

Exploring the Application of Metacognitive Strategy in Chinese Writing in Middle Schools

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Abstract. Metacognitive strategy, one of the strategies of learning languages, is essential for learning Chinese writing. The research is conducted by analyzing the relationship between the levels of middle-school students using metacognitive strategy and their levels of Chinese writing. The results of the research indicate significant correlation exists between levels of Chinese writing and the levels of middle-school students using metacognitive strategy. During the examination phase, students tend to use metacognitive strategy before the commencement of writing and the level of using strategy in daily study is much lower than it is in the examination phase. The degree of impact of strategies on Chinese writing in middle schools, in descending order, is monitoring strategy, adjustment strategy and planning strategy. However, the difference in impact on writing levels among such three strategies is small. According to the results, teachers should design conscious training to teach middle-school students to use metacognitive strategy effectively and enhance their abilities of using metacognitive strategy in daily study. Moreover, coordinating the intensity of the teaching monitoring strategy, adjustment strategy and planning strategy is important.

Keywords: Metacognitive strategy; Chinese Writing; Writing Level.

1. Introduction

Metacognitive strategy was first concluded by an American psychologist J. H. Flavell in 1970s. It primarily referred to metacognitive knowledge and metacognitive experience. Metacognitive knowledge is defined as the cognition of cognitive subjects towards cognitive activity and is divided into subject knowledge, mission knowledge and strategy knowledge. Metacognitive experience refers to conscious cognitive or affective experience that occurs during the enterprise [1]. Brown stated that acquiring metacognitive knowledge must lead to metacognitive practices, while metacognitive practice is related to the use of metacognitive strategy and the adjustment of metacognitive [2]. Oxford clarified metacognitive knowledge into language learning strategies, belonging to direct strategy [3]. Therefore, the metacognitive strategy could be combined with language practice and become language strategy.

Railey and Boshoff were the first to combine metacognitive strategy and writing strategy [4]. In discussing metacognitive, Flavell detected that critical thoughts about ones' perspective and the style of expression are necessary to writing, which are actually the concrete behavior of using metacognitive strategy [5]. Liu demonstrated that writing level is proportional to the level of using metacognitive strategy [6]. Overall, metacognitive strategy can be applied to writing strategy to guide the writing learning, writing practice and then promote the improvement of learners' writing.

A portion of the current documents investigated the application of metacognitive strategy in Chinese learning in international students and combined metacognitive strategy with their abilities of listening, speaking, reading, writing as a whole. So such researches lack in-depth research for particular language ability and only for Chinese acquisition by non-native speakers. Other research focused on the application of metacognitive strategy in English writing. According the theory of Railey, people using different languages have different cognitive models and then perform differently in writing tasks [4]. The application of metacognitive strategy in English writing is not equal to the it in Chinese writing, though they have commonalities. So the study is rarely done concerning the application of metacognitive strategy in Chinese writing in China.

To conclude, the theme of study is the application of metacognitive strategy in Chinese writing. The research bases on questionnaire and uses spss 27.0 to conduct correlation analysis, descriptive analysis and regression analysis. The target of research is to prove using metacognitive strategy has positive influence on promoting the level of Chinese writing of middle-school students and provide creative models for teaching Chinese writing. It is meaningful to combine Chinese writing and metacognitive strategy in such new ways.

2. Method

The research randomly selected middle-school students with writing score of A, B, C, D, and E in a unified examination organized by Dongtai City in Jiangsu Province and asked them to fill in the questionnaire. The research totally distributed 166 questionnaires and received 160 valid questionnaires. Ratio of valid questionnaires is 96.3%. The research selected 28 A-level writings (60~53 marks), 56 B-level writings (52~43 marks), 40 C-level writings (42~33 marks), 31 D-level writings (32~24 marks), 5 E-level writings (23~9 marks) at random. Composition levels are assessed in accordance with the scoring rules for the Chinese language examination in Yancheng City, Jiangsu Province. The full mark is 60 points, 42% of which is applied to evaluate the degree of consistency between material and theme of writing. 42% of marks is used to evaluate lexical resources and left 16% is used to evaluate the logic and writing structure.

The questionnaire has two dimensions. One is the phase of writing which is divided into four parts including daily study (A), before the commencement of writing (B), do the writing (C), and after completing the writing (D). The other is the concrete behavior of metacognitive strategy including planning strategy, monitoring strategy and adjustment strategy. For example, B4 is “I would confirm if I understand the material” which belongs to monitoring strategy. The questionnaire adopts Likert scale and designed five choices in each question from “extremely agree” (5 points) to “extremely disagree” (1 point). Participants are required to select the one that best fits their real situation. After selecting valid questionnaires, calculate the total score corresponding rules and match their writing scores in the unified examination. Oxford and Burry-Stock's classification for the Likert scale stated that the means less than or equal to 2.4 are low level, means between 2.4 and 3.5 is medium level and means more than or equal to 3.5 are high level [7]. The questionnaire framework is shown in Table 1.

Table 1. Questionnaire framework

Dimension 1	Number	Dimension 2	Number
Daily study	A1/A2/A3/A4/A5	Planning strategy	A2/A3/A4/B2/B5/C4/D5
Before the commencement of writing	B1/B2/B3/B4/B5	Monitoring strategy	A1/B3/B4/C1/C3/D2/D4
Do the writing	C1/C2/C3/C4/C5	Adjustment strategy	A5/B1/C2/C5/D1/D3
After completing the writing	D1/D2/D3/D4/D5		

The questionnaire design is based on the Xu's study researching on writing plans and writing assessment in and Yuan's *Questionnaire on the use of English summary writing strategies of senior high school Students* [8, 9]. So the questionnaire is equipped with good validity. Using spss 27.0 to analyze the reliability in two dimensions finds that Cronbach's Alpha of each dimension is more than 0.650 and the Cronbach's Alpha of items are all larger than figures in the items being deleted. The Cronbach's Alpha of questionnaire is 0.897 proving its good reliability. The results are shown in Table 2&3.

Table 2 Reliability in dimension 1

Dimension 1	Cronbach's Alpha	N of Items
Daily study	0.809	5
Before the commencement of writing	0.767	5
Do the writing	0.657	5
After completing the writing	0.692	5

Table 3 Reliability in dimension 1

Dimension 2	Cronbach's Alpha	N of Items
Planning strategy	0.813	7
Monitoring strategy	0.707	7
Adjustment strategy	0.694	6

In correlation analysis, the participants' writing scores are the dependent variable and the questionnaire scores are the independent variable. Such correlation analysis is aimed to decide whether the level of using metacognitive strategy has an impact on the level of Chinese writing. Descriptive analysis in dimension one is used to explain the usage of metacognitive strategy in different phases. In regression analysis, writing scores are the dependent variable. Planning strategies, monitoring strategies and adjustment strategies are independent variables. The results show the degree of impact of the four strategies on the writing level. The research assumes it is before the commencement of writing that middle-school students are most active in using metacognitive strategy. Moreover, the level of writing is related to the level of using metacognitive strategy and three strategies have a different impact on the level of writing.

3. Result

After importing the data into SPSS 27.0, the author analyzes the correlation between writing score and metacognitive strategy. The results are shown in Table 4.

Table 4 Correlations

	Writing level	Metacognitive strategy using level
Writing level	1	
Metacognitive strategy using level	0.535 **	1

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

According to the analysis, the Pearson correlation of the level of writing and the level of using metacognitive strategy is 0.535 that indicates correlation is significant at 0.01 level. In conclusion, there is a significant positive correlation between the level of using metacognitive strategy and the level of writing, which is consistent with the hypotheses.

In descriptive, means show the middle-school general levels of using metacognitive strategy in four phases which are daily study, before the commencement of writing, do the writing and after completing the writing. The results are shown in Table 5.

Table 5 Descriptive

Phase	Minimum	Maximum	Mean	Std. Deviation
Daily study	1.0	4.4	2.957	0.7846
Before the commencement of writing	1.0	5.0	3.429	0.6766
Do the writing	1.0	5.0	3.343	0.6483
After completing the writing	1.0	5.0	3.225	0.6840

Overall, middle-school students have a medium level of using metacognitive strategy in four phases. In the daily study, the mean is 2.957 and the maximum is 4.4, which reveals that middle students are least able to use metacognitive strategy and few students completely conform to the standard of using metacognitive strategy in the daily study. The mean in the phase before the commencement of writing is 3.429. So it is the phase in which students use metacognitive strategy most actively. When students do and complete the writing, the mean of the two phases is 3.343 and 3.225 respectively. Their levels of using metacognitive strategy go down slightly.

In regression, the level of planning strategy, monitoring strategy and adjustment strategy is the independent variable. The level of writing is the dependent variable. The results indicate the impact of this strategy on the level of writing, as shown in Table 6.

Table 6. Regression

	Planning strategy	Monitoring strategy	Adjustment strategy
B	4.229	5.011	4.816
Std.Error	0.623	0.699	0.702
Beta	0.475.	0.495	0.479
t	6.783	7.169	6.863
Sig.	<.001	<.001	<.001
R Square	0.221	0.241	0.225

According to the Pearson correlation, the level of writing and the level of using planning strategy, monitoring strategy and adjustment strategy have a significant correlation, at 0.01 level. The R Square shows that monitoring strategy has the greatest impact on the level of writing, which can explain 25.4 % reasons of for the change in the level of writing. Planning strategy and adjustment strategy can explain 22.1% and 22.5% reasons for the change in the level of writing respectively. So planning strategy and adjustment strategy have almost the same impact on the level of writing. They have less influence, compared with the monitoring strategy.

4. Discussion

Based on the analysis of the data, the hypothesis is in general agreement with the experiment outcome. Such results can be explained in these ways: Firstly, Zhang asserts that metacognitive strategy is the prerequisite for successful planning, monitoring and evaluating. Metacognitive strategy plays a key role in improving study [10]. In this way, it can be proved that using metacognitive strategy has impact on the level of writing. Secondly, in the examination phase, many factors possibly motivate students to use metacognitive strategy, even unconsciously. So the level of using metacognitive strategy in the examination phase is higher than that in daily study. Thirdly, the level of using planning

strategy is the lowest, as Yuan considered that most students do not need to repeatedly plan and confirm confirmed logic after their full cognition [9].

Moreover, there are some limitations in selecting participants. It has been proved that metacognitive strategy has a positive influence on the level of writing. Therefore, middle-school students with different levels of writing may have different behavior in using metacognitive strategies. However, such research chooses 160 participants at random and the number of students in different levels is limited, especially in A-level and E-level. So it is hard to compare the difference of middle-school students with different writing levels in using metacognitive strategy.

5. Conclusion

The research clarified that the application of metacognitive strategy benefits Chinese writing in middle schools. Metacognitive strategy is used more often in the examination phase than in daily study. Monitoring strategy influences the level of writing most. In view of the results, teachers are supposed to enhance the teaching of metacognitive strategy and make it concrete in writing strategies. In daily study, teachers can develop feedback systems to encourage students to use monitoring strategies and then improve their abilities in using metacognitive strategies. In this way, the level of Chinese writing of middle-school students tends to be promoted effectively.

Overall, according to the data analysis, the research provides accurate and effective methods for teaching Chinese writing in middle schools and prepares a theoretical basis for future research. In the future, research can stratify the participants based on their levels of writing to analyze whether students with different writing levels behave differently in using metacognitive strategies. This research will help teachers design personalized teaching methods for different students.

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