

The Role of Metacognition Awareness in ESP Progress Test

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Abstract – The present study aims to investigate the relation between metacognition awareness and English for specific purposes (ESP) students' progress test in an academic context in Iran. One ESP class studying industrial management in Payam-e-Nour university of Sirjan consisting a total of 34 students who were all the researchers' students participated in this study. First of all, the metacognition awareness inventory was applied and then they took one progress test consisting vocabulary questions along with translation. To apply the correlation coefficient between the variables, first the Kolmogorov-Smirnov test was applied and it confirmed the normality of the two variables. Then Pearson correlation coefficient was applied which revealed there was no relation between the two variables. Next it was time to compare the scores' means belonging to metacognition awareness between males and females. To this end, Leven test was applied which showed the variances were not equal between males and females. Also the independent T-test results showed the scores' means were equal between males and females. Afterwards it was time to compare the means of scores belonging to the progress test between males and females. Leven test confirmed the variances were not equal and also the T-test results showed the means of scores were not equal between males and females either.

Keywords: metacognition awareness, ESP, progress test

I. INTRODUCTION AND BACKGROUND OF THE STUDY

A. Metacognition Awareness

Metacognition, metacognitive beliefs and metacognitive strategies can play an important role in learning a second language (Pintrich and de Groot, 1990; Pintrich et al., 1993; Rasekh and Ranjbary, 2003; Schunk and Zimmerman, 1994; Zimmerman, 2000). According to Sinclair (2000), language learners cannot evaluate or judge their own learning without considering metacognition. Metacognition means language learners keep thinking about different strategies they constantly use while learning a second language and how these strategies affect their learning (Anderson, 2002; Flavell, 1979). Metacognitive beliefs change a language learner into an active learner who is all the time checking the quality of their learning instead remaining passive (Paris and Winograd, 1990). When it comes to metacognition, there are some concepts accompanying it which ring a bell and they are self-appraisal, self-management and students' expectations from themselves (Paris and Winograd, 1990).

Thinking about one's learning and constant evaluation of the learning quality may lead to being a learner who is more goal oriented. Such learners are not usually afraid of failure because they know failure is a bridge which shows the path to more effort and more success. (Clifford, 1984).

Metacognitive beliefs can be divided into three parts which are person knowledge, task knowledge and also strategy knowledge (Wenden, 1991). As for person knowledge, students are first expected to know themselves very well from different aspects. How they learn different subjects, how they process information, which aspects are easy for them and which of them are hard to learn. They must know what their positive and negative behaviors are.

In addition students must have enough knowledge about the tasks they need to work on. They must have enough skills and information to be able to manage them in an educational setting or anywhere else. Last but not least, there is the strategy knowledge which links both cognition and metacognition. It means students must know where and when and how to use a special strategy of learning. They can choose, test, and review cognitive projects or tasks, aims and methods by consulting with others. (Flavell, 1979). Students who have a negative point of view towards using metacognitive strategies are not very successful and they tend to make more wrong decisions about their learning but students who have a positive point of view, tend to be more successful and more self-critical (Gardner and Miller, 1999).

Metacognitive strategies usually consist of some executive skills which check if the learner is successful or not. (O'Maley and Chamot, 1990). Metacognitive strategies have to do with making a connection between old and new information, planning, evaluating learning and thinking (Dirkes, 1985). If a learner really cares about metacognition and tries to implement it in his own learning, it will lead that learner to more learning which eventually changes that learner into an autonomous learner. (Cohen, 1998; Hedge, 2000; Wenden, 1991; Williams and Burden, 1997). Graham (1997) believes students who ignore metacognition are actually losing their direction while learning because metacognition keeps monitoring cognition. Anderson (2002) asserts when a student uses metacognitive strategies, he is actually boosting his cognitive capabilities which will lead to more successful performance and great learning.

B. English for Specific Purposes (ESP)

It has been more than 20 to 25 years which studying English at universities in non-English speaking countries is receiving more attention. (Coleman, 2006; Ljosland, 2005). According to Chostelidou (2010), language learning and communication are two important goals of higher education. Providing students with some English which really students need by some special methods, activities and discipline all belong to a course called English for specific purposes or ESP. Although ESP is an essential subject matter at universities, it does not seem to receive enough attention from those in charge because there is not a good needs analysis for it. Research has always helped ESP to grow which refers to both qualitative and quantitative research kinds (Belcher, 2006; Hewings, 2002).

ESP is linked to many fields such as applied linguistics, sociology, psychology and so on. (Hewings, 2002). Recently a large number of research has been carried out about ESP because its vacancy is felt more. This body of research has been done all around the world. The United States (Bosher & Smalkoski, 2002; Hoekje, 2007), Iran (Mazdayasna &

Tahririan, 2008; Dehnad, Bagherzadeh, Bigdeli, Hatami & Hosseini, 2010), Greece (Chostelidou, 2010), Israel (Deutch, 2003), Turkey (Akyel & Ozek, 2010; Ulucay & Demirel, 2011), and Taiwan (Liu, Chang, Yang & Sun, 2011).

All students who take part in an ESP course have a reason for it. (Hutchinson & Waters, 1987, p.19). Usually students who take ESP courses are not fully satisfied with their course because they may underperform or do not learn enough skills during their classes or maybe some parts of their lessons are hard for them. (Chia, Johnson, Chia, & Olive, 1999; Derwing, Schutiz, & Yang, 1978; Leki & Carson, 1994; Littlewood & Liu, 1996; Yang, 2006). Brown (1995) believes needs analysis is very important because by needs analysis courses are chosen more carefully for ESP volunteers and they can have the opportunity to study what they really need. Benesch (1996) has mentioned every academic class differs from other classes therefore we cannot compare them completely in terms of ESP.

Evans and Green (2007) did a study on ESP in an English-medium university in Hong Kong and his study showed most of the students had problem with the academic vocabulary, writing and speaking. Long (2005) suggested courses held at universities for ESP must be relevant to the students' needs otherwise they will not be useful. Brown (1995) believed ESP courses need to include both subjective and objective information necessary for the curriculum. Belcher (2006) asserts institutes which hold ESP courses can ask students for their opinions which makes it clear what they actually need. In other words teachers and even material developers create a learner-centered perspective and atmosphere which may cause less dissatisfaction for the students.

A needs analysis investigating students' present needs is to some extent able to predict what the students will need in future and therefore the instructors can emphasize those concepts more (Kavaliauskienė & Užpalienė, 2003, p. 35).

C. Objectives of the Study

The present research aims to determine the relation between metacognitive awareness and ESP students' success in their progress test. Since metacognitive awareness is meant to evaluate one's quality of learning in terms of the strategies used while learning is happening and also after learning period is over, it seems to be appropriate to test the relation between these two variables.

II. METHODOLOGY

A. Participants

The present research was carried out in Payam-e-Nour University of Sirjan, Iran. One whole ESP class was chosen by convenience sampling consisting of 34 students, 18 females and 16 males who were studying industrial management and were all the researchers' students took part in this study.

B. Instruments

First of all the metacognition awareness inventory (Schraw, G. & Dennison, R.S. 1994) was applied and afterwards a progress test consisting of vocabulary questions and translation was given to them.

C. Data collection

The relation between the two variables and also the difference between male and female students' performance were measured by Kolmogorov-Smirnov test, Pearson Correlation and independent T-test. Also data analysis was done by SPSS software version 21 (IBM Corp., Released 2012).

III. RESULTS AND DISCUSSION

A. Correlation Coefficient between Metacognition and ESP Variables

To apply Pearson correlation test, first of all, normality of the two variables must be tested. If the two variables are confirmed to be normal ones, Pearson correlation coefficient can be applied. To test normality of the two variables, Kolmogorov-Smirnov test is used. Table 1 fully illustrates the results of the mentioned test. According to the obtained results of Kolmogorov-Smirnov test, since the significant level is greater than 0.05, the normality of the two variables is accepted and the possibility of using Pearson correlation coefficient test is approved.

Table 1: One-Sample Kolmogorov-Smirnov Test

		metacognition	ESP
N		34	34
Normal Parameters ^a	Mean	37.7941	14.7353
	Std. Deviation	6.22205	4.25198
Most Extreme Differences	Absolute	.104	.172
	Positive	.104	.108
	Negative	-.067	-.172
Kolmogorov-Smirnov Z		.609	1.002
Asymp. Sig. (2-tailed)		.852	.268

Test distribution is Normal.

Now to investigate whether metacognitive awareness has any relation with ESP progress test, Pearson correlation coefficient is applied. Table 2 fully explains the results of this test. Regarding the results of table 2, the significance level is confirmed to be greater than 0.05, therefore it is approved there is no relation between metacognition awareness of the students and their ESP scores.

Table 2: Correlations

		metacognition	ESP
metacognition	Pearson Correlation	1	-.111
	Sig. (2-tailed)		.532
	N	34	34
ESP	Pearson Correlation	-.111	1
	Sig. (2-tailed)	.532	
	N	34	34

B. Comparison of the scores’ means belonging to metacognition variable between male and female ESP students

To apply this comparison, first of all, the two variables need to be normal and to have equal variances as well. To test normality of the metacognition variable Kolmogorov-Smirnov test was applied and the normality of the variable was confirmed before. To test equality of variances Leven test must be used. Table 3 shows descriptive statistics for metacognition variable in which the mean and standard deviation between both males and females is shown.

Table 3: Group Statistics

sex		N	Mean	Std. Deviation	Std. Error Mean
metacognition	Female	18	39.3333	8.01469	1.88908
	Male	16	36.0625	2.51578	.62895

Table 4 has to do with Leven test to show equality of variances belonging to metacognition variable between males and females and also t-test which compares means belonging to the metacognition variable between males and females among ESP students. According to the results of the Leven test for equality of variances which shows the significance level is less than 0.05, it is confirmed that variances belonging to the metacognition variable between males and females are not equal. In such condition, T-test must be done based on the hypothesis that variances are not equal. The obtained results of T-test revealed the significance level is 0.116 and since it is greater than 0.05, it is deducted the scores’ means between males and females are equal.

Table 4: Independent T-test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
metacognition	Equal variances assumed	17.048	.000	1.563	32	.128	3.27083	2.09258	-.99161	7.53328
	Equal variances not assumed			1.643	20.690	.116	3.27083	1.99103	-.87353	7.41519

C. Comparison of the scores' means belonging to ESP test variable between males and females

To test normality of the ESP variable Kolmogorov- Smirnov test was applied before and the normality of the variable was confirmed. Afterwards, to test equality of variances, Leven test must be applied. Table 5 shows the descriptive statistics belonging to ESP variable in which the mean and standard deviation of the ESP variable between males and females.

Table 5: Group Statistics

Sex		N	Mean	Std. Deviation	Std. Error Mean
ESP	Female	18	12.6111	4.61633	1.08808
	Male	16	17.1250	2.02896	.50724

Table 6 shows the Leven test results to check equality of variances belonging to ESP variable between males and females. Also it shows T-test which was applied for ESP variable between males and females. According to the results of the Leven test the applied significance level is less than 0.05 and it confirms that variances are not equal between males and females. Therefore T-test must be applied to compare the means of two groups of males and females based on the inequality of variances. T-test results revealed the significance level of this test was 0.001 and because it is less than 0.05, it is deducted that the ESP test scores means are not equal between males and females. The obtained difference between means of the two groups is reported to be 4.51.

Table 6: Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
ESP Equal variances assumed	9.341	.004	-3.609	32	.001	-4.51389	1.25074	-7.06155	-1.96622
Equal variances not assumed			-3.760	23.912	.001	-4.51389	1.20050	-6.99209	-2.03569

IV. CONCLUSION

Metacognition awareness is meant to play an important role in the quality of learning by evaluating the learning quality. It is not something hard to do. If students care about the strategies they use while learning or studying, they will come up with interesting results about their studying and learning methods which can be beneficial because they can see their strengths and weaknesses which pushes them forward or conversely keeps them behind. The research at hand showed there was no relation between the metacognition awareness level of the students and their success in their progress test although some other research somewhere else in another context may prove a result completely different from this. To sum up evaluation of any activity related to academic or educational settings can be useful in that it shows what right or wrong decisions we have made.

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APPENDIX

Metacognitive Awareness Inventory (MAI)

Check True or False as appropriate. Use the Scoring Guide after completing the inventory.

Contact Pamela Runge, Student Success Specialist at 443-412-2429 to discuss strategies to increase your metacognitive awareness.

- | | True | false |
|---|------|-------|
| 1. I ask myself periodically if I am meeting my goals. | | |
| 2. I consider several alternatives to a problem before I answer. | | |
| 3. I try to use strategies that have worked in the past. | | |
| 4. I pace myself while learning in order to have enough time. | | |
| 5. I understand my intellectual strengths and weaknesses. | | |
| 6. I think about what I really need to learn before I begin a task | | |
| 7. I know how well I did once I finish a test. | | |
| 8. I set specific goals before I begin a task. | | |
| 9. I slow down when I encounter important information. | | |
| 10. I know what kind of information is most important to learn. | | |
| 11. I ask myself if I have considered all options when solving a problem. | | |
| 12. I am good at organizing information. | | |
| 13. I consciously focus my attention on important information. | | |
| 14. I have a specific purpose for each strategy I use. | | |
| 15. I learn best when I know something about the topic. | | |
| 16. I know what the teacher expects me to learn. | | |
| 17. I am good at remembering information. | | |
| 18. I use different learning strategies depending on the situation. | | |
| 19. I ask myself if there was an easier way to do things after I finish a task. | | |
| 20. I have control over how well I learn. | | |
| 21. I periodically review to help me understand important relationships. | | |
| 22. I ask myself questions about the material before I begin. | | |
| 23. I think of several ways to solve a problem and choose the best one. | | |
| 24. I summarize what I've learned after I finish. | | |
| 25. I ask others for help when I don't understand something. | | |
| 26. I can motivate myself to learn when I need to | | |
| 27. I am aware of what strategies I use when I study. | | |

28. I find myself analyzing the usefulness of strategies while I study.
29. I use my intellectual strengths to compensate for my weaknesses.
30. I focus on the meaning and significance of new information.
31. I create my own examples to make information more meaningful.