

EFL College Students' Writing Self-efficacy and Strategy Use in Their Summary Writing

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Abstract

Summary writing, illustrating a writer's level of comprehension and explanation of a text, is an essential but demanding skill in academic writing. However, studies on how individual factors may affect one's, especially second language (L2) writers' summary writing abilities remain scarce. One particular focus on effectively assisting learners' summary writing is to look at the roles of writing self-efficacy and strategy use in summary writing. Therefore, the current study aims to investigate the relationship between writing self-efficacy and strategy use in summary writing tasks and the predictive effects of the two constructs on summary writing performance. Two hundred seventy-two participants were recruited from an undergraduate EAP (English for academic purposes) course in a Chinese university, and they were asked to complete two questionnaires, the Questionnaire of English Writing Self-Efficacy (QEWS) and the Summary Writing Strategy Use Inventory (SWSUI), before and after a summary writing task, respectively. The correlation results suggested a significant positive correlation between writing self-efficacy and summary writing strategy use. The results of the regression models indicated that the two constructs exerted significant predictive effects on writing scores individually and collectively. Among the subcategories of writing self-efficacy and summary writing strategy, self-efficacy for organization and cognitive strategies were significant predictors of summary writing performance.

Keywords: EFL learners, summary writing, writing self-efficacy, summarizing and paraphrasing strategy, academic writing

1. Introduction

Writing, as an important section symbolizing learners' overall linguistic competence, is always deemed a challenge for many language learners (Anastasiou & Michail, 2013). Among the four language skills of listening, speaking, reading and writing, writing is commonly regarded as the most difficult task for learners in the context of English as a foreign language (EFL) (Bruning & Hom, 2000). In the framework of the cognitive process theory of writing, three dynamic elements of the task environment, writers' long-term memory and the writing process interactively determine the quality of writing. Hayes (2000) put forward a model of writing in which the writing process consists of two intertwined components: the task environment and individuals. The task environment consists of the social environment and physical environment, and the two kinds of environment may have positive and negative impacts on the writing process. The individual factors included writers' motivation, working memory and cognitive processes. In other words, according to cognitive process theory, "cognitive, affective, social, and physical conditions" are involved in the writing process (Hayes, 2000, p. 5). Since cognitive and affective factors are deemed crucial in writing, strategy use and self-efficacy tend to have a practical impact on writing outcomes.

Writing self-efficacy refers to individual learners' judgements of the extent to which they can finish a writing task perfectly based on their evaluation of four aspects: "various composition, grammar, usage, and mechanical skills" (Pajares & Valiante, 2001, p. 369). Writers with high self-efficacy tend to have higher motivation and less apprehension and pay more effort and greater perseverance in the writing process (Prat-Sala & Redford, 2012; Zhang & Guo, 2012). Previous research has demonstrated the significant effect of self-efficacy on both first-language (L1) and second-language (L2) writing (Bruning, Dempsey & Kauffman, 2013; Sun & Wang, 2020; Zabihi, 2018; Zimmerman & Bandura, 1994; Zimmerman & Risemberg, 1997).

As reviewed above, there have been a significant number of studies looking at the relationship between self-efficacy and EFL writing outcomes. However, little attention has been paid to how self-efficacy affects specific writing skills, such as summary writing. In the context of EAP classes, summary writing requires learners to refer to the source use. Source use competence always plays an important role in academic writing because the inappropriate use of a reading source in one's writing will result in plagiarism. Summary writing is a practical and necessary skill for EFL learners to reconstruct and internalize the source information in research-based assignments. Thus, it is crucial and necessary to train academic writers to write summaries, which requires students to present a condensed piece of writing while being faithful to the source reading material's content.

Apart from learners' self-efficacy, another cognitive processing factor has also been considered a focal attribute for learners' language use. In Bachman and Palmer's (2010) communicative language ability model, language ability is subcategorized into language knowledge and strategic competence. Language knowledge comprises organizational knowledge (grammatical and textual knowledge) and pragmatic knowledge (functional and sociolinguistic knowledge). Strategic competence refers to the use of metacognitive strategies to manage the process of language use, which includes goal setting, appraising and planning. The peripheral attributes are composed of topic knowledge, personal attributes, affective schema and cognitive strategies. Cognitive strategies are considered as the language learners' approaches to executing plans. This model draws academic attention to the significant role of strategies as well as personal attributes, including personally perceived writing self-efficacy, in language use.

In the EAP context, academic writing requires internalizing and presenting other scholars' views in literature, which demands students' mastery of summary writing techniques, including summarizing and paraphrasing the ideas in the original text. When writing summaries, students appear to utilize various strategies to finish or polish their products (Yang, 2014; Zhang, 2021). However, research on strategy use in the process of summary writing requires further exploration. Although previous scholars have demonstrated a positive association between learners' self-efficacy and strategy use (Li & Wang, 2010; Sardegna, Lee & Kusey, 2018), there is a paucity of empirical studies on writing self-efficacy and strategy use in the specific skill of summary writing. Therefore, this study attempts to focus on exploring the relationships between writing self-efficacy, summary writing strategy use and summary writing performance.

2. Literature Review

2.1 Writing Self-efficacy

Social cognitive theory suggests that writers' behavior and outcomes in a wide range of domains can be predicted by their beliefs (Bandura, 1997). Thus, self-efficacy, as individuals' perception of their ability to successfully finish tasks, is able to exert control over one's cognition, behaviors and environments (Bandura, 1986). Several studies have explored the relationship between writing self-efficacy and L1 (first language) writing performance. Considerable empirical evidence has been provided to show that writing self-efficacy can positively predict writing attainment. Bruning et al. (2013) measured writing self-efficacy from three perspectives: writing ideation, writing conventions and writing self-regulation, and investigated how it correlated with students' liking writing, self-reported writing grades, and statewide writing assessment scores. The results showed that ideation and self-regulation had a significant influence on liking writing and that conventions were strongly related to assessment scores. Prat-Sala and Redford (2012) demonstrated a contributing effect of self-efficacy for reading and writing on students' writing performance. Self-efficacy for writing is also considered to be associated with perceived academic self-efficacy and personal goals for writing quality (Zimmerman & Bandura, 1994), goals set for writing (Zimmerman & Bandura, 1994; Pajares, 2003) and self-efficacy for self-regulation (Zimmerman & Risemberg, 1997).

In addition, some studies attempted to explore the influence of writing self-efficacy on writing performance in the area of second or foreign language learning. It has been reported that self-efficacy exerts a mediating effect on the relationship between anxiety and writing performance (Zabihi, 2018). Zhang & Guo (2012) also investigated Chinese EFL learners to seek the effect of motivation and self-efficacy on English writing. The analyses demonstrated that writing motivation, self-efficacy, and writing proficiency were significantly and positively correlated with each other among first-year English major students but not among sophomores. Sun and Wang (2020) examined the relationships among EFL learners writing self-efficacy, writing self-regulated learning (SRL) strategies and writing proficiency. The results revealed that both writing self-efficacy and writing self-regulated learning strategies are positively correlated to and significantly predict Chinese students' English

writing proficiency. It was also reported that self-efficacious student writers tended to have stronger motivation (Zhang & Guo, 2012) and less anxiety, paid more effort and performed well in L2 writing.

In previous research on writing self-efficacy, many instruments have been developed to measure this construct in the context of L2 or EFL. Shell, Murphy and Bruning (1989) measured writing self-efficacy within the task and component skills subscale. The former focused on students' self-efficacy in the given writing task (e.g., genre and requirements) and the latter concentrated on self-efficacy in their writing skills (e.g. vocabulary and grammar). Pajares and Valiante (1999) followed the theory from Shell et al. (1989) and put forward the Writing Self-Efficacy Scale (WSES) by adapting the items in Shell et al. (1989). This scale measures students' judgement on how they can perform well in a writing task in terms of grammar, usage, composition, and mechanical writing skills (Pajares, 2007). Zimmerman and Bandura (1994) developed the Writing Self-Regulatory Efficacy Scale (WSRES) to measure students' self-efficacy for regulating writing activities, such as planning, revising, and self-managing time. Bruning et al. (2013) raised an influential three-factor model to measure L1 students' writing self-efficacy, which included the aspects of writing ideation, writing conventions and writing self-regulation. Teng, Sun and Xu (2018) combined the social cognitive theory (Bandura, 1986) and self-regulated learning theory (Zimmerman, 2013) and created an instrument for L2 writing self-efficacy containing linguistic self-efficacy, performance self-efficacy and self-regulatory self-efficacy. However, research instruments need to measure learners' self-efficacy in specific contexts and tasks because self-efficacy is situational and task-specific (Bandura, 1997). Sun and Wang (2020) point out that though in L2 writing, fine-grained instruments (e.g., Teng et al., 2018) were developed to measure L2 writers' general self-efficacy, instruments which address specific writing tasks are needed. Therefore, the Questionnaire of English Writing Self-Efficacy (QEWSE) developed by Sun and Wang (2020) is more appropriate for measuring students' specific writing efficacy in EFL writing performance.

2.2 Learner Strategies for Summary Writing

Summary writing is an essential skill in academic writing to recast and reduce other researchers' opinions faithfully. Several studies have compared the summary writing performances of L1 and L2 writers and found similarities and differences in the mental processes involved in finishing this task. Some researchers have noticed that novice English learners have difficulties in finishing summary writing and tend to copy the source information verbatim (Yang & Shi, 2003). Nevertheless, these studies primarily focused on the linguistic features of summary products, and many failed to reveal the online processes and actual strategies employed and how these strategies impact summary performance. In the L2 study, learner strategies are "conscious or semi-conscious thoughts and actions deployed by learners, often with the intention of enhancing their knowledge of, and facility with an L2" (Ishihara & Cohen, 2014, p. 228). Even though very few studies have been conducted to examine the relationships between strategy use and L2 summary writing performance, a significant number of studies have researched the impact of strategy use on other language skills (e.g. Bi, 2021; Bi & Wang, 2024; Phakiti, 2003; Purpura, 1997; Yang & Plakens, 2012; Zhang, 2020).

Grounded on the theory of human information processing, Purpura (1997) designed a strategy use questionnaire containing both cognitive and metacognitive strategies and investigated the effect of 1382 students' strategy use on their grammar and reading ability. The final structural equation model results revealed that the participants' language performance was neither directly influenced by metacognitive strategy use nor significantly affected by cognitive strategy use. Phakiti (2003) adapted Purpura's (1997) strategy questionnaire to fit for a reading test. A positive but weak correlation was detected between EFL learners' metacognitive and cognitive strategy use and their reading performance. Moreover, Phakiti (2003) used MANOVA to claim that more proficient students tended to use more metacognitive strategies. Bi (2017, 2020) also explored the impact of strategy use on lexico-grammar performance and found that metacognitive strategy tended to indirectly affect learners' lexico-grammar performance through cognitive strategy, which exerted a positive and direct influence on the L2 test outcomes. Most recently, in the context of pragmatics strategy use in role-play academic tasks, researchers (i.e., Bi, 2021; Youn & Bi, 2019) found that EFL students with high English levels employed more metacognitive, cognitive and pragmatic strategies to deal with the pragmatic role-play activities effectively.

Given that many scholars contributed to the relationship between language learner strategy and L2 performance, only a few studies probed into the specific summary writing field. Yang and Plakens (2012) presented a strategy use inventory for integrated reading-listening-writing tasks. They found that self-regulatory strategy use had executive control over discourse synthesis strategy and test-wiseness strategy use and that discourse synthesis strategy had a direct and positive impact on Chinese students' summary writing ability, while test-wiseness strategy had a direct and negative impact. Yang (2014) further designed a summarization strategy inventory and found that the use of planning and evaluating strategies exerted a significant, positive and indirect impact on

summary writing performance with discourse synthesis and source use strategies as mediators. However, these studies failed to use real summary tasks to measure learners' summary writing performance. In fact, many similar studies used integrated writing tasks such as TOEFL writing tasks as their writing instruments, which may not accurately measure learners' summarizing ability. Most recently, Zhang (2020) developed a summary and paraphrasing strategy use inventory with cognitive, metacognitive, compensation and affective strategies and found that all the strategies possessed a negligible influence on EFL writer's paraphrasing performance. This study has shed light on the strategies employed to respond to summary and paraphrase tasks. However, the results were not conclusive, and other factors (e.g., self-efficacy) in collaboration with strategy use contributing to L2 summary performance need to be further studied (Zhang, 2020).

2.3 Relationships between Self-efficacy and Strategy Use

Several studies have revealed the connection between learners' self-efficacy and their strategy use in the process of language learning. Researchers have examined the relationships between self-efficacy and strategy use in other language skills, such as reading (Li & Wang, 2010) and speaking (Sardegna et al., 2018). The findings of these studies indicate that there is a positive relationship and that learners with higher self-efficacy tended to use more reading and speaking strategies.

According to Bandura (1986, 1997), students' SRL strategy use is influenced by their self-efficacy. Many scholars have found a close link between writing self-efficacy and the usage of the SRL strategies in writing (e.g. Schunk & Zimmerman, 2007; Zimmerman & Risemberg, 1997). Steward, Steifert, and Rolheiser (2015) contended that undergraduates' higher self-efficacy led to a stronger awareness of using metacognitive strategies in writing. However, Graham, Harris, and Mason (2005) contended that struggling students' self-efficacy for informative and narrative writing was not affected by Self-Regulated Strategy Development (SRSD) instruction. In fact, self-efficacy and strategy use are both skill-specific, and their relationships and impacts may vary based on different language skills (Bandura, 1986; Phakiti, 2008). Only Golparvar and Khafi (2021) linked the construct of writing self-efficacy with integrated writing strategy use and proposed that L2 writing self-efficacy, including three latent components of linguistic, self-regulatory and performance self-efficacy, are significant predictors of summary writing strategy use of planning, evaluating source use and synthesis. Nevertheless, research on these relationships is still in its early stages. Hence, further investigations are needed into the relationships between self-efficacy, strategy use and specific language skills.

2.4 Research Questions

The current study aims to contribute to L2 writing research by investigating the relationships between writing self-efficacy, summary writing strategies and summary writing performance. Though several studies indicated that self-efficacy could predict language learner strategy use, including cognitive and metacognitive strategies (Golparvar & Khafi, 2021), there has been sparse research on the roles of these two variables in summary writing. Besides, the individual and integrated effects of writing self-efficacy and strategy use on writing performance are still scarce and deserve more research attention. Therefore, this study looks at summary writing skills in EAP classes and attempts to focus on writers' perceived self-efficacy for writing and summary writing strategies used in writing activities. It intends to address the following research questions:

- (1) What is the relationship between EFL students' self-efficacy for writing and summary writing strategy use?
- (2) To what extent do EFL students' self-efficacy for writing and summary writing strategy use predict L2 summary writing performance?

3. Research Methods

3.1 Participants

The participants involved in the research were 272 college students from a science and technology university in China. They were selected through convenience sampling from the EAP classes. The EAP course was offered for first-year students in their second semester, focusing on training reading and writing ability for academic purposes. There were 103 males (37.9%) and 169 females (62.1%), whose ages ranged from 17 to 24 ($M= 18.96$, $SD= 0.99$). The years of the participants' English learning vary from 6 to 9 years ($M= 12.41$, $SD = 2.07$). A large proportion of the participants were from the Business School ($N= 118$, accounting for 43.4%) and the College of Communication and Art Design ($N= 72$, accounting for 26.5%). In total, the recruited participants' scope covered all the university schools. All the participants had at least a lower to intermediate level of English proficiency since they obtained the highest scores in standard placement test before taking the EAP classes, and all had passed (College English Test Band 4) CET-4, a proficiency test in China for all the undergraduates, with average scores above 180 in the translation and writing section (top 25 % of the total national test takers).

Power analysis was performed to determine the required sample size for the study. A linear multiple regression test was conducted with the help of G*Power 3.1.9.7, where effect size, α error probability, power, and number of predictors were set at 0.15, 0.05, 0.80, and 5, respectively. The results showed that noncentrality parameter δ , critical F, total sample size, and actual power were 13.8, 2.32, 92, and 0.80, respectively. The results may suggest that the sample size of the current study has met the requirements of the power analysis.

3.2 Instruments

3.2.1 Questionnaires of English Writing Self-Efficacy

The questionnaire for students' writing self-efficacy in this research was adapted from Sun and Wang (2020), which was based on Bruning et al.'s (2003) and Wang and Bai's (2017) self-efficacy questionnaire and developed to measure undergraduates' writing self-efficacy. The Questionnaire of English Writing Self-Efficacy (QEWSE) is composed of 27 items, which can be categorized into five subscales: ideation (item 1, item 6, item 11), organization (item 2, item 7, item 12, item 20, item 27), grammar and spelling (item 3, item 8, item 21, item 26), use of English writing (item 4, item 9, item 10, item 13, item 14, item 16, item 17, item 22), and self-efficacy for self-regulation (item 5, item 15, item 18, item 19, item 23, item 24, item 25). This questionnaire has 7-point Likert scales, with 1 meaning "I cannot do it" and 7 meaning "I can do it well". The reliability of the questionnaire was firstly examined and the Cronbach's alpha values for reliability were 0.96 for all items, 0.73 for ideation, 0.88 for organization, 0.83 for grammar and spelling, 0.89 for use of English writing and 0.85 for self-regulation. The results demonstrated good internal consistencies of the responses to the scale.

3.2.2 Summary Writing Strategy Use Inventory

The Summary Writing Strategy Use Inventory (SWSUI) was adapted from the Paraphrasing Strategy Use Inventory (PSUI) (Zhang, 2020). The SWSUI contained a total of 22 items and four subscales of strategy use, i.e., cognitive, metacognitive, compensation and affective strategy. In the subscale of cognitive strategies, five sub-strategies were included as comprehending (item 2, item 13), repeating (item 15, item 16), memorizing (item 9), retrieving (item 8, item 12), analyzing (item 3, item 20) and summarizing (item 6, item 7). The metacognitive strategies included planning (item 4, item 19), monitoring (item 4, item 14), and evaluating (item 21, item 22). The compensation strategies were composed of guessing (items 17 and 18) and approximating (items 10 and 11). The affective strategy was represented by encouraging yourself (item 1). This inventory employed a 6-point Likert scale, in which 0 means the participants "never" use the strategy in their summary writing. And 1 means "very rarely", 2 "rarely", 3 "occasionally", 4 "often", and 5 "very often". Internal consistencies (Cronbach's alpha) were found to be 0.91 for all items, 0.85 for cognitive strategies, 0.78 for metacognitive strategies, and 0.63 for compensation strategies.

3.2.3 Testing the Confirmatory Models

Confirmatory Factor Analysis (CFA) was run with AMOS 24 in order to validate the questionnaires used in this research. Statistical indices pertaining to the degree of model fitness include the chi-square goodness-of-fit (χ^2), degree of freedom (df), the ratio of chi-square (χ^2) to its degree of freedom (χ^2/df), the comparative fit index (CFI), Tucker-Lewis index (TLI), and the root mean square error of approximation (RMSEA). The criteria of a value of TLI and CFI being 0.9 or greater (Hu & Bentler, 1999) and an RMSEA smaller than 0.08 (MacCallum, Browne, & Sugawara, 1996) are considered to indicate an acceptable model fit. Besides, the ratio of chi-square (χ^2) to its degree of freedom (χ^2/df) should be less than 3 (Tseng & Schmitt, 2008). First, in accordance with Sun and Wang (2020), a five-factor model of writing self-efficacy with five sub-scales was examined. Since items 11 and 12 were reported to have low factor loadings in the CFA model, the final model was refined by deleting the two items. The results indicated that the five-factor model adequately fit the data ($\chi^2 = 672.836$, $df = 265$, $\chi^2/df = 2.539$, CFI = 0.90, TLI = 0.887, RMSEA = 0.075), shown in Figure 1. Second, CFA was also conducted to test the construct validity of the summary writing strategy use questionnaire with three models of cognitive strategies (shown in Figure 2), metacognitive strategies (shown in Figure 3) and compensation strategies (shown in Figure 4). The results suggested that the five-factor model of cognitive strategy use ($\chi^2 = 52.379$, $df = 25$, $\chi^2/df = 2.095$, CFI = 0.97, TLI = 0.946, RMSEA = 0.064), the three-factor model of metacognitive strategy use ($\chi^2 = 9.385$, $df = 6$, $\chi^2/df = 1.564$, CFI = 0.992, TLI = 0.980, RMSEA = 0.046) and the two-factor model of compensation strategy use ($\chi^2 = 0.603$, $df = 1$, $\chi^2/df = 0.603$, CFI = 1, TLI = 1.015, RMSEA = 0.000) all fit well.

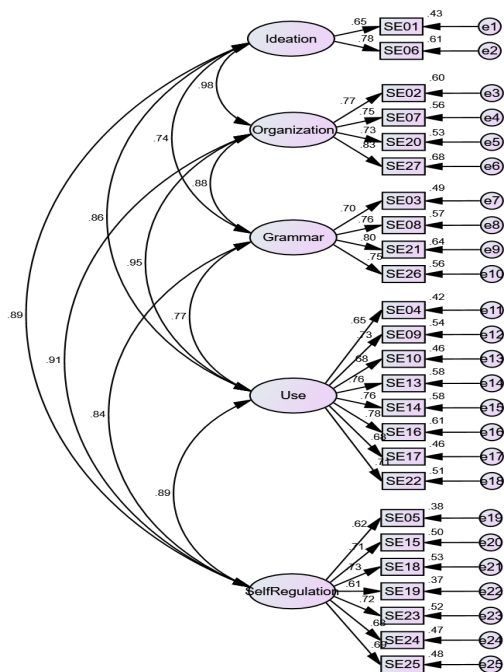


Figure 1. The five-factor model of L2 writing self-efficacy

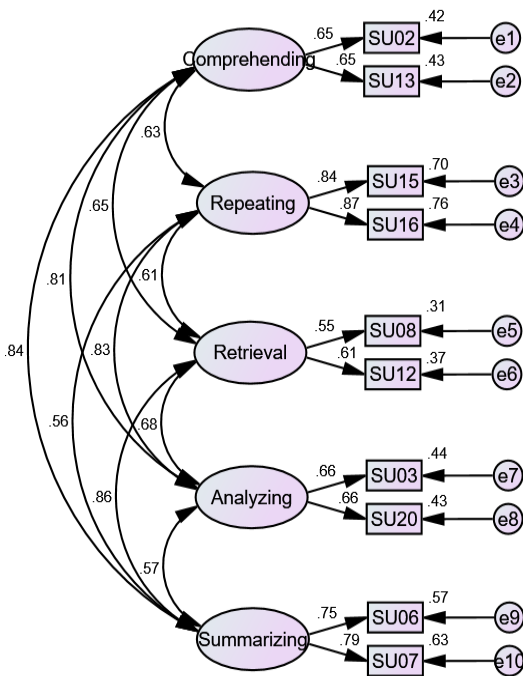


Figure 2. The five-factor model of cognitive strategy use

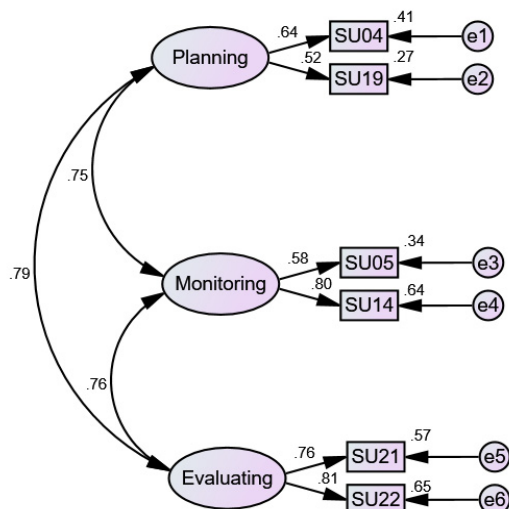


Figure 3. The three-factor model of metacognitive strategy use

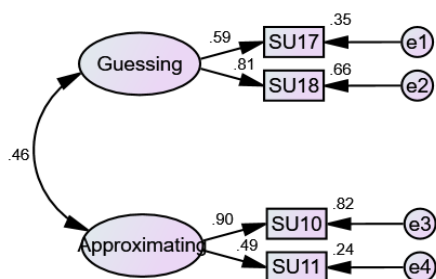


Figure 4. The two-factor model of compensation strategy use

3.2.4 Summary Writing Task

Since the present study was conducted in the context of the EAP classes, the summarization task was to write a summary of an adapted academic text. This task was administered as part of the final exam. The adapted material for the summarization task was presented with a length of 855 words. The test-takers were supposed to read the excerpt first and write a summary within the word limit of 80 words and the total time for the writing was limited to 45 minutes. The task was piloted first with 30 students to make sure the instruction, text difficulty, and time given were all satisfactory. Furthermore, the task was also reviewed by four experienced EAP teachers.

3.3 Data Collection and Data Analysis

During the semester, all the students received instruction on how to utilize the summarizing and paraphrasing strategy to write a good summary in the EAP class. Before they started the exam, the students were solicited to complete the QEWS. After completing the exam, they were asked to recall the use of summary strategies in their writing and complete the SWSUI. The two questionnaires were translated into Chinese to make it easier and more suitable for the participants. We also recruited two certified translators to verify the quality of the translation. The data submitted by those who finished the two questionnaires and completed the exam successfully were selected. Their summaries were collected and rated by two experienced EAP teachers in accordance with the suggested version of the summary offered by the examiner. A significant strong correlation ($r = 0.937$) in their ratings suggested that two raters agreed on the ratings of the same summary writing task.

The scoring rubrics were adopted from Li and Wang (2021), which included four scales of main idea coverage, integration, language use and source use. All scales are rated in 6 levels from 0 (No) to 5 (Excellent), thus

providing a total score from micro-level features. Main idea coverage refers to the grasp and coverage of the main ideas of the presented material. Integration focuses on the logical rearrangement of the order of the statements, display of examples of integration and connectives and global interpretation of the source text. Language use captures syntactic variety, appropriate word choice as well as the required word limit. Source use indicates the accurate use of the information from the source text without verbatim copying.

When coping with the raw data, all the items were calculated as composite variables rather than analyzed individually. The descriptive statistics of all the latent variables of the participants' writing self-efficacy, strategy use and summary writing performance were reported and analyzed. To address the first research question, Pearson correlation and simple regression were conducted to determine the relationship between writing self-efficacy and summary strategy use. Next, separate standard regression analyses were performed to investigate the predictive impact of the variables on summary writing performance.

4. Results

The descriptive statistics of participants' data for writing self-efficacy and summarizing and paraphrasing strategy use, and their summary writing scores were first calculated. It was concluded that students' overall writing self-efficacy (WSE) was at a relatively high level ($M = 5.10$, $SD = 0.72$), above 5 (I can basically do it). The participants had the most confidence in the organization of the summary writing ($M = 5.24$, $SD = 0.77$) but the least in ideation ($M = 4.91$, $SD = 0.83$).

The results show that the summary writing strategy use (SWSU) score was above 3 (occasionally), which meant that the participants had a medium awareness of utilizing the strategies in summary writing. The participants tended to employ compensation strategies ($M = 3.80$, $SD = 0.56$), cognitive strategies ($M = 3.79$, $SD = 0.53$) and affective strategies ($M = 3.75$, $SD = 0.87$) more than metacognitive strategies ($M = 3.57$, $SD = 0.62$). As for writing performance, the average of the participants' scores was 14.11 ($SD = 1.94$) out of a maximum of 20, suggesting that their performance in the summary writing task was above average. The participants obtained the highest average score on language use ($M = 3.64$, $SD = 0.56$) and were deficient in main idea coverage ($M = 3.45$, $SD = 0.71$).

4.1 What is the Relationship between EFL Students' Self-efficacy for Writing and Summary Writing Strategy Use?

The first research question explores the relationship between EFL learners' writing self-efficacy and strategy use in summary writing. In order to answer the question, Pearson correlation was first conducted to test the relationship between the two constructs, including all the subcategories as well as the average scores. In this study, we adopted Plonsky and Oswald's (2014) interpretation of correlation coefficients, suggesting that "rs close to 0.25 be considered small, .40 medium, and .60 large" (p. 889). In Table 1, a significant positive correlation was observed between writing self-efficacy and the use of summary writing strategies ($r = 0.630$, $p < 0.01$). All the subscales in the writing self-efficacy were significantly related to the average strategy use score, with self-efficacy for self-regulation having the highest correlation ($r = 0.617$, large, $p < 0.01$), and ideation self-efficacy having the lowest correlation ($r = 0.499$, medium, $p < 0.01$). In addition, each subscale in SWSUI showed a positive correlation with the average writing self-efficacy score. To be more specific, metacognitive strategies had a large correlation with writing self-efficacy ($r = 0.615$, large, $p < 0.01$) and cognitive ($r = 0.597$, medium to large, $p < 0.01$) had a medium to large correlation with self-efficacy, while compensation ($r = 0.398$, weak to medium, $p < 0.01$) and affective ($r = 0.307$, weak to medium, $p < 0.01$) strategies in SWSUI had a weak to medium correlation with self-efficacy. Table 1 shows that all the sub-strategies of writing self-efficacy had a significant and positive correlation with those summarizing and paraphrasing strategies.

In addition, the simple regression was run to examine whether writing self-efficacy can predict students' strategy use while writing summaries. The results suggest that writing self-efficacy was a significant predictor of summary writing strategy use, $F(1, 270) = 178.032$, $p < .01$, explaining 39.5% of the total variance ($R^2 = .395$), with a positive relationship ($\beta = .630$, $t(272) = 13.343$, $p < 0.01$).

Table 1. Pearson correlation matrix for writing self-efficacy and summary writing strategy use (n=272)

	SWSU Average	Cognitive	Metacognitive	Compensation	Affective
	r (p)	r (p)	r (p)	r (p)	r (p)
WSE Average	.630** (.000)	.597** (.000)	.615** (.000)	.398** (.000)	.307** (.006)
Ideation	.499** (.000)	.489** (.000)	.485** (.000)	.281** (.000)	.223** (.000)
Organization	.566** (.000)	.548** (.000)	.548** (.000)	.332** (.000)	.281** (.000)
Grammar and spelling	.558** (.000)	.508** (.000)	.570** (.000)	.352** (.000)	.306** (.000)
Use of English writing	.546** (.000)	.519** (.000)	.530** (.000)	.359** (.000)	.231** (.040)
Self-efficacy for self-regulation	.617** (.000)	.580** (.000)	.592** (.000)	.406** (.005)	.326** (.000)

p**<.01

Table 2. Pearson correlation matrix for writing self-efficacy, summary writing strategy use and summary writing performance (n=272)

Writing self-efficacy	Summary writing performance r (p)
Ideation	.259** (.000)
Organization	.352** (.000)
Grammar and spelling	.296** (.000)
Use of English writing	.300** (.000)
Self-efficacy for self-regulation	.304** (.000)
WSE Average	.340** (.000)
Summary writing strategy	Summary writing performance r(p)
Cognitive	.406** (.000)
Metacognitive	.368** (.000)
Compensation	.314** (.000)
Affective	.155** (.005)
SWSU Average	.417** (.000)

p**<.01

4.2 To What Extent does EFL Students' Self-efficacy for Writing Predict L2 Summary Writing Performance?

The second question seeks to investigate the predictive effect of students' writing self-efficacy and summary writing strategy use on summary writing performance. To answer this research question, the study examined how each factor may predict the summary writing performance and then the combined effects of both factors on the test-takers' performance. Therefore, multiple regressions were first employed with five subscales in writing self-efficacy as independent variables and participants' scores for their summary writing task as the dependent variable.

The correlations (see Table 2) between the two constructs indicate that all subscales of writing self-efficacy were significantly correlated with summary writing performance. The organization self-efficacy had the highest correlation with writing score ($r = 0.352$, weak to medium, $p < 0.01$), and ideation self-efficacy had the lowest correlation with writing score ($r = 0.259$, weak, $p < 0.01$). The results of regression analyses are presented in Table 3. The results reveal that the integrated five subscales of writing self-efficacy were significant predictors of summary writing performance, $F(5, 266) = 7.937$, $p < .01$, accounting for 13% of the total variance ($R^2 = .13.0$).

Besides, the construct of writing self-efficacy was also a significant predictor of writing score, $F(1, 270) = 35.401$, $p < .01$, explaining 11.6% of the total variance ($R^2 = .116$), in a positive relationship ($\beta = .340$, $t(272) = 5.95$, $p < .01$). Moreover, organization self-efficacy ($\beta = .301$, $t(272) = 2.349$, $p = .02$) was reported to significantly predict summary writing performance in a positive direction.

Table 3. Results of standard regressions with writing self-efficacy and summary writing performance (n=272)

Dependent variable	Predictor	Unstandardized coefficients		Standardized coefficients		
		B	SE	beta	t value	p-value
	Writing self-efficacy subscales					
Summary writing performance	Ideation	-.214	.235	-.091	-.911	.363
	Organization	.762	.325	.301	2.349	.020*
	Grammar and spelling	.135	.209	.059	.645	.519
	Use of English writing	.067	.266	.027	.250	.803
	Self-efficacy for self-regulation	.176	.245	.072	.716	.475
	WSE Average	.920	.155	.340	5.950	.000**

$p^{**} < .01$

4.3 To What Extent does EFL Students' Summary Writing Strategy Use Predict L2 Summary Writing Performance?

To examine the relationships between summary writing strategy and summary writing performance, the correlations between four types of summary writing strategy and summary writing performance were analyzed first. The correlation (see Table 2) results indicate that cognitive strategies ($r = 0.20$, weak, $p = 0.02$), metacognitive strategies ($r = 0.27$, weak, $p = 0.003$), and affective strategies ($r = 0.25$, weak, $p = 0.005$) had a weak correlation with summary writing performance. However, compensation strategies had no significant correlation with the performance variable ($r = 0.10$, $p = 0.169$).

Based on the correlations reported above, standard regressions were performed to see if the summary writing strategies can predict summary writing performance. The results in Table 4 show that the integrated four types of summary writing strategy ($F(4, 267) = 14.384$, $p < 0.01$) exerted a significant predictive effect on writing performance, explaining 17.7% of the total variance ($R^2 = .177$). Among the four types of writing strategies, cognitive strategies ($\beta = .982$, $t(272) = 2.878$, $p = .004$) were found to predict summary writing performance in a positive direction. Besides, summary writing strategy could also function as a predictor of summary writing performance ($F(1, 270) = 56.682$, $p = .000$) and explain 17.4% ($R^2 = .174$) of the variance of the response variable in a positive way ($\beta = .417$, $t(272) = 7.529$, $p < .01$).

Table 4. Results of standard regressions with summary writing strategy and summary writing performance (n=272)

Dependent variable	Predictor	Unstandardized coefficients		Standardized coefficients		
		B	SE	beta	t value	p-value
	Summary writing strategy					
Summary writing performance	Cognitive	.982	.341	.271	2.878	.004**
	Metacognitive	.454	.264	.144	1.723	.086
	Compensation	.207	.272	.058	.761	.447
	Affective	-.063	.136	-.028	-.462	.644
	SWSU Average	1.616	.215	.417	7.529	.000**

$p^{**} < .01$

4.4 To What Extent do EFL Students' Self-efficacy for Writing and Summary Writing Strategy Use Predict L2 Summary Writing Performance?

The last analysis intended to explore the predictive effect of writing self-efficacy and summary writing strategy use on EFL learners' performance in the summary writing task. In order to address the question, two multiple regressions were performed, one with all the subcategories of the two constructs as independent variables and another with the average score of the two constructs as independent variables. In Table 5, the regression analyses indicate that the five subscales of writing self-efficacy and four subcategories of summary writing strategy had a significant predictive effect on summary writing performance, $F(9, 262) = 7.357, p < 0.01$, accounting for 20.2% ($R^2 = .202$) of the total writing score variance. Among the nine variables in the first model, organization self-efficacy ($\beta = .282, t(272) = 2.264, p = .024$) and cognitive strategies ($\beta = .219, t(272) = 2.242, p = .026$) were the significant predictive factors for the dependent variable. Moreover, in the second model, the average score of writing self-efficacy and summary strategy use were found to collectively predict the summary writing performance, $F(2, 2269) = 30.242, p < 0.01$, accounting for 18.4% ($R^2 = .184$) of the total variance. Strategy use ($\beta = .335, t(272) = 4.722, p < 0.01$), rather than writing self-efficacy, was also found to predict summary writing performance in a positive direction in this model.

Table 5. Results of multiple regressions with WSE, SWSU, and summary writing performance (n=272)

Dependent variable	Predictor	Unstandardized coefficients		Standardized coefficients		
		B	SE	beta	t value	p-value
Summary writing performance	Ideation	-.219	.228	-.094	-.963	.336
	Organization	.714	.316	.282	2.264	.024*
	Grammar and spelling	-.005	.207	-.002	-.0224	.981
	Use of English writing	-.025	.259	-.010	-.098	.922
	Self-efficacy for self-regulation	-.112	.246	-.046	-.454	.650
	Cognitive	.792	.354	.219	2.242	.026*
	Metacognitive	.314	.280	.100	1.121	.263
	Compensation	.278	.274	.078	1.016	.310
	Affective	-.085	.137	-.038	-.622	.535
	WES Average	.3491	.192	.129	1.821	.070
SWSU Average	.300	.275	.335	4.722	.000**	

p**<.01; p*<.05

5. Discussion

5.1 EFL Students' Writing Self-efficacy and Summary Writing Strategy Use

This research explores the relationships between writing self-efficacy, strategy use and writing performance in the specific genre of summary writing. It was found that the EFL college students had a relatively high level of self-efficacy in writing, which was consistent with previous studies (Grenner, Johansson, van de Weijer, & Sahlén, 2020). However, some researchers contended that students tended to be moderately self-efficacious in writing (Sun & Wang, 2020; Zhang & Guo, 2012) and even a low-to-moderate level of self-efficacy (Tsao, 2021). The possible reason is that the participants in the study have relatively high English proficiencies (see 3.1). Moreover, after the academic writing instruction for a semester, they may become more confident in their L2 writing performance. It was also found that the students had the highest level of confidence in organization and lowest in ideation. That is, the students are efficacious in organizing the structures of writing but weak at initiating creative or effective ideas in writing. This phenomenon can be explained by the stereotypical model of English instruction in China, in which the teachers tend to focus on fixed structures and expressions in their writing classes, and students may not receive sufficient training in critical thinking. However, this result may also be affected by the nature of summary tasks used in the current study, as summary writing tasks require the writers to manipulate information available by extracting major points and ignoring redundant or trivial information. Thus, the writing genre itself does not involve creation. This finding reminds us that an individual's

self-efficacy is situational and contextual. Hence, instruments assessing these constructs must also address task specificity (Sun & Wang, 2020).

The study also reported moderately frequent use of strategy in summary writing, which supports the indispensable role of strategy use in various language skills (Phakiti, 2003; Plakans, 2008; Purpura, 1997). Moreover, as previous studies on strategy use mainly focused on cognitive and metacognitive strategies (Bi, 2021; Phakiti, 2003; Phakiti & Bi, 2017; Purpura, 1997; Yang & Plakans, 2012), this study contributes to the strategic competence model which claimed strategic competence as assessment, planning and execution. It also calls for attention to further research on the roles of compensation and affective strategies in L2 writing.

5.2 Relationships between EFL Students' Writing Self-efficacy and Summary Writing Strategy Use

A large positive correlation was reported between writing self-efficacy and summary writing strategy use, and a significant predictive effect of writing self-efficacy on summary strategy use was found, which is consistent with previous research findings, suggesting that positive influences of self-efficacy on language learner strategies (Golparvar & Khafi, 2021; Sardegna et al., 2018). In the study, students with high self-efficacy were more motivated and flexible in the strategy use to facilitate their summary writing. Moreover, the correlation analyses revealed a strong positive association between self-efficacy for self-regulation and strategy use. This finding can be explained by the nature of self-regulation, for self-regulatory skills serve to “generate productive ideas and writing strategies” and “manage the anxieties and emotions that can accompany writing” (Bruning et al., 2014, p.29), which have some overlapping with writers' strategy use.

5.3 Predictive Effects of Writing Self-efficacy and Summary Writing Strategy

The results of standard regressions indicated that writing self-efficacy and summary writing strategy significantly predicted summary writing performance. The model suggested that writing self-efficacy as an integrated construct had a predictive effect on writing scores. This evidence collaborated with previous research that writing self-efficacy not only contributed to writing attainment in L1 contexts (Bruning et al., 2013; Pajares et al., 1999; Zimmerman & Bandura, 1994; Zimmerman & Risemberg, 1997) but also in L2 situations (Sardegna et al., 2018). Moreover, compared with the model of writing self-efficacy with only three factors of writing ideation, convention and self-regulation proposed by (Bruning et al., 2013), this study provides a more delicate picture of the construct of writing self-efficacy, including ideation, organization, grammar and spelling, use of English writing and self-regulation. The regression analyses with all subscales of writing self-efficacy also reported a significant predictive effect of organization self-efficacy on writing performance. However, the results differed from the findings of Sun and Wang (2020), which reported that self-efficacy for grammar and the use of English writing were significant predictors of writing scores. The plausible reason is that summary writing emphasizes writers' skill of presenting original scholarly ideas logically and coherently more than other writing genres. Therefore, students who are more efficacious in organizing their writing coherently and cohesively may perform better in summary tasks.

Furthermore, the findings of the regression model (see Table 4) revealed that summary writing strategy use possessed a predictive effect on summary writing scores, which meant that students utilizing more strategies tended to produce a summary with higher quality. Phakiti (2003) argues that, unlike less successful learners, successful learners tended to use more strategies. Among the four subcategories of strategy, cognitive strategies were proved to be predictors of summary writing performance, while metacognitive, compensation and affective strategies failed to reach the same results. The results were also partly consistent with the findings of Zhang (2020), which revealed that all four types of strategies- cognitive, metacognitive, compensation, and affective- had no predictive impact on summary writing scores. In general, the line of research on strategy use and language performance has not yet reached an agreement. On the one hand, Purpura (1997) found that cognitive and metacognitive strategies had no direct effect on language performance. Yet, that metacognitive strategy significantly and directly affected cognitive strategies. On the other hand, Phakiti (2003) reached the opposite conclusion: that both cognitive and metacognitive strategies exerted significant effects on language test performance. Phakiti (2003) also recognizes that affective strategies were commonly utilized by language learners. The possible reason is that encouraging oneself and giving oneself positive psychological hints before a task is beneficial for easing learners' pressure and anxiety and enhancing language performance. In comparison, the current study found that metacognitive strategies were found to have no significant direct effect on summary writing performance since they might predict performance indirectly with cognitive strategies as the mediator. These direct and indirect effects of strategies on language performance were also echoed by other researchers (e.g., Bi, 2020; Bi & Wang, 2024; Phakiti, 2008; Phakiti & Bi, 2016). Furthermore, according to Yang and Plakans' (2012) study, self-regulatory strategies (represented by monitoring and evaluating) directly

impacted discourse synthesis strategies, which were reported to be direct and positive predictors of academic writing quality. Similar results have been recorded in Yang (2014) and Golparvar and Khafi (2021). These findings supported the direct and significant role of cognitive strategies in writing performance since discourse synthesis falls into the category of cognitive strategies in previous research.

The results of the final regression model (see Table 5) unveiled that regardless of the two constructs as an integration or including all the sub-types in the model, writing self-efficacy and summary writing strategy collectively predicted summary writing performance. However, the final model with two constructs reported a slight increase in explaining the total variance of the summary writing performance ($R^2 = 0.202$ including the sub-types, $R^2 = 0.184$ including the integrated constructs) compared with the regression models of each construct, writing self-efficacy ($R^2 = 0.130$ including the sub-types, $R^2 = 0.116$ including the integrated constructs) and summary strategy use alone ($R^2 = 0.177$ including the sub-types, $R^2 = 0.174$ including the integrated construct). These findings confirmed that both self-efficacy and strategy use at item levels could independently contribute to L2 learners' performance. However, their concerted power would outweigh their individual impacts.

Additionally, the regression model with composite variables (WSE average and SWSU average) affecting performance revealed that unlike writing self-efficacy ($p = 0.07$), strategy use had significant predictive power on summary writing performance, which might be attributed to the mediating effect of strategy use between writing self-efficacy and writing performance. This finding may suggest that the path from self-efficacy for writing to writing performance is through metacognitive and cognitive strategies. Teng, Wang and Wu (2021) also contended that metacognitive strategies mediated the process of self-efficacy beliefs predicting English learning achievement. The same results were also echoed by Du and Man (2022) in L2 listening tasks. Moreover, the result may be affected by the use of the Questionnaire of English Writing Self-Efficacy. As efficacy is also domain and task-specific (Sun & Wang, 2020), future research needs to specify and design skill-specific self-efficacy instruments to measure learners' self-efficacy in particular situations.

6. Conclusions

This study employed 272 undergraduates from a university in China and investigated the relationships between writing self-efficacy, summary writing strategy use and summary writing performance. The results of the Pearson correlation coefficient demonstrated a large positive correlation between efficacy beliefs for writing and strategy use. Besides, writing self-efficacy was reported to be a significant predictor of strategy use. This study provides empirical evidence for the relationships between self-efficacy beliefs and strategy use. Moreover, the significant predictive effects of EFL learners' efficacy beliefs and language learner strategy use on summary writing quality were illustrated in the regression models. In particular, self-efficacy for organization and cognitive strategies exerted a positive impact on writing performance. Thus, this study can expand our knowledge about the roles of individual factors and mental processes in L2 writing, especially in summarization tasks in academic writing. Furthermore, as the research on summary writing strategies is limited, this paper could contribute to identifying the construct validity of summary writing tasks under the context of EFL writing.

This research also has significant implications for English writing instruction. Since summary writing skills are rather demanding and challenging for L2 learners in an academic writing context, they deserve more pedagogical attention. The study reveals that individual differences in self-efficacy and specific strategy use were associated with their summary writing quality. Therefore, it is necessary for EAP teachers to help students cultivate their confidence in writing and deliver the instruction of strategy use. The level of self-efficacy and the frequency of strategy use in summary writing are facilitative to each other, and both can positively affect summary writing performance. It is also noteworthy that organisational self-efficacy and cognitive strategies significantly affect summary writing performance. The practical suggestion is that enhancing L2 learners' confidence in organizing writing logically and coherently through effective, cohesive devices is crucial for improving their summary writing quality. Besides, the instructors should focus on cultivating students' task-specific cognitive strategies while finishing summarization tasks, including comprehending, repeating, memorizing, retrieving, analyzing and summarizing writing strategies.

However, this research has some limitations. First, this study mainly adopted the quantitative approach to investigating the complex relationships between writing self-efficacy, writing strategy use and writing performance. Qualitative research methods such as interviews and think-aloud protocols can be employed in future studies to serve as supplementary data for statistical analysis. Second, L2 learners' self-efficacy and strategy use may vary along with their other individual factors, such as gender, age and socioeconomic status (SES). Hence, further investigations may explore the possible variations due to these differences. Third, this study only examined how self-efficacy and strategy use affect summary writing performance. Future

investigations may develop more skill and task-specific instruments to explore other academic writing skills. Finally, this research was carried out among undergraduates from various majors in a Chinese university. Thus, the results may not be generalizable to all EFL contexts. Further studies in different regions and educational levels in China and even different countries deserve more attention.

7. Conflict of Interest

The authors declare no conflict of interest.

8. Data Availability Statement

The data that support the findings of this study will be provided upon request.

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