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THE IMPACT OF TASK VALUES, SELF-EFFICACY, METACOGNITIVE AND COGNITIVE SRL ON EFL CHINESE UNDERGRADUATES' ENGLISH PERFORMANCE

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ABSTRACT

English learning is considered to be essential for Chinese undergraduates to enhance their global competitiveness. While students' motivational beliefs and self-regulated learning (SRL) are known to influence the EFL learning process, it remains unclear which specific dimensions within these constructs are the most predictive of English performance. This study aims to examine the impact of specific motivational beliefs (i.e., task values and self-efficacy) and SRL (i.e., metacognitive SRL and cognitive SRL) on EFL performance among Chinese college students. A sample of 268 students was invited to complete 5-point Likert scale questionnaires. The data were analyzed using descriptive statistics and structural equation modeling (SEM). The results indicated that task values have the most significant positive effect on EFL performance, followed by self-efficacy and metacognitive SRL, while cognitive SRL showed almost no significant influence. These findings suggested that educational interventions should prioritize fostering students' motivational beliefs involving task values and self-efficacy, along with enhancing metacognitive SRL strategy use, to improve EFL performance among Chinese undergraduates effectively.

Keywords: *Task value, self-efficacy, self-regulated learning, EFL performance.*

INTRODUCTION

In Asia, English learning plays a crucial role due to the increasing demand for global communication, academic success, and career advancement (Chen & Hu, 2021). As one of the most widely spoken languages worldwide, proficiency in English opens doors to international opportunities, making it an essential skill for students across the region. Self-regulated learning (SRL) is vital in language acquisition, as it could empower learners to take control of their learning process. To define it, SRL refers to the ability of learners to set goals, monitor their progress, and adjust their strategies to achieve desired outcomes (Alvi & Gillies, 2023). This approach emphasizes the role of self-

awareness, motivation, and behavioral control in learning, fostering a proactive and independent learning style. By cultivating SRL, students can enhance their language learning experience, adapt to the challenges of mastering a new language, and develop strategies that promote continuous improvement, ultimately leading to better language proficiency.

Another important aspect of EFL learning is motivational beliefs, explaining why and how students are motivated to work to enhance their EFL performance (Bai & Wang, 2021). Theoretically, motivational beliefs influence EFL performance by driving learners' engagement, persistence, and use of learning strategies (Ma et al., 2022). For instance, according to expectancy-value theory, if students perceive the value of learning English and believe in their ability to succeed, they are more likely to invest time and effort into language tasks, leading to higher achievement (Eccles & Wigfield, 2020). Additionally, Dweck's growth mindset theory suggests that students who view their abilities as malleable are more resilient in facing language learning challenges, which positively impacts their performance over time (Dweck, 2006). By fostering strong motivational beliefs, educators can support EFL learners in maintaining sustained motivation, enhancing their language proficiency, and achieving long-term success in English acquisition.

While the importance of motivational beliefs and SRL on EFL learning is widely agreed upon, research examining how both simultaneously and directly affect EFL performance is relatively scarce. Many studies that focus on the impact of motivational beliefs on EFL performance frequently explore this relationship through mediating variables rather than examining the direct influence of motivational beliefs on language performance (Mulualem et al., 2022; Teng et al., 2023). These studies typically investigate how factors, namely emotions, persistence, or language learning strategy use, mediate the relationship between motivational beliefs and EFL outcomes. Similarly, research that includes both motivational beliefs and SRL often centers on the relationship between the two, with SRL commonly treated as a mediator between motivational beliefs and EFL performance (e.g. An et al., 2021; Bai & Wang, 2021). However, studies assessing whether motivational beliefs or SRL play a more significant role in directly influencing EFL performance are lacking.

Given this gap in the literature, the present study aims to investigate the direct effects of motivational beliefs on EFL performance, compared to their influence of SRL strategies on EFL performance. This research is crucial for providing a clearer understanding of the relative contributions of both motivational beliefs and SRL to EFL learning outcomes. By identifying which factor—specific motivational beliefs or SRL strategies—has a more significant direct influence on language performance, educators and policymakers can design more targeted interventions that focus on the most impactful aspects of student learning, ultimately improving EFL proficiency and language acquisition.

LITERATURE REVIEW

In the context of EFL learning, motivational beliefs are crucial in language acquisition, as they relate to how much effort students invest their time and energy in practicing language skills (Ma et al., 2022). Among the various theoretical frameworks, this study adopts the Expectancy-Value Theory, which has been widely validated in language learning research. According to this theory, self-efficacy—learners' confidence in their ability to succeed in EFL tasks—encourages them to engage with challenging skills like speaking and writing (Loh, 2019). Task value—learners' perception of English as beneficial for personal, academic, or career development—also motivates sustained effort (Eccles & Wigfield, 2020). Together, these beliefs promote persistence, strategic resource use, and resilience in overcoming language difficulties.

While much research has focused on self-efficacy and task value, few studies have examined their direct influence on EFL performance. For example, Hermagustiana et al. (2021) found a strong positive correlation between self-efficacy and speaking performance among Indonesian students, and Zhou et al. (2022) reported writing improvements after a 10-week self-efficacy intervention. However, these studies focus on specific language skills rather than overall English proficiency. Moreover, the

impact of task value on EFL performance remains underexplored (Wu & Kang, 2021), indicating a gap that this study aims to address.

SRL and EFL performance

In the EFL context, SRL is recognized as an effective process for improving students' EFL performance. Among its various dimensions, cognitive and metacognitive SRL strategies are particularly influential (Teng, 2021). Cognitive SRL involves strategies such as organizing new information and integrating it into prior knowledge (e.g., organization and transformation). Metacognitive SRL focuses on managing and monitoring cognitive strategies to improve learning. One example is self-evaluation, where learners assess how well their strategies help them achieve academic goals (Teng et al., 2023).

However, research findings on the effects of cognitive and metacognitive SRL are mixed. Shen and Bai (2022), in a study of 340 Chinese undergraduates, found both dimensions to be significant predictors of EFL writing performance, while social-behavioral SRL showed no effect—possibly due to the cognitively demanding nature of writing tasks. In contrast, other studies, such as Do (2022), revealed no significant relationship between SRL strategies—especially metacognitive SRL—and EFL performance. Do further explained that college students in Vietnam were still in the developmental stages of language learning and had not yet had the opportunity to cultivate SRL habits effectively enough to impact their academic performance. This suggests that the influence of SRL on EFL performance may vary depending on the learners' language proficiency and the context of their learning environment.

RESEARCH GAPS AND RESEARCH QUESTIONS

The review of the literature identifies two key research gaps. First, while the significant role of SRL in EFL learning is widely acknowledged, inconsistencies in the findings regarding the impact of SRL on EFL performance present a gap that requires further investigation. Second, few studies have explored how motivational beliefs directly influence students' EFL performance.

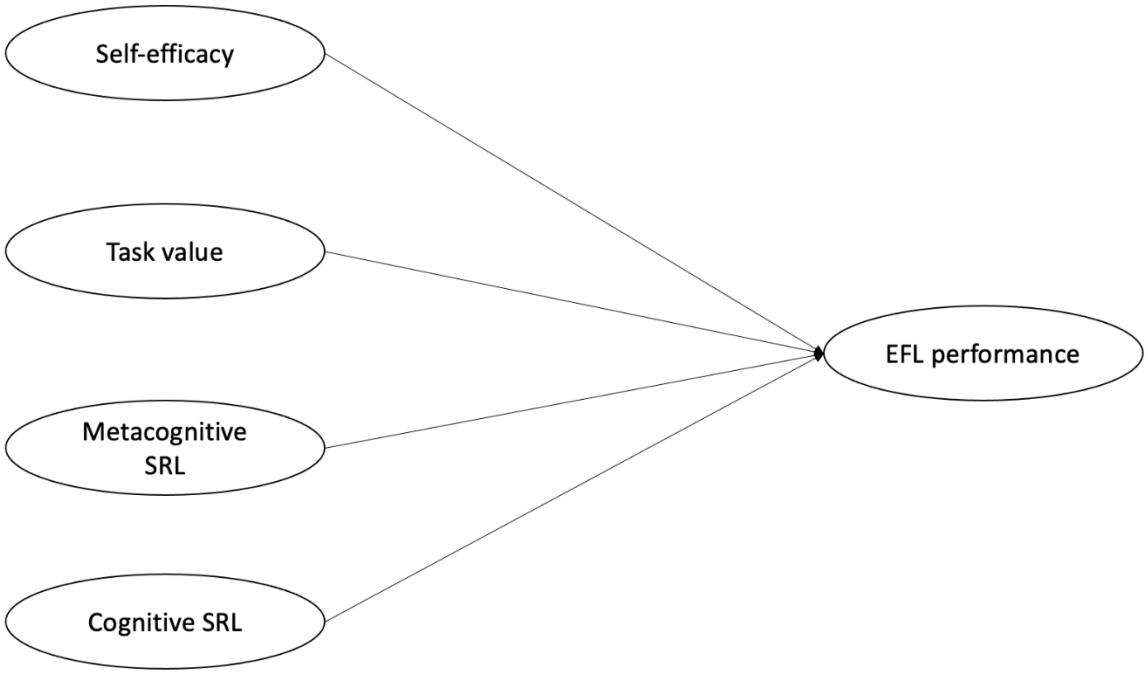
Additionally, existing research has predominantly focused on the indirect effects of motivational beliefs on EFL performance through SRL (Bai & Wang, 2021; Cui, 2021) and limited our understanding of which factor—motivational beliefs or SRL—has the greatest predictive power on EFL performance. Given these gaps and the conceptualization of key constructs, this study aims to explore the direct effects of both motivational beliefs (specifically self-efficacy and task value) and SRL strategies (cognitive and metacognitive SRL) on EFL performance to determine which factor is the strongest predictor. To achieve this, self-efficacy, task value, cognitive SRL, and metacognitive SRL are integrated into a single model to assess their impacts on EFL performance.

The research questions guiding this study are:

1. What are the impacts of motivational beliefs on EFL performance among Chinese undergraduates?
2. What are the impacts of SRL strategies on EFL performance among Chinese undergraduates?

Figure 1 shows the conceptual framework below with four independent variables (i.e., predictors): self-efficacy, task value, metacognitive SRL, and cognitive SRL, and one dependent variable, namely EFL performance. In particular, this study would compare which factor most significantly affects EFL performance.

Figure 1.
The Conceptual Framework for Analyzing the Impact of Motivational Beliefs and SRL Strategies on EFL Performance



METHODOLOGY

Research Context and Sampling

This study was conducted at public universities in Hangzhou, a highly developed city in China (Mei & Symaco, 2021). Hangzhou was chosen for its strong reputation in higher education, particularly its emphasis on EFL learning's importance within public universities (Wang, 2020). This context offers a valuable opportunity to explore how university students in Hangzhou are improving their English proficiency to meet both academic and global industry needs.

Purposive sampling was employed based on two inclusion criteria to investigate how different motivational beliefs and SRL strategies influence students' EFL performance. First, participants had to be undergraduate students enrolled in public universities. Second, they needed to have taken the College English Test Band 4 (CET4), which measures their EFL performance. The CET4 is a nationwide standardized exam administered by the National Education Examinations Authority under the Ministry of Education of China, assessing undergraduate English proficiency through listening, reading, cloze tests, and writing (Xu, 2023). Numerous studies within mainland China have confirmed the test's reliability and validity in measuring English proficiency among Chinese students (Huang, 2023; Zou, 2022).

Measures

Demographic Information. The demography-related questions were designed to collect students' information regarding gender, university level, and CET4 scores.

Questionnaire of Motivational Beliefs for English Learning (QMBEL). The questionnaire was adapted from Kosovich et al.'s (2015) Expectancy-Value-Cost Scale. Widely validated in EFL studies (Teng, 2021; Wu & Kang, 2021), this scale was primarily chosen because it aligned with the study's focus on two key dimensions: self-efficacy and task value. Originally designed for science classes, the item descriptions of the scale were adapted to suit the EFL context. For example, a self-efficacy item was revised to "I know I can learn the material in my English class," while a task value item

became "I think my English learning is important". All items were measured on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

Questionnaire of English Self-regulated Learning Strategies (QESRLS). The measures of self-regulated learning were adopted from the self-report questionnaire designed by Wang and Bai in 2017. Specifically, this research focuses on two dimensions: cognitive and metacognitive. Within these dimensions, the categories of organization and transformation (17 items) and self-evaluation (4 items) were selected. Examples of items for organization and transformation include "I write an outline before writing compositions" and "I classify new words to help memorize them." An example of an item for self-monitoring is "I check my English homework before turning it in." All items are rated on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

Data Collection and Data Analysis

The survey was distributed to students at public universities in Hangzhou via the online platform Wenjuanxing. It consisted of four sections: an ethical consent form, demographic information, a questionnaire on motivational beliefs for English learning, and a questionnaire on English self-regulated learning strategies. The questionnaire was translated into Mandarin, the participants' first language, to ensure comprehension. Only those who signed the ethical consent form were able to complete the full survey. Data collection spanned two months, producing 274 responses, with six removed due to incomplete data. Ultimately, 268 valid responses were collected for analysis.

Both IBM SPSS 27 and Smart PLS 4 were utilized to address the research questions. First, descriptive statistics were conducted in SPSS 27 to measure the levels of different motivational beliefs (specifically self-efficacy and task value) and SRL strategies (metacognitive SRL and cognitive SRL) among Chinese undergraduate students. This helped provide an overview of the general trends in motivational beliefs and SRL strategies within the sample. Next, Smart PLS 4 was used to assess the reliability and validity of the measurement model, focusing on internal consistency reliability, convergent validity, and discriminant validity. Assessing these factors was necessary to ensure that the constructs in the structural equation model were measured accurately and consistently, providing a strong foundation for subsequent SEM analyses (Hair et al., 2014). Finally, structural equation modeling (SEM) was performed using the Smart PLS 4 to examine the effects of the four predictors—self-efficacy, task value, metacognitive SRL, and cognitive SRL—on EFL performance. This analysis addressed the research questions regarding the influence of motivational beliefs and SRL strategies on EFL performance. Most importantly, the SEM analysis identified which predictor had the strongest impact on EFL performance, offering key insights into which factors play a more significant role in enhancing students' academic success in an EFL context. These findings could potentially inform targeted interventions to improve student outcomes.

RESULTS

Demographic Information

Among the 268 participants, 127 were female (47.4%) and 141 were male (52.6%). More than half of the participants were in their second year (78 students) or third year (68 students), representing 54.5% of the total sample. Additionally, 67 participants were freshmen (25%), and 55 were in their fourth year (20.5%) and nearing graduation. The participants' CET-4 scores ranged from 390 to 610.

Descriptive Statistics About Motivational Beliefs and SRL

Table 1 presents the descriptive statistics for the key variables in this study, including self-efficacy, task value, metacognitive self-regulated learning (SRL), and cognitive SRL. Based on Oxford's (1990) interpretation of a 5-point Likert scale, a mean score between 1 and 2.4 indicates a low level, 2.5 to 3.4 represents a moderate level, and 3.5 to 5 reflects a high level.

The mean score for self-efficacy was 3.27 (SD = 1.00), with a range of 1.00 to 5.00, indicating a moderate level. The task value showed a similar mean of 3.29 (SD = 0.90), from 1.14 to 5.00. The mean score for metacognitive SRL was 3.31 (SD = 0.86), with a range from 1.00 to 5.00. Cognitive

SRL had a slightly higher mean of 3.34 (SD = 0.82), with scores ranging from 1.00 to 4.81. Overall, these findings suggest that participants exhibited moderate levels of self-efficacy, task value, and SRL strategies.

Table 1.
Descriptive Statistics About the Levels of Self-Efficacy, Task Value, Metacognitive SRL, And Cognitive SRL (n=268)

	N	Minimum	Maximum	Mean	Std. Deviation
Self-efficacy	268	1.00	5.00	3.27	1.00
Task value	268	1.14	5.00	3.29	0.90
Metacognitive SRL	268	1.00	5.00	3.31	0.86
Cognitive SRL	268	1.00	4.81	3.34	0.82

Reliability and Validity of Measurement Models
Table 2 presents the results of the indicator reliability. Specifically, the outer loadings of self-efficacy, task value, and metacognitive SRL ranged from 0.574 to 0.848, higher than the recommended threshold of 0.4 (Kamis et al., 2020), indicating a good indicator reliability of these constructs. As for the cognitive SRL, there were two loadings of cognitive SRL (i.e., cog 8 and cog 12) lower than 0.4 and thus affected the convergent validity (Hair et al., 2014), which were thus removed.

Table 3 displays the results of internal consistency reliability and convergent validity after the deletion of the items of cog 8 and cog 12. To clarify, all values of Cronbach's alpha and composite alpha of both motivational beliefs and SRL ranged from 0.706 to 0.941, which is higher than the threshold of 0.7 (Hair et al., 2014), thus indicating good internal consistency reliability. Regarding the convergent validity, the AVE values of self-efficacy, task value, metacognitive SRL, and cognitive SRL were 0.625, 0.523, 0.528, and 0.504, higher than the recommended index of 0.5 (Kamis et al., 2020). Thus, the convergent validity of all these constructs was achieved.

Table 2.
The Results of the Outer Loadings of Each Item for Self-Efficacy, Task Value, Metacognitive SRL, And Cognitive SRL (N=268)

Concept	**Item**	**Indicator Reliability**
Self-efficacy	Se1	0.709
	Se2	0.808
	Se3	0.848
Task value	Ta1	0.736
	Ta2	0.822
	Ta3	0.793
	Ta4	0.574
	Ta5	0.756
	Ta6	0.642
	Ta7	0.707
	Meta 1	0.678

Metacognitive SRL	Meta 2	0.779
	Meta 3	0.671
	Meta 4	0.772
Cognitive SRL	Cog 1	0.601
	Cog 2	0.673
	Cog 3	0.590
	Cog 4	0.649
	Cog 5	0.744
	Cog 6	0.846
	Cog 7	0.643
	Cog 8	0.277
	Cog 9	0.663
	Cog 10	0.641
	Cog 11	0.842
	Cog 12	0.341
	Cog 13	0.583
	Cog 14	0.861
	Cog 15	0.668
	Cog 16	0.797
	Cog 17	0.717
	Cog 18	0.688

Table 3.
The Results of Internal Consistency Reliability and Convergent Validity for Self-Efficacy, Task Value, Metacognitive SRL, and Cognitive SRL

	Internal consistency reliability		**Convergent validity**
	Cronbach's alpha	**Composite alpha**	
Self-efficacy	0.704	0.833	0.625
Task value	0.845	0.883	0.523
Metacognitive SRL	0.706	0.817	0.528
Cognitive SRL	0.938	0.941	0.516

Tables 4 and 5 present the results concerning the discriminant validity of the constructs: self-efficacy, task value, metacognitive SRL, cognitive SRL, and EFL performance. The HTMT (Heterotrait-Monotrait Ratio) values for these constructs ranged from 0.070 to 0.600, all of which are well below the threshold of 0.8 (Pallant, 2020). This suggests that the constructs exhibit adequate discriminant validity. This was supported by the result of Fornell -Lacker criterion, as shown in Table 5. Specifically, the correlations within the variables themselves were 0.710, 0.727, 0.791, and 0.723, all higher than their correlations with other variables, showing good discriminant validity (Hair et al., 2014).

Table 4.
The HTMT (Heterotrait-Monotrait Ratio) Results for the Constructs of Self-Efficacy, Task Value, Metacognitive SRL, Cognitive SRL, And EFL Performance (N=268)

	Cognitive SRL	EFL performance	Metacognitive SRL	Self-efficacy	Task value
Cognitive SRL					
EFL performance	0.070				
Metacognitive SRL	0.407	0.326			
Self-efficacy	0.350	0.396	0.485		
Task value	0.514	0.507	0.499	0.600	

Table 5.
The Result of the Fornell -Lacker Criterion for the Constructs of Self-Efficacy, Task Value, Metacognitive SRL, And Cognitive SRL (N=268)

	Cognitive SRL	Metacognitive SRL	Self-efficacy	Task value
Cognitive SRL	0.710			
Metacognitive SRL	0.351	0.727		
Self-efficacy	0.292	0.315	0.791	
Task value	0.465	0.390	0.459	0.723

The Impacts of Motivational Beliefs and SRL On the EFL Performance of Chinese Undergraduate Students

Before assessing the impact of motivational beliefs and SRL on EFL performance, it is essential to evaluate the potential for collinearity among the predictors. Collinearity can compromise the validity of regression results by inflating standard errors and obscuring the unique contribution of each predictor to the dependent variable, leading to unreliable estimates and weakened statistical conclusions (Hair et al., 2014). In this study, the predictors include self-efficacy, task value, metacognitive SRL, and cognitive SRL. The collinearity diagnostics, as displayed in Table 6, revealed that the variance inflation factor (VIF) values for these predictors range from 1.260 to 1.557—well below the commonly accepted threshold of 5 (Hair et al., 2014). This indicated that multicollinearity was not a concern, and the predictors can be used reliably in the subsequent analyses.

Table 6.
The Variance Inflation Factor (VIF) Values for Constructs of Self-Efficacy, Task Value, Metacognitive SRL, And Cognitive SRL (N=268)

Constructs	VIF values
Self-efficacy	1.309
Task value	1.557
Metacognitive SRL	1.260
Cognitive SRL	1.339

Next, Figure 2 and Table 7 present the significance, relevance, and explanatory power of the relationships between self-efficacy, task value, metacognitive SRL, cognitive SRL, and the EFL performance of Chinese undergraduates. The finding revealed that task value had the highest impact

on the EFL performance ($\beta = 0.446$, $t = 6.395$, $p < 0.05$), followed by the self-efficacy ($\beta = 0.155$, $t = 2.454$, $p < 0.05$), and metacognitive SRL ($\beta = 0.128$, $t = 2.120$, $p < 0.05$) using 5000 bootstrapping samples. However, cognitive SRL did not significantly impact Chinese undergraduates' EFL performance ($\beta = -0.201$, $t = 1.704$, $p > 0.05$).

Figure 2.
The Relevance and Path Coefficients of The Impacts of Self- Efficacy, Task Value, Metacognitive SRL, And Cognitive SRL On the EFL Performance of Chinese Undergraduates (N=268)

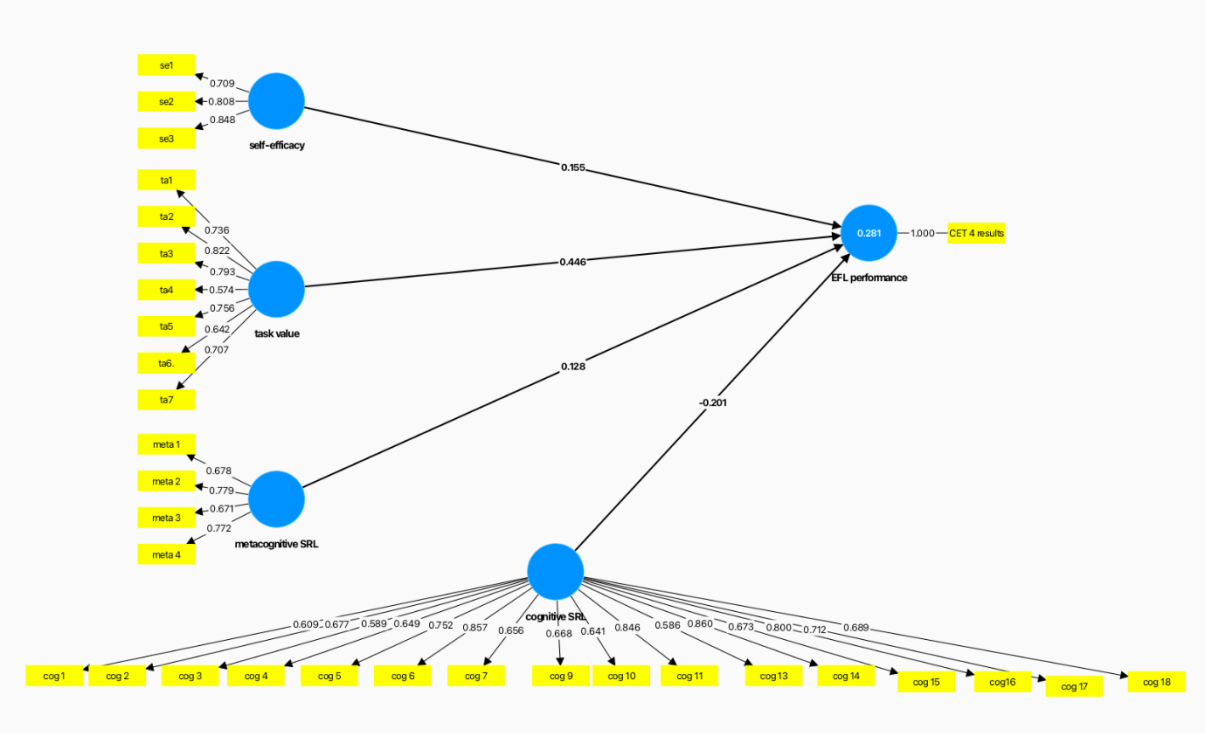


Table 7.
Significance, Relevance, and Model Power of Predictors on EFL Performance (N=268)

Relationships	Standardized beta (β)	t-value	p-value	R^2	Q^2
Task Value →EFL performance	0.446	6.395	0.000	0.270	0.265
Self-Efficacy →EFL performance	0.155	2.454	0.014		
Metacognitive SRL →EFL performance	0.128	2.120	0.038		
Cognitive SRL→EFL performance	-0.201	1.704	0.088		

Additionally, Table 7 revealed the explanatory power and predictive power of the model towards the dependent variable (i.e., EFL performance). As suggested by Marsh et al. (2020), R^2 values above 0.25, 0.50, and 0.75 indicate weak, moderate, and strong explanatory power of the combined exogenous variables on the endogenous variables, respectively. Similarly, Q^2 values greater than 0, 0.25, and 0.5 suggest weak, moderate, and strong predictive power. In this study, the model, which includes self-efficacy, task value, metacognitive SRL, and cognitive SRL as exogenous variables, demonstrated moderate explanatory power (R^2 = 0.270) and moderate predictive power (Q^2 = 0.265) for EFL performance.

DISCUSSION

This study found that task value is more predictive than other factors, such as self-efficacy, metacognitive SRL, and cognitive SRL. The prominence of task value in the Chinese educational context may be attributed to the high importance placed on academic achievement and the strong connection between English proficiency and future career opportunities (Yang, 2022). For many students, English is seen as a gateway to economic mobility, enhancing the perceived value of learning the language. Such long-term academic and professional aspirations may explain why task value has a more pronounced effect on EFL outcomes than other motivational or behavioral factors.

The finding that both task value and self-efficacy positively influence EFL performance supports prior studies such as those by Bai et al. (2021) and Lee et al. (2020). It underscores the role of motivational beliefs in promoting student engagement, persistence, and strategic learning behaviors, all of which contribute to academic success (Teng et al., 2023). These results align with the expectancy-value theory, which suggests that students are more likely to invest effort when they believe in their ability and see the task as meaningful (Eccles & Wigfield, 2020).

Although its influence was less prominent, metacognitive SRL also emerged as a significant predictor. This indicates that students who plan, monitor, and evaluate their learning tend to perform better. Metacognitive regulation helps learners adapt to challenges and adjust strategies when needed, supporting previous findings by Teng et al. (2023) and Alhaison (2017).

However, it is somewhat surprising to find that cognitive SRL did not significantly affect EFL performance. This contrasts with previous studies (Ahmadi et al., 2019; Akram, 2019). A possible reason is that students may know cognitive strategies such as rehearsal and summarization but fail to apply them effectively. This may relate to the Chinese educational context, where rote learning and teacher-centered approaches dominate, leading to passive strategy use (Chen & Yu, 2019). This unexpected finding demands further qualitative research—such as interviews—to explore how learners perceive and use cognitive strategies in EFL learning. Such insights could guide interventions to strengthen the use of cognitive SRL in similar contexts.

CONCLUSION

This study explored the direct effects of motivational beliefs (task value and self-efficacy) and SRL strategies (metacognitive and cognitive) on EFL performance among Chinese undergraduates. The findings indicate that task value is the most significant predictor of EFL performance, highlighting its crucial role in motivating students by linking language learning to their academic and career goals. While self-efficacy and metacognitive SRL also positively impact EFL performance, their effects are less pronounced than those of task value. Surprisingly, cognitive SRL did not significantly affect EFL performance, which contrasts with some previous studies. These results emphasize the need to focus on enhancing task value and metacognitive SRL strategies while re-evaluating the role of cognitive SRL in language learning.

Pedagogical Implication

To improve EFL performance, educators could prioritize enhancing the perceived value of English learning by connecting it to students' personal and professional aspirations. For example, integrating

career-oriented activities could be highly effective. One approach is to organize guest lectures with professionals who use English in their careers, such as business leaders or international diplomats, to highlight the practical benefits of English proficiency. Another strategy is to design assignments that connect English skills to real-world scenarios, such as creating presentations or reports on industry-specific topics liked by students.

Building students' self-efficacy is also crucial. Educators should set clear, achievable goals and offer detailed, constructive feedback, as they are the sources of students' self-efficacy (Bandura, 2001). For instance, when students submit drafts of their research papers, feedback should emphasize their strengths and provide specific advice on how to improve weaker areas. Regular self-reflection exercises (such as having students assess their progress after each major assignment) can help them recognize their achievements and adjust their strategies accordingly.

Incorporating metacognitive SRL strategies into teaching involves explicitly teaching planning, monitoring, and evaluating techniques. For example, during reading comprehension activities, educators can guide students in creating detailed reading plans, including setting specific goals and using strategies for summarizing and reflecting on the material. Teachers can model these strategies by demonstrating their thought processes during problem-solving activities, showing how to track progress and adapt approaches. Encouraging students to review and revise their learning plans regularly can help them manage their learning processes more effectively (Teng et al., 2023).

Limitations

There are two limitations of the current study. First, the exclusive reliance on quantitative methods limits the depth of understanding about how motivational beliefs and SRL influence students' learning processes dynamically. Particularly, as cognitive SRL strategies were found not to significantly affect EFL performance, an in-depth investigation, such as interviews, could provide more nuanced insights into how students apply these strategies in practice and why they may not yield the expected results. Second, the study focuses only on cognitive and metacognitive SRL strategies, neglecting other dimensions like the social behavior of SRL, which could also impact EFL performance. This narrower scope may overlook the role of peer interactions and the learning environment in shaping students' self-regulation and language outcomes, suggesting a need for broader exploration in future research.

DECLARATIONS

Competing Interests

The authors report there are no competing interests to declare.

Data Availability

The data will be available on request from the corresponding author.

Ethics Approval and Informed Consent

In accordance with the ethical principles outlined in the Declaration of Helsinki, the participant information sheet and the ethical consent form were obtained from all the participants. Besides, participants in the present study did not include children or minors. During the study, the anonymity and privacy of the participants were guaranteed, and their participation was completely voluntary.

Authors' Contributions

The corresponding author supervised the whole process and gave guidance when necessary. The first author analyzed the data and wrote the manuscript.

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