

The Effects of Metacognitive Strategy Training on the Graduates' Listening

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Abstract—Previous research shows that metacognitive strategy training helps to improve Chinese undergraduates' listening in EFL (English as foreign language). The objective of this research is to find whether metacognitive strategy helps to improve Chinese graduate students' listening in EFL. Two groups of graduate students, a controlled group (n: 66) and an experimental group (n: 84), at an institute in China were chosen as participants for the research. The whole metacognitive strategy training lasted for 40 teaching hours, with 45-50 minutes for each teaching hour. The students in the experiment group had metacognitive strategy training for about 20 minutes in every two teaching hours in the first 20 teaching hours and were reminded of using metacognitive strategies in the next 20 teaching hours while the controlled group did not have any metacognitive strategy training. The statistical analysis of scores in listening tests and a metacognitive awareness listening questionnaire before and after the experiment shows that the metacognitive strategy training has enhanced the Chinese graduates' listening performance and it has also helped the middle-level and low-level students of them to improve their metacognitive awareness and metacognitive strategy application.

Keywords-metacognitive strategy training; the graduate students; metacognitive awareness; metacognitive strategy application; listening performance

I. INTRODUCTION

English has become more and more important in China today. Instructors and educators have been aware that English listening plays a very important role in learning EFL (English as foreign language). English listening has been one of the basic courses for graduate students. Jinyan Huang (2005, 2006) found that Chinese students experienced particular challenges in English academic listening although they have obtained high TOEFL scores[1,2]. Graduate students have more chances than undergraduates to listen to lectures in English by foreign scholars and to go abroad by using English as a communicative language. But English listening has been considered as the most difficult skill to master by graduate students. Since 1980s, researchers have pointed out that metacognitive strategies training plays an important role in foreign language learning (Wenden, 1987; O'Malley & Chamot, 1990; Vandergrift, 1997; 2002; 2003; Thompson and Rubin, 1996). Chinese research has proved that

metacognitive strategy training helps to improve Chinese undergraduates' listening (Chen Feng, 2008; Yang Jianding, 2003; Liu Shaoji & Xu Jiadi, 2009). This research aims at finding whether metacognitive strategy training helps to improve Chinese graduates' listening in EFL.

II. REVIEW OF LITERATURE

Since 1976 when Flavell published "metacognition [3]", the term has become one of the most prominent constructs in cognitive and educational psychology. Flavell (1979) defines metacognitive knowledge as "that segment of your (a child's, an adult's) stored world knowledge that has to do with people as cognitive creatures and with their diverse cognitive tasks, goals, actions, and experiences [4]." He describes three categories of these knowledge factors: 1) person variables, 2) task variables, and 3) strategy variables. These are the three categories in which Flavell proposes that individuals have metacognitive knowledge. Flavell believes that "Metacognitive Knowledge can have a number of concrete and important effects on the cognitive enterprises of children and adults [4]." Based on Goh [5], Vandergrift, L., Goh, C., Maareschal, and M.H.Tafaghodari, give examples of the three types of metacognitive knowledge that have been reported by L2 (second language) listeners [6]. Learners with high degrees of metacognitive awareness are better at processing and storing new information, finding the best ways to practice and reinforce what they have learned [6].

Metacognitive strategy refers to the strategy implemented on the regulation or executive control of cognition. Rubin (1990) defines "executive control" as consisting of three processes: the setting of goals, the monitoring of performance or comprehension and of any problems that arise, and the making of decisions as to appropriate subsequent actions [7]. Oxford (1990) states "Metacognitive strategies are steps that learners take to manage or regulate their learning, such as planning and arranging for learning tasks, setting goals and objectives, monitoring the learning process for errors, and evaluating progress [8]." Planning is a "key strategy for second language acquisition [9]." It is essentially a "problem solving activity [10]."

Wenden (1986; 1998) applied the three types of metacognitive knowledge to second language acquisition, assuming that learners' beliefs of how the second language should be learned is as important as what they actually do in

the learning. The studies revealed that learners did hold certain beliefs about language learning and these beliefs did affect their learning methods. Wenden (1987) carried out one of the earliest empirical studies in metacognitive strategies training, in which he reported that his metacognitive strategy training in 1982 for some students from Columbia University turned out to be a failure because most of the participants complained about the ineffectiveness of the training. Carrell, Pharis & Liberto (1989) provided metacognitive strategy training to 26 ESL college students for reading comprehension. They focused on training the students with two reading strategies, which are semantic mapping as well as the experience-text-relationship method. The results indicated that metacognitive strategy training in these two methods enhanced second language reading comprehension effectively. Thompson and Rubin's (1996) research showed that learners' listening comprehension could be significantly improved if they demonstrated a low level of listening comprehension prior to strategy training. Goh (2002b) emphasized the importance of metacognitive strategies by arguing that learners' metacognitive awareness is related to effective learning in all learning contexts.

Research carried out by Chinese researchers confirmed the vital role of metacognitive strategies in listening. Lv Changhong (2001) carried out a one-term strategy-training program on listening comprehension with 20 students as subjects, in which metacognitive strategy training was involved. The result indicated that metacognitive strategy training could enhance listening comprehension and that explicit training can provide students with opportunities to self-evaluate their performance. Yang Jianding (2003) also carried out one-term in-class metacognitive strategy training to first-year English majors. It proved that strategy training helped improve students' listening comprehension and there was a significant difference in the use of metacognitive strategies especially for the low-level group. Su Yuanlian's (2003) metacognitive strategy training proved that both the high-level group and low-level group benefited from the training while the latter benefited much more than the former. Later, the training studies of Chen Jiaxu (2005), He Zujia (2005), Shi Luoxiang (2005), Chen Feng, XiangPeng (2009), Liu Shaoji & Xu Jiadi (2009) have also proved that metacognitive strategy training helped improve Chinese undergraduates' listening comprehension.

III. METHODOLOGY

A. Population and Sample

Two first-year groups who entered graduate study in 2008 in East China Institute of Technology (ECIT) were chosen as an experimental group of 84 students and a controlled group of 66 students for the study. All of the students came from different parts of China. They were from different majors in their graduate studies. Both the experimental group and the controlled group consisted of high-level, middle-level, and low level students in listening comprehension in English.

B. Research Procedures

The whole metacognitive strategy training lasted for 40 teaching hours, with 45-50 minutes for each teaching hour. The students in the experiment group had metacognitive strategy training for about 20 minutes in every two teaching hours in the first 20 teaching hours and were reminded of using metacognitive strategies in the next 20 teaching hours while the controlled group did not have any metacognitive strategy training. The course of Listening Comprehension in English for both the controlled group and the experiment group was taught by the researcher. The teaching material for this course was *Listening and Speaking, Book I and II (First Edition)* published by Foreign Language Teaching and Research Press in 2008. Both of the two books contain 12 units. The course lasted for 20 weeks, with two teaching hours each week. The tests for the graduates listening performance at the beginning and at the end of the experiment are based on the teaching material with total scores of 20. The two tests were of the same difficulty according to the test results of a third group of graduate students. The mean scores of the third group in test 1 and test 2 were 7.53 and 7.56 respectively. The correlation of the test scores of the third group was 0.817 and the correction of the scores of the two tests was of high significance ($P=0.000<0.05$). By Paired Samples Test, there was no significant difference between the scores of Test 1 and Test 2 of the third group ($t=0.119, p=0.906$).

In the first class, the students in both the experiment group and the controlled group took Test 1 and the data processed by SPSS 18.0 showed that their English level were the same (mean=6.456 & 6.621; $t=-0.512, p=0.813>0.05$). In the same class, the students from both groups were given a MALCQ (The Metacognitive Awareness Listening Questionnaire, Table I) to answer. The scores of the MALCQ were termed as MALCQ1. MALCQ1 was used to detect their awareness of their metacognitive knowledge of and metacognitive awareness on listening comprehension at the beginning of the experiment and it was found that their metacognitive knowledge of and metacognitive awareness on listening comprehension were also the same (mean=106.24 & 109.13, $t=-1.313, p=0.246>0.05$).

Later, the graduate students of high-level, middle-level and low-level groups were identified by their test scores in Test 1. The rates of high-level, middle-level and low level students in the experimental group and the controlled group were 17.8%, 56.6% and 25.6% respectively. So the numbers of high-level, middle-level and low-level groups in the experimental group were 15, 48, & 21 respectively and the numbers of high-level, middle-level and low-level groups in the controlled group were 12, 37, & 17 respectively. The groups of high-level, middle-level and low-level were homogenous in terms of their listening performance and their metacognitive knowledge and strategy application at the beginning of the training.

TABLE I. METACOGNITIVE AWARENESS ON LISTENING COMPREHENSION QUESTIONNAIRE

<p>1.I CAN APPRAISE MY OWN ABILITY IN ENGLISH LISTENING COMPREHENSION ACCURATELY.</p> <p>2.I understand my own individual characteristics and know which characteristics are advantageous to my own English study, which characteristics hinder my own progress, thus I can give full play to my advantages and take corresponding measures to overcome my weaknesses.</p> <p>3.I know what I am good at and what I am not good at in listening comprehension.</p> <p>4.I think that what I am good at in listening comprehension will help me understand the information that I missed.</p> <p>5.I use every listening strategy on purpose.</p> <p>6.I have explicit goal in listening comprehension.</p> <p>7.I can focus my attention on listening practice and training.</p> <p>8.I have the best understanding in the subjects that I am interested in or familiar with.</p> <p>9.Before listening, I try my best to figure out the requirements of listening practice.</p> <p>10.Before listening, I ask myself questions about the subjects and forecast the content of the listening material.</p> <p>11.I focus my attention on the important information by staying away from the distraction of the non-important information.</p> <p>12.I choose different listening strategies to complete different listening tasks.</p> <p>13.I use different methods to comprehend different types of articles.</p> <p>14.While listening, I try to understand the meaning of every word and every sentence.</p> <p>15.The non-language information such as pictures, graphs is helpful to my listening comprehension.</p> <p>16.I predict the content of listening materials according to the title and the questions.</p> <p>17.Besides attending listening classes, I have my own plan of listening practice and I listen to different kinds of listening material.</p> <p>18.In order to achieve the best result of study, I distribute my attention reasonably.</p> <p>19.Before listening, I pay attention to effective utilization of listening strategies.</p> <p>20.I knew the goal of utilizing listening strategies.</p> <p>21.While listening, I know what strategies I have used.</p> <p>22.I will stop playing listening materials in order to monitor the degree of my listening comprehension.</p> <p>23.I compare what I have heard with what I had forecasted and questioned.</p> <p>24.Once I miss the content, I will not continue and will listen to the material again.</p> <p>25.I discovered that to memorize information is more effective than to take notes in the listening process.</p> <p>26.I think that to master good strategies is very important to learning English.</p> <p>27.After listening, I appraise the difficulty of the listening material.</p> <p>28.After listening, I ask myself if I have completed the listening task as far as possible.</p> <p>29.While listening, I am good at understanding by connecting the main points with each other.</p> <p>30.I knew when one kind of strategy can be used most effectively.</p> <p>31.I have noticed my progress and insufficiency in listening comprehension.</p> <p>32.If I don't understand, I continue to listen and hope that the puzzles can be solved through context.</p> <p>33.When I can't understand, I don't continue to listen and give up the comprehension of the listening material.</p> <p>34.I can regain my concentration as soon as possible when I cannot catch up with what is said in the listening material.</p>

During the time of the metacognitive Strategy Training, the researcher gave metacognitive instruction to the experiment group in both Chinese and English focusing on the use of metacognitive strategies. The metacognitive strategies centered on the MALCQ (Table I) adopted by Wang Yongli (2003) and Chen Feng (2008) and proved to have high validity of 0.9109 by Chen Feng (2008), which incorporated previous findings of similar studies on related matters (O'Malley, 1990; Oxford, 1990; Carrell, 1989; Vandergrift, 1999). The MALCQ was of high validity with two-tailed Pearson Correlation coefficients above 0.8 ($p < 0.01$) between each statement and the whole questionnaire. The MALCQ contains 35 statements assessed by five-point Likert Scale concerning metacognitive awareness related to listening comprehension.

The MALCO contains both the statements of metacognitive knowledge and metacognitive strategies. In the questionnaire, in orders are eight statements of person knowledge (PK), seven statements of task knowledge (TK), five statements of planning, five of monitoring, six of evaluating and four of revising. The PK includes learners' personality, self-assessments on their listening ability, expectation in listening training, etc. The TK includes their attention and listening strategies allotted according to various tasks, etc. Students responded to each statement on a five-point Likert scale from 1 to 5 (1 = I strongly disagree that this statement is true for me; 2=I disagree that this statement is true for me; 3=I neither agree nor disagree that this statement is true for me; 4=I agree that this statement is true for me; 5 = I strongly agree that this statement is true for me). The respondents read each statement and circled the number that applied to them. It should be mentioned that all the original scores that the students achieved in MALCQ were positive scores except for questionnaire No. 33, "When I can't understand, I don't continue to listen and give up the comprehension of the listening material. This questionnaire was in reversed score because it was considered an inefficient approach to listening comprehension.

The Metacognitive Strategies Training also absorbed Vandergrift's ideas (Vandergrift, 1997; 2003) on metacognitive strategies training. The instructor taught the students the strategies of planning, monitoring and evaluating. Planning strategies includes advanced organization, directed attention, selective attention and self-management. Advanced organization refers to clarifying the objectives of an anticipated listening task and/or proposing strategies for handling it. Directed attention means deciding in advance to attend in general to the listening task and ignore irrelevant distracters, and maintaining attention while listening. Selective attention refers to deciding to attend to specific aspects of language input or situational details that assist in understanding and/or task completion. Self-management means understanding the conditions that help one successfully accomplish listening tasks and arrange for the presence of those conditions.

Monitoring refers to one's on-line awareness of comprehension and task performance. It involves checking, verifying, or correcting one's comprehension or

performance in the course of a learning task. It includes comprehension monitoring, auditory monitoring, and task monitoring. Examples of monitoring strategies are selective attention, self-questioning, personalizing, taking notes, using imagery, and self-talk. During the listening activity, students need to check their understanding of ideas through asking confirmation questions. Then students need to check their identification of what they hear, the internal consistency of their predictions, i.e. the ongoing interpretation of the oral text or interaction, and their completion of the task.

Evaluating refers to appraising the products and efficiency of one's learning. Students need to evaluate and check the outcomes of their listening comprehension against an internal measure of completeness and accuracy. Evaluating strategies encourage reflection on how well a learning task went. Examples of evaluating strategies are verifying predictions, summarizing, checking goals, and evaluating self and strategy use. They may ask themselves or their classmates some questions or ask them to try to finish some tasks attached to the listening material and something like that to evaluate how much and how precise they have understood the material. Next, with the help of metacognitive skills, the students can assess the effectiveness of strategies used. Discussions with their classmates on the approach taken by different students can also stimulate reflection and worthwhile evaluation. Typical examples include diagnosing one's problems and re-evaluating one's goals and outcome.

At the end of the training, Test 2 and the MALCQ were used again to test the improvement of the students in listening performance and their metacognitive knowledge and strategy application. The scores of MALCQ at the end of the training were termed as MALCQ2. The data showed that the students in the experimental group made more improvement in Test 2 (Table II). The high-level, middle-level, low-level students in the experimental group achieved 1.13, 3.20, 2.01 scores higher respectively in mean score of test 2 versus test 1 than the equivalent level groups in the controlled group. The difference in the improvement in Test 2 between the low-level students in the experimental group and the low-level students in the controlled group was of great significance ($t=3.62, p=0.002<0.05$).

The data showed that the middle-level and low-level students in the experimental group enhanced their Metacognitive awareness and Metacognitive strategy application more than the equivalent level groups in the controlled group though the Metacognitive Strategy Training with higher mean scores of 6.82, and 5.94 respectively. The difference in the improvement in Metecognitive awareness between the middle-level students in the experimental group and the middle-level students in the controlled group was of great significance ($t=2.078, p=0.041<0.05$).

TABLE II. GROUP STATISTICS OF THE SCORES OF TI, TI3, TIM OF GROUP 3&4, GROUP 5&6 AND GROUP 7&8

Group	N	Mean	Std. Deviation	Std. Error Mean	
TI3	3	15	5.66	3.582	.961
—	4	12	4.53	2.246	.536
TIM	3	15	10.12	11.665	2.848
—	4	12	9.60	13.176	4.532
TI3	5	48	7.32	3.784	.512
—	6	37	4.12	3.657	.668
TIM	5	48	10.87	14.617	2.331
—	6	37	4.05	13.566	2.546
TI3	7	21	9.63	2.678	.643
—	8	17	7.64	1.654	.564
TIM	7	21	10.60	13.366	3.278
—	8	17	4.66	14.778	3.696

Note: TI 3= the mean score of improvement in test 2 versus test 1, TIM= the mean score of improvement of MALCQ2 versus MALCQ1, group 3= the high-level group in the experimental group (EG), group 5=the middle-level group in EG, group 7=the low-level group in EG, group 4=the high-level group in the controlled group (CG), group 6=the middle-level group in CG, group 8=the low-level group in CG

IV. CONCLUSIONS AND RECOMMENDATIONS

A. The Metacognitive Strategy Training has enhanced Chinese graduate students' listening test performance in EFL. All the three groups, the high-level group, middle-level group and low-level group, in the experimental group achieve higher in the improvement of test performance than the equivalent level groups in the controlled group. There is a significant difference in the improvement in listening comprehension test performance for the low-level group.

B. The Metacognitive Strategy Training has improved the middle-level and low-level students of the graduate students' metacognitive awareness and strategy application in listening comprehension in EFL. There is a significant difference in the use of metacognitive strategies especially for the low-level group.

C. Researchers who are interested in studying the effects of the metacognitive strategy training may let the whole training process last shorter to see its effects on students' listening performance. From the observation of the researcher of the paper, the students may feel bored in listening to the lectures of metacognitive knowledge and strategy application if there are too many times of lectures.

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