Exploring the Status of Self-Regulated Strategies and Self-Efficacy Beliefs in Learning English Grammar among Iranian EFL Learners

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Article Info	ABSTRACT
	Objective: The present study investigated the relationship between self-regulation strategy use and self-efficacy beliefs in learning English grammar and grammatical knowledge of a group of Iranian EFL learners. **Methods**: The study adopted a correlational design and the data were collected by using a set of questionnaires. **Results**: The results of data analyses indicated that these constructs are positively correlated. The results of multiple regression also showed the significance of managing environment and behavior strategy in accounting for the grammatical knowledge of the learners. Furthermore, the MANOVA results proved the superiority of more proficient students in their self-regulation and self-efficacy beliefs. **Conclusions**: Finally, it was suggested that learners' cognitive understanding of grammar is interconnected with their beliefs about their capabilities and their strategic use of learning methods. Therefore, educators should design language courses that integrate both grammar instruction and strategies to enhance learners' self-regulation and self-efficacy levels.

Introduction

Grammar is one of the key components of language which is consulted to ensure the accuracy of written and spoken utterances. It is technically defined as "a set of rules specifying the correct ordering of words at the sentence level" (Nunan, 2003, p. 8). Richards and Rodgers (2001) defined it as "the rules by which words change their forms and are combined into sentences" (p. 705). It has dominated the history of language teaching for several decades due to dominance of Grammar-Translation Method (GTM). Nevertheless, the introduction of more communicative approaches has questioned its necessity and significance in second/foreign language classrooms (Alemi & Rezanejad, 2023), but still it is considered an integral part of L2 instruction and the basis of four language skills (Ellis, 2006; Nunan, 2003) whose underestimation and absence negatively influences learners' communicative competence (Wei et al., 2018). Since grammar instruction is needed to help students reach linguistic competence, it is an essential aspect of any language teaching programs. In most EFL contexts, especially in Iran, grammar has been taught deductively by the explicit presentation of rules and students are mostly required to memorize these rules without considering their use for producing grammatically correct sentences in communicative situations (Alemi & Rezanejad, 2023; Castañeda & Cho, 2016). This decontextualized and meaningless presentation of grammatical rules in Iranian EFL classrooms and designed textbooks has rendered students who have a good command of language usage competence, but do not have the ability to put into practice these rules and accurately express themselves in real situations (Parvin &Yarahmadzehi, 2018). Thus one of the ways to improve the students' meaningful and accurate performance is teaching and equipping them with grammar learning strategies.

Grammar Learning Strategies (GLS) are described as "teachable, dynamic thoughts and behaviors that learners consciously select and employ in specific contexts to improve their self-regulated, autonomous L2 grammar development for effective task performance and long-term efficiency" (Oxford, 2017, p. 244). This definition does not focus only on knowing and remembering rules of language but also emphasizes gaining competency in using them in meaningful, accurate and appropriate ways in real-operating conditions by gaining explicit/declarative and implicit/procedural knowledge of target language grammar. The studies conducted on GLS have indicated that proper deployment of these cognitive resources can positively impact L2 learning process and acquisition of target forms (e.g., Kemp, 2007; Morales & Smith, 2008; Pawlak, 2009,

2011; Trenddak, 2012). Nevertheless, examining the research conducted on GLS, Pawlak (2018) offered three observations: "(1) a paucity of such empirical investigations, (2) very limited scope of the studies conducted so far, and (3) fragmented, inconclusive and often contradictory findings" (p. 355). Oxford (2017) also maintains that "grammar learning strategies have garnered the least interest and concern of any area of L2 learning strategies" (p. 246).

Furthermore, there has been a paradigm shift from focusing on the learners' strategic behaviors towards the psychological mechanisms and underlying traits involved in the actual use of learning strategies, i.e., self-regulation (Dörnyei, 2005; Oxford, 2016). In addition, the literature on grammar mostly emphasizes grammar teaching methods and few studies have focused on the role of psychological variables like self-regulation and self-efficacy (e.g., Esmaeilifard, 2010; Gorlewski & Annable, 2012; Truong, 2022). Self-regulation strategies usually encompass cognitive (e.g., rehearsing and memorizing), metacognitive (e.g., self-monitoring and self-evaluation), behavioral management (e.g., selecting and structuring) and resource or environmental management (e.g., seeking information and environmental restructuring) strategies (Clearly, 2006; Dan, 2008; Truong, 2022). Previous scholarship has indicated a positive correlation between SRL strategy use and English language proficiency and performance, learning motivation, academic success and competence in the lifelong learning process (e.g., Bai & Guo, 2018; De Boer et al., 2018; Chen et al., 2020; DiBenedetto, 2018; Sun and Wang, 2020; Zimmerman, 1986); thus understanding the role of SRL strategies in learning grammar, as one of the key aspects of L2 learning, necessitates further research (Pawlak, 2020).

Self-efficacy, which is defined as the individuals' beliefs and confidence about their capabilities to fulfill expectations and reach intended learning outcomes, is considered an essential factor in self-regulated learning (Zimmerman, 1998). Since self-efficacy "affects the way one feels, thinks, behaves, and motivates oneself, it can influence learners in choosing activities, making efforts, staying persistent, and employing learning strategies to benefit their studies" (Zimmerman & Moylan, 2009, as cited in Truong, 2022, p. 5). Research has also indicated a positive correlation between self-efficacy and overall language proficiency (Wang & Sun, 2020), and grammar self-efficacy is positively correlated with grammar performance (Collins & Bissell, 2004; Kholili, 2020). In fact, it is believed that grammar self-efficacy positively influences students' grammar

performance and self-regulated learning (Truong, 2022). Despite this, grammar self-efficacy is not well-researched in EFL contexts.

On the whole, prior studies have indicated that students use a variety of strategies to learn L2 grammar (Supakorn et al., 2018; Truong et al., 2022) with metacognitive strategies outweighing the other categories in terms of assisting students develop more structural knowledge of grammar (Esmaeilifard, 2010; Gimeno, 2002). Nevertheless, it is believed that despite the fact that grammar plays a significant role in language comprehension and production and some research studies exist on grammar learning strategies (Cohen & Weaver, 2004; Cohen, et al., 2011; Oxford et al, 2007; Pawlak, 2018), this aspect of language has not received adequate attention in self-regulation strategy research especially in EFL contexts (Truong, 2022). Since grammar-based instruction and assessment are dominant in most EFL contexts, understanding how EFL learners use SRL strategies to establish their knowledge of L2 grammar is warranted (Phung et al., 2021). In addition, Li (2022) recommends conducting further investigations to explore the role of students' individual differences in their grammar strategy use. Accordingly, the present study intended to investigate the association between Iranian EFL learners' self-regulation strategies in learning English grammar and their self-efficacy beliefs and grammar achievement. More specifically, it intends to answer the following research questions:

1. What is the status of self-regulation strategies and self-efficacy beliefs in learning English grammar among Iranian EFL learners?

2. Are there any significant relationships between Iranian EFL learners' self-regulation strategies in learning English grammar and their self-efficacy beliefs and grammar achievement?

3. Which category of self-regulation grammar strategies can best predict Iranian EFL learners' grammar achievement scores?

4. Are there any significant differences among students with different levels of language proficiency in their self-regulation strategies and self-efficacy beliefs in learning L2 grammar?

Material and Methods

Setting and Participants

The present study was conducted at the University of Hormozgan, south of Iran. A convenient sample of 39 (29 females and 10 males) students in the department of TEFL participated in the

study. The language proficiency level of the students, as measured by the Oxford Placement Test, ranged from intermediate to advanced. They were from 20 to 25 years old and native speakers of Persian but from a variety of ethnic and educational background. Due to the aim of study which intended to explore the status of self-regulation grammar strategy use and grammar self-efficacy beliefs, the students who had passed the Basic and Advanced Grammar courses in the department were selected as the participants of the study. These students have also passed basic and advanced courses on reading comprehension, conversation and listening, writing, phonology, vocabulary and idiom usage, linguistics, etc., and were quite familiar with the basic aspects and concepts related to the field of English Language Teaching. These students have also been taught the essential aspects of grammar in the high schools and some of them had attended English courses in language institutes. It is worth-mentioning that the researcher-instructor of the present study verbally explained the objectives of the study and the tasks students are required to perform during the research project and they willingly participated in the study.

Instruments

Oxford Placement Test: In order to assess the language proficiency level of the students, Oxford Placement test (2001) designed by Oxford University Press and University of Cambridge Local Examination Syndicate was used. It consists of two parts including a total of 60 items on vocabulary, grammar and reading comprehension (in the form of cloze passages). The first part has forty questions in multiple-choice format which all the students are required to answer. The second part is intended for the proficient students and has the same format as the preceding section. However, it is worth mentioning that the participants of the present study were required to answer all the questions. The time assigned to the students to answer this test was 30 minutes. Based on their received score, the students were categorized into two groups: intermediate students with sores 30-47, and advanced students with scores 48-60. The reliability index of the test estimated through Cronbach's alpha appeared to be .86 which was quite satisfactory for the purpose of the study.

Questionnaire of Self-Regulated Learning Strategies in Learning English Grammar (QSRLSLEG): The Questionnaire of Self-regulated Learning Strategies in Learning English Grammar developed by Truong (2022) was used in the present study. It consists of 33 five-point Likert scale items, targeting cognitive, meta-cognitive and self-regulatory constructs, which are

developed and adapted from various sources: six items of Evaluation (E), five items of Objectivity (O), and seven items of Monitoring (M) adapted form Howard et al.'s (2000) Inventory of Metacognitive Self-Regulation (IMSR); nine items of Seeking and Learning Information (SLI) adapted from Cleary's (2006) Self-Regulation Strategy Inventory-Self-Report (SRSI-SR), Pawlak's (2018c) Grammar Learning Strategy Inventory (GLSI), and Horwitz's (1999) Beliefs about Language Learning questionnaire; and six items of Managing Environment and Behavior (MEB) consulted from Clearly (2006). In the final QSRLSLEG scale, Monitoring refers to students' control of strategies to learn grammar, Evaluation indicates learners' capacity for checking whether their work is being done correctly throughout the answer-seeking process, Objectivity refers to learners' capability to stand outside of themselves and their awareness of learning objectives and alternative routes for accomplishing the learning tasks, Seeking and learning information refers to use of specific strategies and tactics like rehearsing and taking notes to seek information and acquire new knowledge, and Managing environment and behavior refers to the use of self-regulatory strategies like comprehension monitoring and time management during studying and doing homework. The reliability index for the total questionnaire was .89 Cronbach's alpha which is quite satisfactory.

Questionnaire of English Grammar Self-Efficacy (QEGSE): QEGSE consists of eight items adapted from the expectancy component of Duncan et al.'s (2015) Motivated Strategies for Learning Questionnaire (MSLQ) focusing on the students' competency in successfully learning English grammar and performing well in grammar tests. In fact, this questionnaire is designed to measure an individual's perceived confidence and ability to perform grammatical tasks effectively. The items were responded based on Likert Scales ranging from Strongly disagree (1) to Strongly agree (5). This questionnaire has the reliability of .84 Cronbach's alpha which makes it suitable for use in the present study.

Procedures of Data Collection and Analysis

The present study was conducted in the autumn semester of 2023-2024 academic year and the researcher-instructor after explaining the objectives of the study and ensuring verbal consent of the students in the department, administered the language proficiency test and the psychological constructs measures. The students were in two different classes and the whole data collection procedure took 60 minutes for each class. As for estimating the grammar achievement score of the

students, the researcher used the average score of their basic and advanced grammar courses. In fact, these students had passed two 2-credit grammar courses in the first year of their studies. They have been taught grammar based on Oxford Practice Grammar Advanced (Yule, 2010) book and some teacher-made handouts. Their final score was based on their performance in the mid-term and final exam (each 7 points) and their participation in classroom activities and completion of tasks and exercises in the textbook (6 points). The total score for each course was 20 and the average of their scores in these two courses was considered as an index their grammar knowledge. Finally, the collected data were analyzed by using SPSS 26 software and a set of descriptive statistics, correlation, multiple regression and MANOVA were run for analyzing the data.

Results

The present study intended to investigate the status of self-regulatory strategy use and self-efficacy beliefs in learning grammar among Iranian EFL learners. The descriptive statistics indicated that among the strategies in evaluation category, E1. *I look back at the grammar exercise to see if my answers make sense* has the highest mean score (M=4.13, SD=.73). This strategy is a form of self-reflection and self-evaluation in the learning process and involves reviewing and analyzing one's own answers in order to assess their accuracy and coherence. In the Objectivity category, O5. *When I am done with my grammar lesson or exercise, I ask myself if I learned what I wanted to learn* enjoys from the highest mean (M=3.90, SD=1.04). In fact, students engage in self-reflection to assess their learning outcomes and determine if they have achieved their intended goals or not. Furthermore, in Monitoring strategies, M1. *I think about what information I need to answer the grammar exercise* has the highest mean score compared to other strategies (M=4.15, SD=.63). This strategy involves a reflective approach which entails a process of mentally previewing the essential grammar rules, structures or concepts to answer the exercise correctly. In the seeking and learning information category, SLI7. *I notice the position of verbs, nouns, adjectives, and adverbs when I work on a grammar exercise* is the item with the highest mean (M=4.05, SD=.77). In fact, this analytical approach aids in recognizing patterns and deeper understanding of language structures which can improve grammatical accuracy. In managing environment and behavior category, MEB5. *I think about how best to study new grammar lessons before I begin studying them in class* benefits from the highest mean (M=3.28, SD=.94). This strategy involves pre-

planning and mental preparation before diving into new grammar lesson and proactively considering the most effective approaches to study the upcoming grammar lesson.

Table 1. Descriptive Statistics for Grammar Self-regulation Strategies

Subscales	Statements	Mean	SD
Evaluation	I look back at the grammar exercise to see if my answers make sense.	4.13	.73
Objectivity	When I am done with my grammar lesson or exercise, I ask myself if I learned what I wanted to learn.	3.90	1.04
Monitoring	I think about what information I need to answer the grammar exercise.	4.15	.63
Seeking & Learning Information	I notice the position of verbs, nouns, adjectives, and adverbs when I work on a grammar exercise.	4.03	.77
Managing Environment & Behavior	I think about how best to study new grammar lessons before I begin studying them in class.	3.28	.94

As for the items in the self-efficacy beliefs in learning English grammar (see Table 2), the item SE3. *I am confident that I can understand the basic grammar concepts in the English subject* has the highest mean score (M=4.38, SD=.67). This strategy reflects a positive attitude and self-assurance regarding understanding fundamental grammar concepts. It also implies a positive self-assessment and belief in one's capabilities which influences how the learners approach grammar-related tasks or learning opportunities.

Table 2. Descriptive Statistics for Self-Efficacy Beliefs in Learning Grammar

	Statements	Mean	SD
SE1	I believe I will receive an excellent grade in grammar tests.	3.54	.85
SE2	I am certain that I can understand the most difficult grammar materials in the English subject.	3.49	1.04
SE3	I am confident that I can understand the basic grammar concepts in the English subject.	4.38	.67
SE4	I am confident that I can understand the most complex grammar materials presented by my English teacher.	3.59	.81
SE5	I am confident that I can do an excellent job on the grammar assignments and tests in the English subject.	3.67	.83
SE6	I expect to do well in English grammar.	3.92	.92
SE7	I am certain that I can master grammar taught in the English subject.	3.67	.83
SE8	Considering the difficulty of the English grammar, the teacher and my learning ability, I think I will do well in English grammar.	4.08	.80

The second research question intended to investigate the correlation among the variables of the study. As it is indicated in Table 3, there was a significant positive moderate relationship between the students' grammar knowledge and their self-regulatory strategy use (*r=.32, p<.05*) and their self-efficacy beliefs in learning grammar (*r=.35, p<.05*). In addition, there was a significant

positive relationship between the learners' self-regulation and self-efficacy (*r=.53, p<.01*) which confirms the theoretical and practical associations of these two constructs.

Table 3. Correlation Coefficients for the Variables of the Study

Variables	Mean	SD	Grammar Knowledge	Self-regulation	Self-efficacy
Grammar Knowledge	17.26	1.61	1	.321*	.393*
Self-regulation	1.17	14.85	.321*	1	.534**
Self-efficacy	30.33	4.70	.393*	.534**	1

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

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

In order to answer the third research question, the multiple regression analysis was run to estimate the capability of the subscales in the self-regulation strategy use (namely, evaluation, objectivity, monitoring, seeking and learning information, and managing environment and behavior) in accounting for the grammatical knowledge of the students. According to the results in Table 4, the managing environment and behavior dimension (*B=.155, Beta=.483, t=2.366, p=.024<.05*) could significantly contribute to the grammatical knowledge of students, which confirms the importance of learners' metacognitive reflection and control of their thinking, behavior and learning conditions and their active participation in the learning process. Nevertheless, seeking and learning information construct negatively contributed to the grammatical knowledge of the learners (*B=-.160, Beta=-.470, t=-2.526, p=.01<.05)* which might point to the fact that Iranian EFL learners are still teacher-dependent and lack the necessary independent and self-directed learning competencies in learning English grammar. In addition, it was found that 38 % of the variance in the total grammatical knowledge index in the present study could be explained by the independent variables, which signifies the importance of learners' L2 proficiency levels and other personal characteristics like their aptitude, working memory capacity, etc. that might influence their final attainment.

Table 4. Coefficients of Multiple Regressions

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig
(Constant)	15.375	2.484		6.189	.000
Evaluation	.162	.090	.340	1.807	.080
Objectivity	.022	.081	.048	.272	.787
Monitoring	-.006	.103	-.011	-.061	.951
Seeking & Learning Information	-.160	.063	-.470	-2.526	.017
Managing Environment & Behavior	.155	.066	.483	2.366	.024

a. Dependent Variable: Grammar knowledge

The final research question examined whether or not there are any statistically significant differences between the students with high and low language proficiency levels in terms of self-regulation strategy use and self-efficacy beliefs in learning English grammar. For this purpose, the Multivariate Analysis of Variance (MANOVA) test was run. The descriptive statistics (Table 5) indicated that students with higher proficiency outperformed their less proficient counterparts both in their self-efficacy beliefs (M=32.64, SD=12.04) and self-regulation strategy use (M=1.23, SD=12.54). To see whether there are statistically significant differences between high and low proficiency level learners on the linear combination of self-regulation and self-efficacy beliefs as the dependent variables, the results of multivariate tests of significance showed that there is a statistically significant difference between the high and low pruriency students on the combined dependent variables, *F (2, 36) =.3.121, p=.05; Wilks' Lambda=.852; Partial Eta Squared=.148*. In addition, Tests of Between-Subjects Effects (as shown in Table 12) revealed that this difference is statistically significant in the self-efficacy beliefs (*F (1, 37) =5.936, p=0.02, partial Eta Squared=.138*) but not in the self-regulation strategy use (*F (1, 37) =3.175, p=0.08, partial Eta Squared=.079*).

Table 5. Descriptive Statistics and MANOVA Results and for High and Low Proficiency Groups in Self-regulation Strategy and Self-efficacy beliefs in Learning Grammar

	Proficiency Groups	Mean	Std. Deviation	N	F	Sig.	Partial Eta Squared
Self-efficacy Beliefs	High	32.64	12.04	14			
	Low	29.04	4.00	25	5.936	.020	.138
	Total	30.33	4.70	39			
Self-regulation Strategy Use	High	1.23	12.54	14			
	Low	1.14	15.37	25	3.175	.083	.079
	Total	1.17	14.85	39			
Wilks' Lambda					3.121	.050	.148
Design: Intercept + Proficiency Group R Squared = .138 (Adjusted R Squared = .115)							
R Squared = .079 (Adjusted R Squared = .054)							

On the whole, the findings of present study confirmed the significant role of considering learners' personal attributes like their L2 proficiency, self-regulatory strategy use and self-efficacy beliefs in accounting for their grammatical competence in EFL settings.

Discussion

The present study estimated the significance of self-regulation strategy use and self-efficacy beliefs in accounting for the grammatical knowledge of Iranian EFL learners. Initially, the items with higher mean scores were identified in both self-regulation grammar strategy use and self-efficacy beliefs. The strategies identified could help learners to actively engage with the material, monitor their own progress, and improve their understanding and application of grammar rules. They also contribute to the development of metacognitive skills and self-awareness in language learning (Pawlak, 2018; Truong, 2022). The results also indicated these constructs are positively correlated with each other. Previous studies have also reported positive relationship between learners' self-efficacy beliefs and their self-regulation strategy use in learning English in general (Bai & Guo, 2018; Cho & Kim, 2019; Kim et al., 2015) and learning grammar in particular (Truong, 2022). Past research often showcases the role of self-regulation strategies, such as planning, monitoring, and evaluating, in enhancing language learning (e.g., Hilden & Pressley, 2007; Zimmerman & Schunk, 2011). Therefore, fostering these strategies through targeted instructional interventions or guidance could be an effective approach to enhancing grammatical proficiency in language learning contexts. The experimental studies have also indicated that teaching students' self-regulation strategies can enhance their linguistic self-efficacy levels (ElAdl & Polpol, 2020; Teng & Zhang, 2020). Similarly, grammar self-efficacy is also positively correlated with students' grammar performance (e.g., Collins & Bissell, 2004; Mustapha & Mustapha, 2017; Kholili, 2020) and self-regulated grammar learning (Lim & Yeo, 2021; Truong, 2022). This finding aligns with established theories such as Bandura's Social Cognitive Theory, emphasizing the influence of self-efficacy beliefs on individuals' motivation, behavior, and learning outcomes. In general, mastering L2 grammar is a long journey necessitating learners' firm determination and belief in their capabilities supported by applying proper self-regulation mechanisms (Razavipour et al., 2020). In addition, individuals with high self-efficacy in grammar tend to view challenges or obstacles as opportunities for growth rather than barriers. This positive self-belief often correlates with better performance and a deeper understanding of grammar principles. However, it is important to note that while a moderate positive relationship was found, there might be other contributing factors that influence this relationship. For instance, individual

differences in learning styles, motivation, exposure to the language, and teaching methods could also impact learners' grammatical knowledge and self-efficacy beliefs.

In addition, among the subscales of self-regulation strategy use, managing environment and behavior had the highest predictive power to account for the grammatical knowledge of Iranian EFL learners. Similarly, Su et al. (2018) found that students' use of self-evaluation and environmental structuring could significantly predict Chinese EFL university students' self-efficacy and performance in skills learning. Environmental control can help students "to eliminate negative environmental influences and to exploit positive environmental influences by making the environment an ally in the pursuit of a difficult goal" (Tseng et al., 2006, p. 86). In fact, these strategies can increase the students' awareness of the learning process and by selecting the appropriate strategies they can heighten their potential to decode grammar complexities and augment their linguistic performance and language achievement (Alsied et al., 2018; Goh, 2008; Yeh, 2021). In the same regard, creating a classroom environment that nurtures learners' confidence and autonomy is crucial. Teachers can encourage a growth mindset, where mistakes are seen as opportunities for learning, fostering a positive atmosphere for developing both grammar skills and self-regulation strategies.

Furthermore, it was found that more proficient students made better use of self-regulation strategies and had higher levels of self-efficacy beliefs in learning grammar, albeit this difference was only statistically significant in the self-efficacy variable. One possible justification for this finding lies in the nature of language learning itself. Proficient learners, having already achieved a certain level of linguistic competence, might feel more capable and confident in their ability to understand and navigate the complexities of English grammar. This confidence likely influences their belief in their capacity to regulate their learning and employ effective strategies, resulting in higher levels of self-regulation and self-efficacy. In the same vein, Zekrati (2017) found significant differences among the Iranian high school students with different levels of language proficiency regarding their grammar learning strategy use. This finding can be attributed to the fact that because more proficient students have invested more time in the process of language learning, they use more effective strategies compared to their less proficient counterparts. Kim et al. (2015) also found significant differences in self-regulation strategy use between Korean students with low and those with medium/high self-efficacy levels. This finding can be justified on the ground that the

process of language learning is a complex endeavor which necessitates the employment of different strategies at various levels of competency and performance and thus the students must be equipped with appropriate strategies while dealing with various learning tasks and working on different learning projects. Besides language proficiency, other individual difference variables such as the learners' motivation, attitude, interest, desire to learn, and willingness to communicate can influence the quantity and quality of their grammar strategy use (Li, 2022; Mistar & Zuhairi, 2020; Oxford & Amerstorfer, 2018; Pawlak, 2021). As stated by Pawlak (2019) grammar strategy use "is inevitably subject to change over time as a result of intricate interactions with other IDs and contextual variables" (p. 4). Therefore, EFL teachers are required to assist their pupils in improving these positive attributes by paying more attention to their subjectivity and emotions in their instruction and considering semantic and pragmatic aspects of grammar rules besides their structural properties (Larsen-Freeman, 2014; Nazari et al., 2022).

On the whole, the correlation between grammatical knowledge and self-regulation/self-efficacy supports the notion that language learning is a multifaceted process. It suggests that learners' cognitive understanding of grammar is interconnected with their beliefs about their capabilities and their strategic use of learning methods. This finding aligns with socio-cognitive theories that emphasize the integrated nature of language learning, involving cognitive, motivational, and behavioral aspects which demands adopting a wholistic view regarding the learners' development. Therefore, educators should design language courses that integrate both grammar instruction and strategies to enhance self-regulation and self-efficacy. Introducing grammar in a context that encourages learners' confidence and self-directed learning may amplify their ability to comprehend and apply grammar rules effectively. Teachers can demonstrate and encourage the use of various strategies, such as goal-setting, self-monitoring, and planning, to scaffold learners' development of self-regulation skills. Encouraging metacognitive practices can also help learners recognize their learning strengths and areas for improvement.

Nevertheless, due to the small-scale nature of the study and the limited number of participants, the findings of the present study do not benefit from a high level of generalization. In addition, in order to further substantiate and justify these findings, future research might delve deeper into the specific self-regulation strategies and self-efficacy beliefs most effective for improving grammatical knowledge. Additionally, investigating the influence of contextual factors, such as

classroom environment, instructional methods, and learner autonomy, on the use of self-regulation strategies and their impact on grammatical learning could provide valuable insights for educators and curriculum designers. Understanding these dynamics can contribute to the development of tailored pedagogical interventions that facilitate the effective use of self-regulation strategies and subsequently enhance grammatical knowledge among EFL learners.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by the ethics committee of University of Hormozgan. The patients/participants provided their written informed consent to participate in this study.

Author contributions

The author contributed to the study conception and design, material preparation, data collection, and analysis. The author contributed to the article and approved the submitted version.

Conflict of interest

The author declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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