THE EFFECTS OF COGNITIVE AND METACOGNITIVE LISTENING STRATEGIES ON STUDENTS' ENGLISH LISTENING COMPREHENSION IN A MERCHANT MARINE POLYTECHNIC

Dyah Ratnaningsih [2]

Abstract.
This study aims to investigate whether the English listening strategies had the effect to English listening comprehension and also to see whether or not the application of the metacognitive listening strategies would produce higher English listening comprehension compared to the using of the cognitive listening strategies. In order to study this relationship, 60 (sixty) students of Deck Department in Politeknik Pelayaran Surabaya (Surabaya Merchant Marine Polytechnic) were choosen randomly and surveyed with thirty two structured questionnaires and a TOEIC listening test. The questionnaire was about a Listening strategy use developed by Lee (1997) and modified by Ho (2006) and also based on Vandergrift's (1997, 2003) cognitive and metacognitive listening strategy classification. Statistical analysis of Linear Regression analysis, One-way Annova, Multiple regression analysis of Tukey HSD and Homogeneous subset test were used to know whether metacognitive listening strategies would give higher listening comprehension than cognitive listening strategies and also to see that metacognitive listening strategy would give more influence in listening comprehension that the cognitive listening strategies. The result indicated that the students who work with metacognitive listening strategies did not achieve better English listening comprehension than those who work with cognitive listening strategies and there was no effect in using the metacognitive and cognitive listening strategies in English listening comprehension.

Key Terms: listening comprehension, listening strategies, cognitive strategies, metacognitive strategies, upper-level group, lower-level group.

Introduction

Learning English as a foreign language has become an essential part of our lives since it is the international language which is used by many people in the world. To learn this language, the students need to have the four basic skills, they are speaking, listening, reading and writing. But, in the past L2 researchers considered listening is an ability that could be developed without assistance, and a deep investigation into

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[2] Dyah Ratnaningsih *adalah* Dosen Program Studi Bahasa Inggris di Politeknik Pelayaran Surabaya.

the history of language learning reveals this lack of attention to the skill of listening (Chiang & Dunkel, 1992; Morley, 1984; Moyer, 2006; Mendelssohn, 1998; Schmidt-Rinehart, 1994).

However, many other researchers conclude that listening is the most important skill for language learning because it is the most widely used language skill in normal daily life (Morley, 2001; Rost, 2001), and it develops faster than the three other language skills, which in turn suggests that it can facilitate the emergence of the other language skills (Oxford, 1990).

Listening is a mentally complicated cognitive process including receptive, constructive and interpretive aspects of cognition, which allows a person to understand spoken language (Rost, 2005). This process includes a mental activity on the part of the listener, especially on the part of a second or foreign language (SL/FL) listener. Thus, a focus on the cognitive listening process is urgently required. Process-based approach shows more emphasis on what happens during learner's listening process. It observes the difficulties or breakdowns learners encounter in the process, analyzes the difficulties and finally provides learners with effective solutions. In this way, learners can solve their listening problems without being left alone to do nothing but listen harder.

Meanwhile in metacognitive, Flavell (1987) proposes a taxonomic categorization of the components: metacognitive knowledge and metacognitive experience. Jausovec (2008) remarks there are two components: metacognitive knowledge and metacognitive control. Metacognitive knowledge is that part of one's knowledge that refers to cognitive matters (Flavell, 1987; Jausovec, 2008), namely one's knowledge about how one's cognition operates, which consists of knowledge of three variables: person, task and strategy. Metacognitive control "pertains to how one controls one's cognitive operations" (Jausovec, 2008, p. 46). Metacognitive knowledge and control do not operate independently but are mutually influenced. As has been mentioned, metacognitive strategy, one of the three variables of metacognitive knowledge, refers to knowledge about cognitive strategies use and cognitive procedures in pursuing a certain goal. It involves "planning learning, monitoring the process of learning, and evaluating how successful a particular strategy is" (Tohidian, 2009, p. 63). With regard to SL/FL acquisition, it pertains to the notion that L2 learners are able to think consciously about how they learn and how successfully they are learning.

Then about listening comprehension, the term "listening comprehension" used in the field of language pedagogy is matched in communicative and psycholinguistic research by such expressions as "speech recognition", "speech perception", "speech understanding" and "spoken language understanding". Chastain (1971) defines listening comprehension as the ability to understand native speech at normal speed in unstructured situations.

Meanwhile, Surabaya Merchant Marine Polytechnic is a maritime academy where the students are trained to be professional seafarers because they are prepared to work in the international range. So, they are expected to be able to communicate in the English language. When they are sailing, their vessels will be isolated from the land, and it is often difficult to know what is happening only a short distance away, the things they can do is communicating using several devices in English as the international language.

Seafarers need practice in listening to many different types of communication, including formal and informal 'face-to-face' conversations, conversations including more than two people, VHF radio communications, telephone conversations, presentations, travel announcements, and radio reports (IMO model Course 3.17: 100). That is the reason why they need to have the listening   d to achieve this they must apply the appropriate listening strat   ng their study in this academy.

Therefore, to acquire this skill they need to know and use some listening strategies such as cognitive and metacognitive listening strategies. This is based on Goh (2002) research which reveals that more proficient listeners use both cognitive and metacognitive listening strategies to achieve a meaningful interpretation of a text, and demonstrate the ability to use prior knowledge, linguistic cues, and contextual information while less proficient listeners are often distracted by unfamiliar lexis or expressions, and has a limited range of strategies.

In measuring their listening ability, TOEIC is used in this academy. TOEIC is the Test of English for International Communication which is designed to test the ability to understand English as it is used in international business and other professional situations (Rymniak, 1997). The TOEIC covers two main areas: the ability to understand real-life conversations in English, and the ability to read materials in English, such as manuals, reports, advertisements, periodicals.

Statement of the Problems

This study attempts to answer these following questions:
1. Do the students who work with metacognitive listening strategies achieve better English listening comprehension than those who work with cognitive listening strategies?
2. Do metacognitive listening strategies give different effects on the English listening comprehension of students in upper-level and lower-level group compared with cognitive listening strategies?

Theoretical Framework

Related to the listening comprehension in important examinatios such as university entrance test, school exams, and other standardized examinations such as TOEFL and TOEIC, Richards (2005) point out that

listening ability has become an important acknowledgment of second language proficiency in comparison with speaking, reading, and writing.

Goh (1998) describes two kinds of listening strategies in her research results. They are cognitive and metacognitive. She states that "cognitive strategies are inference, elaboration and prediction, which are included in top down processing, contextualization, fixation and finally reconstruction". She also reports that when inferencing, listeners fill in missing information, such as the meaning of unfamiliar words and parts of a text that they cannot hear clearly. While classification, it is as the process by which listeners embellish an interpretation with details to make it more meaningful to them. Prediction enables listeners to anticipate the next part of a text, such as a word, a phrase or an idea. The last strategy in Goh's (1998) classification is contextualization, that is, the attempt to relate new information to a wider context or situation in order to produce an acceptable general interpretation.

Method

Population and Samples

The population of the study was Diploma III students of the Deck Department in the Indonesian EFL Context. It was assumed that the characteristics of these students (the age, prior education, and the target language mastery) and the condition of the department would be more or less similar with the Marine Polytechnics throughout the country.

The population were 120 (one hundred twenty) students in the third semester who were considered having the Intermediate level of English. The subjects were 60 (sixty) third-semester students in the deck department who were chosen randomly. The ages of the subjects in each group range from 18 to 25 years and came from different cities in Indonesia and had graduated from high schools.

Before they went for sailing project, they had to pass TOEIC (Test of English for International Communication) and had to attain a minimum score of 400 which showed intermediate level of proficiency. They had been taught Maritime English subject which was also integrated by the other English language communication skills such as reading, writing, listening, speaking and grammar.

In Maritime English lesson, in one semester they had seventeen meetings and each meeting had 135 minutes long. The listening lesson had about 5 meetings or 675 minutes.

Instruments

The first instrument was the listening section of TOEIC. It consisted of 100 questions divided into 4 parts. Part I consisted of 20-item pictures for the topic of listening, part II consisted of 30 items about question and response, part III consisted of 30 items about short

conversation, and part IV consisted of 20 items about short talks. The duration was 45 minutes with the total score range from 5 to 495.

The second is the Listening Strategy Use Questionnaire developed by Lee (1997) and modified by Ho (2006) based on Vandergrift's (1997, 2003) cognitive and metacognitve listening strategy classification and O'Malley and Chamot's (1990) language learning strategy to more represent the participants' activities in employing the cognitive and metaacognitive listening strategies. The scale consisted of 32 items divided into 2 categories of metacognitive and cognitive listening strategies.

Data Analysis and Technique

Since the cognitive and metacognitive listening strategies of each group were calculated, the two groups were expanded into four. They were the cognitive listening strategies of upper-level group (Group 1), the metacognitive listening strategies of upper-level group (Group 2), the cognitive listening strategies of lower-level group (Group 3), and the metacognitive listening strategies of lower-level group (Group 4). The differences of their listening strategies and the listening test score were calculated using one-way ANOVA because it can be used to analyze the expected data. This analysis was used to test the significance of the means difference among the groups. Furthermore, the Tukey HSD .050 procedure at the significance level for .050 was employed to determine which of the listening strategies was the most effective in each group.

Then, the questionnaire data was run through a factor analysis to reduce the collected thirty-two variable data into two main factors. They were cognitive and metacognitve listening strategies based on the responses to the Likert-Scaled items. After that, the test scores and questionnaire data were run through a regression analysis to see how much of the listening comprehension variance was accounted by the questionnaire factors.

Result

The result of analysis of variance (ANOVA) in table 4.1 indicated that students' cognitive and metacognitive listening strategies did not give different effect on students' listening comprehension ($F = 0.229$, $p < 0.876$). The students who used metacognitive listening strategies ($M = 3.265$) and those who used cognitive listening strategies ($M = 3.235$) showed that there were no significant effect to their listening comprehension.

Mean Difference for the Effects of Metacognitive and Cognitive Listening Strategies

| Group	N	M	SD	F	P
Metacognitive	60	3.265	0.546512	0.229	0.876
Cognitive	60	3.235	0.557425		

So, those findings answered the first research question that the students work with metacognitive listening strategies did not achieve better English listening comprehension than those who work with cognitive listening strategies.

Effects of Cognitive and Metacognitive Listening Strategies on English Listening Comprehension in Upper-level group and lower-level group

The cognitive listening strategies in the Upper-level Group

The upper-level group that used the cognitive listening strategies consists of 41 students of the total of 60 students.

The histogram below showed the distribution of value in upper-level group which used the cognitive listening strategies:
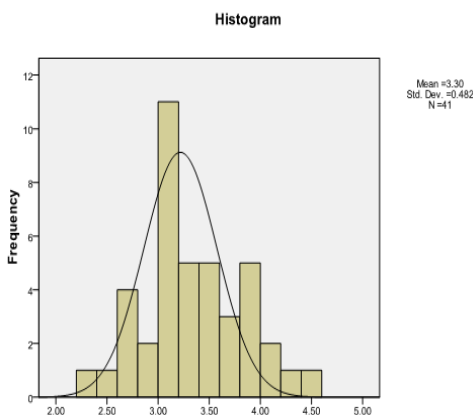
Histogram
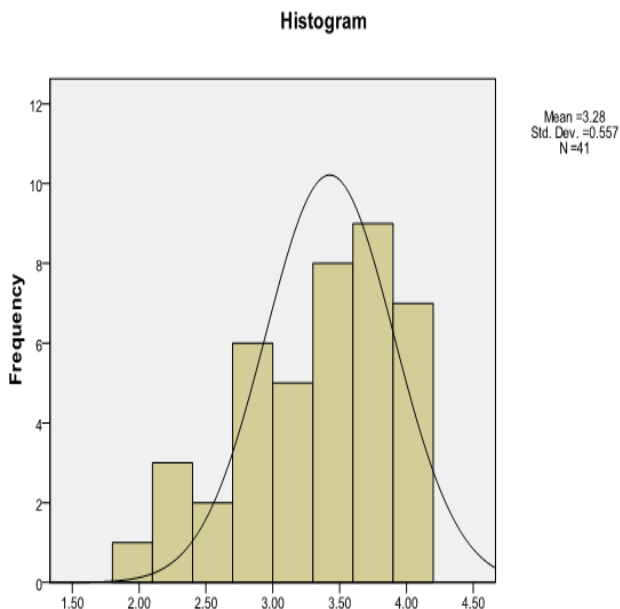
The cognitive listening strategies of upper-level group

Based on the that data, there was a distribution of some frequencies called the greatest frequency or mode were in the value of 3.64 and 3.95 which appeared 4 times and brought to the total peak of the curve 8 times. The diagram showed that it was a normal distribution because the distribution of the data followed the curve.

The Metacognitive listening strategies in the Upper-level Group

In the upper-level group, 41 students of the total 60 students used metacognitive listening strategies.

The histogram below showed the distribution of value in upper-level group which used the metacognitive listening strategies:
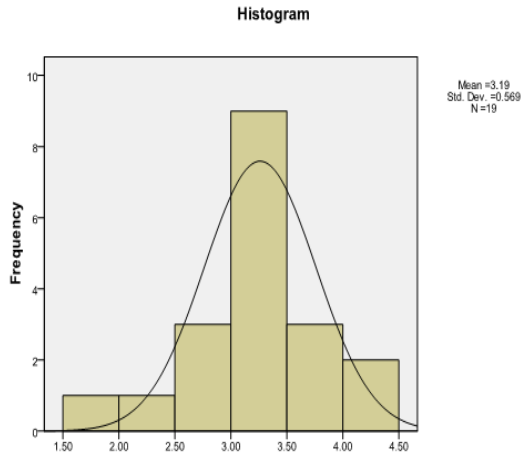

The metacognitive listening strategies of upper-level group

Based on the above data, there was a distribution of values for some frequencies called the greatest frequency or mode were in the value of 3.10 which appeared 6 times and brought to the total peak of the curve 6 times. The diagram also showed that it was a normal distribution because the distribution of the data followed the curve.

The cognitive listening strategies in the Lower -level Group

The lower-level group that used the cognitive listening strategies consisted of 19 students of the total of 60 students.

The histogram below showed the distribution of value in lower-level group which used the cognitive listening strategies:
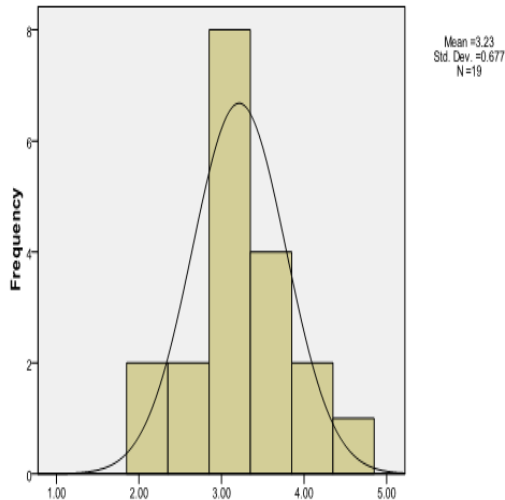
The cognitive listening strategies of lower-level group

Based on that data, there was a distribution of values for some frequencies called the greatest frequency or mode were in the value of 3.36 which appeared 3 times and brought to the total peak of the curve 3 times. The diagram showed that it was a normal distribution because the distribution of the data followed the curve.

The Metacognitive listening strategies in the Lower-level Group

The lower-level group that used the metacognitive listening strategies consisted of 19 students of the total of 60 students.

The next histogram showed the distribution of value in upper-level group which used the metacognitive listening strategies:

The Metacognitive listening strategies of lower-level group

Based on the above data, there is a distribution of values for some frequencies called the greatest frequency or mode are in the value of 3.10 which appears 3 times and brings to the total peak of the curve 3 times. The diagram shows that it is a normal distribution because the distribution of the data follows the curve.

The descriptive statistics of the Cognitive and Metacognitive Listening Strategy Used in the Upper-level group and Lower-level group

Table.
Descriptive statistics of the Cognitive and Metacognitive
Listening Strategy Use
of Upper-level group and Lower-level group

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min.	Max.
					Lower Bound	Upper Bound		
Cognitive listening strategies of upper-level group	41	3.29	.558	.087	3.11	3.46	2	4
Metacognitive listening strategies of upper-level group	41	3.30	.482	.075	3.15	3.45	2	4
Cognitive listening strategies of lower-level group	19	3.18	.571	.131	2.91	3.46	2	4
Metacognitive listening strategies of lower-level group	19	3.23	.677	.155	2.91	3.56	2	5
Total	120	3.27	.551	.050	3.17	3.37	2	5

Based on the table 4.2 above, it was found that there was a limit value of the listening strategies used by the upper and lower level groups. The cognitive listening strategies of upper-level group had the limit value of lower bound and upper bound of 3.11 and 3.46 with the average TOEIC score of 3.29, compared to the metacognitive listening strategies of the upper-level group which had the limit value of lower bound and upper bound of 3.15 and 3.45. Thus, the average value of both groups was equal.

Meanwhile, in the lower-level group, the limit values of the cognitive listening strategies were 2.91 and 3.46 with the average TOEIC score of 3.1 and the metacognitive listening strategies had the limit value

of lower bound and upper bound of 2.91 and 3.56. Thus, the average value of both groups was equal.

From that table above, it appeared that the groups which used the cognitive listening strategies achieved more or less similar score in TOEIC listening.

Test of Homogeneity of Variances

Table
Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
.818	3	116	.486

Based on table 4.3, it indicated that the four groups had the same variance, so the hypothesis was put as follows:

H_0: the four groups have unequal variance

H_1: the four groups have the same variance

In deciding the probability and hypothesis in a study, the statistical guidelines below were used:

If the probability (sig) < 0.05 then H_0 was accepted

If the probability (sig) > 0.05 then H_0 was rejected

In the table test of homogeneity of variances it could be seen that the probability is 0.486, so H_0 was rejected or could be concluded that the four groups had the same variance. This test was necessary because the Tukey HSD test variants required that each group must be the same or must be the homogeneous groups.

Anova Test

Table
Anova Test

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.212	3	.071	.229	.876
Within Groups	35.878	116	.309		
Total	36.090	119			

The table above had the aim to determine whether each group had the same average value. Therefore, because of Fcount $<$ Ftable so H_0 is accepted. It could be concluded that the four groups had the similar average. The same conclusion could also be drawn by looking at the probability column (Sig) that its value of $0.000 < 0.05$ so H_0 was accepted.

Homogeneous Subset Test

Table
Homogeneous Subset Test on TOEIC Score

	GROUP	N	Subset for alpha = 0.05
			1
Tukey HSD[a,b]	Cognitive listening strategies of Lower-Level	19	3.18
	Metacognitive listening strategies of Lower-Level	19	3.23
	Cognitive listening strategies of Upper-Level	41	3.29
	Metacognitive listening strategies of Lower-Level	41	3.30
	Sig.		.876

Based on the table 4.5, the students who were grouped based on the TOEIC listening score were in 1 (one) subset. This was because there was no significant difference in TOEIC listening results in each group (cognitive listening strategies of lower-level group, metacognitive listening strategies of lower-level group, cognitive listening strategies of upper-level group, and metacognitive listening strategies of upper-level group). Therefore, there was only one subset.

Then, the value of the each subset was based on alpha value 0.05. Based on the table 4.5 the average value of the cognitive listening strategies of lower-level group was 3.18, the metacognitive listening strategies of lower-level group was 3.23, the cognitive listening strategies of upper-level group was 3.29, the metacognitive listening strategies of upper-level group was 3.3. The highest average value was the metacognitive listening strategies of upper-level group eventhough the other groups' results were not very far from 3.3.

So, from above data the findings were the different in TOEIC listening results among the upper-level group with cognitive listening strategies, upper-level group with metacognitive listening strategies, lower-level group with cognitive strategies and lower-level group with metacognitive listening strategies was not significant.

Next finding answered the second research question that metacognitive listening strategies do not give any difference effect to the English listening comprehension of the students in upper-level group and lower-level group.

Discussion

This study investigated the types of listening strategies used by students in the upper-level group and the lower-level group who had participated in listening comprehension test. This study was motivated by the previous findings in investigating the relationship between the listening strategies and English listening comprehension such as O' Malley *et al*. (1989), Vandergrift (1997; 2003), and Goh (2002).

This study of the listening strategies use and listening comprehension were examined based on the research questions. The first question addressed whether the students work with metacognitive listening strategies achieve better listening comprehension than those who work with cognitive listening strategies. To answer this question, an analysis of variance (ANOVA) was used. The result showed that there were no significant effect to their listening comprehension.

The second question is about the effect of metacognitive listening strategies which could give higher listening comprehension to the students. In order to answer this question, the homogeneous subset test was used since there is no significant difference in TOEIC listening results in each group. Therefore the students in upper-level group and lower-level group were clustered into four groups, the cognitive listening strategies of upper-level group, the metacognitive listening strategies of upper-level group, the cognitive listening strategies of lower-level group, and the metacognitive listening strategies of lower-level group.

From the ANOVA test, multiple comparison analysis, a Tukey HSD found that the difference in TOEIC listening results of the upper-level and lower-level groups was not significant.

So, the second research question which asked the different effect of metacognitive and cognitive listening strategies in students' listening comprehension could be answered based on those results. They revealed that metacognitive listening strategies did not give effect to the students' listening comprehension compared with cognitive listening strategies.

Conclusion and Suggestion

Conclusion

Based on the results and discussion it could be concluded that while listening to the materials in TOEIC listening test, the students seemed to use listening strategies which were cognitive and metacognitive listening strategies to get better listening comprehension.

However, the findings showed that the students who work with metacognitive listening strategies did not get better English listening comprehension compared with those who work with cognitive listening strategies. So, the answer for first research question was those students work with metacognitive listening strategies did not achieve better English listening comprehension.

Next, in order to answer the second research question, the results showed that the use of metacognitive listening strategies did not give different effect on the English listening comprehension compared with cognitive listening strategies of students in upper and lower-level group

Those conclusions were the same as Purpura's study. The study which investigated the relationship between test takers' use of the cognitive and metacognitive strategies and second language test performance showed that although metacognitive strategies had no direct impact on the test takers' score, they did positively influence the cognitive processes used by the subjects. Purpura (1997:290) affirms "metacognitive processing exerts an executive function over cognitive processing."

Suggestion

The purpose of this study was to know the English listening strategies which are employed by the students who are having the listening test. Knowing the students' use of the listening comprehension strategies can help them to overcome their difficulties in doing the listening test and achieving better listening comprehension.

Although the findings of this sudy showed no effects of the cognitive and metacognitive listening strategies on listening comprehension test, the results cannot be generalized to all EFL contexts. Ellis (1994) stated that the number of participants, no specific duration of the listening strategies training and different variables such as participants' cultural background and English proficiency levels can easily change the results of such studies. He also drew a similar conclusion and suggested that further research was required to investigate the type of strategies that were most useful in the language classroom.

Finally, more research is needed on a possible cause and effect relationship not only between the cognitive and metacognitive listening strategies but also the other listening strategy categories such as memory, compensation, social/ affective listening strategies in order to help students in achieving the English language proficiency especially in listening comprehension.

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