

The Effect of Cognitive and Metacognitive Strategies on Self-Efficacy Beliefs of Freshman EFL Students

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Abstract

This study was designed to investigate the effects of cognitive and metacognitive listening strategies on the listening-related self-efficacy beliefs of EFL students. A total of 146 first-year students, studying at ELT Department of a state university's educational faculty, took part in the study. The sample of this study is composed of the whole population. Motivational Strategies for Learning Questionnaire (MSLQ), an 81-item questionnaire, was administered to participants. The questionnaire consisted of three main dimensions: motivational beliefs, cognitive and metacognitive strategies, and resource management. However, the participants answered 39 items that focused on cognitive and metacognitive dimensions (rehearsal, elaboration, organization, critical thinking, and metacognitive self-regulation) and self-efficacy sub-dimensions. The statistical interpretation of the data was done using Pearson correlation coefficients and multiple regression analysis. The R square of the regression model was found to be .524, and it is significant at the .01 level, which means that the variables in this regression model (rehearsal, elaboration, organization, critical thinking, and metacognitive self-regulation), altogether, significantly explain 52.4% of the variance in the dependent variable (listening comprehension related self-efficacy). The regression model was further analyzed in order to investigate the effects of each variable on self-efficacy. It is found that all of the strategies significantly affected the dependent variable at .01 level. In a second regression model, which aimed to see the contribution of controlling variables (gender and GPA), the variables of 'gender and GPA' were entered in the model as one block and all other variables as another block. The results showed that all variables with gender and GPA significantly explain 53.1% of the variance in the dependent variable. The unique contributions of gender and GPA were 1%, which is not significant. In other words, controlling for 'gender and GPA' cognitive and metacognitive strategies explained %51.3 of the variance in self-efficacy. This means that the relationship among listening related cognitive strategies, metacognitive strategies and self-efficacy is very important and has some implications. The results of the study are discussed in terms of cognitive & metacognitive strategies, self-efficacy and listening comprehension. Last, some pedagogical implications are provided in the light of the findings.

Keywords: Cognitive and metacognitive strategies, self-efficacy, listening comprehension, strategies.

1.Introduction

One of the aims of formal education is to equip students with self-awareness and to teach them how to educate themselves for the remainder of their life. This aim requires us to ask ourselves as language teachers: 'How can we achieve self-directed learning?' According to Bandura (1993), motivation, cognitive and metacognitive strategies are some of the preconditions of self-directed learning. Motivation is one of the necessities of self-directed learning. Likewise, self-efficacy helps to self-regulate motivation (Bandura, 1991) and human motivation is mostly generated by cognition (Graham, 1993).

Despite the large body of research which has explored the importance and effects of self-efficacy and metacognitive strategies on performance (Braten, Samuelstuen and Stromso, 2004; Kitsantas, 2000), effects of metacognitive strategies on foreign language listening comprehension (Li and Liu, 2008), and on foreign language reading achievement (Phakiti, 2003), remarkably few studies have explored the relationships between these different factors. The goal of this study is to determine the effects of metacognitive strategies on the self-efficacy of first-year EFL students. The evaluation of the relationship between self-efficacy and metacognitive strategies in the foreign language learning environment could provide valuable insight into their potential contributions to language learning.

1.1 Self-efficacy, Cognitive and Metacognitive Strategies

Self-efficacy, one's belief in his or her capabilities, is a predictor of academic achievement (Brown and Lent, 1991, Graham and Weiner, 1996; Bandura, 1997; Mills, Pajares and Herron (2006) and emerged from tenets of Bandura's (1986) social cognitive theory. Just like in other areas, self-efficacy in the foreign language learning environment helps learners to set higher goals and attempt challenging tasks. Self-efficacy beliefs may be helpful or debilitating to a student's achievement; however, the latter occurs when self-efficacy beliefs are negative.

Metacognition refers to an awareness of cognitive processes. It can be considered "thinking about thinking." In other words, students who use metacognitive strategies are aware of their thinking processes while studying. Flavell's (1976: 232) definition of metacognition focuses on this monitoring of information processing activities in relation to the cognitive objects. So, metacognition is not only thinking about thinking, but also regulating and executing cognition. Winne (1996) says that students with high levels of metacognition regulate their use of cognitive tactics. Recently, academic inquiry in EFL classrooms has concentrated on the metacognitive strategies and knowledge. Researchers have found relationships between successful L2 reading and metacognition (Phakiti, 2003; Zhang, 2012), as well as listening comprehension and metacognition (Goh and Taib, 2006).

Some sub-dimensions of metacognitive strategies, such as help seeking and time management, affect task completion (Clark and Zimmerman, 1990).

Zimmerman (1995) believes that metacognitive knowledge is not enough for self-regulation. He stresses the importance and necessity of self-efficacy as well. Both self-efficacy (Bandura, 1993; Countinho and Neuman, 2008) and metacognitive strategies (Dunning, Johnson, Ehrlinger, Kruger, 2003; Phakiti, 2003; Thiede et al. 2003; Zhang, 2012) are predictors of performance. As a motivational belief, self-efficacy has positive effects on the development of metacognitive strategies (Clause et al., 2001; Klassen, 2006) and strategy instruction may improve self-efficacy (Graham, 2011). In other words, there is an interrelationship between self-efficacy and metacognitive strategies.

The goal of this study is to determine the effects of metacognitive strategies on self-efficacy of EFL first-year students. Therefore, the following research question is set as the aim of this study: "Does the use of cognitive and metacognitive strategies affect the self-efficacy beliefs of EFL first-year students?"

2. Methodology

2.1 Participants

The participants of the study are 146 first-year students studying at the English Language Teaching department of Necmettin Erbakan University, in Konya, Turkey. The whole population was selected as the sample of this study. They were between the ages of 18-24. They had been learning English approximately for 8 years. Their English proficiency level is considered as advanced. However, listening is a problematic area for them as it is not necessary to get admission in English language teaching departments in Turkey.

2.2 Measurement Instrument

Motivational Strategies for Learning Questionnaire (MSLQ)

Originally developed by Pintrich et al. (1993), the MSLQ scale was adapted to Turkish context by Altun and Erden (2006). The scale includes 81 items and consists of 3 main dimensions: motivational beliefs, cognitive and metacognitive strategies, and resource management.

The factor loads, and reliability coefficients of Cognitive and Metacognitive Strategies dimension are all calculated. The questionnaire consists of 81 Likert-type items on a 7-point scale, where 1 represents "not at all true for me" and 7 represents "very true for me." In this study, only the cognitive and metacognitive strategies dimension of MSLQ was used, because many scholars suggest that a relationship between self-efficacy and metacognitive strategies exists. Additionally, the effects of self-efficacy (Rahimi and Abedini, 2009) and metacognitive strategies (Thompson and Rubin, 1996; Goh, 2002; Cross, 2009) have separately been found to have effects on listening. Therefore, we decided that determining the relationship between cognitive and metacognitive strategies and self-efficacy would be the most useful strategy to pursue this study.

3. Data Collection and Analysis

The MSLQ was administered to students in April of 2012 at the Necmettin Erbakan University, Ahmet Keleşoğlu Educational Faculty's ELT department. The researcher himself administered the

questionnaire and it took approximately 30 minutes for the participants to finish answering the questions.

Multiple regression analyses were conducted in order to investigate the effects of gender, GPA, rehearsal, elaboration, organization, critical thinking, and metacognitive self-regulation abilities on the self-efficacy beliefs of the participants. Before conducting multiple regression analyses, the correlations between metacognitive strategies and self-efficacy were investigated one by one using Pearson correlations coefficients. Then, multiple regression analyses were conducted in order to determine the effects of cognitive and metacognitive strategies on the self-efficacy beliefs of the participants.

4. Results

The results of Pearson correlation indicate a positive and significant relationship between rehearsal, elaboration, organization, critical thinking, metacognitive self-regulation strategies and self-efficacy beliefs for listening. In other words, the more students use listening cognitive and metacognitive strategies, the higher their self-efficacy beliefs are.

Table 1. Hierarchical Multiple Regression Analysis (Dependent Variable: Self-efficacy Score)

Model	R	R Square	Adjusted R Square	Standard Error	F Model	R Square Change	F Change
Metacognitive Self-regulation	.446	.199	.193	5.953	35.78	.199	35.78
Rehearsal	.556	.309	.299	5.549	31.958	.110	22.735
Elaboration	.615	.379	.366	5.279	28.868	.070	15.989
Organization	.651	.424	.408	5.100	25.973	.045	11.119
Critical Thinking	.724	.524	.507	4.655	30.807	.100	29.293

*. F is significant at the 0.01 level

The R square of the first hierarchical regression model was found to be .524, which is significant at the .01 level. It means that the variables in this regression model (rehearsal, elaboration, organization, critical thinking, and metacognitive self-regulation), altogether, significantly explain 52.4% of the variance in the dependent variable (listening comprehension related self-efficacy). The regression model was further analyzed in order to investigate the effects of each variable on self-efficacy. It is found that all of the strategies significantly affected the dependent variable at .01 level. In other words, the unique contribution of each variable to the model is statistically significant.

In a second regression model, which aimed to see the contribution of controlling variables (gender and GPA), the variables of 'gender and GPA' were entered in the model as one block and all other variables (rehearsal, elaboration, organization, critical thinking, and metacognitive self-regulation) as another block. The results showed that all variables with gender and GPA significantly explain 53.1% of the variance in the dependent variable. The unique contributions of gender and GPA were 1%, which is not significant. In other words, controlling for 'gender and GPA' cognitive and metacognitive strategies explained %51.3 of the variance in self-efficacy.

5. Discussion

In the present study, it is found that cognitive and metacognitive strategies; namely, rehearsal, elaboration, organization, critical thinking, and metacognitive self-regulation, are significantly related to the self-efficacy beliefs of EFL students. Furthermore, this study showed that controlling for GPA and gender factors, these strategies statistically significantly affect self-efficacy. Graham (2007) found evidence that strategy training is beneficial for developing self-efficacy for listening as well. In this study, she also compared the strategy instruction by itself with strategy instruction followed by feedback. The results did not produce a significant difference between the two. In addition, she (2011)

proposed that strategy instruction, not only develops, but also improves self-efficacy for listening. Both her results and this study's results support the findings of Coutinho and Neuman (2008). They found self-efficacy as the strongest predictor of metacognition. Yang (1999) found that self-efficacy is effective on metacognition.

It can be concluded that students who use cognitive and metacognitive strategies effectively feel more capable of listening. This is maybe because awareness of strategy enhances a student's belief that "I can". Based on the results of this study and numerous previous studies (e.g. Goh, 2002; Goh and Taib, 2006; Li and Liu, 2008; Vandergrift, 1997), it can be said that cognitive and metacognitive strategy instruction improves listening comprehension, as well as self-efficacy beliefs of students. When we consider the relationship between self-efficacy and L2 listening skills, we can conclude that there is an interrelationship between cognitive & metacognitive strategies, self-efficacy, and listening comprehension.

6. Conclusion and Implications

This present study investigated the relationship between EFL students' self-efficacy beliefs and cognitive and metacognitive strategies. The cognitive and metacognitive strategies were: rehearsal, elaboration, organization, critical thinking, and metacognitive self-regulation. In addition, the effects of self-efficacy for listening on cognitive and metacognitive strategies were tested. The findings of the study confirmed that there is a significant relationship between self-efficacy and cognitive and metacognitive strategies. Moreover, cognitive and metacognitive strategies explain 52.4% of the variance in self-efficacy. The effectiveness of cognitive and metacognitive strategies on self-efficacy from most to least was: organization, elaboration, critical thinking, rehearsal, and metacognitive self-regulation. Mills, Pajares and Herron (2006) found a difference between male and female students in terms of the relationship between self-efficacy and achievement. The aim of controlling for the gender factor in this study was neutralizing the effect of gender.

It is hoped that these findings will encourage language teachers to focus on individual differences, especially the self-efficacy beliefs of students. Teachers may improve their students' self-efficacy beliefs by cognitive and metacognitive strategy instruction. If these instructions are employed, students' awareness of listening strategies should improve. This study has found that cognitive and metacognitive strategies affect self-efficacy beliefs for listening. However, some strategies were more effective than others. So, the importance attached to the strategies does not necessarily have to be at the same level.

A further study can be designed to investigate these relationships with structured equation modeling. The results of Coutinho and Neuman's (2008) study showed a significant relationship between general self-efficacy, metacognition, and performance. A model, which focuses on these topics, can be developed. With this model, the relationships among cognitive & metacognitive strategies, self-efficacy, and listening comprehension might be more comprehensible.

In conclusion, the results of this study suggest that students who use cognitive and metacognitive strategies effectively feel more capable of listening. So, language teachers should enhance their students' awareness of listening cognitive and metacognitive strategies in order to improve self-efficacy, which is crucial for achievement in language learning.

References

- [1] Altun, S. (2005). "Yıldız Teknik Üniversitesi Öğrencilerinin Öğrenme Stilleri ve Cinsiyetlerinin Öz Düzenlemeye Dayalı Öğrenme Stratejileri, Öz Yeterlilik Algıları ve Matematik Başarı Puanları Üzerindeki Etkisi". Unpublished Doctoral Dissertation. Yıldız Teknik Üniversitesi, İstanbul.
- [2] Altun, S., Erden, M. (2006). Öğrenme motive edici stratejiler ölçeğinin geçerlik ve güvenirlik çalışması. *Edu7*, 2(1), 1-16.
- [3] Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.
- [4] Bandura, A. (1991). Self-regulation of motivation through anticipatory and self-regulatory mechanisms. In R. A. Dienstbier (Ed.), *Perspectives on motivation: Nebraska symposium on motivation* (Vol. 38, pp. 69-164). Lincoln: University of Nebraska Press.
- [5] Bandura, A. (1993). Perceived Self-Efficacy in Cognitive Development and Functioning, *Educational Psychologist*, 28 (2), 117-148.
- [6] Bandura, A. (1997). *Self-efficacy: the exercise of control*. New York: W.H. Freeman and Company.
- Braten I., Samuelstuen, M.S., & Stromso, H.I. (2004). Do students' self-efficacy beliefs

- [7] moderate the effects of performance goals on self-regulatory strategy use? *Educational Psychology*, 24 (2), 231-247.
- [8] Clark, N.M. and Zimmerman, B.J. (1990). A social cognitive view of self-regulated learning about health. *Health Education Research*, 5, 371-379.
- [9] Coutinho, S.A., & Neuman, G. (2008). A model of metacognition, achievement goal orientation, learning style and self-efficacy, *Learning Environment Research*, 11, 131-151.
- [10] Cross, J. (2009). Effects of listening strategy instruction on news videotext comprehension. *Language Teaching Research*, 13(2), 151-176.
- [11] Dunning, D., Johnson, K., Ehrlinger, J., & Kruger, J. (2003). Why people fail to recognize their own incompetence. *Current Directions in Psychological Science*, 12(3), 83-87.
- [12] Flavell, J. H. (1976). Metacognitive aspects of problem solving. In L. B. Resnick (Ed.), *The nature of intelligence* (pp. 231-236). Hillsdale, NJ: Erlbaum
- [13] Goh, C. (2002). Exploring listening comprehension tactics and their interaction patterns. *System*, 30, 185-206.
- [14] Goh, C., Taib, Y. (2006). Metacognitive instruction in listening for young learners. *ELT Journal*, 60 (3), 222-232.
- [15] Graham, S., Weiner, B. (1996). Theories and principles of motivation. In D. C. Berliner & R. C. Calfee (Eds.), *Handbook of educational psychology* (pp. 63-84). New York: Simon & Schuster Macmillan.
- [16] Graham, S. (2007). Learner strategies and self-efficacy: making the connection. *Language Learning Journal*, 35, 81-93.
- [17] Graham, S. (2011). Self-efficacy and academic listening. *Journal of English for Academic Purposes*, 10, 113-117.
- [18] Kitsantas, A. (2000). The role of self-regulation strategies and self-efficacy perceptions in successful weight loss maintenance, *Psychology & Health*, 15 (6), 11-820.
- [19] Klassen, R.M. (2007). Using predictions to learn about the self-efficacy of early adolescents with and without learning disabilities. *Contemporary Educational Psychology*, 32, 173-187.
- [20] Li, Y., Liu, Y. (2008). The impact of strategies-based instruction on listening comprehension. *English Language Teaching*, 1(2), 128-134.
- [21] Mills, N., Pajares, F., & Herron, C. (2006). A reevaluation of the role of anxiety: self-efficacy, anxiety, and their relation to reading and listening proficiency. *Foreign Language Annals*, 39, 276-295.
- [22] Seferoglu, G., Uzakgören, S. (2004). Equipping learners with listening strategies in English language classes. *Hacettepe University Faculty of Education Journal*, 27, 223-231.
- [23] Phakiti, A. (2003). A closer look at the relationship of cognitive and metacognitive strategy use to EFL reading achievement test performance. *Language Testing*, 20 (1), 26-56.
- [24] Pintrich, P.R., Smith, D.A.F., Garcia, T. & McKeachie, W.J. (1993). Reliability and predictive validity of the motivated strategies for learning questionnaire (MSLQ). *Educational and Psychological Measurement*, 53(3), 801-814.
- [25] Rahimi, A., Abedini, A. (2009). The Interface Between EFL Learners' Self-efficacy Concerning Listening Comprehension and Listening Proficiency. *Notives-ROYAL*, 3 (1), 14-28.
- [26] Thiede, K. W., Anderson, M. C. M., & Theriault, D. (2003). Accuracy of metacognitive monitoring affects learning of texts. *Journal of Educational Psychology*, 95, 66-73.
- [27] Thompson, I., Rubin, J. (1996). Can Strategy Instruction Improve Listening Comprehension? *Foreign Language Annals*, 29 (3), 331-342.
- [28] Vandergrift, L. (1997a), The Cinderella of communication strategies: Reception strategies in interactive listening. *Modern Language Journal*, 81 (4), 494-505.
- [29] Winne, P. H. (1996). A metacognitive view of individual differences in self-regulated learners. *Learning and Individual Differences*, 8, 327-353.
- [30] Yang, N.-D. (1999) The relationship between EFL learners' beliefs and learning strategy use. *System*, 27(4), 515-535.
- [31] Zhang, L.J. (2012). A Dynamic Metacognitive Systems Account of Chinese University Students' Knowledge About EFL Reading. *TESOL Quarterly*, 44(2), 320-353.
- [32] Zimmerman, B.J. (1995). Self-regulation involves more than metacognition: A social cognitive perspective, *Educational Psychologist*, 30 (4), 217-221.