute to learner engagement. Many students highlighted that the competitive aspects of these tools, such as earning points, badges, and completing levels, make learning feel like a game rather than a chore. One student remarked, "I love the challenge of leveling up in Duolingo; it pushes me to practice every day to keep my streak alive." This gamified approach not only enhances motivation but also encourages consistent practice, which is crucial for language acquisition. By fostering a sense of achievement and competition, AI tools transform the language learning process into an enjoyable and rewarding experience, reinforcing learners' commitment to their studies.

Despite the positive perceptions of AI tools in enhancing motivation, some challenges were also identified. A few students expressed concerns about the limitations of AI in fully replicating human interaction and feedback. One student commented, "While I appreciate the instant feedback, I sometimes miss the deeper conversations I could have with a teacher who understands my specific challenges." This highlights the importance of balancing AI tools with traditional teaching methods to provide comprehensive learning experience. Educators can leverage the strengths of AI while still offering personalized support and mentorship, ensuring that learners receive a well-rounded education. By combining the efficiency of AI with the emotional and cognitive benefits of human interaction, TESP can create a more effective and motivating learning environment for students.

Impact of AI on Teaching Methods in TESP

The integration of AI tools into TESP has significantly transformed traditional teaching practices, allowing educators to enhance the learning experience while addressing the unique needs of their students. As AI applications like Duolingo and Lingvist become increasingly prevalent, educators are adapting their teaching methodologies to incorporate these technologies. This shift not only facilitates personalized learning but also fosters a more engaging classroom environment. Educators have reported changes in their approaches to curriculum design, lesson planning, and student assessment, emphasizing the need to create learning experiences that leverage the capabilities of AI.

One notable change in teaching practices is the emphasis on personalized instruction. AI-driven platforms enable educators to gather detailed data on individual student performance, allowing them to tailor their teaching strategies accordingly. For instance, through analytics provided by these applications, teachers can identify specific areas where students struggle and adjust their lesson plans to focus on those weaknesses. A recent study by (Meskó and Görög 2020; Chen et al. 2022) highlighted that AI tools help educators in developing targeted interventions, resulting in more effective teaching strategies and improved learner outcomes. The ability to analyze real-time data on student progress not only empowers educators to make informed decisions but also enables them to foster a more responsive learning environment.

Table 2 Comparison Table of Teaching Methods Before and After Artificial Intelligence (AI) Integration

Teaching Method	Before AI Integration	After AI Integration
Curriculum Design	Generic content for all learners	Tailored content for specific professional needs
Lesson Planning	One-size-fits-all approach	Personalized lesson plans based on learner analytics
Student Assessment	Standardized testing	Adaptive assessments with real-time feedback

In addition to personalized instruction, AI integration has encouraged a shift towards more interactive and engaging teaching methodologies. Educators are increasingly incorporating AI tools into their lessons, allowing for a blended learning approach that combines traditional face-to-face instruction with digital learning experiences. For example, using chatbots and interactive platforms, students can practice language skills in real-time scenarios, enhancing their speaking and listening abilities. This shift not only keeps students engaged but also promotes active learning, where students take ownership of their education. The flexibility afforded by AI tools allows educators to facilitate collaborative learning experiences, encouraging peer interaction and feedback, which are crucial elements in language acquisition. Research by (Angelov et al. 2021; Werdhiastutie, Suhariadi, and Partiwi 2020; Ferris 2004) supports this notion, indicating that interactive AI applications significantly improve student engagement and motivation, further enhancing language learning outcomes.

Moreover, the incorporation of AI in TESP has led to changes in assessment strategies. Traditional assessment methods often relied on standardized tests, which may not accurately reflect a learner's language proficiency or ability to apply their skills in specific contexts. With the advent of AI-driven assessment tools, educators can implement adaptive testing methods that respond to the individual learner's needs, providing a more accurate measure of their abilities. For instance, AI can generate questions based on the learner's previous responses, creating a customized assessment experience that challenges them appropriately while monitoring their progress. This shift not only allows for more meaningful evaluations but also supports ongoing learning by providing students with immediate feedback. According to (Novelli, Taddeo, and Floridi 2024; Jamal Ali and Anwar 2021), such adaptive assessments enhance learner motivation and engagement by allowing students to see their progress in real-time, making the learning experience more dynamic and responsive.

Challenges and Opportunities.

While the integration of AI in TESP presents numerous benefits, it also introduces a range of challenges that educators and learners must navigate. One significant limitation is the reliance on technology, which can exacerbate disparities in access to resources. Not all learners have equal access to devices or stable internet connections, which can hinder their ability to engage with AI-driven platforms effectively. According to a report by the United Nations Educational, Scientific and Cultural Organization (Fishbach and Woolley 2022; Kuswati 2020), students from lower socioeconomic backgrounds are often disadvantaged in digital learning environments, leading to inequalities in educational outcomes. Reliance on AI can lead to a depersonalization of the learning experience. As students interact primarily with AI tools, there is a risk that they may miss out on valuable face-to-face interactions with educators and peers that are crucial for developing language skills. The challenge lies in balancing the use of AI with traditional teaching methods to ensure that learners receive a well-rounded education that includes both technological and interpersonal elements.

Despite these challenges, there are significant opportunities for further development of AI-driven TESP practices. One of the most promising avenues is the enhancement of adaptive learning technologies that cater to individual learner needs. By continually analyzing student performance data, AI systems can provide increasingly personalized learning experiences that adapt in real-time to the evolving abilities of each learner. This can help to address the diverse language needs of students pursuing different professional paths, making TESP more relevant and effective. Research by (Ali et al. 2023; Al-Syatibi 2020) indicates that adaptive learning systems can lead to better educational outcomes by personalizing the learning journey, thus keeping students motivated and engaged. Furthermore, incorporating AI analytics into curriculum design

can help educators refine their teaching strategies, allowing them to focus on areas where students struggle the most and ensuring that instructional content is relevant and applicable to their specific fields.

Another opportunity lies in the potential for AI to facilitate collaborative learning environments. AI tools can support group interactions by providing platforms where students can practice language skills together, receive peer feedback, and engage in authentic language use within their professional contexts. For instance, platforms that allow for virtual classrooms and group projects can enhance the social aspect of language learning, which is often overlooked in traditional online formats. Research by (Schunk and DiBenedetto 2021; S 2015);(Christison and Murray 2023) highlights the importance of community in the learning process, indicating that students who feel part of a learning community are more likely to stay motivated and engaged. AI can also streamline the administrative aspects of TESP, such as grading and tracking student progress, enabling educators to dedicate more time to facilitating meaningful interactions and providing personalized support. By leveraging AI's capabilities, educators can create a more dynamic and interactive learning environment that fosters collaboration and enhances motivation among TESP learners.

Conclusion

The In summary, this study highlights the transformative impact of AI on motivation in TESP. The findings indicate that AI-driven tools, such as Duolingo and Lingvist, enhance learner motivation through personalized learning experiences, immediate feedback, contextual relevance, and gamification. By adapting to individual learners' needs and providing real-time insights into their progress, these tools empower students to take ownership of their language learning journeys. Furthermore, the integration of AI in TESP facilitates more interactive and engaging teaching methodologies, which can lead to higher levels of student engagement and satisfaction. Ultimately, AI not only complements traditional teaching methods but also enriches the educational experience by fostering a supportive learning environment tailored to the specific needs of diverse learners.

For educators and educational institutions, the practical implications of this research are significant. Integrating AI into TESP curricula can offer educators new ways to address the diverse needs of their students, enhancing both motivation and learning outcomes. Institutions should invest in professional development to equip teachers with the skills necessary to effectively incorporate AI tools into their teaching practices. Additionally, it is essential to maintain a balanced approach that combines technology with meaningful human interaction, ensuring that students benefit from both personalized learning and the social aspects of language acquisition. Future research should focus on exploring a wider array of AI tools and their applications across various language teaching contexts, as well as examining the long-term effects of AI integration on learner motivation and proficiency. By understanding these dynamics, educators can further refine their approaches to language teaching, ultimately leading to more effective and engaging learning environments for all students.

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