

Metacognitive Knowledge and Metacognitive Control of Writing Strategy between High- and Low-performing Chinese EFL Writers

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Abstract—This study investigated metacognitive knowledge and control of writing strategy in English among 65 Chinese EFL learners in two argumentative writing tasks. Metacognitive knowledge was measured using a questionnaire written in simple present tense. Metacognitive control required writers to respond to a questionnaire written in simple past tense immediately following completion of each writing task according to the actual strategy use in the writing tasks. Students were grouped into high- and low-performing EFL writers using one standard error above or below the Mean scores of the writing tasks. One-way ANOVA was conducted on the four kinds of writing strategies (i.e., planning, cognitive, monitor-control, and evaluating). We found that while there were no differences on any type of the writing strategies for metacognitive knowledge, the two groups differed in the actual writing strategy use on each occasion. For the more familiar and easier writing topic, high- and low-performing students differed only in cognitive writing strategies. For the less familiar and more challenging writing task, high-achievers adopted significantly more planning, cognitive, and evaluating strategies than low-achievers. This research supported for distinction between metacognitive knowledge and control in EFL writing.

Index Terms—metacognitive knowledge, metacognitive control, writing strategy, Chinese EFL writers

I. INTRODUCTION

It has long been acknowledged that writing in a foreign language (FL) is highly complex because it involves multiple interactions between internal factors (e.g., language proficiency, age, first language (L1) writing abilities, and knowledge of the writing topics) and external factors (e.g., guidance of writing tasks, audience, and time pressure; see Hyland, 2003 for an overview). In these highly complicated processes, writers' metacognition plays a key role (e.g., Stevenson Schoonen, & de Gloppe, 2006). Metacognition is different from cognition as the former helps an individual understand and regulate how to perform the task, whereas the latter helps a person perform a task (Hacker, 1998; Schraw, 1998).

Metacognition consists of two components: metacognitive knowledge and metacognitive control. Metacognitive knowledge, located in the long-term memory, is what a person knows about his/her own cognitive process, whereas metacognitive control, functioning in individuals' working memory, is reflected as one's ability to use metacognitive knowledge to achieve certain goals through various cognitive activities, such as planning, making decisions, and monitoring (Batha & Carroll, 2007; Westby, 2004; You & Joe, 2001).

One of the problems in the FL writing strategy research is that researchers rarely make distinction between metacognitive knowledge (i.e., knowledge about writing strategy use in general) and metacognitive control (i.e., the actual writing strategy use in a specific writing task) (e.g., Alnufaie & Grenfell, 2012; Gupta & Woldemariam, 2011). The distinction between metacognitive knowledge and control is important because having metacognitive knowledge does not ensure that writers are able to execute metacognitive control during writing processes (Han, 2012, 2013; Han & Stevenson, 2008). In order to fill the gap, our study investigates metacognitive knowledge and metacognitive control of writing strategy in two argumentative writing tasks among a cohort of learners of English as a foreign language (EFL) at university level in China. Our specific focus is on to what extent high- and low-performing EFL writers differ in metacognitive knowledge and control of writing strategy. By making proper distinction between metacognitive knowledge and control in FL writing strategy research will allow EFL writing instructors to identify whether levels of writing quality are affected by EFL writers' lack of writing strategy knowledge repertoire or by their inability to execute knowledge in actual writing processes (or a combination of both), so that corresponding interventions can be designed and carried out.

II. LITERATURE REVIEW

The writing processes

In the research of writing, researchers have made attempts to represent writing in a wide range of models: such as Flower and Hayes' (1981) cognitive processes of writing model, Hayes' (2000) revised cognitive processes of writing model, and Zimmermann's (2000) FL writing formulation model, just to name a few. Among these models, Chenoweth and Hayes' model (2001) is a commonly adopted one, because it is a comprehensive description of sub-processes involved in writing (see Figure 1 for a visualization of the model). From Figure 1, we can see that there are three levels involved in the writing processes proposed in the model, namely the resource level, the process level, and the control level. The resource level is the cognitive elements which are used in the writing, including working memory, long term memory, and reading processes, such as reading task instruction, reading source materials to generate ideas for writing, as well as reading one's own draft for revising (Chenoweth & Hayes, 2001).

The process level has two sub-levels: one is concerned with internal aspect of writing and the other is associated with the writing task, which is an external aspect. The internal sub-level is comprised of four parts: a Proposer, a Translator, a Transcriber, and a Reviser. The Proposer is the "pre-linguistic source that produces ideas to be expressed" (Chenoweth & Hayes, 2001, p. 84). The Proposer is responsible for ideas and thoughts to be generated and organized according to some kinds of logic order so that the information is ready to be arranged into structured scripts. The Proposer is closely related to the sub-process of planning in writing. The Translator, which associates with formulation processes in the writing whereby ideas and thoughts are converted into linguistic elements, serves as bridges for "pre-linguistic ideas into strings of language with appropriate word order and grammar" (Chenoweth & Hayes, 2001, p. 84). The linguistic elements are then transcribed into the written forms either as hand-written scripts or as computer-processed scripts by the Transcriber. The Translator and the Transcriber are jointly involved in the sub-processes of the actual writing. The Reviser is mainly used in the sub-process of revising, which modifies and improves what has been translated and transcribed in order to ensure the quality of information flow. The third level in this model is the control level, which operates between the task schema and the other two levels.

Using the Chenoweth and Hayes' model as a departing point for researching writing strategy has two advantages. First, the writing strategies can be examined in the three sub-processes of writing from planning, writing, to revising. Second, the resource level including both long-term and working memory provides an additional theoretical justification for the distinction between metacognitive knowledge and control as the former is located in one's long-term memory while the latter is operated in one's working memory.

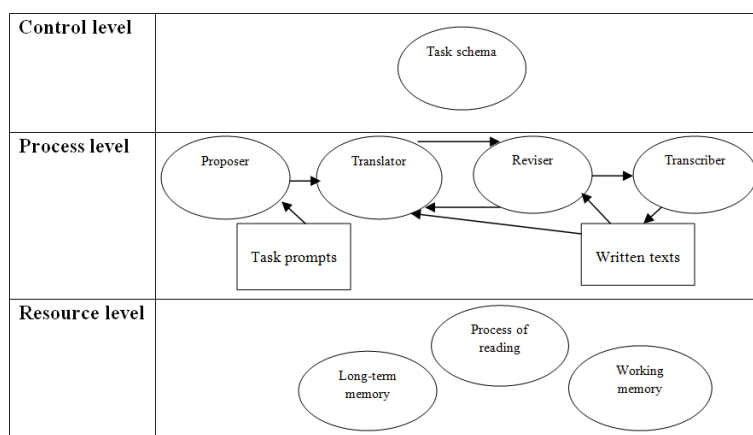


Figure 1. Chenoweth and Hayes' (2001) model of the writing process (adapted from Chenoweth & Hayes, 2001)

Metacognition and FL writing

Metacognition is defined as "a person's knowledge and beliefs about the human mind and its doings", which includes "one's conscious knowledge, cognitive process and states such as memory, attention, knowledge, conjecture and illusion" (Flavell, Miller, & Miller, 2002, p. 106). In simple words, metacognition is essentially an individual's cognition about cognition, thinking about thinking, and knowing about knowing (Flavell, Miller, & Miller, 2002; Phakiti, 2006), as reflected by their knowledge on thoughts and ability to regulating thoughts and behaviors (Flavell, 2016; Hacker, 1998).

As has been mentioned, metacognition comprises of metacognitive knowledge and metacognitive control (Schraw, 1998, 2001). The former refers to as knowledge about cognitive processes during an activity and can be classified into three types, namely knowledge about things (i.e., declarative knowledge), knowledge about how to do things (i.e., procedural knowledge), and knowledge about when and why to do things (i.e., conditional knowledge) (Dart, Boulton-Lewis, Brownlee & McCrindle, 1998; Olivares-Cuhat, 2002).

In the FL writing, for instance, declarative knowledge may include knowing the structure of an argumentative essay and knowing the differences between readers' expectation of different text types. Procedural knowledge in FL writing may include how to construct a grammatically correct sentence in the target language and how to select appropriate

lexical items according to the level of formality of the texts. With regard to the conditional knowledge in FL writing, this may be realized by an understanding of what kind of writing strategies to use in a particular writing situation. For instance, when a writer do not know how to spell a word, they may consider looking the word up in a bilingual dictionary, or they may think of using a sentence to explain the meaning of that lexical item when the situation does not allow them to consult dictionaries, such as in a testing situation.

The researchers agree that both procedural and conditional knowledge is hard to capture, because such knowledge is most likely to be reflected in the actual writing processes through undertaking a specific writing task (Schraw & Graham, 1997; Schraw & Moshman, 1995; Robert & Feurer, 2016). As a result, most of the research on metacognitive knowledge is primarily restricted to the declarative knowledge, which is often measured through using a self-reported questionnaire (Sénéchal, LeFevre, Smith-Chant, & Colton, 2001).

The distinction between declarative, procedural, and conditional knowledge seems to be able to explain differences between writing strategies and writing skills. Oxford (2011) argues that “when strategy use is developed into an automatic operation (proceduralized) through repeated practice, it is no longer a strategy but an unconscious habit” (Oxford, 2011, p. 51). Similarly, Cohen (1998, 2007) concurs with this operationalization of writing strategy and maintains that intentionality and consciousness are essential characteristics of strategy use. The automatic and unconscious operations of cognitive activities in writing are often regarded as writing skills (Petric & Czarl, 2003). Writing skills or unconscious operations of strategic behaviors in writing are hard to be measured because writers are simply unaware of using them. For our research, we are concerned with writing strategies rather than writing skills, and correspondingly we operationalized metacognitive knowledge as declarative knowledge about FL writing.

The other component of metacognition – metacognitive control, or regulation or cognition, is one’s ability to use metacognitive knowledge to monitor and regulate one’s thinking processes during cognitive activities and performance according to context-specific situations to achieve certain goals (Han, 2012; Han & Stevenson, 2008; Schraw & Graham, 1997; Schraw & Moshman, 1995; Phakiti, 2006; Westby, 2004). Having metacognitive knowledge is a necessary but not a sufficient condition for metacognitive control to be executed, and one of the important elements for successful operation of metacognitive control depends on individual’s working memory (Han, 2012, 2013; Han & Stevenson, 2008; Phakiti, 2006). In FL writing, writers’ working memory may be occupied largely by their slow and effortful processing of linguistic codes, such as retrieval of lexical items, construction of sentences, and coordinating conceptual ideas into semantically related units. This means that it is especially important for a distinction to be made between metacognitive knowledge and control in FL writing.

Empirical studies of metacognition in FL writing

The majority of studies of metacognition in FL writing predominantly focused on metacognitive knowledge rather than metacognitive control (e.g., Olinghouse & Graham, 2009; Schoonen et al., 2002, 2003; Wong & Storey, 2006). In general, a wide range of metacognitive knowledge in writing has been explored and writers with two languages are found to have a wide range of metacognitive knowledge, including knowledge of discourse, text structure, the purposes of writing, and the audience of the written texts (e.g., Olinghouse & Graham, 2009; Ruan, 2004; You & Joe, 2001). The research has also shown that there is positive association between writers’ metacognitive knowledge and the quality of written texts (e.g., Kasper, 1997; Olinghouse & Graham; Polio & Friedman, 2017; Schoonen et al., 2002, 2003; Sasaki & Hirose, 1996; Schoonen, Snellings, Stevenson, & van Gelderen, 2009). Compared to metacognitive knowledge in writing, metacognitive control has been studied to a lesser extent, and the research has shown that good FL writers are more skilful and have better ability to monitor and regulate their cognition in the writing processes than poor FL writers (e.g., Baker, 2002; Ruan, 2004; Wong & Storey, 2006).

Little research, however, has been carried out to examine both metacognitive knowledge and control in FL writing between good and poor FL writers (Farahian, 2015; Victori, 1999). In other skills of FL learning, there are a few studies which made an initial attempt to study both metacognitive knowledge and control. For instance, In FL listening, Goh (1998) compared the 16 high-ability and low-ability EFL learners’ use of metacognitive and cognitive listening strategies using retrospective interviews immediately after the participants completed listening to short English texts. The results showed that while high-ability listeners were able to use a much wider range of strategies and tactics, low-ability listeners were only applied a few listening strategies and in particular they exhibited a lack of using metacognitive strategies in planning, monitoring, and evaluating.

In FL reading, Phakiti (2007) examined the relationship between trait and state strategy use, which resembles metacognitive knowledge and control of strategy use, even though the context of the study was in a reading test. With Thai EFL learners, the metacognitive knowledge of FL reading, the actual use of reading strategies, and the reading test performance, were examined on two occasions: in the mid-term and final examinations. Phakiti required the participants to answer a questionnaire probing into the knowledge of reading strategy (written in the simple present tense), and a questionnaire measuring what reading strategies learners had used in the tests immediately following the reading tests (written in the simple past tense). The results showed that (1) knowledge of metacognitive strategy directly and strongly affects knowledge of cognitive strategy; (2) knowledge of metacognitive strategy directly affected control of metacognitive strategy and indirectly affected control of cognitive strategy in the reading tests; (3) knowledge of cognitive strategy did not have much impact on cognitive strategy use in the reading tests; and (4) cognitive strategy use directly affected reading test performance.

In the FL writing research, there is a lack of study exploring both metacognitive knowledge and control (Farahian, 2015; Victori, 1999). To our knowledge, Victori (1999) conducted a case study, which examined both metacognitive knowledge and control between two good and two poor advanced EFL writers. The result indicated that: (1) the good and poor writers differed in their metacognitive knowledge about person, task, and writing strategies. The two good writers had a much broader repertoire of metacognitive knowledge in all the three aspects and also held a more flexible view towards writing, than the two poor writers. (2) The metacognitive knowledge only partially affected the actual writing strategy use during composing. (3) However, metacognitive knowledge could not fully account for differences in the metacognitive control, other factors, such as the attitude towards FL writing, also played an important role on how the writers approached the writing task. Viewed together, this study seemed to indicate that the deployment of metacognitive control was not always affected by metacognitive knowledge. Although illuminating, the case study design and the small number of the participants did not permit the generalization of the results. Therefore, our study continued to pursue this line of research on metacognitive knowledge and control in FL writing by adopting a quantitative approach.

The present study

Our study focused on investigating metacognitive knowledge and control of writing strategy in FL between high- and low-performing EFL writers. We examined metacognitive control of writing strategy use on two occasions using two writing tasks. We used a questionnaire through retrospective reporting to gather information of metacognitive control, which is considered more suitable than using time-consuming think-aloud method, because we had a relatively large number of participants and we collected writers' writing strategy use on two occasions following each writing task. For the reliability of the retrospection, the interval between retrospection and the tasks should be kept to minimal (Yamashita, 2002). Therefore, the administration of the metacognitive control questionnaires immediately followed the completion of the writing tasks.

Our study sought to address the following research questions:

1. To what extent does metacognitive control of writing strategy differ between high- and low-performing Chinese EFL writers in two writing tasks?
2. To what extent does metacognitive knowledge of writing strategy differ between high- and low-performing Chinese EFL writers?

III. METHOD

Setting and participants

Our research was carried out at a national university in a northern province of China. The participants were 65 students, who majored in English language education. The study program required students to study English language skills intensively and to participate in an internship of teaching English in primary or middle schools. The participants aged between 19 and 23 with a mean (*M*) age being 21. By the time of participation in the study, the students had been studying English for approximately seven years.

Instruments

The writing tasks. We used two writing tasks to measure students' writing performance. The two tasks were also used for learners to report their metacognitive control of writing strategy use in the processes of completing the writing. In order to make sure that the use of writing strategies was not affected by different text types, both of the writing tasks were argumentative tasks, as the participants' English teachers revealed that argumentative writing was more familiar to the students than any other text types. In order to make sure that the participants' background knowledge would not affect their use of writing strategies, the chosen topics were related to the participants' life experience. However, the topics differed in terms of the familiarity: the first topic was more closely related to personal life than the second topic. Below are the detailed descriptions of the two writing tasks:

Writing task one. Write an argumentative essay on the following topic: Do you prefer to have friends who are similar to you or different from you? Why or why not? You should use your own ideas, knowledge, and experience to support your arguments. You have 50 minutes to complete this writing task and you need to write at least 250 words.

Writing task two. Write an argumentative essay on the following topic: Some people believe that one cannot learn everything in schools and that experience is the best teacher. Others argue that formal education is a more effective way to learn. Which is more important for you: things learned through real life experiences or learned at school? You should use your own ideas, knowledge, and experience to support your arguments. You have 50 minutes to complete this writing task and you need to write at least 250 words.

Measures of metacognitive knowledge and metacognitive control of writing strategy. Two questionnaires were used to measure students' knowledge of writing strategy in English argumentative writing and metacognitive control of strategy use in the two argumentative writing tasks. The items in the questionnaires were mainly based on Petric and Czarl's (2003) writing strategy questionnaire because of two reasons: (1) the questionnaire was consisted of writing strategies in different processes of writing, including planning, writing, and revising; (2) the questionnaire was properly validated with detailed description of validating processes and had good reliability.

Both questionnaires had 30 items measuring four kinds of writing strategies: planning (6 items), cognitive strategies (5 items), monitor-control (7 items), and evaluating (12 items). The questionnaire evaluating metacognitive knowledge

was written in the simple present tense, which reflected writers' knowledge about writing in English irrespective to specific writing tasks. The questionnaire measuring metacognitive control, on the other hand, used the simple past tense and required students to retrospect what strategies they had used and to respond to the questionnaire immediately after completion of each writing task. Both questionnaires were on a 5-point Likert Scale, with 1 suggesting "totally agree" to 5 meaning "totally disagree". To ensure that the participants understand the items fully, the questionnaires were translated into Chinese. The reliability of each strategy was calculated and reported in Table 1, which shows all the values of the Cronbach's alpha was above .70, a commonly agreed acceptable level of reliability.

TABLE 1.
CRONBACH'S ALPHA RELIABILITY OF THE METACOGNITIVE CONTROL AND METACOGNITIVE KNOWLEDGE QUESTIONNAIRES

Strategies	metacognitive control 1	metacognitive control 2	metacognitive knowledge
Planning	.75	.70	.72
Cognitive	.76	.87	.80
Monitor-control	.79	.76	.79
Evaluating	.84	.90	.86

Marking rubrics and scoring of the writing tasks. We followed Weir's (2005) suggestions on scoring written production and adopted analytical scoring processes to create analytical marking rubrics, which considered four main dimensions: (1) structure and organization, (2) content, (3) argumentation, and (4) language use and mechanics. Under each main dimension, there were a number of sub-dimensions and each sub-dimension was judged separately and was assigned a score from 1 to 5 representing "very poor" and "very good" respectively. The average of the sub-dimensions represented the score for each main dimension (the detailed scoring rubrics are presented in the Appendix). The each dimension was then converted to 100 and each dimension was assigned with a percentage accounting for different proportions in the total writing score. As the content and argumentation were more important than structure and organization and language and mechanisms, the former two dimensions were given 30% each, and the latter two dimensions were given 20% each. In order to ensure the reliability of scoring, two raters scored the written texts separately and the inter-rater reliability was calculated for each dimension in each test. The inter-rater reliability was reported in Table 2, which showed that all the values were above .70, indicating good inter-rater reliability.

TABLE 2.
INTER-RATER RELIABILITY OF WRITING TASKS ONE AND TWO

	Structure and organisation	Content	Argument	Language and mechanics
writing 1	.83	.90	.90	.85
writing 2	.76	.80	.75	.80

Data collection procedure

Ethics approval was obtained from the Ethics Committee of the researchers' university before the implementation of the study. The participants were informed the voluntary nature of the participation and they were assured that all identifiable personal information would be kept strictly confidential and that no names would be mentioned in the dissemination of the research results. The data collection took place outside the normal class time and the research was conducted in three phases: phase one collected data about the participants' metacognitive knowledge. One week later, students were required to complete the first writing task. Immediately following the completion of writing task one, the metacognitive control questionnaire was administered. On another occasion, the same procedure was repeated for completion of the second writing task and the metacognitive control questionnaire in relation to writing task two.

Data analysis

In order to answer the first research question, we conducted two separate sets of analyses for the two writing tasks. The analyses were exactly the same. We first grouped students into high- and low-performing EFL writers using one standard error above or below the *M* scores of the writing tasks. We then performed a series of one-way ANOVA in order to find out if the two groups of students differed in metacognitive control. To answer the second research question, we grouped students into high- and low-performing EFL writers using the average scores of the two writing tasks followed by performing one-way ANOVA on writers' metacognitive knowledge.

IV. RESULTS

Metacognitive control of writing strategy use for writing task one

For the first writing task, 30 students were classified as high-performing EFL writers and 31 students were as low-performing EFL writers. The results of a *t*-test confirmed our grouping ($t = 15.12, p < .01$), that high-performing EFL writers ($M = 77.99, SD = 4.12$) obtained significantly higher marks for the writing task one than the low-performing EFL writers ($M = 59.70, SD = 6.03$). The results of one-way ANOVA were presented in Table 3, which shows that there were no significant differences on use of planning strategies, $F(1, 59) = 0.00, p = .96$; use of monitor-control strategies, $F(1, 59) = 0.35, p = .56$; and use of evaluating strategies, $F(1, 59) = 3.09, p = .09$, between the high- and low-performing EFL writers. The only significant difference was use of cognitive strategies, $F(1, 59) = 4.73, p < .05, d = 0.65$. The high-performing EFL writers adopted significantly more cognitive strategies ($M = 4.10, SD = 0.72$) than low-performing EFL writers ($M = 3.73, SD = 0.62$) when completing the first writing task.

TABLE 3.

ONE-WAY ANOVA OF METACOGNITIVE CONTROL OF WRITING STRATEGY BETWEEN HIGH- AND LOW-PERFORMING WRITERS FOR WRITING TASK ONE

Strategies	Groups	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Planning	high (<i>N</i> = 30)	2.94	0.65	0.00	.96
	low (<i>N</i> = 31)	2.94	0.78		
cognitive	high (<i>N</i> = 30)	4.10	0.72	4.73	.03*
	low (<i>N</i> = 31)	3.73	0.62		
monitor-control	high (<i>N</i> = 30)	3.58	0.47	0.35	.56
	low (<i>N</i> = 31)	3.51	0.71		
evaluating	high (<i>N</i> = 30)	3.46	0.60	3.09	.09
	low (<i>N</i> = 31)	3.32	0.66		

Metacognitive control of writing strategy use for writing task two

As students' writing performance in the two writing tasks differed, students in the high- and low-performing groups were not necessary the same. For the second writing task, 33 students were grouped as the high-achievers whereas 32 students were as low-achievers. The *t*-test showed that the writing scores of the two groups significantly differed from each other ($t = 13.25, p < .01$). The scores of the high-achieving EFL writers ($M = 79.05, SD = 3.09$) were significantly higher than those of the low-achieving writers ($M = 65.56, SD = 6.48$). The ANOVA results of metacognitive control were presented in Table 4, which shows that high- and low-performing EFL writers differed significantly in terms of three types of strategy use: namely planning strategy, $F(1, 63) = 4.46, p < .05, d = 0.55$; cognitive strategy, $F(1, 63) = 4.23, p < .05, d = 0.55$; and evaluating strategy, $F(1, 63) = 6.71, p < .05, d = 0.65$. We found that the high-performing EFL writers used more planning strategies ($M = 3.79, SD = 0.55$), more cognitive strategies ($M = 4.23, SD = 0.67$), as well as more evaluating strategies ($M = 3.80, SD = 0.72$), than those low-performing counterparts (planning: $M = 3.48, SD = 0.58$; cognitive: $M = 3.88, SD = 0.71$; and evaluating: $M = 3.33, SD = 0.72$). However, no statistically significant difference was observed on the use of monitor-control strategies between the two groups, $F(1, 63) = 0.10, p = .76$.

TABLE 4.

ONE-WAY ANOVA OF METACOGNITIVE CONTROL OF WRITING STRATEGY BETWEEN HIGH- AND LOW-PERFORMING WRITERS FOR WRITING TASK TWO

Strategies	Groups	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Planning	high (<i>N</i> = 33)	3.79	0.55	4.46	.04*
	low (<i>N</i> = 32)	3.48	0.58		
cognitive	high (<i>N</i> = 33)	4.23	0.67	4.23	.04*
	low (<i>N</i> = 32)	3.88	0.71		
monitor-control	high (<i>N</i> = 33)	3.53	0.78	0.10	.76
	low (<i>N</i> = 32)	3.47	0.81		
evaluating	high (<i>N</i> = 33)	3.80	0.72	6.71	.01*
	low (<i>N</i> = 32)	3.33	0.72		

Metacognitive knowledge of writing strategy

To find out if the high- and low-performing EFL writers had different metacognitive knowledge of writing strategy, we first grouped students using the average scores of their two writing tasks. The *t*-test ($t = 17.94, p < .01$) showed that on average, the high-achieving group ($M = 79.94, SD = 3.24$) was significantly better than the low-achieving group ($M = 63.82, SD = 3.81$) in writing performance. The ANOVA results on the metacognitive knowledge of the four types of the strategy are presented in Table 5, which showed that none of the strategy differed significantly between the high- and low-performing students: planning strategy, $F(1, 63) = 1.10, p = .30$; cognitive strategy, $F(1, 63) = 0.13, p = .72$; monitor-control strategy, $F(1, 63) = 0.06, p = .82$; and evaluating strategy, $F(1, 63) = 0.63, p = .43$. These results suggested that students with different levels of writing performance had similar metacognitive knowledge in FL writing.

TABLE 5.

ONE-WAY ANOVA OF METACOGNITIVE KNOWLEDGE OF WRITING STRATEGY BETWEEN HIGH- AND LOW-PERFORMING WRITERS

Strategies	Groups	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Planning	high (<i>N</i> = 33)	3.23	0.91	1.10	0.30
	low (<i>N</i> = 32)	3.01	0.79		
cognitive	high (<i>N</i> = 33)	4.04	0.62	0.13	0.72
	low (<i>N</i> = 32)	3.99	0.58		
monitor-control	high (<i>N</i> = 33)	3.52	0.89	0.06	0.82
	low (<i>N</i> = 32)	3.47	0.85		
evaluating	high (<i>N</i> = 33)	3.33	0.65	0.63	0.43
	low (<i>N</i> = 32)	3.21	0.61		

V. DISCUSSION

Our findings indicated that the EFL writers with different levels of writing performance did not differ on the metacognitive knowledge about writing strategy use in the whole writing processes from planning to revising, despite differences in their FL writing performance. However, the two groups of students differed in terms of metacognitive control in the two writing tasks. This finding was consistent with the argument that it is necessary to distinguish between metacognitive knowledge in general and metacognitive control for specific cognitive tasks (e.g., Han, 2011,

2012; Han & Stevenson, 2008; Phakiti, 2006, 2007). The deployment of metacognitive control is rather context-specific and can fluctuate from context to context, and such deployment may depend on a number of factors, such as the writers' motivation at the time of writing, their attitudes towards the writing tasks, the familiarity with the writing topics, and FL writers' processing efficiency (Schoonen et al., 2002, 2003, 2009; Phakiti, 2007; Purpura, 1999).

As has been mentioned, metacognitive control operates in one's working memory, efficient processing can leave working memory with sufficient cognitive energy for the metacognitive knowledge to be retrieved from the long-term memory and to be applied strategically in the writing processes (Han, 2012, 2016; Han & Stevenson, 2008; Phakiti, 2003, 2007; Purpura, 1999). In our research, we did not measure learners' efficiency of linguistic processing in writing, such as speed of lexical retrieval and speed of sentence construction, therefore, whether efficiency of linguistic processing affects writers' use of writing strategy remained unexplored.

Across the two writing tasks, we found that the patterns of metacognitive control of writing strategy between high- and low-performing writers were not consistent. For the first writing task, the only difference lay in the cognitive strategies, whereas in the second writing task, the two groups of students differed in terms of both cognitive and metacognitive strategies (i.e., planning and evaluating strategies). This shows that deployment of cognitive strategies exhibited consistency across the two tasks: the high-performing EFL writers used more of this kind of strategies than their low-performing counterparts irrespective to the writing tasks. This was in line with Purpura's (1999) emphasis on the importance of the cognitive strategy use.

The cognitive strategies are primarily concerned with "intentional and goal-oriented process that individuals employ to use language to understand or learn for some purposes" (Phakiti, 2007, p. 6-7), whereas the metacognitive strategies are mainly used to regulate cognitive strategies and linguistic processing (Phakiti, 2007). The different functions between cognitive and metacognitive strategies could be why the patterns of using planning and evaluating strategies between our good and poor EFL writers differed for the two tasks, because high-performing EFL writers might not feel a need for use of many metacognitive strategies when completing the first writing task possibly due to the reason that the topic was more familiar and easier compared to the topic of the second writing task.

Indeed, Manchon, Larios, and Murphy (2007) suggested that topic familiarity is an important factor that affects writers' writing strategy use. The first writing topic was concerned with making friends, which was more closely related to students' everyday life experience, and hence could be more familiar to them. The second writing topic was discussion on an educational issue, which seemed to be further away from the students' daily experience. The more familiar topic, presumably easier one (the first writing task) might not have triggered the high-performing writers to actively use metacognitive strategies in the writing process as many as those used in the less familiar and more challenging writing task (the second writing task), hence no differences were found between good and poor writers on using metacognitive strategies.

This might be why we only found use of cognitive writing strategies differed between high- and low-performing writers in the more familiar writing topic. In the less familiar and more difficult writing task, which presumably required the writers to carefully plan before writing and to constantly evaluate what had been converted into the written texts after writing might have created opportunities for good writers to apply metacognitive strategies more frequently in order to handle the more challenging writing task. Consequently this might enable the differences on the metacognitive strategy use between the proficient and less-proficient EFL writers to show.

In summary, our study suggested that while the high- and low-performing EFL writers did not differ from each other in terms of the metacognitive knowledge they possessed in FL writing, they differed in terms of actual use of writing strategies depending on the writing task. When the participants were undertaking a writing topic which was more familiar and easier for them, the two groups of writers only differed in using cognitive writing strategies, whereas when the writing task appeared to be more challenging and difficult, in addition to using more cognitive strategies, the good readers might have used more metacognitive strategies to help them coordinate cognitive processes in terms of planning and evaluating for their writing. The results of our research highlights the importance of making a clear distinction between metacognitive knowledge – the knowledge about writing strategy use, and metacognitive control – the actual writing strategy use in specific writing tasks, in FL writing strategy research. The differences of the metacognitive strategy use contrasting good and poor EFL writers in the more difficult writing task may point to the potential that training programs targeted on metacognitive strategies could be more beneficial. A recent intervention study which compared the effects of metacognitive and cognitive writing strategy training might support this speculation. Tabrizi and Rajaei (2016) found that Iranian primary school students who received metacognitive writing strategy training achieved better performance in English writing performance than students who received cognitive writing strategy training.

Conclusion

Owing to the scope and design of the study, a number of limitations should be pointed out and possible avenues for future research are also outlined. First, the participants in our study were English majors, who could not represent a vast majority of Chinese EFL learners learning English only as a required course. Future studies may investigate metacognitive knowledge and control of writing strategy with non-English major students. Another major limitation is that we only used retrospective questionnaire for measuring students' metacognitive control, which might not accurately represent students' concurrent strategy use during writing. Think-aloud method would be a better method for concurrent

strategy use, although such method is quite time-consuming and may only be feasible with small sample size. With relatively large sample, such as ours, we recommend that a combination of both retrospective questionnaires and the think-aloud method on a sub-sample of participants, who are carefully selected based on writing performance can be used in future studies to investigate FL writers' metacognitive control. In conclusion, our research highlighted the importance to distinguish between metacognitive knowledge and control in EFL writing research.

APPENDIX. MARKING RUBRICS

Circle: 1 = Very poor 2 = Poor 3 = Moderate 4 = Good 5 = Very good

Criteria	Score
1. Structure and Organization (20%)	
1.1 Title: The essay has a title which clearly corresponds with the content of the essay.	1 2 3 4 5
1.2 Structure: The essay contains a clear division in: introduction, argumentation and conclusion.	1 2 3 4 5
1.3 Lay-out: The essay is well-organized. There is a clear division in paragraphs. Paragraphs are divided by: a blank line, indenting or are started on a new line.	1 2 3 4 5
1.4 Relations between Paragraphs: There is a clear 'train of thought' between paragraphs. It is easy to determine coherence relations between paragraphs in the text.	1 2 3 4 5
1.5 Continuity: Information which belongs together is presented together.	1 2 3 4 5
Total	
2. Content (30%)	
2.1 Introduction: The thesis statement is presented in the introduction and (possibly) the writer's own opinion on the thesis statement is also provided.	1 2 3 4 5
2.2 Persuasion: It is clear what the writer wishes to persuade the reader to believe: a choice for or against the thesis statement.	1 2 3 4 5
2.3 Reader Orientation: The essay is easy to comprehend for readers who have not read the essay.	1 2 3 4 5
2.4 Conclusion: The essay contains a clear conclusion, which corresponds with the rest of the text and which indicates the writer's own opinion.	1 2 3 4 5
2.5 Closing: It is clear that the essay is finished, for example by a brief summary of the content of the essay or by a closing statement. There are no loose ends left.	1 2 3 4 5
Total	
3. Argumentation (30%)	
3.1 Writer Position: The position is clear, and strongly and substantially argued.	1 2 3 4 5
3.2 Support: The argument consists of multiple arguments, which support the writer's opinion.	1 2 3 4 5
3.3 Relevance: The argumentation does not contain too much superfluous information, i.e., information which does not help support the writer's opinion.	1 2 3 4 5
3.4 Argumentation: The arguments are clearly recognizable; e.g. "therefore I do (not) think that...", "I think...", "I do (not) agree with..."	1 2 3 4 5
3.5 Referential and Coherence relations: The referential and coherence relations are clear if they are implicit, or else are marked explicitly; e.g.: <i>therefore, so, because, firstly, secondly, thirdly, subsequently</i>	1 2 3 4 5
Total	
4. Language Use and Mechanics (20%)	
4.1 Sentence Structure: There is an effective balance of simple and complex sentence patterns with coordination and subordination.	1 2 3 4 5
4.2 Vocabulary Knowledge: The essay demonstrates a sophisticated range of vocabulary knowledge.	1 2 3 4 5
4.3 Grammar: There are few errors of agreement, tense, word order, articles, pronouns and prepositions.	1 2 3 4 5
4.4 Mechanics: There are few errors of spelling, punctuation, capitalization and paragraphing.	1 2 3 4 5
4.5 Handwriting: The whole essay looks tidy and neat and the handwriting is good.	1 2 3 4 5
Total	

Total score: _____

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