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Ivana M. Krsmanović[1]
Lena Lj. Tica
University of Kragujevac, Faculty of Technical Sciences
Čačak, Serbia

Self-directed Learning in the AI era: ChatGPT and English for Specific Purposes

***Summary**: The rapid evolution of Computer-Assisted Language Learning (CALL) and the integration of advanced tools in EFL and ESP instruction have propelled Self-Directed Learning (SDL) to new levels of significance. Students who develop strong SDL skills tend to achieve greater academic success, particularly in university settings. Among the AI-driven tools reshaping language learning, ChatGPT has emerged as a game-changer, yet its role in ESL and ESP remains largely unexplored.*

This study aimed to investigate students' Self-Directed Learning Readiness (SDLR) and their perceptions of ChatGPT as an ESP learning tool. Specifically, it sought to examine: (1) the influence of motivation on ChatGPT utilization in self-directed ESP learning, (2) the impact of effective learning strategies on usage frequency, satisfaction, and perception of ChatGPT's features, and (3) students' perceived benefits of integrating ChatGPT into ESP instruction. Using a quantitative research design, the study surveyed 79 university students through an adapted Self-Directed Readiness Scale (SDRS) and a set of original questions.

The findings reveal that while students demonstrate a moderate readiness to employ SDL strategies in ESP learning, their engagement with ChatGPT varies. A moderate positive correlation was observed between students' motivation and their frequency of ChatGPT use, satisfaction, and perception of its effectiveness. Higher motivation and the application of diverse learning strategies were linked to more frequent use and greater satisfaction with ChatGPT, reinforcing the role of motivation in self-directed learning. However, factors such as language proficiency, gender, and age did not significantly impact these relationships.

***Keywords*:** *Computer-assisted Language Learning, Artificial Intelligence, English for Specific Purposes, Self-directed Learning Readiness, motivation.*

1 ivana.krsmanovic@ftn.kg.ac.rs
https://orcid.org/0000-0003-4793-628X

Introduction

Self-directed learning (SDL) is an essential skill that enables adult learners to take responsibility for planning, implementing, and evaluating their own learning in an era of ever-expanding access to information (Hiemstra, 1994). SDL fosters key attributes such as proactivity, flexibility, and autonomy, making it particularly relevant in technology-driven education, where learners must actively manage their own progress. This became even more evident in the post-pandemic shift to online and hybrid learning, as students had to navigate their education more independently. The sudden transition underscored the need for learners to develop new strategies and adapt quickly, reinforcing SDL as a cornerstone of effective learning in times of disruption. Moreover, as Morris et al. (2023) aptly observe, SDL is deeply rooted in a democratic ethos, emphasizing its significance not only for individual growth but also for fostering societal progress and resilience.

In higher education, SDL is increasingly recognized as a key factor in academic success. Research indicates that students who effectively develop their SDL abilities are more likely to achieve higher academic performance. For instance, Harini (2023) finds that students with strong SDL abilities demonstrate superior problem-solving skills compared to their peers. Similarly, Li et al. (2024) highlight the link between motivation, emotional intelligence, and proactive learning strategies, all of which enhance SDL and academic performance. Finally, Tang et al. (2022) emphasize the role of a supportive learning environment in strengthening SDL skills and improving overall student achievement.

The increasing relevance of self-directed learning (SDL) extends beyond academic contexts, emerging as a key driver of professional development and lifelong learning in an evolving global landscape. Recent studies and surveys highlight the surging demand for SDL, particularly in professional training. A 2019 survey of over 3,000 employed U.S. respondents found that 42% of Millennials preferred self-directed learning (Bohne, 2022). Additionally, in 2022, 61% of German companies implemented AI-driven learning experience platforms (LXPs) to support this trend, indicating that SDL is not just a preference but a strategic priority for organizations worldwide (Koptyug, 2025). These findings illustrate the pivotal role of SDL in shaping both modern education and workforce development.

As the demand for SDL grows, understanding the role of AI in supporting self-directed learning is becoming increasingly important. Research has shown that AI tools can enhance autonomy, motivation, and personalized learning (Aladini et al, 2025; Tica & Krsmanović, 2024; Wu et al., 2024; Popenici & Kerr, 2017), yet there remains a gap in understanding their specific applications in English as a Foreign Language (EFL) learning, particularly from an SDL perspective. Given the rapid expansion of AI-driven educational tools, further research is needed to examine how AI can effectively support SDL among EFL learners, enhancing both linguistic and metacognitive development.

Theoretical background

Self-directed learning (SDL), or "the apparent need to learn on one's own" (Garrison, 1997: 19), is a pedagogical approach in which individuals take the initiative in diagnosing their learning needs, setting goals, identifying resources, selecting appropriate strategies, and evaluating learning outcomes. Although the roots of SDL can be traced back to the 19th century or earlier (Hiemstra, 1994), it gained prominence in the 1960s and 1970s with the work of Houle (1961), Tough (1971), and Knowles (1975), who outlined its key components within the field of adult education and andragogy (Loeng, 2020; Moore, 1982). Knowles emphasized the role of autonomy and independence in learning, arguing that self-directedness is a characteristic specific to adult learners rather than children (Brookfield, 2009). He defined SDL as follows:

> "In its broadest meaning, 'self-directed learning' describes a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes." (Knowles, 1975: 18)

Garrison (1997) made a significant contribution to SDL theory by refining earlier models and emphasizing three interrelated components essential for learners to take control of their learning process: self-management (task control), self-monitoring (cognitive responsibility), and motivation (task initiation and persistence). Motivation, according to Garrison, is central to the SDL model, driving both the initiation and continuation of learning efforts (Garrison, 1997: 29). Entry motivation triggers engagement, while task motivation sustains commitment throughout the learning process. Self-monitoring involves continuous regulation and reflection on learning strategies through cognitive and metacognitive processes. Empirical research further supports these theoretical connections, such as Abd-El-Fattah's (2010) study, which found that motivation mediates the relationship between self-management and self-monitoring, and influences academic achievement, especially in the second semester.

SDL is not only an individual endeavor but is significantly shaped by social contexts and the involvement of others (Alnajjar et al., 2024). Garrison (1997) extended this idea with a "collaborative constructivist perspective," highlighting the role of others in shaping knowledge. SDL, thus, becomes both a personal and social process, with outcomes that are not only "personally meaningful" but also "socially worthwhile," emphasizing the broader impact of SDL on individual growth and societal progress. For SDL to be effective, educators must actively engage in the process. Cadorin et al. (2017) emphasize the importance of tools like the Self-Directed Learning Readiness Scale (SDLRS), which assess learners' readiness and help identify areas where students need support. These tools bridge the gap between students' self-directed efforts and effective teaching practices.

SDL has become increasingly important in today's digital age, as education shifts toward distance and hybrid models, and the integration of various digital tools has gained prominence. This transition has underscored SDL's compatibility with modern learning environments (Morris, 2019). As learners navigate vast amounts of information, developing critical skills for assessing and effectively utilizing resources has become essential (Morris, 2019). This shift has also spurred a rise in research focusing on how digital platforms and blended learning environments can enhance SDL capabilities. Studies show that these tools provide flexible access to resources, foster collaboration, and ultimately strengthen students' ability to engage in self-directed learning (Tekkol & Demirel, 2018; Jeong, 2022).

The acquisition of English as a Foreign Language (EFL) is also among the fields where self-directed learning (SDL) has been extensively explored. Evidence suggests that EFL learners who adopt SDL strategies tend to outperform those who rely predominantly on teacher-directed learning (TDL) methods, as SDL has been shown to improve EFL learners' writing skills (Aghayani & Janfeshan, 2020), foster overall language development (Haidari et al., 2019), and enhance self-efficacy and motivation (Chen & Hsu, 2022).

Finally, the integration of artificial intelligence (AI) into SDL has emerged as a transformative force, reshaping the ways learners engage with knowledge and develop autonomy. AI-driven technologies, including large language models (LLMs) and adaptive learning platforms, have demonstrated their potential to enhance personalized learning experiences, foster critical thinking, and support metacognitive skills. Recent research highlights that AI can facilitate SDL by providing learners with re-

al-time feedback, personalized recommendations, and interactive learning opportunities that promote self-regulation and engagement (Popenici & Kerr, 2017; Hwang & Oh, 2021). In particular, AI's ability to generate tailored content and assessments enables more flexible and adaptive learning environments, strengthening SDL capacities in various educational contexts (Namjoo, 2023).

Among the most widely researched AI tools in EFL is ChatGPT, an advanced conversational AI model developed by OpenAI. Built on the Generative Pre-trained Transformer (GPT) architecture, ChatGPT uses deep learning algorithms and vast datasets to generate human-like responses, supporting various aspects of language learning. Studies have explored its role in ELT, with findings indicating both benefits and challenges. While some research highlights its effectiveness in enhancing writing skills, conversational fluency, and SDL strategies (Klimova et al., 2024; Tica & Krsmanović, 2024; Kang & Sung, 2024), others, without diminishing these advantages, also emphasize concerns related to content reliability and ethical considerations (Kohnke & Zou, 2025; Chen & Gong, 2025).

While existing studies have explored the role of AI in self-directed learning and language acquisition, there is still limited research specifically addressing how students' self-directed learning readiness (SDLR) influences their engagement with AI tools in English for Specific Purposes (ESP). This study aims to fill that gap by examining students' perceptions of using ChatGPT as a learning tool in ESP and the impact of their motivation and learning strategies on its usage.

Aims and Objectives of the Study

The primary aim of this study is to examine the relationship between students' Self-directed Learning Readiness (SDLR) and their use of ChatGPT as a learning tool in English for Specific Purposes (ESP). More specifically, the objectives are:

1. To investigate the influence of students' motivation on their use of ChatGPT for self-directed ESP learning.
2. To examine how learning strategies affect students' frequency of ChatGPT usage, their satisfaction with the tool, and their perception of its features.
3. To explore students' perceptions of incorporating ChatGPT into ESP instruction, with a focus on identifying its benefits and drawbacks in enhancing language acquisition.

Research Methodology

To investigate the study objectives, formulated as three research questions (RQ1–RQ3), a quantitative, survey-based research design was employed. This design was selected for its effectiveness in systematically analyzing relationships between key variables, namely motivation, learning strategies, and the integration of ChatGPT in ESP instruction. All three research questions were addressed through a structured questionnaire that combined an adapted version of the Self-directed Readiness Scale (SDRS) (Xuan et al., 2018) with original items developed for this study. The instrument enabled the measurement of students' motivation, learning strategies, and perceptions of ChatGPT, thereby directly corresponding to RQ1, RQ2, and RQ3.

Procedure

Although participants were already familiar with ChatGPT, they were formally introduced to its targeted use for ESP learning at the beginning of the summer semester of 2024. During this phase, they received structured guidance and demonstrations on how to apply its features effectively for self-directed learning in an ESP context. While attending a compulsory Business English course designed to enhance their business communication skills, students were encouraged to integrate ChatGPT into

their weekly assignments, which covered all four core language skills—reading, writing, listening, and speaking. However, the use of ChatGPT was voluntary, allowing students to decide the extent of their engagement. This approach ensured that its implementation was exploratory and student-driven, aligning with SDL principles. At the end of the semester (June 2024), a comprehensive questionnaire was administered to assess students' experiences, perceptions, and the impact of ChatGPT on their ESP learning journey.

Research Instrument and Participants

To investigate students' Self-directed Learning Readiness (SDLR) and their perceptions of using ChatGPT as an ESP learning tool, the original data collection instrument consisted of three parts, combining an adapted version of the *Self-directed Readiness Scale* (*SDRS*) (Xuan et al., 2018) with a set of original questions tailored to the study's objectives. The first section of the instrument contained three demographic questions aimed at capturing participants' age, gender and English language proficiency. The second section comprised questions from the SDRS scale, designed to measure participants' readiness to engage in self-directed learning. This section contained 30 questions divided into two subscales: 11 items assessing motivation and 19 items measuring overall language learning strategies. All items were rated on a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The responses provided a quantitative measure of students' self-directed learning readiness (SDLR) levels, which were later analyzed to examine potential correlations with their use of ChatGPT as a learning tool. The third section focused on participants' experiences and perceptions of ChatGPT. It included five questions to assess satisfaction, frequency of use, and perception of ChatGPT's features. The instrument was pilot-tested to ensure clarity and reliability before being distributed to the sample of 79 university students.

The participants were undergraduate students enrolled at the Faculty of Technical Sciences, University of Kragujevac (Serbia). All of them were attending a compulsory *Business English course* in the second year of their study program. The course is part of the ESP curriculum designed to develop students' business communication skills and covers the four core language skills—reading, writing, listening, and speaking—within professional and academic contexts. Given that the majority of students were pursuing degrees in engineering and information technology, their ESP instruction was tailored to the needs of future professionals in technical and business environments.

The sampling technique employed in this study was **c***onvenience sampling*, as the participants were selected based on their availability and willingness to participate (Creswell and Creswell, 2018: 212). The validity of the instrument was confirmed through a high reliability score, with a Cronbach's Alpha of 0.95 for the ChatGPT section and 0.88 for the SDLR section. In terms of ethical considerations, participants were informed of the study's purpose and the voluntary nature of their participation prior to completing the survey.

The demographic profile of the participants provides valuable insights into the composition of the sample. The age of the respondents was categorized into three groups: 17–20 years, 21–25 years, and above 25 years. The majority of the participants (59.5%) fell within the 17–20 years age group. This was followed by the 21–25 years age group, representing 32.9% of the sample. A smaller proportion, 7.6%, consisted of respondents aged above 25 years. The cumulative analysis revealed that 92.4% of the participants were aged 25 or younger, underscoring a predominantly young cohort. Gender identity was another critical demographic variable. Among the participants, **72.2%** identified as male, while **25.3%** identified as female. A minority, **2.5%** chose not to disclose their gender. This distribution highlights a predominant male representation within the sample.

Based on their self-assessment, the English language proficiency of the respondents was classified into three levels: Beginner, Intermediate, and Advanced. The majority of participants (52.5%) self-assessed their English proficiency as Advanced, indicating a high level of fluency. This was followed by Intermediate speakers, who constituted 37.5% of the sample, while Beginner proficiency was reported by 10% of respondents.

Data collection and analysis

The survey, administered via Google Forms, began with the calculation of descriptive statistics for all study variables. Means and standard deviations were determined to analyze the questionnaire data. Following this, correlations between SDLR and ChatGPT usage were examined. Statistical analyses were conducted using SPSS software (version 29), with Pearson correlation and one-way ANOVA analyses utilized to obtain the results. The findings were interpreted based on the following mean categories: 1.00-1.79 (very low); 1.80-2.59 (low); 2.60-3.39 (moderate); 3.40-4.19 (high); 4.20-5.00 (very high), in accordance with Pimentel (2019).

Results

Self-Directed Learning Readiness in English Language Learning

This section presents the results of the Self-Directed Learning Readiness (SDLR) measures, which assessed students' motivation and language learning strategies in the context of English language learning. The analysis of the Self-Directed Readiness Scale (Table 1) indicates a strong overall commitment to English learning, with high mean scores for motivation (M=3.75, SD=0.62) and language learning strategies (M=3.67, SD=0.68). While motivation score is still slightly higher, the overall positive engagement with language learning strategies indicates that students are aware of and likely utilizing a variety of methods to support their language acquisition. The small gap between motivation and strategy use may stem from factors such as insufficient guidance or awareness of more advanced strategies, but overall, it highlights a strong foundation in language learning practices.

Table 1. Self-directed Learning Readiness in English language learning

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Motivation	79	1.00	5.00	3.75	0.62
Language Learning Strategies	79	1.00	5.00	3.67	0.68

The Motivation Scale data (Table 2) further reveal that students' motivation to learn English is primarily driven by a desire for practical language proficiency and long-term commitment, while competitive ambition and self-initiated grammar practice play a lesser role. The highest-rated statement is *"I want to learn how to use the English language effectively"*, with a mean score of 4.54 (SD=0.71). This suggests that students are highly motivated by practical language proficiency, emphasizing the importance of functional and applicable English skills in their learning process. Similarly, *"I believe that I will do well in the English class"* (M=4.33, SD=1.03) and *"I want to continue learning English for as long as possible"* (M=4.29, SD=1.08) indicate a strong sense of confidence and long-term commitment to language acquisition.

On the other hand, the lowest-rated statement in this scale is *"I do English grammar exercises even though it is not homework"*, with a mean score of 2.51 (SD=1.35). This implies that self-initiated grammar practice is not a major motivator for students, possibly reflecting a preference for more interactive or contextualized learning methods. Similarly, *"I want to be the best in the English class"* (M=3.05, SD=1.36) received relatively low agreement, suggesting that competitive motivation plays a lesser role compared to intrinsic interest and practical application.

Table 2. Descriptive Statistics for Motivation, SDLR Scale

Statements	N	Minimum	Maximum	Mean	Std. Deviation
I will try to learn English although it may be difficult.	79	1.00	5.00	3.20	1.52
I try to do my best to learn English.	79	1.00	5.00	3.92	1.09
Even if there is no attendance requirement in the English course, my attendance will be high.	79	1.00	5.00	3.92	1.27
I want to continue learning English for as long as possible.	79	1.00	5.00	4.28	1.08
I believe that I will do well in the English class.	79	1.00	5.00	4.32	1.02
I want to be the best in the English class.	79	1.00	5.00	3.05	1.35
I like to speak English in the class.	79	1.00	5.00	3.81	1.17
I want to learn how to use English language effectively.	79	3.00	5.00	4.53	1.71
I do English grammar exercises even though it is not homework.	79	1.00	5.00	2.51	1.30
I study English due to interest in English culture, such as English films, sports, music, etc.	79	1.00	5.00	3.86	1.35
I study English due to curiosity.	79	1.00	5.00	3.83	1.31

Table 3. Descriptive Statistics for Language Learning Strategies, SDLR Scale

Statements	N	Minimum	Maximum	Mean	Std. Deviation
When I am learning a new grammar rule, I think about its relationship and the rules I have already learned.	79	1.00	5.00	4.22	.98
When I study English, I write down the most important points for myself.	79	1.00	5.00	3.65	1.35
I try to find the meaning of a word or phrase by breaking it up into parts that I can understand.	79	1.00	5.00	3.60	1.33
I read English written materials to improve my English (e.g., English magazines, books, newspapers).	79	1.00	5.00	3.88	1.02
I listen to English materials to improve my English. (e.g., English songs, news, radio broadcasts).	79	1.00	5.00	4.36	1.02
I always ask my teacher for clarification when an idea is not clear.	79	1.00	5.00	3.62	1.14
I intentionally apply English that I have learned for communication.(e.g., speaking, writing).	79	1.00	5.00	4.03	1.08
When I see a word I don't understand, I ask others for its meaning.	79	1.00	5.00	3.80	1.33
When I see a word I don't understand, I look it up in the dictionary.	79	1.00	5.00	3.43	1.43
During class, I make use of any opportunity to take part in activities such as pair/group discussion, role-play etc.	79	1.00	5.00	3.33	1.24
When learning English, I try to identify language structures and terms I do not understand well.	79	1.00	5.00	3.92	1.00
I understand the importance of making my teacher's teaching objective as my own learning goal.	79	1.00	5.00	3.98	.96
When I feel that a learning method is not appropriate, I use other learning methods.	79	1.00	5.00	3.80	1.15

I evaluate my learning methods to find out the problems and solutions.	79	1.00	5.00	3.61	1.11
If I feel left behind in class, I will practice more outside the classroom to catch up with others.	79	1.00	5.00	3.62	1.26
I formulate my own English study plan besides what the teacher teaches in the classroom.	79	1.00	5.00	3.28	1.38
I keep a record of my performance, such as keeping a diary, writing review etc.	79	1.00	5.00	2.48	1.39
I check and renew my understanding of English language I have previously learned in class.	79	1.00	5.00	3.43	1.13
I choose English contents which suit me for practice that are neither too difficult nor too easy.	79	1.00	5.00	3.48	1.22

When it comes to the detailed scores for the statements regarding the language learning strategies (Table 3), the three highest-rated strategies reflect a strong preference for auditory learning and structured cognitive approaches. The top-rated statement, *"I listen to English materials to improve my English (e.g., English songs, news, radio broadcasts)"* (M=4.37, SD=1.03), indicates that students widely recognize the value of exposure to authentic spoken English in their learning process. This aligns with the second highest-rated statement, *"When I am learning a new grammar rule, I think about its relationship and the rules I have already learned"* (M=4.23, SD=0.98), which highlights the importance of analytical thinking in grammar acquisition. The third highest-rated statement, *"I intentionally apply English that I have learned for communication (e.g., speaking, writing)"* (M=4.04, SD=1.08), suggests that learners are proactive in applying newly acquired knowledge in real-world contexts. Collectively, these findings emphasize a preference for practical and structured learning approaches.

On the other hand, the three lowest-rated strategies suggest weaker engagement with self-regulated learning and independent study planning. The lowest-rated statement, *"I keep a record of my performance, such as keeping a diary, writing review, etc."* (M=2.49, SD = 1.40), suggests that students are less inclined toward reflective learning practices. Similarly, *"I formulate my own English study plan besides what the teacher teaches in the classroom"* (M=3.29, SD=1.39) received a relatively low score, indicating that learners may rely more on structured coursework rather than independently organizing their study routines. Finally, *"During class, I make use of any opportunity to take part in activities such as pair/group discussion, role-play, etc."* (M=3.34, SD=1.24) suggests that while some students actively participate in interactive classroom activities, overall engagement in communicative tasks is not as high as other learning strategies.

All the scores in this scale indicate a relatively high engagement with language learning strategies, with most means hovering around or above 3.0. This suggests that students demonstrate a generally active approach to learning English, employing a mix of cognitive, metacognitive, and social strategies. Even the lowest-rated statements still have means above 2.4, indicating that while some strategies are used less frequently, they are not entirely neglected. These findings highlight a potential gap in students' use of self-regulated learning strategies and classroom participation, suggesting that fostering more structured independent study habits and encouraging interactive learning activities could further enhance their language acquisition.

Finally, a one-way analysis of variance (ANOVA) was conducted to examine the differences between two groups of participants—those who self-assessed their English proficiency as beginner/inter-

mediate (one group) and those who self-assessed as advanced (the other group)—in terms of their motivation to learn the language and language learning strategies. The results of the ANOVA test indicated no significant differences in the assessment of motivation for learning English ($F(1,77)=2.221$, $p=0.14$), nor in the use of learning strategies ($F(1,77)=0.97$, $p=0.328$) between participants who rated their English proficiency as beginner/intermediate and advanced. These results suggest that motivation and language learning strategies are consistently applied across proficiency levels, indicating that learners at different stages of language acquisition engage with the learning process in similar ways.

Attitudes towards ChatGPT in English Language Learning

The first question of the third section referred to the frequency of ChatGPT use for various language learning activities. Participants were asked to rate how frequently they used ChatGPT for various language learning tasks, and the results indicate a low level of engagement across the board (Table 4). For conversation and communication practice, 50.6% of participants reported never using ChatGPT as a self-directed tool, with only a small portion (19.4%) engaging with it frequently or always. Similarly, for vocabulary practice, 53.2% never used ChatGPT, although 15.2% used it regularly. The same trend was observed for grammar, with 53.2% never utilizing the tool for this purpose, and only 7.6% using it very frequently. In contrast, 41.8% of students reported never using ChatGPT for writing assistance, while 15.2% found it helpful on a frequent basis. When it came to cultural information, 36.7% never engaged with ChatGPT, but 19% made use of it regularly. Lastly, regarding personalized learning, 44.3% of students indicated they never used ChatGPT, though 17.7% utilized it consistently. Overall, the mean score for this set of questions was low, $M=2.22$ ($SD=1.10$), reflecting a general trend of rare or occasional use for language learning tasks. While students occasionally found ChatGPT useful for activities like writing and cultural exploration, its use for grammar and conversation was notably less frequent.

Table 4. Frequency of ChatGPT use, per activity

Learning Activity	Never (%)	Frequently/ Always (%)
Conversation & Communication	50.6%	19.4%
Vocabulary Practice	53.2%	15.2%
Grammar Practice	53.2%	7.6%
Writing Assistance	41.8%	15.2%
Cultural Information	36.7%	19%
Personalized Learning	44.3%	17.7%

The second question was related to the satisfaction with ChatGPT's responses across various language learning segments. The overall mean satisfaction score was $M=2.96$ ($SD=1.35$), indicating moderate satisfaction, slightly higher than the mean for the previous question regarding frequency of use. Looking at individual segments (Table 5), the satisfaction with grammatical explanations received a relatively higher rating, with 35.4% of students rating it as a 3 (neutral) and 13.9% as a 4 or 5, which indicates moderate to high satisfaction. Similarly, explanations of terms and words were also generally rated positively, with 35.4% of participants selecting a rating of 3, while 22.8% rated it a 5, indicating a notable level of satisfaction with this aspect. In contrast, assistance with writing was met with mixed reactions, with 29.1% of students rating it as 3, and a significant 26.6% rating it as 5, suggesting that ChatGPT was perceived as more helpful in writing tasks compared to other areas. However, for conversational practice, a larger portion of students (32.9%) rated it as 3, and 21.5% gave a score 4, showing that while students occasionally used ChatGPT for conversation, the satisfaction was not as high as in the writing or vocabulary areas. Cultural information was the area with the most varied responses. A significant portion (29.1%) rated it as 3, while 21.5% rated it as 5.

Table 5. Satisfaction with ChatGPT responses

Language Learning Segment	Neutral (3) (%)	High Satisfaction (4 or 5) (%)
Writing Assistance	29.1%	26.6%
Explanations of Terms/ Words	35.4%	22.8%
Conversational Practice	32.9%	21.5%
Cultural Information	29.1%	21.5%
Grammatical Explanations	35.4%	13.9%

A comparison between the frequency of ChatGPT use (Table 6) and satisfaction with its responses reveals an interesting pattern. Activities with the lowest usage rates, such as grammar practice (53.2% never use it, only 7.6% use it frequently) and vocabulary practice (53.2% never, 15.2% frequent use), also show relatively lower satisfaction levels. For instance, grammatical explanations had only 13.9% high satisfaction, the lowest among all categories. This suggests that students may not find ChatGPT particularly effective for grammar-related tasks, possibly due to perceived inaccuracies or limitations in explanations.

Conversely, writing assistance stands out as an area where ChatGPT receives both higher usage (41.8% never use it, 15.2% use it frequently) and 26.6% high satisfaction—the highest among all segments. This indicates that students who do use ChatGPT for writing tend to find it useful, reinforcing the idea that AI tools may be more beneficial for content generation than for rule-based language learning.

Table 6. ChatGPT usage - descriptive statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Frequency of ChatGPT usage	79	1.00	5.00	2.22	1.10
Satisfaction with ChatGPT	79	1.00	5.00	2.96	1.35
ChatGPT features	79	1.00	5.00	3.55	1.03

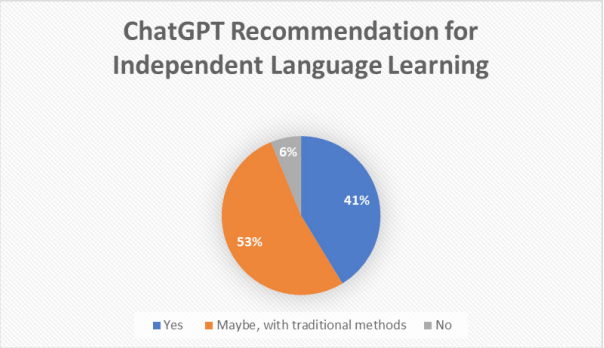

Figure 1. ChatGPT Recommendation for independent language learning

Regarding the question of whether users would recommend ChatGPT as a tool for independent language learning, 41.3% of respondents answered "yes" suggesting that a significant portion of users are satisfied with ChatGPT and would recommend it for self-learning (Figure 1). However, some respondents (a notable proportion, 52.5%) stated "maybe, with additional traditional methods of learning (with a teacher)," implying that they believe ChatGPT is useful but perhaps not a complete substitute for conventional learning methods.

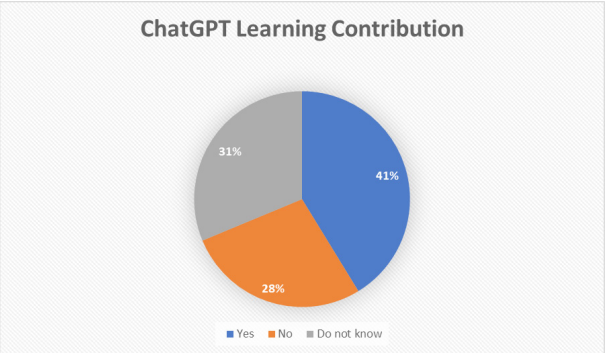

Figure 2. ChatGPT Learning Contribution

As for the question of whether users feel that ChatGPT has contributed to improving their language knowledge, the responses showed a mixed perspective (Figure 2). 41.3% of respondents agreed that ChatGPT has helped improve their language skills, while 27.5% disagreed. The remaining 31.3% were uncertain or unable to assess, which suggests

that while many users find value in using ChatGPT for language learning, others may not have experienced significant improvements or are unsure about its effectiveness.

The results from the question on how users utilize ChatGPT for language learning show that most participants prefer to modify ChatGPT's responses rather than using them directly (Table 7). The highest mean (M=2.18) was for those who check ChatGPT's answer, then adapt it and add their own solution. A significant portion also uses ChatGPT as inspiration (M=1.94), not simply adopting its answers. A smaller group relies on ChatGPT's responses without modification (M=1.58). This suggests that users tend to engage critically with ChatGPT, refining its suggestions rather than relying on them unaltered.

Additionally, we conducted an analysis to examine whether potential differences in ChatGPT usage, satisfaction, and feature evaluation could stem from participants' English proficiency levels. A One-way ANOVA was again performed to compare two groups—those who rated their proficiency as basic/intermediate and those who rated it as advanced. The results indicated no significant differences in ChatGPT usage frequency ($F(1,77)=0.07$, $p=0.791$), satisfaction with the tool ($F(1,77)=0.027$, $p=0.869$), or evaluation of its features ($F(1,77)=0.538$, $p=0.465$) between the two groups.

Correlations between SDLR and ChatGPT attitudes

The results of the Pearson correlations provide valuable insights into how students' motivation and the use of effective learning strategies influence their utilization of ChatGPT as a self-directed learning tool in the context of ESP (Table 8). Firstly, students' motivation for learning is positively correlated with the frequency of ChatGPT usage ($r=0.325$, $p<0.01$), suggesting that highly motivated students tend to use ChatGPT more often. This motivation also appears to influence their satisfaction with the tool ($r=0.336$, $p<0.01$) and their perception of its features ($r=0.341$, $p<0.01$), indicating that motivated learners not only engage more with the tool but also appreciate its capabilities, such as response speed and accuracy. Furthermore, students who apply more diverse learning strategies ($r=0.524$, $p<0.01$) also tend to use ChatGPT more frequently ($r=0.344$, $p<0.01$), suggesting that learners who employ a variety of strategies in their learning are more likely to incorporate ChatGPT into their study routines. Additionally, these students report higher satisfaction with ChatGPT ($r=0.277$, $p<0.05$) and a greater recognition of its helpful features, reinforcing the idea that effective learning strategies enhance the overall experience with the tool.

Table 7. How ChatGPT is used for language learning - descriptive statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
First, I try to solve the task on my own, then I use other sources, and finally, I consult ChatGPT.	79	1.00	4.00	2.27	1.09
First, I check how ChatGPT would solve the task, then I use its response as my own.	79	1.00	4.00	1.58	.94
First, I check how ChatGPT would solve the task, then I take its response, modify it, and add my own solution.	79	1.00	4.00	1.94	1.10
I use ChatGPT only as inspiration and do not take its response as my own without modifications.	79	1.00	4.00	2.17	1.18

Table 8. Correlations between SDLR and ChatGPT

		SD_ motivation	SD_ Learning Strategies	ChatGPT frequency of usage	ChatGPT satisfaction	ChatGPT features
SD_motivation	Pearson Corr.	1	**.524****	**.325****	**.336****	**.341***
	Sig. (2-tailed)		**.000**	**.003**	**.003**	**.002**
SD_Learning Strategies	Pearson Corr.	.524**	1	**.344****	**.277***	**.215**
	Sig. (2-tailed)	.000		**.002**	**.013**	**.057**
ChatGPT frequency of usage	Pearson Corr.	.325**	.344**	1	**.686****	**.532****
	Sig. (2-tailed)	.003	.002		**.000**	**.000**
ChatGPT satisfaction	Pearson Corr.	.336**	.277*	.686**	1	**.672****
	Sig. (2-tailed)	.003	.013	.000		**.000**
ChatGPT features	Pearson Corr.	.341*	.215	.532**	.672**	1
	Sig. (2-tailed)	.002	.057	.000	.000	

**. Correlation is significant at the 0.01 level (2-tailed)
*. Correlation is significant at the 0.05 level (2-tailed)

Discussion

The findings point to clear patterns in how motivation, strategy use, and perceptions of ChatGPT influence learners' engagement with ESP. The following discussion interprets these outcomes through the lens of the three research questions, while situating them within existing research.

The first research question addressed the role of motivation in shaping students' use of ChatGPT for self-directed ESP learning. The findings derived from the Self-Directed Readiness Scale, show that motivation levels were high across the sample, suggesting that students approach English learning with clear goals and a strong sense of commitment. This aligns with the findings of Aladini et al. (2025) and Wu et al. (2024), who similarly observed that both motivation and language learning strategies were positively rated, reinforcing the notion that motivated learners are more likely to adopt effective strategies to enhance their language acquisition. Further results indicate that motivation also plays a key role in engaging with ChatGPT. Pearson correlations showed that higher motivation is positively associated with more frequent use of ChatGPT ($r=0.325$, $p<0.01$), greater satisfaction with the tool ($r=0.336$, $p<0.01$), and more favorable perceptions of its features ($r=0.341$, $p<0.01$).

The second research question examined how students' use of learning strategies affects their frequency of ChatGPT usage, satisfaction, and perception of its features. The findings indicate that learners who employ diverse and effective strategies tend to use ChatGPT more frequently ($r=0.344$, $p<0.01$), are more satisfied with the tool ($r=0.277$, $p<0.05$), and appreciate its functionalities. High engagement with auditory, cognitive, and practical learning strategies—such as listening to authentic English materials, analyzing grammar rules, and applying learned English in communication—was observed, whereas reflective self-regulated learning practices were less frequent. This emphasizes that students who already adopt structured and strategic approaches are better positioned to benefit from ChatGPT, reinforcing the importance of combining motivation and strategy use (Aladini et al., 2025; Wu et al., 2024).

The third research question focused on students' perceptions of ChatGPT in ESP instruction, highlighting its perceived benefits and drawbacks. While overall usage was low, ChatGPT was most frequently used and valued for writing assistance and explanations of terms, which also received the highest satisfaction ratings. The effectiveness of AI-assisted writing tasks is also supported by Huang & Mizumoto (2024) and Aladini et al. (2025), who found that generative AI tools can enhance both linguistic and metacognitive skills. Grammar and conversational practice had lower usage and satisfaction, indicating that students perceive ChatGPT as more effective for content generation than for rule-based or communicative tasks. Students often engaged critically with the tool, modifying its responses or using them as inspiration, rather than adopting them verbatim, reflecting an active learning approach. Regarding recommendations, 41.3% would endorse ChatGPT as a self-directed learning tool, whereas 52.5% suggested it could be useful in combination with traditional instruction. This is in a way compliant with (Rahimi & Mosalli, 2025) who reinforce the idea that if ChatGPT is effectively integrated into SDL frameworks, students are more likely to adopt a *deep, structured, and meaningful approach* to its use.

Furthermore, no significant differences were observed based on self-assessed English proficiency, indicating that both beginners/intermediates and advanced learners share similar patterns of motivation, strategy use, and engagement with ChatGPT. This finding aligns with Mohamed et al. (2024) but contrasts with Dizon (2024), who found age and language background affected perceptions of AI tools. Overall, these insights highlight the importance of fostering motivation across all proficiency levels while tailoring instructional methods to support self-directed learning and diverse learning preferences (compliant with Aladini et al, 2025, Gutiérrez 2023, and Wu et al., 2024).

Limitations and Future Study

Despite offering valuable insights into ChatGPT as a self-directed learning tool, this study has several limitations. The sample size, though adequate for analysis, may not fully represent diverse learner profiles, particularly regarding language proficiency and AI exposure. Expanding the participant pool could enhance the findings' generalizability. Additionally, reliance on self-reported data introduces potential biases; incorporating objective measures, such as tracking actual interactions or analyzing user-generated texts, could improve reliability. While the study identifies correlations between motivation, learning strategies, and ChatGPT usage, it does not establish causation. Experimental or longitudinal research could better assess AI's impact on language learning. More qualitative approaches, such as interviews or think-aloud protocols, could offer deeper insights into learners' decision-making. As AI evolves, future studies should examine how advancements influence learners' reliance on ChatGPT and its role in balancing independent study with traditional instruction. Ethical concerns, including overreliance on AI and biases in generated content, also warrant further investigation.

Conclusion

The integration of AI tools, particularly ChatGPT, into self-directed learning (SDL) for English as a Foreign Language (EFL) learners opens up new possibilities for more personalized and flexible learning. As learner autonomy becomes an increasingly important aspect of language education, AI-driven platforms offer ways to support motivation, adapt to individual needs, and foster independent language practice. This study focused on how students' motivation and SDL readiness influence their engagement with ChatGPT in the context of English for Specific Purposes (ESP).

The findings of this study highlight the complex relationship between motivation, self-directed learning (SDL) readiness, and the use of ChatGPT as a language learning tool in English for Specific Purposes (ESP). The results suggest that students exhibit a strong commitment to language learning, with motivation and language learning strategies scoring high, demonstrating their active engagement in developing English proficiency. The results indicate that highly motivated learners tend to use ChatGPT more frequently and report higher satisfaction with its features. Similarly, students who employ a wider range of learning strategies engage more actively with ChatGPT and are more likely to critically evaluate and adapt its responses to suit their learning needs, rather than using them verbatim. This suggests that motivation and strategic engagement are stronger determinants of effective ChatGPT use than self-assessed proficiency levels, which showed no significant differences in usage or satisfaction.

Notably, ChatGPT's utility appears strongest in structured learning tasks such as writing assistance and explanations of terms, which received the highest satisfaction ratings. In contrast, its role in grammar practice and conversational activities remains limited, as reflected in lower engagement levels. This suggests that while generative AI can effectively support content creation and comprehension, it may not yet fully replicate interactive, communicative aspects of language learning. The study further found that motivation positively correlates with ChatGPT usage and satisfaction, highlighting the role of AI in fostering self-efficacy and learner autonomy. Importantly, over half of the respondents expressed a preference for combining ChatGPT with traditional instruction, reinforcing the view that AI should supplement—not replace—teacher-led learning. Educators should therefore guide students in the critical use of AI tools, helping them distinguish between reliable output and content requiring refinement. While students appreciate the autonomy that AI allows, they still value structured support and human interaction in the learning process.

In conclusion, SDL is shaped by a combination of motivation, learner engagement, and pedagogical context. ChatGPT can enhance SDL by offering accessible support and encouraging autonomous learning, especially for tasks involving writing and comprehension. However, its full potential depends on thoughtful integration into existing curricula, with a balance between AI-driven independence and structured, communicative learning. Future research should further investigate how AI can support interactive language use and promote long-term language development.

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Ивана М. Крсмановић
Лена Љ. Тица
Универзитет у Крагујевцу, Факултет техничких наука
Чачак, Србија

САМОСТАЛНО УЧЕЊЕ У ДОБА AI: CHATGPT И ЕНГЛЕСКИ ЈЕЗИК СТРУКЕ

У савременом образовном контексту, који је обележен убрзаним развојем информационих технологија и дигиталних алата, концепт самосталног учења (енг. Self-Directed Learning – SDL) добија све већи значај. Истраживања у оквиру компјутерски подржаног учења језика (енг. Computer-Assisted Language Learning – CALL) указују на то да студенти који развијају способност за самостално учење остварују бољи академски успех, нарочито у високошколском контексту. У том смислу, интеграција вештачке интелигенције (енг. AI) у наставу страних језика отвара нове могућности за истраживања. Међу различитим AI алатима посебно се истиче ChatGPT, чији се ефекти примене у учењу енглеског као страног језика (EFL) и енглеског језика струке (ESP) тек однедавно озбиљније истражују.

Циљ овог истраживања био је да се испита спремност студената за самостално учење (енг. Self-Directed Learning Readiness – SDLR) и њихова перцепција алата ChatGPT, као алата за учење енглеског језика (струке). Посебан фокус стављен је на три аспекта: (1) утицај мотивације на коришћење алата ChatGPT у самосталном учењу енглеског језика струке, (2) везу између употребе стратегија учења и учесталости, задовољства и перцепције функционалности алата и (3) перципиране користи интеграције алата ChatGPT у наставу енглеског језика струке.

Истраживање је спроведено квантитативним методолошким приступом, путем анкете, у којој је учествовало 79 студената. Инструмент истраживања обухватио је адаптирану верзију скале за процену спремности за самостално учење (Xuan et al., 2018), као и додатна питања која су се односила на специфичне аспекте коришћења алата ChatGPT у контексту ESP наставе. Добијени подаци анализирани су дескриптивном и инференцијалном статистиком, при чему су испитиване корелације између мотивације, стратегија учења и образаца употребе AI алата. Демографски профил узорка додатно осветљава контекст истраживања: већину су чинили студенти старости 17–20 година (59,5%), док је 72,2% учесника било мушког пола, што одражава типичну структуру студената техничких и информационих наука. Самопроцена је показала да више од половине испитаника (52,5%) има напредан ниво знања енглеског језика, што је релевантно за разумевање њихових образаца употребе алата ChatGPT у ESP окружењу.

Резултати истраживања указују да студенти умерено развијају спремност за примену SDL стратегија у учењу језика струке (M=3.42, SD=0.61), док се њихова употреба алата ChatGPT значајно разликује у зависности од индивидуалних фактора. Утврђена је позитивна корелација између мотивације и учесталости коришћења алата (r=.36, p<.01), као и између мотивације и задовољства његовим функцијама (r=.41, p< .01) и перцепције његове ефикасности (r=.39, p<.01). Студенти са вишим нивоом мотивације и развијенијим стратегијама учења показали су тенденцију да ChatGPT користе чешће, са већим задовољством

и критичким приступом – при чему су одговоре алата прилагођавали сопственим потребама, без некритичког преузимања.

Насупрот томе, пол (F(1,77)=1.12, p=.29), старост (F(2,76)=0.85, p=.43) и самопроцена језичке компетенције (F(2,76)=1.34, p=.27) нису се показали као значајни фактори у обликовању образаца коришћења. Другим речима, начин коришћења алата ChatGPT у учењу енглеског зависи пре свега од мотивације и стратегија учења, а не од пола, старости или самопроцене знања – што потврђује да развијене стратегије учења остају кључни предуслов за смислено и критичко коришћење AI алата.

Анализа конкретних облика употребе показује да студенти највише вреднују ChatGPT у задацима који захтевају структуру и јасноћу, као што су помоћ у писању (M=4.02) и објашњење стручних појмова (M=3.85). Са друге стране, показало се да примена алата у вежбању граматике (M=2.71) и конверзације (M=2.64) има одређена ограничења. Ови налази указују да генеративна вештачка интелигенција тренутно ефикасније подржава разумевање и продукцију писаног садржаја него интерактивне и комуникативне аспекте учења језика.

Важан резултат истраживања је мишљење студената о коришћењу алата ChatGPT у настави енглеског језика струке. Више од половине испитаника изјаснило се да би желели да овај алат користе у комбинацији са традиционалном наставом енглеског језика струке, што потврђује тезу да је најоптималније користити AI алате искључиво као додатни ресурс, а не као замену за традиционалне облике наставе, које реализује наставник. Тиме се посебно указује на значајну улогу наставника у пружању подршке студентима при критичкој употреби алата, као и у развоју способности студената да разликују поуздане информације од оних које захтевају даљу проверу и дораду.

Резултати истраживања указују да у настави енглеског језика струке педагошки фокус не би требало да се ограничи на техничко увођење AI алата, већ да буде усмерен пре свега на развој стратегија учења и јачање мотивације студената, будући да они студенти који поседују развијене стратегије и високу мотивацију демонстрирају промишљенију и ефикаснију употребу алата. Посебно је важно развијати критички приступ према AI алатима, како би студенти одговоре које пружа алат користили само као полазну тачку. Такав приступ омогућава да ChatGPT постане средство за аутономно и смислено учење, а не да служи за репродукцију садржаја.

Педагошке импликације ових резултата указују на потребу да наставници активније интегришу AI алате као наставни ресурс при изради курикулума или планирању наставе, уз јасно дефинисане смернице за њихову употребу. Такав приступ омогућава студентима да развију аутономију и самопоуздање у учењу, да оснаже мотивацију, а наставницима да задрже улогу наставника као фацилитатора или ментора. Будућа истраживања требало би да се фокусирају на интерактивну димензију примене вештачке интелигенције у учењу језика, са посебним нагласком на дугорочне ефекте по развој комуникативних компетенција.

***Кључне речи**: учење језика уз помоћ компјутера, вештачка интелигенција, енглески језик струке, спремност за самостално учење, мотивација.*