A STUDY OF METACOGNITIVE STRATEGIES UTILIZED IN READING AND LISTENING COMPREHENSION: AN INVESTIGATION OF NURSING JUNIOR COLLEGE ENGLISH LEARNERS

Ling-Yao Ko[i]
English Instructor,
Chang Gung University
of Science and Technology,
Republic of China (Taiwan)
Ph.D. TESOL Program,
Department of English,
Tamkang University,
Republic of China (Taiwan)

Abstract:

The purpose of this study was to analyze English-learners' metacognition when engaged in reading and listening tasks, to determine if there was a correlation between their reading metacognition and listening metacognition, and to determine if metacognition levels differed between students of basic, intermediate, and advanced English levels. One class of 50 nursing students in a 5-year nursing program was assigned to participate in this study for one semester. The learners were divided into three groups (high, intermediate, and low) based on their score on an English listening test. At the beginning of the semester, they listened to a lesson called "Dangerous Dining." Five months later, the students were presented with the same lesson, though this time in written form rather than spoken form, and their reading comprehension was tested using the same questions. Then the learners were asked to fill out two online questionnaires: a 21-question questionnaire about their reading strategies, and a 30-question questionnaire about their listening strategies. The surveys were designed to gauge the participants' metacognitive awareness. The results showed that there was a positive and strong significant correlation between the learners' listening metacognitive strategy and reading metacognitive strategy, r=0. 775, p<0.01. With regard to the first factor (Global Reading Strategies) for high-level learners there was a positive and strong significant correlation between listening and reading strategies, r=1, p<0.01, but there was no significant correlation between the second factor (Problem-Solving Strategies) and the third factor (Support reading Strategies). As to the first factor (Global Reading Strategies) and the third factor (Support Reading Strategies) for intermediate-level

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[i] Correspondence: email gwen@mail.cgust.edu.tw

learners, there was no significant correlation between listening and reading strategies, but there was a significant correlation to the second factor (Problem-Solving Strategies), r=0. 656, p<0.05. As regards the first factor (Global Reading Strategies), the second factor (Problem-Solving Strategies) and the third factor (Support Reading Strategies) for low-level learners, there was a significant correlation between listening and reading strategies, r=0. 73, p<0.01, r=0. 67, p<0.01, r=0. 44, p>0.01, respectively. The results revealed that there was a positive significant correlation between reading comprehension and listening comprehension for low-level learners. The intermediate and advanced language learners reported applying fewer listening metacognitive strategies to reading metacognitive strategies than the low-level language learners because they had internalized the listening/reading metacognitive strategies to experience them automatically and didn't report the automated process. They thus used fewer metacognitive strategies.

Keywords: metacognitive awareness, listening comprehension, reading comprehension, questionnaire of listening metacognitive strategy, questionnaire of reading metacognitive strategy

1. Introduction

Many students who attend the university in which I teach seem to have difficulty with reading and listening comprehension. While engaged in listening activities, they get stuck when they hear words they don't understand, when the speaking speed is too fast for them, or when a speaker is speaking with an accent, with which they are not familiar. When engaged in reading activities, students often get stuck when they encounter words they haven't learned before, when the grammar structures are too complicated for them to figure out, or when the lessons are too long for them to get the main idea. Generally speaking, however, in my experience as a teacher, they can make better use of listening strategies than reading strategies; they are usually able to catch the main idea of a listening task within five minutes, but they usually spend more than one and a half hours to figure out the main idea of a reading lesson. While listening, they can usually guess the meaning from the context, and they know how to ignore the parts they don't understand. The learners can focus on the main idea in listening class and they know how to use limited words to achieve their listening comprehension. However, in reading class, they depend on the instructor to analyze most sentences to help them achieve reading comprehension. It appears that they know how to apply practical strategies to listening, but they usually fail to apply such strategies to reading. That is why I want to make a survey on this study to find out how students' consciousness of the reading and listening strategies is applied to their English-language learning. Such consciousness is often referred to as metacognition, which can be thought of as a learner's awareness of the strategies and mechanisms he or she employs when performing a task such as listening or reading. According to Paris and Winograd (1990), metacognitive awareness in their research subjects played the role to

"provide students with knowledge and confidence that enabled them to manage their own learning and empowered them to be inquisitive and zealous in their pursuits" (p. 22).

Paris and Winograd (1990) maintained that metacognition could promote academic learning and motivation. The idea was that *"students could enhance their learning by becoming aware of their own thinking as they read, wrote, and solved problems at school. They further argued that such "consciousness-raising" had two benefits: (a) it transferred responsibility for monitoring learning from teachers to students themselves, and (b) it promoted positive self-perceptions, affect, and motivation among students. In this manner, metacognition provided personal insights into one's own thinking and fostered independent learning"* (p. 15).

Flavell (1979) described the process of cognitive monitoring as occurring through the actions and interactions of four classes of interrelated phenomena: metacognitive knowledge, metacognitive experiences, goals (or tasks), and actions (or strategies). Other researchers (Wade, Trathen, & Schraw, 1990) used examples of students' reflections about their thinking while reading to illustrate what they did when they read. Readers' reflections showed how they planned, monitored, evaluated, and used the information available to them as they made sense of what they read. According to the research of Paris and Jacobs (1984), skilled readers often engaged in deliberate activities which required painful thinking, flexible strategies, and periodic self-monitoring, while poor readers didn't recruit or use these skills. Skilled readers thought about the topic, looked forward and backward in the passage, and checked their own understanding as they read, while the poor readers often seemed oblivious to these strategies and the need to use them. For Snow, Burns, and Griffin (1998), skilled readers were good comprehenders and they used general world knowledge to comprehend text literally, to draw valid inferences from texts, to monitor their comprehension, and to repair strategies all the time. Presley and Afflerbach (2012) pointed out that skilled readers approached the reading task with some general tendencies: they tended to be aware of what they were reading, they seemed to know why they were reading, and they had a set of tentative plans or strategies for handling potential problems and for monitoring their comprehension of textual information. They knew when, how, and why to use strategies effectively and recognized appropriate contexts for using effective strategies.

Unskilled readers, on the other hand, were quite limited in their metacognitive knowledge about reading (Paris & Winograd, 1990). They did relatively little monitoring of their own memory, comprehension, and other cognitive tasks (Markman, 1979) and tended to focus on reading as a decoding process rather than as a meaning-getting process (Baker & Brown, 1984). Guthrie et al (1999) concurred that *"constructing meaning during reading was a motivational act"* (p. 241). A person was unlikely to comprehend a text by accident. If the person was not aware of the text, not attending to it, not choosing to make meaning from it, or not giving cognitive effort to knowledge construction, little comprehension would occur.

2. Literature Review

Several studies were found to be of relevance to the present study. In the area of how metacognition impacted reading comprehension, Haller, Child, and Walberg (1988) assessed the effect of "metacognitive" instruction on reading comprehension in 20 studies, with a total student population of 1,533, finding that metacognitive instruction was particularly effective for junior high students (seventh and eighth graders). Among the metacognitive skills, awareness of textual inconsistency and the use of self-questioning as both a monitoring and regulating strategy were most effective (Haller, Child, &Walberg, 1988) Baker (1989) provided an overview and synthesis of the literature on metacognition and comprehension monitoring among adult readers. Her research revealed that adults' conceptions of how they comprehended and how they monitored their comprehension were quite variable. In general, those who had more expertise were better readers, and those who were more successful students seemed to have greater awareness and control of their own cognitive activities while reading. Kramarski & Feldman (2000) examined the contribution of an internet environment embedded with metacognitive instruction on students' reading comprehension, motivation, and metacognitive awareness. Results indicated that although the internet environment contributed significantly to the motivation of the students towards the study of English as a foreign language, no real contribution was found regarding actual improvement of English reading comprehension and metacognitive awareness. In the area of how metacognition impacted listening comprehension, Vandergrift (2006) studied beginning-level students, asking them to complete comprehension tasks and reflective exercises by using instruments that engaged the students in prediction, evaluation, and other processes involved in listening. Results of this qualitative study suggested that the use of these instruments helped sensitize students to the processes underlying foreign-language listening comprehension and tapped their metacognitive knowledge. Goh (1997) engaged in a diary study designed to reveal the beliefs and knowledge that second-language learners had about their listening. The instructor asked learners to describe the way they listened, and asked them to keep a diary in which they recorded their observations, reactions, and perceptions, thereby increasing the learners' metacognitive awareness.

This study was designed to examine how reading/listening metacognitive strategies affected learners' listening and reading comprehension. Would high achievers make use of more strategies than intermediate and low achievers would? The research would also examine the relationships between reading comprehension and listening comprehension to see whether an English learner with good reading comprehension would also have good listening comprehension. Specifically, the research was designed to answer the following questions:

1) What was the relationship between reading comprehension and listening comprehension? Did good listening comprehension guarantee good reading comprehension?

2) What roles did reading/listening metacognitive strategies play in the levels of high, intermediate, and low learners?

3. Material and Methods

3.1 Subjects

One class of 50 nursing students in a 5-year nursing program was assigned to participate in this study. They were in their fourth year of study and had been studying English in school for more than ten years. The learners were divided into three groups (high, intermediate, and low) based on the score of an English listening test. The participants who got 13 to 15 of the test questions correct were placed in the high level, those who got 9 to 12 of the questions correct were placed in the intermediate level, and those who got 0 to 8 questions correct were placed in the low level.

3.2 Instruments

Five instruments were used in this study: one listening test, one reading test, one listening-strategy questionnaire about metacognitive awareness (see Appendix I), one reading-strategy questionnaire about metacognitive awareness (see Appendix II) , and the application of SPSS to analyze the correlation among participants' listening scores, reading scores, reading strategy metacognitive awareness, and listening strategy metacognitive awareness. The rubric we used for metacognitive reading strategies was MARSI (Metacognitive Awareness of Reading Strategies Inventory) designed by Mokhtari and Reichard (2002). The rubric for metacognition listening strategies was designed by Vandergrift et al (2006). The rubric for metacognition listening strategies was based on MARSI but altered to apply to listening, rather than reading. The scores of the listening and reading tests were computed by a computer. The data collected underwent correlation analysis through the use of SPSS.

3.3 MARSI (Metacognitive Awareness of Reading Strategies Inventory)

The metacognitive listening/reading strategies were divided into three factors. The first factor, Global Listening/Reading Strategies, represented a set of reading strategies oriented toward a global analysis of text. The second factor, Problem-Solving Strategies, was oriented around strategies for solving problems when text became difficult to read. The third factor, Support Reading Strategies, primarily involved use of outside reference materials, taking notes, and other practical strategies which were considered as functional or support strategies. The three types of strategies interacted with each other and had an important influence on text comprehension (Mokhtari &Reichard, 2002). Internal consistency of listening/reading strategies was evaluated by using Cronbach's alpha. The values of Cronbach's alpha for each scale ranged from .59 to .88 as shown in Table 1, which was considered adequate (Wu, 2009).

Table 1: Reliability Coefficients of Listening Strategies and Reading Strategies

		Listening Strategies (α = .84)	
Sub-scales	GLOB	PROB	SUP
α	.61	.59	.72
		Reading Strategies (α = .94)	
Sub-scales	GLOB	PROB	SUP
α	.88	.87	.81

Note: GLOB = Global Reading Strategies; PROB = Problem-Solving Strategies; SUP = Support Reading Strategies

3.4 Procedure

In the beginning of the semester, a class was assigned to participate in this study. They first listened to a lesson called "Dangerous Dining." In order to determine learners' listening comprehension, the lesson and the attached questions designed by the researcher were recorded in an MP3 format and were not shown in written form to the participants. Five months later, the same lesson and questions were used again in written form to test their reading comprehension. Thus, the learners were tested on the same materials twice: the first time through listening, and the second time through reading. There were 15 attached questions for learners to answer after they had finished their listening or reading test: 10 comprehension questions, 4 inference questions, and one question about the main idea of the lesson. Then the learners were asked to fill out two online questionnaires about their reading and listening strategies for metacognitive awareness (See appendices I and II).

4. Results

4.1 Research Question 1: What was the relationship between reading comprehension and listening comprehension?

The study investigated the relationship between reading comprehension and listening comprehension, and the results showed that there was a positive and strong significant relation between listening strategy and reading strategy, r=0.775, p<0.01. This indicated that if one used listening strategies effectively, one most likely also employed effective reading strategies because one knew how to transfer listening and reading strategies or adapted one strategy to the other. This seemed to be in agreement with Chen's study (2007), in which it was found that strategy training created more opportunities for learners to practice the target strategies, and some learners reported that after practicing the listening strategies, they became more focused and more purposeful in their foreign-language listening. Some learners transferred the strategies they learned from listening tasks to other language tasks such as reading or speaking.

As for the first factor (Global Reading Strategies), there was a positive and strong significant relation between listening strategy and reading strategy, r=0.734, p<0.01, which indicated that if one was good at setting a purpose for listening, one was most likely good at setting a purpose for reading as well. As to the second factor (Problem-Solving Strategies), there was a positive and strong significant relation between

listening strategy and reading strategy, r=0.688, p<0.01, meaning that if one knew how to solve listening problems when the listening material became difficult to understand, one most likely knew how to solve reading problems when reading text became hard to understand. As to the third factor (Support Reading Strategies), there was a positive and significant relation between listening strategy and reading strategy, r=0.368, p<0.05. This indicated that if one was good at using strategies such as referring to outside reference materials, taking notes, underlining or circling information, and so on while listening, one most likely was skilled in utilizing those strategies while reading.

4.2 Research Question 2: What roles did reading/listening metacognitive strategies play for learners of different levels (low, intermediate, and high)?

Regarding the first factor, Global Reading Strategies, for high-level learners, there was a positive and strong significant correlation between listening and reading strategies, r=1, p<0.01, but there was no significant correlation between listening and reading with the second factor, Problem-Solving Strategies or with the third factor, Support Reading Strategies. As to the first factor (Global Reading Strategies) and the third factor (Support reading Strategies) for intermediate-level learners, there was no significant correlation between listening and reading strategies but there was a significant correlation for the second factor (Problem-Solving Strategies), r=0.656, p<0.05. As regards the first factor (Global Reading Strategies), the second factor (Problem-Solving Strategies), and the third factor (Support Reading Strategies) for low-level learners, there was a strong significant relation between listening and reading strategies, r=0.73, p<0.01, r=0.67, p<0.01, r=0.44, p>0.01, respectively.

From the above analysis, it seemed that low-level learners were good at applying listening metacognitive strategies to reading metacognitive strategies than those of high-level and intermediate-level learners because there was always a strong significant relation between listening and reading strategies. This seemed to contradict previous research, which had shown that good strategy use and the English proficiency of ESL students usually showed a positive linear relationship between the two factors (Bremner, 1999). Nevertheless, the current study found that low learners reported applying more listening metacognitive strategies to reading metacognitive strategies than intermediate and advanced language learners did.

5. Discussion

In order to shed light on this unexpected finding, we turned to the literature on how strategic learning abilities developed from novice learner to expert. Paris, Lipson, & Wixson (1983) identified three kinds of knowledge acquired as learners' progress from novice to expert: declarative knowledge, procedural knowledge, and conditional knowledge. Declarative knowledge was a knowledge about learning tasks (i.e., I knew that speaking English and writing English required different types of grammar) and personal abilities (i.e., I was good at speaking English). Procedural knowledge was knowledge about how to learn, such as knowing how to scan text for answers to

objective questions, knowing how to make inferences from text, and knowing how to summarize. Conditional knowledge was knowledge that allowed the learner to orchestrate his or her learning by choosing the correct strategy for the correct task.

Using the above three types of strategic knowledge to view the findings regarding proficiency and metacognitive strategy might shed light on this finding. Low-level learners might possess little declarative knowledge regarding their second language learning, let alone procedural or conditional knowledge (Phillips, 1991). However, intermediate level learners might have reached a point in their learning where they had gained enough vocabulary and competence with the language they were studying, as well as some procedural knowledge, to be able to step back and reflect on how effectively their learning process was working. Such reflection was a primary characteristic of learners who were able to move from novice to expert because they were conscious of how they were learning. For advanced learners, the weak correlation between listening and reading with the second factor and third factor indicated that once language learners reached a high level of language proficiency, their need to consciously consider their learning strategies became less necessary; therefore, their learning process became more intrinsic and so well established that the learners needed to be conscious of their process only if they were confronted with a very difficult task. Bereiter (1995) described this internalization as resulting from "*the deepest and most thorough understanding*" (p.23), whereby the process became "*so incorporated into the way we perceive the world and comprehend communication…[we] should not have to remember to transfer the learning, but experience it 'automatically'*" (p.24).

In a brief, due to the insufficiency of declarative, procedural, and conditional knowledge regarding their second language learning, the low-level learners needed more metacognitive strategies to help them comprehend spoken words or written text. Conversely, intermediate and advanced learners were competent enough to learn effectively without consciously thinking about their learning processes, so their learning processes became intrinsic. The listening/reading metacognitive strategies had become internalized and automatically utilized, so the learners didn't report their automated processes. Thus, the intermediate and advanced learners felt that they applied fewer listening/reading metacognitive strategies than the low-level language learners did.

6. Conclusion

Based on Green & Oxford (1995), language learning strategies enable students to gain a large amount of responsibility for their own progress, and there is considerable evidence that effective strategy use can be taught. Learner training has to involve teaching better strategy use (O'malley et al, 1990) and the best learner training should include an explicit and clear focus on specific strategies, has frequent practice opportunities for strategies, and shows students how to transfer strategies to new situations (Oxford & Cohen, 1992). We certainly believe, by practicing strategies, leaners will somewhat become more competent in using strategies whenever they need them.

About the Author

Ling-Yao Ko is currently a full-time English instructor in Chang Gung University of Science and Technology. The subjects she taught include English Reading, English Listening, Daily English Conversation, Video Instruction, and TOEIC. Her research interests are in the fields of ESP (English for Specific Purposes), CALL (Computer Assisted Language Teaching), Corpus and Bilingual Education.

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Appendix I: Listening Metacognitive Strategies

When reading the English textbook, I …

GLOB (Global Reading Strategies)

1. Before I start to listen, I have a plan in my head for how I am going to listen.
2. I find that listening in English is more difficult than reading, speaking, or writing in English.
3. I use my experience and knowledge to help me understand.
4. Before listening, I think of similar materials that I may have listened to.
5. I have a goal in mind as I listen.
6. I feel that listening comprehension in English is a challenge for me.
7. As I listen, I quickly adjust my interpretation if I realize that it is not correct.
8. After listening, I think back to how I listened, and about what I might do differently next time.
9. When I guess the meaning of a word, I think back to everything else that I have heard to see if my guess makes sense.
10. As I listen, I periodically ask myself if I am satisfied with my level of comprehension.
11. I don't feel nervous when I listen to English.
12. PROB (Problem-Solving Strategies)
13. When my mind wanders, I recover my concentration right away.
14. I try to get back on track when I lose concentration.
15. When I have difficulty understanding what I hear, I give up and stop listening.
16. As I listen, I compare what I understand with what I know about the topic.
17. I focus harder on what I'm listening to when I have to understand it.
18. I use the words I understand to guess the meaning of words I don't understand.
19. SUP (Support Reading Strategies)
20. I translate in my head as I listen.
21. I translate key words as I listen.
22. I use the general idea of the text to help me guess the meaning of the words that I don't understand.
23. I translate word by word as I listen.

Note: 1 means "I totally disagree." / 2 means "I disagree." / 3 means "I somewhat agree." / 4 means "I agree." / 5 means "I totally agree."
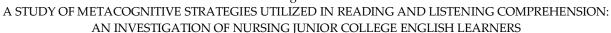
Appendix II: Reading Metacognitive Strategies

When reading the English textbook, I….

GLOB (Global Reading Strategies)

1. I have a purpose in mind when I read.
2. I think about what I know to help me understand what I'm reading.
3. I preview the text to see what it's about before reading it.
4. I think about whether the content of the text fits my purpose.
5. I skim the text first by noting characteristics like length and organization.
6. I decide what to read closely and what to ignore.
7. I use tables, figures, and pictures in text to increase my understanding.
8. I use context clues to help me better understand what I'm reading.
9. I use typographical aids like boldface type and italics to identify key information.
10. I critically analyze and evaluate the information presented in the text.
11. I check my understanding when I come across conflicting information.
12. I check to see if my guesses about the text are right or wrong.
13. PROB (Problem-Solving Strategies)
14. I write summaries to reflect on key ideas in the text.
15. I read slowly but carefully to be sure I understand what I'm reading.
16. I try to get back on track when I lose concentration.
17. I adjust my reading speed according to what I'm reading
18. When text becomes difficult, I begin to pay closer attention to what I'm reading.
19. I stop from time to time to think about what I'm reading.
20. I try to picture or visualize information to help me remember what I'm reading.
21. I try to guess what the text is about when reading.
22. When the text becomes difficult, I reread to increase my understanding.
23. I try to guess the meaning of unknown words or phrases.
24. SUP (Support Reading Strategies)
25. I take notes while reading to help me understand what I'm reading.
26. When text becomes difficult, I read aloud to help me understand what I'm reading.
27. I discuss my reading with others to check my understanding.
28. I underline or circle information in the text to help me remember it.
29. I use reference materials such as dictionaries to help me understand what I'm reading.
30. I paraphrase (restate ideas in my own words) to better understand what I'm reading.
31. I go back and forth in the text to find relationships among ideas in it.
32. I ask myself questions I like to have answered in the text.

Note: 1 means "I totally disagree." / 2 means "I disagree." / 3 means "I somewhat agree." /
4 means "I agree." / 5 means "I totally agree."