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Tertiary-Level Students’ English Writing Performance and Metacognitive Awareness: A Group Metacognitive Support Perspective

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ABSTRACT

Recent research has highlighted the role of group metacognitive guidance in English writing. The present study was to examine 120 Chinese students learning English as a foreign language (EFL) participating in two different group metacognitive support methods for a college writing course—group feedback guidance (GFG) and self-explanation guidance (SEG)—compared with a control group (CG) not receiving metacognitive guidance. This study explored the effects of each method on participants’ writing, transfer ability, and metacognitive awareness. The results indicate that GFG learners demonstrated the highest mean scores on all measures, followed by SEG learners and CG learners. Qualitative data collected from journal entries show that GFG learners tend to exhibit different metacognitive regulation processes, display a high level of task perception, and develop an awareness and use of metacognitive strategies. Discussions and implications based on these findings are compared to studies conducted in Nordic countries.

1. Introduction

Teaching writing to EFL students is often regarded as a challenging task (Teng & Huang, 2018). Difficulties include the need to carry out information searches, argumentation, reasoning, evaluation, and verification while writing (Graham, Gillespie, & Mckeown, 2013). Learners are required to collate various perspectives and integrate them in order to advance their writing strategies (Conner, 2007). Metacognitive support, which enables EFL learners to interact with peers, argue, rationalize, and negotiate to synchronize their arguments, is a crucial component of teaching writing to this population.

Although educational research on metacognition and writing achievement has been on the rise for several decades, scholarship concerning approaches to teaching metacognitive thinking to novices for the purpose of improving their writing has become a popular topic in recent years. Metacognition, referring to how learners self-regulate and monitor their learning, has been emphasized to promote learners’ higher-order thinking skills through peer interactions (Teng, 2018; Webb, 1989). This approach has provided insight into how learners develop metacognitive skills through group work (Yarrow & Topping, 2001). Recent studies have underscored the value of group metacognitive support on writing (e.g., Teng, 2016). Following this line of research, the present study attempts to break new ground by investigating the possible effects of two approaches to group metacognitive support—group feedback guidance (GFG) and self-explanation guidance (SEG)—on writing enhancement and metacognitive awareness. The following sections review metacognition, metacognition and writing, and the rationale for developing two novel approaches for group metacognitive support.


1.1. Metacognition and Writing

Metacognition, initially coined by Flavell (1979), touches upon an awareness and understanding of one’s thought and cognitive processes, along with controlled management of cognition through various strategies including organizing, monitoring, and adapting. Two basic components—knowledge and regulation of metacognition—are often addressed (Schraw & Dennison, 1994). According to Schraw and Dennison (1994), the construct—knowledge of metacognition (i.e., what learners know about themselves and others as cognitive processors)—includes three types of knowledge awareness:

1. **Declarative knowledge**: Awareness of a person’s own capabilities and the various factors that may influence his/her learning performance.
2. **Procedural knowledge**: Awareness of how to execute and perform a task.
3. **Conditional knowledge**: Awareness of the situations in which declarative or procedural knowledge should be applied.

Regulation of metacognition encapsulates activities that enable learners to manage and control their cognitive and learning processes (Flavell, 1979). Schraw and Dennison (1994) described three forms of metacognitive regulation:

1. **Planning**: Appropriate selection of strategies and correct allocation of resources before executing a task.
2. **Monitoring**: Identification of task comprehension and performance.
3. **Evaluation**: Appraisal of the regulatory process, the product, and task-performance-related efficiency.

Metacognition and writing are closely intertwined. Writing is a complex socio-cognitive activity that requires learners to form a conscious percept of a cultural sign system and then employ relevant skills to reproduce elements corresponding to that system (Kress, 1982). Generally, writing is a process that begins with a simple stage of information collection and then moves into a more complex stage of organizing and transforming information into a clear structure. In cognitive models of writing, text construction is perceived as a problem-solving process because the writing process is goal-oriented (Hacker, Keener, & Kircher, 2009; Teng, 2016). Related to this, learners need to be taught how to employ various cognitive skills, such as planning, monitoring, and evaluation, to achieve task goals (Teng, 2019).

Previous studies have endeavored to improve learners’ English writing through metacognitive guidance. In research with Chinese EFL students, Wu (2006) sought to examine the nature, components, and characteristics of metacognitive experiences in EFL writing. Wu conducted several empirical studies—a longitudinal study, a horizontal study, and a large-scale questionnaire—and results revealed that metacognitive instruction may exert a positive effect on learners’ metacognitive experiences and EFL writing. Nguyen and Gu (2013) carried out nine strategy-based metacognitive training sessions aimed at improving Vietnamese university EFL students’ writing. Quantitative and qualitative data indicated that the learners who received training were more likely to self-regulate a writing task compared to their counterparts in the other two groups without training. Likewise, using three groups (metacognitive instruction plus cooperative learning, metacognitive instruction only, and a control group), Teng (2016) revealed that Chinese tertiary-level EFL students in the group receiving metacognitive instruction plus cooperative learning demonstrated the best improvement in writing and metacognitive regulation. Judging from these studies, metacognitive guidance appears effective in enhancing EFL students’ writing performance.

After reviewing relevant literature, three key issues related to metacognition and EFL students’ writing remain unresolved. First, although metacognitive instruction has been identified as an
effective approach to improve English writing (Negretti, 2012, 2015; Teng, 2016), the relationship between metacognition and writing still remained complex and nuanced (Zinchuk, 2015). Second, though previous studies have examined the extent to which metacognitive strategies or skills can be transferred to delayed writing tasks that require higher-order thinking (Nguyen & Gu, 2013; Teng, 2016), more research should be conducted to measure the transference of acquired metacognitive skills to writing tasks involving a high cognitive load (Hertzog & Dunlosky, 2012). Finally, to the author’s knowledge, no studies have compared GFG and SEG—two important self-questioning approaches—on potential improvement in writing quality and learners’ metacognitive awareness.

1.2. Studies Conducted in Nordic Countries

According to Beals (2016), writers’ metacognitive awareness is associated with their writing outcomes, and skilled learners are more self-regulated in writing compared with struggling learners. In a case study (Knospe, 2018), the participant—Henry—spoke Swedish as his first language, English as his second language, and German as his third language. He attended a 3-month intervention using metacognitive training. During the intervention, Henry wrote five argumentative texts in English. The interview data revealed that metacognitive knowledge motivated Henry to identify his writing-related decisions and behaviors. Henry also exhibited declarative knowledge about writing tasks and developed metacognitive knowledge about himself as a writer. The results suggested a positive role of metacognitive knowledge in helping learners plan, regulate, monitor, and evaluate English writing.

However, individual differences in metacognitive competencies may affect English writing or other language skills. For example, Silvén (1992) incorporated metacognitive training for sixth-graders in Finland. The aim of the training was to make participants aware of the significance of different strategies in comprehension and writing. The training included four procedures: (1) the trainer motivated participants to adopt new strategies; (2) the trainer provided the knowledge required for executing a strategy; (3) the trainer provided a model for participants to observe the strategy in use; and (4) the trainer provided opportunities for participants to practice the use of a strategy. After training, participants were given a passage to read and were asked to summarize it. Results showed that the participants could identify important text contents along with condensing and connecting the contents. However, metacognitive training did not help the learners maintain newly developed comprehension skills. Notably, the findings were confined to young learners assigned to a new learning situation; university learners, who receive metacognitive training, may present different results. In a study by Dahlin (1999), 20 Swedish university first-year students were invited for an interview focusing on their learning experiences and metacognitive awareness. Results showed that the participants could distinguish between having acquired fragmented pieces of knowledge about a task and having reached a true understanding of it. Metacognitive awareness thus appears to progress from an outward-looking, external awareness towards a more inclusive awareness that embraces outer experience, mental activities, and the learner as a whole. In other words, university students may be able to connect what they have learned to current learning situations and discover new strategies. This finding provides insight into the teaching of English writing, for which training to enhance metacognitive competences may scaffold students’ English writing.

1.3. Group Metacognitive Support

Previous studies have pointed out the limited effects of group work on fostering learning and metacognitive awareness, for which metacognitive support is needed (Oh & Jonassen, 2007). Group metacognitive support has been defined as a “socially shared” process (Kramarski & Dudai, 2009, p. 379). To maximize the potential of group metacognitive support, two criteria must be met: first, a message on metacognitively regulating group problems and promoting joint problem solving should be delivered by a group member; and second, the other group members should perceive the use of the message and apply it to regulate their learning. For example, group members could take advantage of
feedback related to their own problem-solving processes and discuss the results together. Such messages may be oriented toward different phases of metacognitive awareness, including planning, monitoring, and evaluation (Schraw, Crippen, & Hartley, 2006).

Criteria of group metacognitive support include group feedback and self-explanation, both of which play important roles in learning for several reasons (Kramarski & Dudai, 2009). First, researchers have supported the multidimensional role of group feedback on knowledge construction (Butler & Winne, 1995). Group feedback, in this regard, inspires learners to reflect on their explanation processes, thus improving and perfecting their solution strategies. Second, previous studies have found that students achieve better learning outcome when they need to explain their own problem-solving steps to themselves (Renkl, 2002). Self-explanation facilitates a learner’s ability to combine new information with existing knowledge and to augment incomplete mental representations or mental simulations (Chi, 2000). However, simply providing self-explanations or group feedback is insufficient to foster learning in an EFL classroom. Guidance methods that scaffold self-explanation or feedback, such as through metacognitive prompts, are promising tools.

Strategies intended to help learners verbalize their thinking patterns and conceptualize and analyze relational structures involved in thinking are essential to writing (Chi, 2000). In line with this, two self-questioning approaches (group feedback and self-explanation), combined with metacognitive prompts, represent new attempts to delineate the complex relationship between metacognition and writing. Self-questioning has been recommended as an effective method for explicit guidance, as it motivates learners to select a specific self-regulatory strategy in the learning process (Azvedo & Cromley, 2004; Veenman, Van Hout-Wolters, & Afferbach, 2006). In hopes of remediating the limited effects of simple group work or metacognitive support on writing (Teng, 2016), the present study explored the possible effects of adding metacognitive prompts to the two self-questioning approaches (GFG or SEG, respectively) on immediate and delayed writing performance and metacognitive awareness. By applying these new strategies, it is assumed that learners will be able to identify problems embedded in their writing; justify when, why, and how to use writing strategies; construct relationships between new and existing knowledge; and form awareness in planning, monitoring, and evaluating writing tasks.

1.4. Research Questions

The current study was conducted to examine the effects of GFG and SEG on Chinese EFL students’ writing performance, transfer ability, and metacognitive awareness. Both differential metacognitive self-questioning methods (i.e., GFG and SEG) were based on the same metacognitive prompts. Three groups were included in this study: two metacognitively supported groups, GFG and SEG; and a control group receiving no metacognitive instruction. The study addressed the following research questions:

1. How does metacognitive support with GFG and SEG affect writing performance compared with a control group given no metacognitive guidance?
2. Which group demonstrates the best results on a delayed writing test?
3. Which group demonstrates the greatest improvement in metacognitive awareness?

2. Method

2.1. Participants

Data were collected from 120 first-year students majoring in marketing (62 men, 58 women) enrolled in a university English writing course. This university is located in mainland China. The participants were 18–20 years old. The study initially included 180 participants, 60 of whom were later excluded due to absences from school, lack of confidence in receiving an intervening variable, or weak writing proficiency. This study included two experimental groups (GFG and SEG) and one control group (CG). The 120 participants were equally and randomly divided into the three groups.
The focus of this study was on English writing. Hence, participant selection across the three groups was based on their most recent scores on a writing test administered by the College English Teaching department. CG participants earned a mean score of 12.1, whereas both GFG and SEG earned a mean score of 12.2. The maximum score for the test was 15 points. The score is approximately equivalent to 5.5–6 using the International English Language Testing System (IELTS), a benchmark at which learners can apply basic vocabulary and exhibit a certain degree of control over word formation. The statistical analysis determined that the three groups were homogenous in terms of writing proficiency ($p = 0.67$, n.s.).

### 2.2. Instruction Methods

Students in the three groups participated in the English writing course for an equal amount of instructional time. They used the same textbook and completed the same tasks. This course was selected for several reasons: (a) it is a compulsory course for all non-English majors; (b) the course requires writing tasks; and (c) it was the only English course offered during the semester in which this study was conducted, and students were not practicing English writing in other courses. The two EGs were metacognitively supported: EG1 received group feedback guidance (GFG), whereas EG2 received self-explanation guidance (SEG). CG participants received traditional instruction.

#### 2.2.1. Metacognitively Supported Groups: GFG and SEG

The training sessions for both experimental groups were 11 weeks. Each group included 10 small sub-groups, with four students in each sub-group. Students received 2 lessons per week, with each lesson covering 40 min. The procedure consisted of two stages: the preparation stage and study guidance stage.

##### 2.2.1.1. Stage 1: Preparation.

During the first week, the GFG and SEG groups each received an 80-minute preparation session separately (two class lessons of 40 min each) about English academic writing. The session focused on problem solving, argumentation, and discussion in English writing.

The first lesson addressed problems involved in writing. Each group was familiarized with the metacognitive self-questioning method. The teacher noted the importance of metacognitive self-questioning (i.e., comprehension, connection, strategy, and reflection questions) in writing (see Table 1). The teacher also modeled the use of these questions through a writing task. Students practiced them during the inquiry process, and students in both groups practiced using questions with a writing task in a form of four-member sub-groups.

In the second lesson, GFG and SEG groups received different training. The former focused on providing and receiving feedback in writing, and the latter focused on self-constructing explanations or arguments. The teacher verbally instructed the students in the GFG group on the effectiveness of group feedback in constructing justifiable arguments. The teacher also explicitly modeled how to provide feedback. Students then practiced self-questioning techniques related to the provision and reception of feedback (see Table 2). The primary purpose of the techniques was to allow students to read, check, respond to, and modify classmates’ writing.

<table>
<thead>
<tr>
<th>Metacognitive guidance</th>
<th>Sample questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehension</td>
<td>What is this writing task all about?</td>
</tr>
<tr>
<td>Connection</td>
<td>How should we proceed to develop a good writing and in which way it is similar with or different from previous writing experiences?</td>
</tr>
<tr>
<td>Strategy</td>
<td>What strategies can be accessed efficiently for developing a good writing sample?</td>
</tr>
<tr>
<td>Reflection</td>
<td>Does my writing make sense? Can I write a better one?</td>
</tr>
</tbody>
</table>
The SEG group was verbally told the value of constructing justifiable arguments using clear explanations. Within this context, the SEG students practiced self-questioning techniques related to justification, argument, and explanation (see Table 3).

Both groups received examples: students in the GFG group were given feedback examples, whereas those in the SEG group were given argument examples. Students were first required to analyze the examples based on the solution strategy and clarity and then decide if the examples were correct. If the examples were found to be incorrect, students were instructed to modify them.

2.2.1.2. Stage 2: Study Guidance. Participants from both groups practiced English writing in small four-student sub-groups. They attended two class periods (40 min each) weekly for 10 weeks. Teachers assigned writing tasks based on the syllabus for the writing course at their school.

Students in both groups were required to respond to a weekly writing task, present their writing to classmates, provide feedback on their partners’ writing, receive feedback on their own writing, and adjust their writing according to partners’ suggestions as necessary. Students received metacognitive self-questions (GFG questions focused on feedback strategies; SEG questions focused on self-explanations). Students were allowed to use the metacognitive prompts and provide feedback to the other three students in the sub-group. After class, each group sent their writing and feedback exchanges to the teacher, who then offered feedback via e-mail regarding the entire inquiry process: the justifiability of written arguments, accuracy of each student’s explanations, task-solving process, and feedback.

2.2.2. Control Group
As noted above, traditional instruction was similar to that provided to the EGs in terms of textbooks, writing tasks, and study duration. CG students were also exposed to an 80-minute preparation stage, in which the teacher conducted in-class instruction about the importance of inquiry, writing skills, providing explanations, and discussing arguments with peers. In the study guidance stage, students were allowed to complete tasks in groups. Students were also taught about basic ideas such as planning for writing and organizing written content. After class, the teacher checked students’ writing and provided feedback on the accuracy of their writing and problem-solving process through e-mail. The key difference from the EGs was that CG learners were not exposed to metacognitive instruction.

2.3. Teacher Participants and Training
Three female teachers were responsible for the three groups. One teacher was randomly assigned to one group. Each teacher possessed a master’s degree in English education along with at least 10 years’ experience teaching writing. All three teachers expressed interest in participating in the study when invited. They held a joint meeting to reach a consensus about teaching materials and writing tasks prior to beginning the study.

For the purpose of this research, the teachers overseeing the GFG and SEG groups attended a separate 1-day, 4-hour training session organized by the author. During the first hour of training, teachers were introduced to the rationale and importance of using metacognitive self-questioning to enhance writing performance. They were also familiarized with metacognitive instruction. In the second hour, the author modeled ways to apply metacognitive guidance in writing tasks. Differences between GFG, SEG, and the respective requirements of each sub-group were also introduced. In the

<table>
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<th>Metacognitive guidance</th>
<th>Sample questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehension</td>
<td>Did I read my classmate’s writing?</td>
</tr>
<tr>
<td>Connection</td>
<td>Did I check if my classmate’s writing is clear, correct, and justifiable?</td>
</tr>
<tr>
<td>Strategy</td>
<td>How can I respond to my classmate regarding the correctness of his/her writing?</td>
</tr>
<tr>
<td>Reflection</td>
<td>How can I modify my classmate’s writing?</td>
</tr>
</tbody>
</table>
remaining 2 hr, the teachers were asked to complete a writing task using metacognitive guidance and to discuss possible difficulties they might encounter in class. The teacher in the GFG group focused on different types of feedback provision, while the teacher in the SEG group focused on practicing and offering different explanations and arguments. The role of the teacher was also considered. Specifically, teachers were directed on how to clarify but not explicitly answer students’ questions. Teachers then agreed to provide students feedback on the inquiry process via e-mail within 24 hr.

The CG teacher was not exposed to any metacognitive methods; however, she was offered the same amount and structure of training in terms of teaching writing (e.g., writing skills, providing explanations, synthesizing arguments, providing different types of feedback, and coping with student difficulties). She also agreed to provide feedback to students by e-mail within 24 hr.

The author observed two lessons in each group at the beginning, middle, and end of the writing course (i.e., six lessons per group and 18 lessons in total). This process ensured proper implementation of the instructional methods. The author also debriefed with teachers after each observation, focusing on potential deviation from the prescribed methods and how to guarantee treatment fidelity. The teachers strictly followed the pre-determined research design for most of the observed lessons.

### 2.4. Measures

#### 2.4.1. Pre- and Post-Experiment Writing Tests

Two essays written before and after the experiment served as the pre- and post-tests, which were used to evaluate participants’ writing development. These two essays—a summary of either a bar, line, or pie graph and a problem-solution essay—were selected because they required learners to either select and report on the main features of data or to describe a problem and synthesize possible solutions. Each of these tasks aligned with the goals of the instructional unit.

#### 2.4.2. Delayed Writing Test

The delayed writing test was the end-of-term writing examination for all students. The test was administered 1 month after the intervention study. This test was used to measure learners’ ability to transfer writing skills learned in the instructional unit to more formal tasks required in their academic writing. This test focused on two kinds of skills not measured in the instructional unit: literacy analysis (higher-order thinking skills) and research writing (higher-order reasoning skills). A pilot study with a sample group of students with similar writing proficiency revealed this test was far more difficult and time-consuming compared to the post-test. Hence, this assessment was considered advanced transfer for participants. The test was developed and administered by all teachers at the Department of College English Teaching. Because official permission was obtained to incorporate metacognitive instruction into the writing course, the scoring system for this test was identical to that of the pre- and post-tests.

#### 2.4.3. Essay Scoring Scheme

The marking scheme for the essays included task response, coherence and cohesion, lexical resources, punctuation, and grammatical range and accuracy. Consistent with Chinese tradition, the maximum possible score was three points for one component, totally 15 points for an essay. Because two essays were included in one test, the maximum possible score for each test was 30 points. Tests were scored by two experienced and independent writing teachers. They were not informed about whether the essays being marked were pre- or post-tests, and they were blind to

| Table 3. Self-questioning that provides self-explanation guidance (SEG). |
|---------------------------------|-----------------------------|
| **Metacognitive guidance** | **Sample questions** |
| Comprehension | Are my arguments justifiable? |
| Connection | Would another argument be appropriate? |
| Strategy | What is my conclusion? |
| Reflection | Is my writing clear? |
group assignment. Inter-rater agreement for the pre-test, post-test, and delayed test was 95.8%, 96.5%, and 96.3%, respectively. In cases where discrepancies occurred between the first two raters, a third rater was requested, after which the final score was determined by majority opinion.

2.4.4. Metacognitive Awareness
A self-report questionnaire was adapted from Schraw and Dennison (1994). This questionnaire was used to compare students’ self-reported metacognition at the beginning and end of the program. This instrument is based on eight attributes: declarative knowledge (eight items), procedural knowledge (five items), conditional knowledge (five items), planning (seven items), monitoring (seven items), evaluation (five items), information management (10 items), and debugging strategies (five items). The first three attributes were considered knowledge of metacognition (18 items), and the last five were categorized as regulation of metacognition (34 items). For instance, for cognitive strategies such as planning (“I set specific goals before I begin a task”) was revised into (“I set specific goals before I begin a writing task”). A 5-point Likert-type scale ranging from 1 = never to 5 = always was adopted to measure self-reported metacognition. This questionnaire was administered at the beginning and end of the study. Cronbach’s alpha was 0.78 for the pre-test and 0.80 for the post-test, indicating good internal consistency.

2.4.5. Journaling
Journaling was used as a tool in lieu of interviews for collecting qualitative data, as the former allowed for complete integration into coursework separate from sequential thinking and thought examination from a holistic perspective. Journaling has also been used in prior studies to exemplify cognitive and metacognitive awareness (Negretti, 2012). The prompts were used to elicit students’ metacognitive awareness, task perception, and performance evaluation.

Five students per group agreed to compose journals. Students wrote one journal entry per week according to prompts, totaling 10 journal entries per student and 150 entries overall. The entries were not graded, and comments were kept to a minimum to limit interference with learners’ reflections. After thematic analysis, the author created categories and grouped codes under these categories. This initial interpretation was then revised through repeatedly comparing data coding under each category. Trustworthiness was reinforced by revisiting the original data for cross-comparison and theme identification (Charmaz, 2006). Continued refinement of the interpretative narrative provided specific examples to support data interpretation.

2.5. Procedures
A total of 120 students were administered the pre-test and self-report questionnaire before the study. Students were then equally and randomly divided into three groups: GFG, SEG, or CG. The instruction provided by three teachers began in classrooms after obtaining consent from students, teachers, and the department dean. Instruction proceeded for 11 weeks. Teachers then re-administered the questionnaire to all students in their classrooms after completion of the assessment protocol. Students also completed an immediate post-study writing test and a delayed writing test 1 month after program completion. All measures were carried out in a paper-and-pencil format.

3. Results
3.1. Writing Performance
To examine the writing performance of GFG, SEG, and CG students, Table 4 presents the descriptive statistics of the pre-test, post-test, and delayed test by treatment group.

Means for the pre-test were 12.25, 12.26, and 12.65, respectively, for GFG, SEG, and CG learners (SD = 1.45, 1.56, and 1.48). Improvements were observed in the three groups after intervention. The
The GFG group achieved the highest mean score of 23.35 (SD = 1.56), an increase of 11.1 points over the pre-test mean score. Likewise, the mean score of the SEG group was 20.15 (SD = 1.49), an increase of 7.89 points compared to the pre-test. The CG students demonstrated the lowest score, which was 16.05, a marginal increase of 3.4 points. Mean scores on the delayed writing test dropped across the three groups. The GFG group maintained the highest score (M = 20.45, SD = 1.58), an increase of 8.2 points over the pre-test. The mean score of the SEG group was 16.05 (SD = 1.54), higher than the pre-test. The CG mean score was only 13.51 (SD = 1.59), slightly higher than the pre-test.

One-way analysis of variance (ANOVA) results did not reveal significant differences between the three groups on the pre-test (F[2, 117] = 2.01, p > .05). A multivariate analysis of variance (MANOVA) was performed to compare the three groups’ writing improvement. Significant differences were detected between the groups on the post-test measure (F[2, 117] = 8.91, p < .001). Effect-size analysis indicated that the GFG learners significantly outperformed the SEG learners (Cohen’s d = 0.72) and CG learners (Cohen’s d = 0.92). Likewise, the SEG learners outperformed the CG learners (Cohen’s d = 0.80). Results also showed significant differences between the three groups on the delayed writing tests (F[2, 117] = 9.71, p < .05). The GFG learners significantly outperformed the SEG learners (Cohen’s d = 0.81) and the CG learners (Cohen’s d = 0.90). The SEG learners also outperformed the CG learners (Cohen’s d = 0.63).

These findings provide evidence for answers to the first two questions regarding which group produced and maintained the best writing outcome. First, the GFG group outperformed the SEG and CG groups, indicating that GFG learners outperformed SEG and CG learners on English writing and transfer ability. Second, compared to the CG, the SEG method appeared to positively affect learners’ writing and could potentially extend the use of metacognitive skills on the delayed test.

### 3.2. Metacognitive Awareness

Table 5 presents the descriptive statistics of metacognitive awareness based on time and treatment. To compare the three groups’ self-reported metacognitive awareness on the pre-test, a repeated-measure ANOVA was performed, and no significant pre-test inter-group differences were detected (F[2, 117] = 3.87, p > .05). Post-intervention data were analyzed using MANOVA followed by a repeated-measure ANOVA for each metacognitive component. The MANOVA results on metacognitive awareness yielded significant differences between groups (F[2, 117] = 8.76, p < .05). Effect-size analysis revealed that the GFG learners significantly outperformed the SEG learners (Cohen’s d = 0.40) and the CG learners (Cohen’s d = 0.63). Similarly, SEG learners outperformed CG learners (Cohen’s d = 0.33).

The self-regulated learning (SRL) scale, shown in Table 5, includes procedural knowledge, declarative knowledge, conditional knowledge, planning, monitoring, evaluation, information management, and debugging strategies. Additional repeated-measure ANOVA analysis of the SRL scale did not show significant differences on students’ perceptions of declarative knowledge (F[2, 117] = 2.14, p > .05), procedural knowledge (F[2, 117] = 2.16, p > .05), and conditional knowledge (F[2, 117] = 2.18, p > .05). However, significant differences emerged in students’ perceptions of planning (F[2, 117] = 7.76, p < .05), monitoring (F[2, 117] = 8.76, p < .05), evaluation (F[2, 117] = 8.66, p < .05), and debugging strategies (F[2, 117] = 7.76, p < .05).
Furthermore, significant interactions were detected between method and time for planning ($F_{[2, 117]} = 8.76, p < .05$), monitoring ($F_{[2, 117]} = 8.78, p < .05$), evaluation ($F_{[2, 117]} = 8.56, p < .05$), information management ($F_{[2, 117]} = 8.56, p < .05$), and debugging strategies ($F_{[2, 117]} = 8.76, p < .05$). At post-test, GFG learners reported significantly more improvement in their use of planning, monitoring, evaluation, information management, and debugging strategies compared to SEG learners (Cohen’s $d = 0.44, 0.46, 0.40, 0.34, \text{ and } 0.33$, respectively) and CG learners (Cohen’s $d = 0.69, 0.61, 0.59, 0.56, \text{ and } 0.58$, respectively). Significant differences were also detected between SEG and CG learners in their planning, monitoring, evaluation, information management, and debugging strategies (Cohen’s $d = 0.42, 0.29, 0.26, 0.30, \text{ and } 0.49$, respectively).

These inferences provide insights into the third research question of which group demonstrated the highest improvement on the SRL scale. Results indicate that students in the GFG group outperformed their counterparts in the SEG group, and SEG learners outperformed the CG learners in relation to five facets of regulation: planning, monitoring, evaluation, information management, and debugging strategies.

### 3.3. Journal Analysis

This section addresses three themes (Writing task perception, self-regulation of writing, and use of metacognitive strategies) based on students’ journal entry responses.

#### 3.3.1. Writing Task Perception

The main feature of writing task perception for GFG learners is the tendency to reflect on what has been learned through a given writing task (three students, 13 instances). Students actively combined new information with prior knowledge and experiences. For example,
The writing task requires me to read details, summarize main ideas, and reflect on what has been learned ... Learn and apply basic writing strategies, follow-up strategies, and my prior knowledge and experiences to complete all the work.

GFG learners also displayed diverse task perceptions. They defined individual goals while accomplishing the task and became more focused on audience, purpose tied to genre, and personal communicative aims (three students, 15 instances). For instance,

The task requires me to dig deep into my mind ... Determine the right way to express my thoughts ... Make writing more appealing ... Think about the genre ... Try to make the audience think my way.

In addition, GFG learners reported that writing task is connected to critical thinking. They needed to independently analyze, integrate, and evaluate information involved in writing (two students, five instances). For example,

The task requires us to write based on critical thinking ... It is necessary to investigate the topic, evaluate the writing and expose it ...

SEG learners revealed that their task perceptions focused largely on formal requirements and a need to paraphrase the handout instructions (three students, eight instances):

The task requires me to access a lot of information about my topic and make my topic very informative ... Let the readers know more about this topic and broaden the readers' view ... An ability to paraphrase the instructions is also important.

SEG learners perceived a need to focus on the purpose of the genre, which was related to communicative aspects and readers' expectations (three students, seven instances). For example,

To complete the writing task, I need to explain the problem, its cause and effects ... It is important to make the argument clear and persuade people ... Present a clear report ... Get the readers' interest.

Most CG learners described challenges in writing tasks based on traditional, familiar, and practical features. Challenges included comprehension of teachers' instructions, the amount of time required, the various types of writing topics, and anxiety about task completion (four students, 13 instances). For instance,

Most of the tasks require lots of thinking and exercising. I performed writing tasks following the teacher's instructions. However, sometimes I am puzzled because I lack directions of what I need to write.

Other comments from CG learners focused on form, structure, and correctness. Time management was ineffective due to unproductive organization of content and structure (three students, seven instances). For example,

It is important to organize an essay well. I tried to put down as much as I could in an essay. Time was not sufficient.

The above examples demonstrate that GFG learners possessed the highest level of investment, goals, and agentic behaviors in writing. SEG learners viewed writing more as an act of communication with their audiences. CG learners paid particular attention to format, structure, and correct use of grammar but noted that they lacked time and directions when completing writing tasks.

3.3.2. Self-Regulation of Writing

GFG learners seemed to possess more metacognitive knowledge and were able to use that knowledge to regulate their writing and control their thinking. In other words, their writing was less teacher-directed, and they seemed to be in better control of their writing (three students, eight instances):

Group feedback enabled me to be aware of the mistakes I made, how I structured my sentences, and how I changed them to make sense ... I looked for more outside resources for my writing ... I concentrated on the main idea ... I was able to use the rebuttal portion.
SEG learners tried to regulate their writing, and they agreed with the importance of self-regulation (three students, six instances); however, they were sometimes uncertain about when and how to do so (two students, four instances). Some students expressed difficulties over taking further action, saying,

It is important to write independently … I know I need to find more resources and add supporting ideas for my writing … I thought it easy to gain the audience’s interest, but not exactly … I had a difficult time figuring out how I could modify my paper … Sometimes I was very obsessive because I didn’t know how to make my writing better.

CG learners were more dependent than other groups on their teachers and textbooks. They seemed to hold negative views about self-regulation in writing (three students, six instances):

I am not good at grammar and sentence structure … I need to check my textbook to see whether the grammatical structure is correct … My thoughts are jumbled when I need to write them down …

Overall, GFG students seemed to have a better sense of when, how, and why to self-regulate their writing and take further actions. Some SEG learners also voiced such awareness, but they expressed that additional instruction was needed for further action. However, CG learners still had difficulty self-regulating their writing; they seemed to be heavily dependent on teachers’ instructions and textbooks.

3.3.3. Use of Metacognitive Strategies
Reflections on guidance methods for writing provided insights into learners’ metacognitive use of strategies, including appropriately selecting strategies and allocating resources for writing (planning), closely observing the task and writing performance targets (monitoring), actively appraising the writing product and the efficiency with which the writing task was completed (evaluating), processing information efficiently (information management), and correcting comprehension and performance errors accurately (debugging strategies).

Most GFG students described a strategic approach to meet the requirements of various writing tasks (four students, 14 instances). Learners mostly focused on metacognitive skills. They also expressed positive feelings about metacognitive awareness (four students, 15 instances). For example,

Make predictions before writing, and select resources, allocate time … present the arguments in chronological order … Make a check-list to plan what I need to do … I made use of information and checked the accuracy of my writings … I took advantage of peer feedback.

Most SEG students expressed why some strategies were more appropriate than others, but they were less likely to apply metacognitive strategies in their writing (three students, eight instances). For example,

I tried to pinpoint the main idea for my writing, but time was limited … I approached the same strategy over and over, and I felt like giving up … I did not know where I made mistakes.

For SEG learners, knowing what was important to do did not necessarily translate to knowing how (or when and why) to do it. Students in the SEG group who repeated writing strategies gradually fell into frustrating loops in which they repeated generic approaches (three students, five instances) and became unwilling to take actions to adapt to the situation (two students, three instances). For example,

I read the topic requirement again and again. I started writing, then I erased it, then I did not know how to make it better … I have resorted to a lot of resources, but it is still hard to come up with my own ideas …

CG learners expressed that they seldom planned for writing; instead, they simply followed the task requirements and began their tasks (four students, eight instances). In addition, CG learners did not attempt to monitor their writing (four students, seven instances). They did not check their writing due to time constraints and did not evaluate their writing due to a lack of knowledge (three students, six instances). For instance,
I just read task requirements and wrote down whatever comes into my mind … I could not check my writing because time is limited … I could not figure out how to check my essay … I have no idea how to evaluate my writing.

Overall, analysis and interpretations of the data suggest that, although the extent to which students used metacognitive strategies could not be quantified, the extent to which GFG learners used planning, monitoring, evaluation, information management, and debugging strategies was greater than for SEG and CG learners. Students in the GFG group seemed to plan, monitor by checking their progress, use information from peer-checking, evaluate their writing performance, and consciously take control of their learning process. Although SEG learners recognized the importance of applying these strategies to their writing, they seldom did so owing to contextual or dispositional factors. For CG learners, metacognitive awareness did not develop during the essay-writing experience; they seemed heavily dependent on their traditional approach to writing.

4. Discussion

4.1. Writing Performance

In terms of writing, the results reveal that GFG learners significantly outperformed learners in the other two groups. Moreover, SEG learners outperformed CG learners. The apparent beneficial effect of metacognitive guidance on writing aligned with previous studies (Conner, 2007; Glaser & Brunstein, 2007; Negretti, 2012; Teng, 2016); therefore, metacognitive guidance may prepare EFL learners to harness higher-order thinking skills and leverage metacognitive strategies to enhance their writing.

The advantageous effect of metacognitive guidance (GFG and SEG versus CG) on improved writing performance is manifold. First, the support of group feedback based on metacognitive prompts appeared to help students contemplate the steps or procedures they needed to take during the process of developing written arguments. These tactics may have helped them to reflect on the writing strategies needed to articulate their arguments and personal thoughts. Second, group feedback may have offered students support in planning, monitoring, evaluating, and debugging their writing. Finally, feedback from group work may have served as reinforcement or a mechanism for correcting metacognitive errors.

Regarding learners’ ability to transfer metacognitive skills to other writing tasks requiring higher-order thinking, GFG learners seemed to outperform SEG learners and CG learners. Likewise, SEG learners appeared to outperform CG learners. The present study echoes previous findings on the effects of metacognitive support in helping learners to transfer metacognitive skills to other forms of writing (Nguyen & Gu, 2013; Teng, 2016). Learners may have noticed similarities and differences compared to previous tasks and established a toolbox of strategies from which to draw when confronted with a new writing task. Three variables, as conceptualized by Kramarski and Dudai (2009), may have contributed to students’ metacognitive transfer: learners need to master strategies to apply to new tasks, develop categories to sort tasks, and solidify previous knowledge to solve novel tasks. These three factors, underpinned by metacognitive guidance, likely served as a springboard to help learners transfer skills to different writing tasks requiring higher-order thinking.

Based on earlier studies on the effects of group feedback on learning performance (e.g., Moreno, 2004), it was unsurprising to find the GFG method more effective in writing than the SEG method. The GFG group’s advantage was presumably due to the fact that the GFG self-questioning method motivated learners to offer elaborate feedback while collaborating on writing. This process required students to reflect on the writing techniques employed by their partners. The process of giving and receiving peer feedback allowed students to clarify concepts and identify potential areas of their writing warranting argumentation, elaboration, or discussion. The GFG method may have also encouraged learners to act as external regulators on a collaborative level, facilitating the exchange of multidimensional feedback, which assists learners in planning, monitoring, evaluating, and...
modifying their writing. On the other hand, the SEG method enabled learners to self-regulate their writing process from an individual perspective. Hence, a GFG approach seems most effective in augmenting learners’ writing-based inquiry processes.

4.2. Metacognitive Awareness

The GFG learners possessed greater awareness of metacognitive regulation than SEG learners, including planning, monitoring, evaluation, information management, and debugging strategies. The reasons for this trend are twofold: first, the GFG method may be more beneficial to social skills by employing higher-order discussion. Similarly, peer and group feedback guidance provided through the GFG method may facilitate learners’ understanding in a way that activates prior knowledge and experiences while also refining participants’ social skills, namely inquiry, clarification, and support seeking. Second, although self-explanation provided by the SEG method was found to be a key strategy that supports writing, self-explanation is a challenging cognitive task; learners may face difficulty when attempting to self-monitor and self-evaluate the writing process. However, increasing GFG and SEG learners’ awareness of metacognitive knowledge appears difficult given that metacognitive guidance may focus too heavily on metacognitive regulation and not enough on metacognitive knowledge. In addition, learners may be unable to see themselves as cognitive processors; alternatively, awareness of metacognitive knowledge may have developed without learners realizing it.

Qualitative analysis of journal data corroborated these findings. In their journal entries, GFG learners tended to address more metacognitive aspects of the writing process, such as planning, monitoring, debugging, and evaluating. GFG learners also exhibited changes in task perception and use of metacognitive strategies, which seemed to encourage them to self-regulate their writing by applying appropriate strategies. SEG learners referred more often to strategy planning and the form and accuracy of their writing. They agreed on the importance of metacognitive strategies but lacked the requisite knowledge to understand how and when to employ such approaches. CG learners seemed to hold negative perceptions of their writing abilities and their capacity to apply strategies in writing tasks. Overall, qualitative data analysis reveals that the metacognitive use of strategies in academic writing intertwines with task perception and self-regulation.

4.3. The Benefits of Group Metacognitive Support on Writing

These findings complement research regarding the relationship between group metacognitive support and writing (Zinchuk, 2015). Writing is not the same in every place and time, and metacognition is “not generic” (Bransford, Brown, & Cocking, 2000, p. 19), but value exists in connecting metacognition and writing when group metacognitive support can be adapted to reflect the specific writing contexts. Metacognition is an important element in helping learners to manage themselves well as they prevail over writing-related setbacks, preventing them from becoming discouraged and disengaged from the writing process (Teng & Huang, 2018). The key to applying group metacognitive support to promote writing lies in whether learners can think effectively to take control of their writing. Similarly important is the ability to master crucial skills such as completing tasks on time, drawing up a plan for writing, monitoring the writing process, and appraising writing product.

To help learners become more metacognitively engaged when writing, it is not sufficient to simply follow Tanner’s (2012) approach of teaching the concept and its language explicitly; rather, learners need to be stimulated through group feedback to initiate writing tasks, monitor their writing progress, expand existing writing strategies with more effective ones, exchange feedback with their classmates, and make more informed choices, and gain a level of awareness beyond the subject matter. Ultimately, metacognition is related to learners’ ability to assess thought processes and reframe information to adapt to new situations (Teng, 2016, 2017). In other words, learners need to understand what it means to write in addition to being aware of their own strengths and weaknesses related to either specific skills or a given writing task (Teng & Huang, 2018). Students also need to know how to
map out what will be required to accomplish a specific writing task, identify and correct errors, and prepare for future writing tasks in advance.

4.4. Comparisons with Findings in Nordic Countries

Dahlin (1999) conducted 30 interviews with university students from Sweden to evaluate students’ metacognitive awareness. Similarities between the present study and that of Dahlin (1999) include that learners’ acquisition of new knowledge is an active process involving connecting new information to what is already known. Writing tasks in particular require recognition of coherence and connectedness. Differences between the present study and his study also emerged: Chinese university students in the present study did not demonstrate a significant improvement in metacognitive knowledge, whereas Swedish students were better able to move their metacognitive knowledge from external awareness toward more inclusive awareness. In other words, Swedish university students tended to collectively embrace the three dimensions of outer experience, mental acts, and the learner’s role. For example, students in Dahlin’s study reported they were better able to connect what they learned to their previous experience and discover new strategies when their experiential background knowledge did not fit with what they had learned. Chinese university students in the present study seemed to have difficulty developing similar skills related to reasoning, information processing, and schema building. In learning to write, EFL students need to be scaffolded to encourage the development of motives and strategies for deep learning.

Silvén (1992) focused on sixth graders’ metacognitive training in Finland and argued that such training did not lead to metacognitive development. Evidence collected from the sixth graders’ metacognitive training experiences showed a development route of metacognitive awareness. Her study revealed that when students confronted a new learning situation, they sometimes showed little metacognitive knowledge and regulation. Yet learners gradually demonstrated an increase in self-regulation as their learning skills developed until they finally had no need for continuous conscious control once learning skills were applied automatically. However, applying such skills after they become automatic, such as when incorporating them into new learning settings, may still require increased self-regulation. Complementary to her study, the present research may reveal a benefit of group metacognitive support wherein learners obtain feedback from peers about their strategies when performing tasks, avoiding task performance failure, and extending previously acquired knowledge to a new situation.

The present study supports the advantages of metacognitive training in writing, echoing work by Knospe (2018) of involving a Swedish learner. Apart from knowledge about high-quality composition, EFL students in Sweden and Chinese EFL students in the present study require metacognitive strategic knowledge to plan, regulate, monitor, and evaluate the writing. This writing scenario can be divided into a self-regulated writing model containing three phases: pre-action phase (planning for writing), action phase (monitoring the writing process), and post-action phase (evaluating the writing product).

5. Conclusions, Implications, and Limitations

The purpose of this study was to measure English writing performance, transfer ability, and metacognitive awareness among learners exposed to one of two metacognitive support methods (GFG or SEG) compared to a control group. In terms of writing, transfer ability, and metacognitive regulation, the GFG learners significantly outperformed SEG and CG learners. Furthermore, SEG learners outperformed CG learners. However, improvement in metacognitive knowledge was not detected in the three groups.

Several implications can be derived from these findings. First, regulatory behaviors related to writing can be taught during class by integrating group feedback with metacognitive prompts. Students might be able to first apply metacognitive skills in writing tasks; then, once the behaviors become
internalized, students may continue to use such skills. This pattern could lead to better engagement in writing, increased use of metacognitive strategies, and enhanced writing achievement. Second, learners were able to transfer their metacognitive skills to other types of writing that required higher-order thinking skills (Teng, 2016). This is an important goal in teaching writing, as learners are often required to apply acquired knowledge in new writing tasks. Third, the positive effects of group metacognitive support on writing achievement underscores the value of providing learners with opportunities for writing correction in peers and groups. This was an effective means of motivating participating learners to practice effective use of metacognitive skills. Natri (2007) suggested the practical value of peer- and group-based correction in teaching English; thus, learners should be empowered with feedback to correct themselves and others. When applying this strategy, teachers can create a platform for their students to practice their evaluation skills, an important component of metacognition (Teng, 2017). Finally, the positive effects of group metacognitive support on writing outcome and metacognitive regulation were related to the fact that responsibilities were gradually transferred from the teacher to the students. By offering metacognitive support for a writing task and gradually orienting learners to develop metacognitive awareness independently, students accepted responsibility for their own writing and guided their writing through the internalized cognitive processes of the academic spectrum. Learners then eventually removed the necessary support from teachers and implemented it in their workplaces (Fisher & Frey, 2008). As demonstrated in other research (Jason, 2009; Nguyen & Gu, 2013), the gradual transfer of responsibility from teacher to student promotes learners’ writing regulation.

Although the present study potentially contributes to theoretical research and offers practical implications, some limitations must be acknowledged. First, this study involved a limited number of participants, and participants were from the same university. These results could therefore be considered tentative. Second, the post-test was implemented in the same format as the pre-test (paper-and-pencil), which might have compromised the findings. Third, the study explored group metacognitive support by assigning four learners to one sub-group. However, the results of this arrangement cannot be generalized to other kinds of group work, such as paired or larger group work, thus requiring further research. Finally, some students were less consciously aware of certain behaviors or strategies and may not have provided suitable descriptions in their journal entries. Despite these limitations, the present study broke new ground in current knowledge related to using group metacognitive guidance in enhancing writing performance and fostering regulatory skills in EFL students’ writing.

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No potential conflict of interest was reported by the author.

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