

## **EFFECT OF METACOGNITIVE AWARENESS ON ACHIEVEMENT IN FOREIGN LANGUAGE LEARNING**

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### **ABSTRACT**

This study aimed to determine the relationship between general metacognitive awareness and academic achievement in foreign language learning. To this end, the study first tried to investigate whether there were any correlations between the construct of metacognitive awareness and its sub-dimensions- knowledge management, planning, monitoring, evaluation- and the academic achievement in foreign language. The study then went on to search whether metacognition with its sub-dimensions were effective in foreign language achievement. The sample of the study consisted 683 university students studying English as a foreign language. The data collection was conducted with the use the Metacognitive Awareness Inventory; and the students' grades were also used. As a result, it was observed that there were no correlations between the metacognitive awareness and its sub-dimensions and the achievement in foreign language. Moreover, the only variable that predicted the academic achievement was monitoring skill.

**Key Words:** *metacognitive awareness, metacognition, foreign language, achievement.*

### **BİLİŞÜSTÜ FARKINDALIĞIN YABANCI DİL BAŞARISINA ETKİSİ**

#### **ÖZ**

Bu çalışma genel bilişüstü farkındalık ile yabancı dil öğreniminde akademik başarı arasındaki ilişkiyi belirlemeyi amaçlamıştır. Bu doğrultuda, çalışmada ilk olarak bilişüstü farkındalık ve onun alt-boyutları olan bilgi yönetme, planlama, izleme ve değerlendirme ve yabancı dilde akademik başarı arasında herhangi bir korelasyon olup olmadığı araştırılmıştır. Çalışmada bunun yanında bilişüstü ve alt-boyutlarının yabancı dil başarısını yordamada etkili olup olmadığına bakılmıştır. Çalışmanın evreni İngilizceyi yabancı dil olarak öğrenen 683 üniversite öğrencisinden oluşmuştur. Araştırma verileri, Bilişüstü Farkındalık Envanteri ve öğrencilerin yabancı dil başarı notlarından oluşmaktadır. Çalışma sonucunda, bilişüstü ve altboyutları ile yabancı dil başarısı arasında herhangi bir ilişki olmadığı; ayrıca bilişüstü farkındalığın izleme altboyutu yabancı dilde akademik başarıyı yordayan tek değişken olarak bulunmuştur.

**Anahtar Kelimeler:** *bilişüstü farkındalık, bilişüstü, yabancı dil başarısı*

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## 1. Introduction

The term metacognition can be generally identified as the capacity of thinking related to thinking, the person's awareness of his own intellectual processes, determination and observation of how a person can learn, and formulate a new strategy pursuant to it (Bakırcıoğlu, 2012). Along with the development of cognitive psychology, a wide variety of researches have been conducted for metacognition and its derivatives (meta-memory, meta-knowledge, meta-learning, etc.) in both psychological sense and educational sense since the beginning of the 1970s. The metacognition term does not have a net definition that psychologists and academicians compromise on, and this conceptual confusion has been expressed by researchers (Brown, 1987; Livingston, 1997; Hacker et al., 1998; Tobias & Everson, 2000; Papaleontiou-Louca, 2003; Schraw, 2009; Rahman & Masrur, 2011; Kim, 2013) too. Papaleontiou-Louca (2008) states that metacognition has been used in different epistemological processes, however it has been widened to include the knowledge or awareness of any psychological thing rather than just cognitive things. For example, if a person has knowledge or cognition of his/her own emotions or his/her reasons for a cognitive attempt (awareness of his anxiety while answering a question in an exam), this kind of knowledge is metacognitive, too.

While Flavell (1979) defines metacognition as one's knowledge about his/her cognitive processes, Nelson (1996) defines it as one's ability to be conscious about his/her mental processes. Some researchers (Cross & Paris, 1988; Baird, 1990; Schraw & Dennison, 1994; Tobias & Everson, 1997) define it as one's knowledge, awareness and control over his/her own learning, and some others (Kuhn & Dean, 2004; Martinez, 2006) define it as one's awareness and control over his/her own thinking. In other words, metacognition can be defined as our knowledge about cognitive processes and how we use these processes in learning and remembering (Ormrod, 2004). Metacognition is a type of cognition and is a higher order thinking process which involves active control over the cognitive processes (Wenden, 1998). Metacognition has been considered as "the seventh sense" and accepted as one of the mental processes that successful students use (Birjandi, 2006; as cited in Rahimi and Katal, 2012).

It can be understood from some relevant literature that another difference that should be completely separated is the difference between metacognitive knowledge and metacognitive strategies. As Brown et al. (1983) mentioned, metacognitive knowledge and meta-cognitive strategies are two different and unique components of metacognition that is a wider concept (as cited in Wenden, 1998). Metacognitive knowledge is the knowledge of a person about his/her own learning and it resembles other knowledge types that are stored in long-term memory in terms of structure and function (Borkowski, 1998; Goh and Burns, 2012). In this sense, Wenden (1998) makes this distinction and continues her argument with regard to language learning. In this respect, metacognitive knowledge is the relative stable knowledge of people about their own and other people's metacognitive processes (Flavell and Wellman, 1977; Wenden, 1998). It is a special part of knowledge substructures (Flavell, 1979),

obtained as formal or informal and conscious or unconscious. This kind of knowledge is stable, students are aware of their knowledge and they can express that they know it. Metacognitive knowledge has been mentioned as students' beliefs (Horwitz, 1987), and students' pure psychology about learning (Wenden, 1987) in second/ foreign language literature and each of these terms shows another defining characteristic of this type of knowledge (Wenden, 1998). Metacognitive strategies are the general skills through which learners manage, direct and regulate their learning: i.e. planning, monitoring and evaluating. Deployment of these three strategies in learning is referred as self-regulation (Wenden, 1998).

### 1.1.The Components of Metacognition

Researchers have indicated that metacognition consists of two related components: metacognitive knowledge and metacognitive regulation (Brown, 1987; Flavell, 1987; Schraw & Dennison, 1994). Metacognitive knowledge consists of knowledge or beliefs about what factors or variables act or interact in what ways to affect the cognitive processes (Flavell, 1979). Metacognitive knowledge consists of three sub-components: Declarative knowledge (one's knowledge about himself/herself and his/her strategies), procedural knowledge (one's knowledge about how to use his/her strategies), and situational knowledge (one's knowledge about when and why to use his/her strategies). Metacognitive regulation consists of the activities used for the regulation and control of learning (Papaleontiou-Louca, 2003). Metacognitive regulation consists of some sub-components through which learning is controlled: planning, knowledge management, monitoring of comprehension, debugging and evaluation (Schraw & Dennison, 1994).

Flavell (1979) defines the knowledge of cognition as one's knowledge about his/her cognitive strengths and weaknesses including internal and external factors and divides this type of knowledge into three categories:

- (1) "*Person Knowledge*": includes everything a person believes about human nature as cognitive processors. In other words, person knowledge is the general knowledge students have obtained about human factors that help or hinder learning. Cognitive and affective variables which are submitted as effective in language learning in foreign language learning researches are among the examples of these factors (language aptitude, motivation, etc.) Besides, person knowledge includes how students match that kind of factors to their own experiences. Students can also achieve (person) knowledge about their efficiency in a field, depending on the evaluations they form or obtain about their skills. For example, language students will have some opinions on how good they can read or write, how much they know about the grammar. In addition to these, person knowledge generally includes students' beliefs about their effectiveness as a student. For example, self-efficacy beliefs about skills of mobilizing and managing sources which are necessary to learn and maintain effort. Finally, person knowledge means students' beliefs about their skills in specific learning and

- accomplishing purposes: knowledge and/or skills necessary for writing in a foreign language, success beliefs, etc. (Wenden, 1998).
- (2) "*Task knowledge*": is the knowledge of requirements for different tasks. Task knowledge has three aspects. It is what a student knows about how the purpose of a task serves for his/her language learning requirements -for example how it serves for improving writing skills, extending vocabulary, improving fluency in oral communication-. Besides, it includes the knowledge results from a classification process that determines the nature of a specific learning task. This means understanding that learning reading is different from learning writing and distinguishing a creative thinking task from a problem solving task. Task knowledge also includes the knowledge about the requirements of a task - for example, generally speaking, how a person can learn, how a specific task will be done, and what are the necessary knowledge and skills to accomplish this task- (Wenden, 1998).
  - (3) "*Strategy knowledge*": knowledge about the most beneficial strategy types. Strategy knowledge is the specific knowledge about what the strategies are, why they are generally beneficial, when and how they are used. Wenden (1998) has stated that although this type of knowledge seems to be a sub-component of task knowledge, it should be classified separately because of its unique role. She has emphasized that there are various researches on the usage of learning strategies in foreign language learning.

On the other hand, some researchers divided the knowledge of cognition into declarative and procedural knowledge (Cross & Paris, 1988; Schraw & Moshman, 1995; Kuhn, 2000; Schraw et al., 2006). Especially, Schraw et al. (2006) has stated that declarative knowledge is the knowledge of the student about himself/herself as a student and about the factors that can affect his/her performance; procedural knowledge includes strategy knowledge and awareness and management of cognition; conditional knowledge is the knowledge of why and when a strategy is used. The second component of metacognition, the regulation or monitoring of cognition includes such sub-components as planning, monitoring or regulating and evaluating. In this sense, planning embrace the determining and choosing of the appropriate strategy and regulating the required sources; it also includes activities such as activation of substructure knowledge and programming the time. Monitoring and regulating includes monitoring or regulating, comprehension awareness and paying attention to task performance and self-testing. Evaluating means person's evaluation of the outputs of his/her learning and regulatory processes of this learning (Schraw et al., 2006). In addition to these, Flavell (1979) has discussed the regulation of knowledge in the context of cognitive experiences and stated that these are the perception or internal view such as "*I understand this*" a person experiences in the cognition process.

## **1.2.The Relation Between Metacognition and Success**

Researchers have stated that students with high cognitive awareness behave more strategic in learning and show better performances. (Brown, 1987; Flavell, 1979, Ganz & Ganz, 1990; Schraw & Dennison, 1994; Livingston, 1997; Schunk, 2008; Zulkipli et al., 2008; Downing, 2009; Goh & Burns, 2012). The people with improved metacognitive skills can correctly estimate what they can learn, how they learn and how fast they can learn, they can choose the right learning strategies. It can be said that the metacognitive skills of a student who knows what mark he/she will get at the end of an exam, who knows which questions he/she answered right and wrong, who plans the studying time in a right way while preparing for an exam and who uses the right learning strategies are improved (Erden and Akman, 2014). However, Schunk (2008) emphasizes that metacognitive knowledge alone is not enough, although students have the awareness, they may not be able to use the strategies, so usage of the strategies should be taught to the students in an appropriate time and place. On the other hand, an understanding toward the students' metacognition enables teachers to evaluate students' attitude toward learning, helps teachers to understand students' individual learning styles and abilities (Rubin, 2001; Goh and Burns, 2012).

It has been stated that metacognition has an important role in the improvement of student's autonomy and self-regulation (Kim, 2013). Besides, it has been suggested that metacognition is not only a part of students' cognitive development, but it also enables cognitive development's better improvement, and is affected by in-class teaching and enables students to regulate and direct their own learning (Marzano et al., 1988; Goh and Burns, 2012). Students develop a sense of being active on their learning effort when they bring their own learning processes to the condition of consciousness and this can motivate them about bigger successes (Hacker, Dunlosky & Graesser, 1998). In other words, metacognition enables students to have control over their own learning nature and characteristic. This encourages students to study more for reaching their purposes and promotes their self-esteems (Gosh and Burns, 2012).

## **1.3.Metacognition in Foreign Language Learning**

Flavell (1979) has stated that metacognitive knowledge has an important role in various cognitive activities related to language acquisition: for example oral communication of knowledge, oral persuasion, oral comprehension, reading comprehension and writing. Metacognitive knowledge in foreign language learning means the assumption of students about themselves as students, about the factors affecting language learning and the nature of language learning and teaching (Victori & Lockhart, 1995). Metacognitive knowledge and regulation in language acquisition, which is a complex process including knowledge about the structure of the target language and where and when to use it, has an important role in reserving awareness of the learning strategies used from the beginning to the end of the

language learning process and controlling them. In this sense, Goh (2012) has emphasized that teaching metacognition will bring cognitive, affective and social learning processes to the condition of conscious and the language students will be better at regulating and evaluating their language learning efforts.

Wenden (1998) complained that there had not been a net theoretical argument that could explain the exact role of metacognition in language learning field, and became the first person to adapt Flavell's (1979) model for metacognition to the field of foreign language (Goh and Burns, 2012; Kim, 2013). For example, Wenden (1998) has stated that person knowledge includes factors such as age, language aptitude, motivation and student's knowledge about how these factors affect their own language learning experience. Besides, person knowledge includes student's general effectiveness as a student, effectiveness in a particular field of language learning (reading, writing, speaking, listening) and beliefs about their capacity for reaching a particular purpose. For language student's knowledge about learning task; Wenden (1987, 1998) has stated that it is student's knowledge about the purpose of the task, how it will affect learning and nature and requirements of the task and given this example: "It was easier to talk to Americans about daily subjects than to talk about abstract subjects" (Kim, 2013). Strategy knowledge includes general knowledge about the approaches for language learning and student's knowledge about specific strategies and their effectiveness. For example, while a statement such as "Grammar background is important. You cannot improve your language without grammar" reflects student's general strategic knowledge, student's deciding to make a list for technical terms while summarizing a reading text shows student's specific strategic knowledge (Wenden, 1998; Kim, 2013).

According to Wenden (1998), metacognitive knowledge is a prerequisite for the self-regulation of language learning; it informs planning decisions taken at the outset of learning and the monitoring process that regulate the completion of a learning task (Öz, 2005). Some findings have shown that successful students develop a belief about language learning process, their own skills and the efficient strategy usage that will compensate their possible weaknesses and this ensure students to trust their potential as good language students. (Victori & Lockhart, 1995).

Wenden (1998) has noted that the researches towards students' strategy usage in language learning documented the relation between metacognitive knowledge and specially task knowledge, planning and evaluation. For example, Holec (1987) reported the relation between the change in students' beliefs about language learning and their learning planning styles. Wenden's (1987) study on theories of language students on language learning has revealed how these beliefs affect the priorities students determine, strategy choosing and learning evaluating criteria. The students who believe that linguistic performance is the key for a successful learning emphasized the need for learning how to speak, chose application strategies in this sense and made positive use of the situations that offered opportunities for oral communication. Gillette's (1994) study based upon socio-cultural theory has stated that language students' opinions about the value of language learning shapes their

purposes and implicitly determines their approaches, how much effort they will make and what kind of learning activities they will choose (Wenden, 1998).

Another series of researches conducted in the scope of the role of metacognitive knowledge in language learning is to determine characteristics of good language students and the strategies they use for performing a specific language learning task. In this sense, it has been discovered that applying open metacognitive knowledge about the characteristics of the task and appropriate strategies while performing the task is an important determiner of language learning effectiveness (Mahmoudi et al., 2010; Rahimi and Katal, 2012). The reason for this is that it enables students to actively use metacognitive strategies in their learning process, manage and direct their own learning and find the best ways to apply and strengthen what they learn as a result (Chari et al., 2010; Rahimi and Katal, 2012). Some researchers (Anderson, 2003; Rasekh et al., 2003; Goh, 1998, 1999; O'Maley, Chamot & Küpper, 1989; Vandergrift, 1996, 1997; Young, 1997; Vandergrift et al., 2006; Rahimi and Katal, 2012) have stated that high level of metacognitive knowledge enables language students to become better at processing and storing new information and applying what they learn.

It is understood that the role of the metacognitive awareness in language learning has been researched especially on the language skills performance specific to the field. Metacognitive strategy use in reading, listening, writing and speaking skills and the effect of metacognitive awareness on the performance have been widely studied. In this sense, researchers have determined the contribution of metacognitive knowledge to advanced listening skills (Cross, 2009; Vandergrift & Taraghdotari, 2010), reading skill (Carrell, 1989; Zhang, 2010), pronunciation skill (He, 2011) and writing skill (Victori, 1999) (Goh and Burns, 2012). However, when the relevant literature is examined, it can be seen that there are not many studies about how metacognitive awareness predicts general foreign language academic success. Some studies reached by examining the literature shows that metacognition predicts the academic success reasonably. According to Chamot and O'Malley (1994), metacognition can be a great factor in determining effectiveness of a person's foreign language learning attempt (Pishghadam and Khajavy, 2013). Alcı and Yüksel (2012) concluded from the regression analysis they made with foreign language students that the only variable that predicts the academic performance is metacognitive awareness. Nosratinia et al. (2014) revealed that metacognitive awareness is the best predictor of strategy use in language learning. In the study they executed with 143 Iranian students who learnt English as a foreign language, Pishghadam and Khajavy (2013) stated the role of meta-cognition and intelligence in foreign language academic success and found out that intelligence explains 12,2% of variance while metacognition explains 17,6% of the variance.

This study aimed to reveal what metacognitive awareness meant for achievement in foreign language learning. Thus, we first tried to identify the direction and degree of the correlation between metacognitive awareness and foreign language achievement.

Then, we went on to understand to what extent metacognitive awareness predicted the achievement in foreign language.

## **2.Method**

This research was conducted in the correlational survey design. Karasar (2008) defines the correlational survey models as researches that try to determine the existence and/or the degree of the covariance between two or more variables.

The Metacognitive Awareness Inventory (MAI) developed by Schraw & Dennison (1994) was used as the data collection instrument. This scale is graded as (1) never (2) rarely (3) often (4) usually, and (5) always. The scale consists of two main sub-scales: knowledge of cognition and regulation of cognition. In the knowledge of cognition dimension, it is targeted to measure both an individual's knowledge about himself/herself, and about what strategies he/she will use and what strategy will be useful in any learning situation; while in the regulation of cognition dimension, it is aimed to measure the individual's knowledge about planning of learning process, use of strategies suitable for a particular learning situation, monitor of learning, and about his/her awareness of mistakes and self-evaluation of the learning situation (Akm, 2006). The original form of the scale contains 52 items.

The latest validity-reliability and Turkish adaptation of the scale was carried out by Yıldız (2010). Yıldız (2010) employed the MAI to 32 students studying in the 7th grade of secondary school. The correlation between the scores of the English and Turkish forms of the scale was .52. According to the factor analysis conducted to identify the construct validity, it was observed to account for 57 % of the variance and consist seven factors. İç tutarlık güvenilirliğini belirleyen the Cronbach's Alpha coefficient, determining the internal consistency reliability, was found as .83 for the whole scale. It was observed with the validity test conducted for the items of the Turkish MAI form that the factor structure after the principal component analysis was not compatible with the factor structure of the original scale; and the internal consistency reliability coefficients of some factors were low. Then, as a result of the secondary confirmatory factor analysis, the scale was transformed to a four-factor structure- knowledge management, planning, monitor and evaluation- with 19 items. The Cronbach's Alpha coefficient of this latest version of the scale was .89. And in this study, it was calculated as .867.

The study was conducted with 683 students who were studying at various engineering departments of Fırat University after having received English as a foreign language preparation education for one year. These students were subjected to an English proficiency exam before starting to study at their departments. Those who failed this exam received a two-term prep-class education. The students were once again subjected to a proficiency exam after their prep-class education. The achievement criteria of both exams were at least 70 out of 100. Those who got a score of 70 and over from one of these exams were exempt from the prep-class education. The data of the study were limited to the MAI and the achievement

scores of the students. The data of the study were analyzed with one of the logistic regression analysis methods: standard (enter) method.

In order to evaluate the normality of the data, Skewness and Kurtosis values and P-P Plot graphs were examined. The fact that Kurtosis and skewness coefficients are between  $\pm 2.0$  is considered as a normal distribution. The Skewness and Kurtosis values were respectively as (.157, -.208) for the MAI, (-.136, -.320) for the knowledge management factor, (.038, -.323) for the planning factor, (.127, -.235) for the monitor factor, (-.031, -.428) for the evaluation factor, and (-1.004, .214) for the academic achievement. According to the test results, it was observed that the variables got values between  $\pm 2.0$  and showed normality. Moreover, the P-P Plot graphs also showed the normal distribution of the variables.

### 3. Findings

The first research question was to identify the correlations between the MAI and its sub-dimensions and the foreign language academic achievement. The relevant findings are given in Table 1 below:

Table 1. The Correlation between the MAI and the Foreign Language Academic Achievement

	Correlation (N=683)	Pearson (r)	p
MAI* Achievement		-,009	.814
Knowledge Management* Achievement		,021	.586
Planning* Achievement		.026	.500
Monitoring* Achievement		-,064	,096
Evaluation* Achievement		,003	,931

According to Table 1, no significant correlation was found between the MAI and its sub-dimensions and the academic achievement in foreign language. In order to test this situation with another way, it was tried to understand whether the MAI and its sub-dimensions predicted the foreign language academic achievement. In the first place, it was tested whether there was any data loss (missing cases) in the sample, and the findings are given in Table 2:

Table 2. The Sample included in the analysis

Unweighted Cases		N	Percent
Selected Cases	Included in Analysis	683	100.0
	Missing Cases	0	.0
		Total	683
Unselected Cases		0	.0
		Total	683

As it can be understood from Table 2, the number of the students included in the analysis is 683. Thus, there was no data loss (missing case). The initial block iteration history of the analysis is given in Table 3:

Table 3. The Iteration History for the Initial Block (Block 0)

Iteration	-2Log likelihood	Coefficients
		Constant
Step 0	1 940.644	.190
	2 940.644	.191

It is seen that the -2LL (-2Log likelihood) value in the iteration history of the initial block is 940.644. The fact that this value is near to zero is necessary for the model fit. Thus, it is a high value for the initial history. What should be assessed at this point is whether there will be any betterment with the inclusion of those predictive variables which were not present in the first model. This will get clearer later; however, we should first evaluate the first categorization table of the predictive variables. The first categorization table is given in Table 4.

Table4. The First Categorization of the Predictive Variables

Observed	Predicted		Percentage Correct
	Successful	Unsuccessful	
Unsuccessful	0	309	.0
Successful	0	374	100.0
Overall Percentage			54.8

According to Table 4, all the students are categorized within the successful group, and the percentage of correct categorization is 54.8 %. And the wald statistics of the variables in the first model are as  $\beta=.191$ , *Standard Error* =.77, *Wald*=6.167, *freedom value*=1, *significance value* .013,  $Exp(\beta)$ =1.210. The Wald statistics is commonly used in testing the significance of the logistic regression coefficient for each independent (predictive) variable. The results of the variables which were not present in the first model (predictive variables) are given in Table 5.

Table5. The Results of the Predictive Variables in the Initial Model

	Variables	Score	df	sig
Step 0	Knowledge management	.295	1	.587
	Planning	.087	1	.768
	Monitoring	2.547	1	.111
	Evaluation	.244	1	.622
Overall Statistics		13.916	4	.050

The error chi-square value in Table 5 was calculated as ( $X^2_{\beta_0}=13.916$ ,  $p=.05$ ). As this value is on the threshold of significance, we should go on searching whether the predictive variables not included in the model can significantly contribute to the predictive power of the model. When the predictive variables were included in the model, the findings in Table 6 were observed:

Table6.The Iteration history after the inclusion of the predictive variables

Iteration		-2Log likelihood	Coefficients				
			Constant	Know.- Manag.	Plan.	Monit.	Eval.
Step 1	1	931.061	.217	.116	.195	-.546	.203
	2	931.053	.221	.119	.199	-.560	.208
	3	931.053	.221	.119	.199	-.560	.208

On observing the values given in Table 6, it is seen that there is a betterment in the -2LL value. In addition, the Hosmer & Lemeshow value (Chi-square=14.297,df=8 and p=.074) shows that the model data fit is at an adequate level ( $p>.05$ ). Hence, we should review the categorization table of the model obtained as a result of the logistic regression. The relevant findings are given in Table 7.

Table7.The categorization table of the model obtained as a result of the logistic regression

Observed	Predicted		Percentage Correct
	Unsuccessful	Successful	
Unsuccessful	76	233	24.6
Successful	61	313	83.7
Overall Percentage			57.0

While the successful categorization rate in the first categorization was 54.8%, this rate increased to 57 % after the logistic regression analysis model. And, 233 of the 309 successful students were categorized correctly and 76 of them incorrectly; and 313 of the 374 successful students were categorized correctly, while 61 of them incorrectly. The coefficient estimates of the targeted model variables were found as in Table 8:

Table8.The coefficient estimates of the targeted model variables

Step		$\beta$	S. error	Wald	df	p	Exp( $\beta$ )
1	Know.-Man.	.119	.156	.583	1	.445	1.127
	Planning	.199	.168	1.415	1	.234	1.221
	Monitoring	-.560	.186	9.028	1	.003	.571
	Evaluation	.208	.143	2.122	1	.145	1.232
	Standardized	.221	.492	.203	1	.653	1.248

According to Table 8, the students' academic achievement is only affected by their monitoring skills, however, the academic achievement does not seem to be affected by the students' knowledge management, planning and evaluation skills. Thus, the resulting categorization equation can be explained as:  $[\gamma = .221 - .560x(\text{monitoring})]$ . According to this equation, one unit of increase (1) in the predictive variable "monitoring" leads to a 42.9 % increase in the unsuccessful odds  $[(1-0.571) \times 100]$ .

#### 4. Conclusion

This study tried to understand the relation between university students' general metacognitive awareness and achievement in foreign language learning. To this end, correlation and regression analyses were conducted. It was observed at the end of the study that there are not any correlations between the metacognitive awareness scale and its sub-dimensions-knowledge management, planning, monitoring, evaluation- and achievement in foreign language. It was further understood that the metacognitive awareness and its three sub-dimensions, knowledge management, planning and evaluation, do not have a predictive power for the variance in the academic achievement in foreign language. Monitoring skill is the only predictive variable effective on the academic achievement in foreign language. Bol and Hacker report that correlational and experimental have established monitoring to be able to positively affect decisions about what to study, however, whether this studying results in achievement gains is a question requiring to be supported with more research. In this study, it was understood that those students who are more aware of monitoring their foreign language learning are more successful learners.

The findings of this study are not compatible with those of Pishghadam and Khajavy (2013), Alcı and Yüksel (2012) and Nosratinia et al. (2014) who found metacognition as effective on language learning. While Alcı and Yüksel (2012) found out that metacognitive awareness is the only variable that predicts the academic performance, Pishghadam and Khajavy (2013) reported that metacognition explains more of the variance in foreign language achievement than does intelligence. One important reason for the findings of this study is thought to be the students' metacognitive miscalibration. Calibration is said to be the degree to which an individual's judgement of performance fits his / her actual performance (Bol & Hacker, 2012). That is to say, the Turkish engineering students in this study may have overestimated their metacognitive awareness; their judgements about their metacognitive awareness were not compatible with their outcome performance. However, it is thought that more research are needed in order to have clearer picture of this case.

Moreover, as Schunk (2008) puts it, metacognitive awareness is not enough itself in learning, we should teach our students how and when to use metacognitive strategies, for it is already established by some studies that metacognitive strategy use is effective in advanced listening skills (Cross, 2009; Vandergrift & Taraghdotari, 2010), reading skill (Carrell, 1989; Zhang, 2010), pronunciation skill (He, 2011) and writing skill (Victori, 1999) (as cited in Goh and Burns, 2012). Therefore, it can be suggested that in classroom teaching, students should be informed about what it really means to be able to know, plan, monitor and evaluate their own knowledge and learning in order for them to correctly calibrate their metacognition and be better self-regulated language learners.

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