Research on the Influence of Cognitive and Metacognitive Strategies on English Listening Training

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Abstract. Bases on cognitive strategy and metacognitive strategy theory and Strategy-based Instruction (SBI), the study has adopted a descriptive design with quantitative data gathering and analyzing methods to investigate the use of cognitive and metacognitive strategies and to study and illustrate the importance of listening strategies in improving listening and show how effective metacognitive and cognitive strategies-based instruction in improving college English listening. The major contribution of the study is its demonstration of the effectiveness of SBI for college students' English listening proficiency and strategy use.

Introduction

According to second language acquisition (SLA) theory, language input is the basic necessity in language acquisition and listening has taken a great part in the language input. Meanwhile, according to previous scholars' researches, strategies play an important role in the learning process. [1] O' Malley and Chamot (2001) hold the view that cognitive strategies may be restricted to be applied to specific type of task during the learning process such as listening and reading comprehension, but metacognitive strategies can be applied to more kinds of learning tasks. [2] Skehan (1998) and Zheng Ming (2000) stress the importance of metacognitive strategies for example, O' Malley and Chamot (2001:8) indicate that if learners lack of appropriate metacognitive approaches, they will be essentially losing directions or chances to make their learning plans, monitor their progress, or recheck their outcomes and results and further learning directions. [3] Skehan (1998:265) holds the opinion that metacognitive strategies apply in a broader area than cognitive strategies and possibly indeed subsume and surpass them. According to previous scholars' researches, strategies play an important role in the learning process. Therefore, this thesis aims to study and illustrate the importance of listening strategies in improving listening and show how effective metacognitive and cognitive strategies-based instruction in improving college English listening. In addition, this thesis also copes with the study on ways to apply strategies instruction to college students' listening classroom.

Methodolody

Research questions

This study aims to answer the following four research questions:

1. What are the effects of metacognitive and cognitive strategies-based instruction on learners' English listening proficiency?

2. What are the impacts of metacognitive and cognitive strategies-based instruction on learners' strategy employment situation?

Research Subject

The subjects participating in the present study are 80 second-year undergraduate students at Wuhan Textile University. One class of 40 students comprised Experiment Group (EG) which received the combing training of cognitive and metacognitive strategies in listening classroom teaching. Another class of 40 comprised Comparison Group (CG), receiving only cognitive strategies training. As they have been very familiar with the college English and have high desire to pass the CET-4, they have great interest in learning the strategies.

Research Instruments

The instruments employed include a questionnaire and two English proficiency tests: pre-test and post-test. The questionnaire was used for collecting information on learners' listening awareness, listening metacognitive and cognitive strategies use. [4] The questionnaire was given to the two groups at the beginning of the new semester on August 29, 2013 at the same time.

Data Collection

These data were from the process of analyzing the students' scores by computer software SPSS17.0. Paired Sample T-Test was used to make analysis of the intra-group difference and we use descriptive statistics to make the description of the inter-group difference respectively.

Results and Discussion

Research Question 1: The effects of metacognitive and cognitive strategies-based instruction on learners' English listening proficiency.

In order to establish the homogeneity of the two groups of listening, an independent-sample t-test was to examine the difference among the performance of the two groups on the listening proficiency test before the training.

TABLE 1 LISTENING PROFICIENCY PRE-TEST BETWEEN EG AND CG BY INDEPENDENT SAMPLES TEST

	Sig.	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Equal variances assumed	.066	.833	.56667	2.67284
Equal variances not assumed		.833	.56667	2.67284

According to table 1, the first sig. is 0.066(>0.05) that means the statistics is log-normally distributed and can be analyzed by independent sample test. The second Sig. (2-tailed)=0.833 (>0.05) means there is not any significant difference between the two groups and they can be seen as parallel in the listening proficiency.

TABLE 2 MEANS OF PRE-TEST AND POST-TEST OF EG FOR LISTENING PROFICIENCY

Class	N	Mean
Pre-test	30	24.0667
Pro-test	30	36.7000

As it is stated in Table 2 the mean of post-test in EG(36.7000) is about 12 points higher than that of the pre-test (24.0667) which means the combing training of cognitive and metacognitive strategies is very effective in terms of listening proficiency.

TABLE 3 MEANS OF PRE-TEST AND POST-TEST OF CG FOR LISTENING PROFICIENCY

Class	N	Mean
Pre-test	30	23.5000
Pro-test	30	28.6667

Table 3 is about the means of pre-test and post-test of CG for listening proficiency, the mean of post-test is also higher than that of the pre-test which indicates that the training of cognitive strategies is also helpful in improving listeners' listening proficiency.

TABLE 4 COMPARISON BETWEEN EG AND CG' S PRE-TEST AND POST-TEST OF LISTENING PROFICIENCY BY PAIRED-SAMPLES T-TESTS

	Pair	Mean	Sig. (2-tailed)
1	Pre-test-EG - post-test-EG	-12.63333	.000
2	Pre-test-CG - post-test-CG	-5.16667	.047

Table 4 is about the paired-samples T-tests between two pairs, one of which is between the results of pre-test and post-test of EG, the other is between results of pre-test and post-test of CG. The Sig.(2-tailed) of the first pair is .000 (<0.01) that means there is very significant difference between the results of pre-test and post-test of EG. And the Sig.(2-tailed) of the first pair is .047 (<0.05) that means there is significant difference between the results of pre-test and post-test of CG. That is to say, both kinds of training do have effects.

Research Question 2: The impacts of metacognitive and cognitive strategies-based instruction on learners' strategy employment situation.

There are 5 scores: 1, 2, 3, 4, 5. 1 means totally disagree, 2 means almost disagree, 3 means partially agree, 4 means almost agree and 5 means totally agree. The higher the score, the more we can know that the learner has mastered the specific strategy.

TABLE 5 COMPARISON OF EG AND CG'S PRE-TRAINING OF COGNITIVE STRATEGIES BY PAIRED-SAMPLES T-TESTS

	Pair	Mean	Standard deviation	Sig. (2-tailed)
1	Pre-EG-c1 - pre-CG-c1	.50000	1.35824	.053
2	Pre-EG-c2 - pre-CG-c2	-.23333	1.27802	.326
3	Pre-EG-c3 - pre-CG-c3	.63333	1.71169	.052
4	Pre-EG-c4 - pre-CG-c4	.10000	1.60495	.735
5	Pre-EG-c5 - pre-CG-c5	.20000	1.60602	.501
6	Pre-EG-c6 - pre-CG-c6	-.13333	1.35782	.595
7	Pre-EG-c7 - pre-CG-c7	.26667	1.22990	.245
8	pre-EG-c8 - pre-CG-c8	.00000	1.14470	1.000
9	Pre-EG-c9 - pre-CG-c9	.36667	1.06620	.070
10	preEGc10 - preCGc10	.30000	1.23596	.194
11	Pre-EG-c11 - pre-CG-c11	.40000	1.27577	.097
12	Pre-EG-c12 - pre-CG-c12	.10000	1.21343	.655
13	Pre-EG-c13 - pre-CG-c13	.43333	1.16511	.051
14	Pre-EG-c14 - pre-CG-c14	.16667	1.41624	.524
15	Pre-EG-c15 - pre-CG-c15	-.03333	1.42595	.899

According to Table 5, the paired-samples T-tests of comparison of EG's pre-training of cognitive strategies prove that there is no significant difference (all the sig.(2-tailed) > 0.05) existed in cognitive strategies and metacognitive strategies between both groups.

TABLE 6 EG'S PRE- AND POST- TEST FOR COGNITIVE STRATEGIES BY PAIRED-SAMPLES T-TESTS

	Pair	Mean	Standard deviation	Sig. (2-tailed)
1	preEGc1 - postEGc1	-.13333	1.67607	.666
2	preEGc2 - postEGc2	-.50000	1.22474	.033
3	preEGc3 - postEGc3	-.36667	.92786	.039
4	preEGc4 - postEGc4	-.36667	1.21721	.110
5	preEGc5 - postEGc5	-.13333	1.40770	.608
6	preEGc6 - postEGc6	-.76667	1.30472	.003
7	preEGc7 - postEGc7	-.36667	1.15917	.094
8	preEGc8 - postEGc8	-.43333	1.10433	.040
9	preEGc9 - postEGc9	-.23333	1.65432	.446
10	preEGc10 - postEGc10	-.33333	1.12444	.115
11	preEGc11 - postEGc11	.00000	1.14470	1.000
12	preEGc12 - postEGc12	-.53333	1.13664	.016
13	preEGc13 - postEGc13	-.26667	1.33735	.284
14	preEGc14 - postEGc14	-.26667	1.20153	.234
15	preEGc15 - postEGc15	-.23333	1.10433	.257

As it is indicated in Table 6, it is easy to find that all the mean of post-EG about cognitive strategies surpass that of pre-EG because all the mean of preEGc1 - postEGc1 are negative. In the mean time, it is mentioned that only five pairs of items present significant difference ($p<0.05$). The five items are about vocabulary, meaning-seeking, note-taking, visual-image, inferring.

TABLE 7 CG'S PRE- AND POST- TEST FOR COGNITIVE STRATEGIES BY PAIRED-SAMPLES T-TESTS

	Pair	Mean	Standard deviation	Sig. (2-tailed)
1	preCGc1 - postCGc1	-.80000	1.37465	.003
2	preCGc2 - postCGc2	-.50000	1.27982	.041
3	preCGc3 - postCGc3	-.83333	1.34121	.002
4	preCGc4 - postCGc4	-.50000	1.45626	.070
5	preCGc5 - postCGc5	-.23333	1.16511	.282
6	preCGc6 - postCGc6	-.26667	1.08066	.187
7	preCGc7 - postCGc7	-.70000	1.17884	.003
8	preCGc8 - postCGc8	-.26667	1.43679	.318
9	preCGc9 - postCGc9	-.96667	1.32570	.000
10	preCGc10 - postCGc10	-.36667	1.21721	.110
11	preCGc11 - postCGc11	-.40000	1.30252	.103
12	preCGc12 - postCGc12	-.26667	1.08066	.187
13	preCGc13 - postCGc13	-.46667	.97320	.014
14	preCGc14 - postCGc14	-.33333	1.09334	.106
15	preCGc15 - postCGc15	-.06667	1.17248	.758

As it is indicated in Table 7, all the mean of post-CG about cognitive strategies surpass that of pre-CG,which indicates that the cognitive strategies training in both classes have improved learners' cognitive strategies employment situation. And six pairs of items experience significant difference ($p<0.05$) which are vocabulary, meaning-seeking, visual image and grammar. Other items in both T-tests present no significant difference.

	Pair	Mean	Standard deviation	Sig. (2-tailed)
1	Pre-EG-b1 - pre-CG-b1	-.26667	1.43679	.318
2	Pre-EG-b2 - pre-CG-b2	-.43333	1.30472	.079
3	Pre-EG-b3 - pre-CG-b3	-.36667	1.44993	.177
4	Pre-EG-b4 - pre-CG-b4	-.06667	2.09981	.863
5	Pre-EG-b5 - pre-CG-b5	-.43333	1.19434	.056
6	Pre-EG-b6 - pre-CG-b6	-.43333	1.25075	.068
7	Pre-EG-b7 - pre-CG-b7	.10000	1.80707	.764
8	Pre-EG-b8 - pre-CG-b8	-.16667	1.78274	.612
9	Pre-EG-b9 - pre-CG-b9	-.40000	1.24845	.090
10	Pre-EG-b10-pre-CG-b10	-.23333	1.13512	.269
11	Pre-EG-b11-pre-CG-b11	-.40000	1.32873	.110
12	Pre-EG-b12-pre-CG-b12	-.53333	1.61316	.081

As it is mentioned in Table 8, there is no significant difference between CG and EG's metacognitive strategies before the training (Sig. (2-tailed)>0.05).

T<small>ABLE</small> 9 EG'<small>S PRE- AND POST- TEST FOR METACOGNITIVE STRATEGIES BY PAIRED-SAMPLES</small> T-<small>TESTS</small>

Pair	Mean	Standard deviation	Sig. (2-tailed)
preEGb1 - postEGb1	-1.43333	.97143	.000
preEGb2 - postEGb2	-1.30000	1.11880	.000
preEGb3 - postEGb3	-.86667	1.27937	.001
preEGb4 - postEGb4	-.96667	1.37674	.001
preEGb5 - postEGb5	-1.30000	1.02217	.000
preEGb6 - postEGb6	-1.06667	1.20153	.000
preEGb7 - postEGb7	-.56667	1.35655	.030
preEGb8 - postEGb8	-.90000	1.24152	.000
preEGb9 - postEGb9	-1.03333	.85029	.000
preEGb10 - postEGb10	-1.20000	.99655	.000
preEGb11 - postEGb11	-.90000	1.21343	.000
preEGb12 - postEGb12	-.86667	.93710	.000

And from the following Table 9 it is easy to find that all the mean of post-EG about metacognitive strategies surpass that of pre-EG (the mean of Pre-EG - pre-CG are negative). And all the items of post-EG's metacognitive strategies presents significant difference (Sig. (2-tailed)<0.01). These data indicate that the metacognitive strategies training in EG has greatly improved learners' metacognitive strategies employment situation. It is evident that SBI training exerted a significant effect on learners' use of metacognitive strategies in listening learning.

Conclusion

The present study proves that listening strategies training has positive impact on learners' listening proficiency and listening strategies employment situation. Research on cognitive and metacognitve strategies-based instruction in college English learners is a worthy attempt to conduct. Despite the disadvantage of the study, this study provides insights into college students English listening strategies employment and instruction. There is no doubt that more strategies and further researches are needed as a supplement to this study, and especially to pursue the empirical study of strategies-based instruction which is concentrated on improving listening ability.

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