



The relationship between learning strategies and achievement goal orientations of high school students

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Abstract. The aim of this study was to determine the relationship between the learning strategies and achievement goal orientations of high school students. The sample of the study consists of 642 students selected by cluster sampling method. The data were collected with "Learning Strategies Scale" and "Patterns of Adaptive Learning Scale (PALS)". Descriptive statistics, independent samples t-test, one-way ANOVA and Pearson correlation analysis were used to analyze the data. As a result, it was determined that the learning strategies that students used most were affective strategies and rehearsal strategies, and the least used strategies were organizational strategies. While examining students' goal orientations it is concluded that they are more mastery goal oriented than performance goal orientation. In addition, a moderately significant relationship was found between mastery goal orientation and learning strategies, while a low level significant relationship was found between performance goal orientation and learning strategies.

Keywords: Learning strategies, achievement goal orientation, mastery goal orientation, performance goal orientation

Received: 13.02.2019

Accepted: 04.10.2019

Published: 15.01.2020

INTRODUCTION

In today's information age, it is the most basic need for students to learn how to learn at all levels of education from primary school level to higher education. Students who know how to learn can achieve a much more effective learning and succeed at the point of achieving the desired goal in education. Individuals need to know the ways to learn in the learning process. In the relevant literature, it is seen that the paths used in the learning process are conceptualized as learning strategies. Another important issue about learning is the purpose for which individuals are trying to succeed. While some individuals do the learning job to internalize information and use it when necessary; some individuals act in order to appear knowledgeable around them, to be accepted around them, or not to be humiliated by their surroundings. These characteristics of individuals are expressed as achievement goal orientation. The learning strategies and achievement goal orientation that form the basis of the study are discussed below in more detail.

Learning Strategies

Strategy is generally addressed as the path to achieving something or the implementation of a plan developed to achieve a goal. Learning strategy is the way to achieve learning. The purpose of a strategy is to influence the student's sensory status and facilitate him or her to choose, acquire, organize and integrate new information (Meydan, 2004). Learning strategies involve students going through their mental processes with the information presented to them in the learning-teaching process or in their individual preparations, and putting forward the efforts necessary to make sense of it and make it self-contained (Tay, 2005). Learning strategies shed light on the question "How does learning take place?" When learning and working at every stage of life, and sometimes without even realizing it, most of the behaviors we do are actually learning strategies (Çelikkaya & Kuş, 2010). Weinstein and Mayer (1983) defined learning strategies as "behaviors and thoughts in which a learner engages and which are intended to influence the learner's encoding process." Alexander, Graham and Harris (1998) stated there are six main

characteristics that distinguish learning strategies from individual's other actions, and these are procedural, purposeful, effortful, willful, essential and facilitative.

Learning strategies have emerged as tools and techniques to facilitate or activate cognitive processing based on the principles of information processing and encryption presented in the cognitive learning model (Somuncuoğlu & Yıldırım, 1998). These strategies allow students to know that there are more than one way to do a job, to recognize and correct their mistakes, to evaluate their learning and behavior, to strengthen their memory and to improve their learning. In addition, these strategies help students to gain self-esteem, self-confidence and greater responsibility for learning (Beckman, 2002). In addition to providing easy and lasting learning, learning strategies provide a variety of benefits in providing students with independent learning qualifications, assisting them in learning willingly and enjoyment, and preparing foundations for after-school learning (Özer, 2002). The important point in using learning strategies is that the individual chooses and uses the appropriate strategy in appropriate situations. Therefore, the main purpose of teaching learning strategies is to help students to provide themselves with their own learning (Senemoğlu, 2012).

There are different classifications for learning strategies. O'Malley et al. (1985) classified learning strategies into three groups: metacognitive strategies, cognitive strategies and social mediating strategies. Gagne and Driscoll (1988) gathered learning strategies in five groups: Attention strategies, increase storage in short-term memory strategies, coding-enhancing strategies, facilitate recovery strategies, and follow-up strategies. A widely accepted classification is also revealed by Weinstein and Mayer (1983). In this classification, learning strategies have been classified into five groups: rehearsal strategies, elaboration strategies, organizational strategies, comprehension monitoring strategies and affective strategies (Özer, 2002; Weinstein & Mayer, 1983). These strategies are briefly clarified below:

Rehearsal strategies: Mental iterations are the main mental activity in these strategies, which are effective in situations where information is intended to be remembered as it is. Repeating information, memorizing it, making aloud readings, writing information without changing it as it is, and underlining lines are the main iteration strategies (Özer, 2002; Weinstein & Mayer, 1983).

Elaboration strategies: In these learning strategies, the newly learned knowledge is associated with previously learned information and ascribe a meaning to new knowledge. Creating mental images, using them in sentences, expressing them in other words, making summaries, creating simulations and answering questions about the subject are considered as the main semantic strategies (Özer, 2002; Weinstein & Mayer, 1983).

Organizational strategies: These learning strategies involve restructuring information to make it more meaningful. Organizing strategies such as grouping information units according to similar and different characteristics, dividing the whole information into meaningful parts, showing the relationships between the basic and auxiliary points in the text and is covered by the scope of the organizing strategies. Clustering, outlining, creating information schemes, and tabling are some organizational strategies (Demirel, 2015; Özer, 2002; Weinstein & Mayer, 1983).

Comprehension monitoring strategies: Comprehension monitoring strategies are accepted as strategies that enable an individual to organize and realize their learning. Planning of the work to be done, questioning the individual himself, self-evaluation and correcting his mistakes are considered as strategies for monitoring the main understanding (Özer, 2002; Weinstein & Mayer, 1983).

Affective Strategies: It is accepted as strategies that help overcome instinctive and emotional obstacles in the learning process (Senemoğlu, 2012). It is expressed as sensory strategies for the individual to gain attention, to maintain motivation, to manage his or her concern about his performance, to manage time management well and to be motivated to learn (Demirel, 1993; Özer, 2002; Weinstein & Mayer, 1983).

Achievement Goal Orientation

Achievement goal orientation which is one of the research topics that is of great interest in motivation (Akm, 2006), deals with the opinions of individuals about their performance, inform them about how they react when faced with any event, and how to interpret them (İzci & Koç, 2012). The main focus of achievement goal orientation is on how students think about themselves, their duties and performance (Dweck & Leggett, 1988; cited in Buluş, 2011). Achievement goal orientation demonstrates an individual's purpose of acting on success and his orientation to assess his or her competence in success (Pastor, Barron, Miller & Davis, 2007). Therefore, the reason for the learning behaviors exhibited by the students in the school environment can be understood with the achievement goal orientation. Whether the student focuses on the right objectives in academic terms and has goals such as obtaining information by wanting and assimilating it can be determined by goal orientation.

When the relevant field is examined, it is seen that two different achievement goal orientations are emphasized. These are referred to as mastery goal orientation and performance goal orientation. Individuals who aim to develop their skills, who evaluate their qualifications at the point of mastering and developing themselves are expressed as mastery goal-oriented individuals. On the other hand, individuals who aim to show their skills to others and evaluate their qualifications in relationships with others are expressed as performance-oriented individuals (Pastor, Barron, Miller & Davis, 2007). Some students are instinctively oriented with learning (task), while others are performance oriented. While students with a mastery orientation see the aim of the school as the acquisition of skills to be taught; performance-oriented students see it as obtaining positive judgments about themselves or avoiding negative judgments (Slavin, 2000; cited in Arslan, 2011).

Achievement goal orientations can be distinguished based on the focus of mastery or performance, whether the idea of achieving positive results (an approach focus) or the idea of avoiding negative outcomes (with a focus of avoidance) (Pastor, Barron, Miller & Davis, 2007). According to Elliot and Harackiewicz (1996), performance goal orientation is divided into performance approach orientation and performance avoidance orientation, while mastery goal orientation represents a holistic structure. Later studies (Elliot, 1999; Pastor, Barron, Miller & Davis, 2007) agreed that both performance goal orientation and mastery goal orientation can be divided within itself. Therefore, when this dimension is taken into account, we can come across four different achievement goal orientations: Mastery-approach, mastery-avoidance, performance approach, performance avoidance (Elliot, 1999; Pastor, Barron, Miller & Davis, 2007).

Mastery approach goal-oriented individuals focus on achieving, learning and understanding the given task, while using standards for self-improvement and in-depth learning; in the direction of mastery avoidance goal, individuals avoid failing to accomplish the task given and to avoid learning/understanding incorrectly, and use standards to avoid doing a job wrong. Performance approach goal oriented individuals focus on being the best, the smartest person among others and doing the job best, using norm-based standards to be the best (Pintrich, 2000). In the performance approach orientation, there is an attempt by a student to appear successful and talented in the eyes of other students (Tuominen-Soini, Salmela-Aro & Niemivirta, 2010). Performance avoidance goal-oriented individuals try not to look unsuccessful and stupid within others and use norm-based standards to avoid being the most unsuccessful person (Pintrich, 2000).

Various studies (Aydın, 2011; Belet & Yasar 2007; Chularut & DeBacker, 2003; Durukan, 2013; Güven & Gökdağ-Baltaoğlu, 2017; Snead & Snead, 2004; Şahin & Çakar, 2011; Yardımoğlu, 2007) on determining students' learning strategies were conducted. Similarly, some studies (Aydın, 2014; Canıdemir, 2013; İzci & Koç, 2012; Oral, 2012) on achievement goal orientations are available. When the studies focusing on the relationship between learning strategies and achievement goal orientations are examined, it can be seen some studies conducted with university students (Duman & Eren, 2014; Howell & Watson, 2007) and some conducted with secondary and high school students (Ames & Archer, 1988). In the study conducted with

secondary school students (Kadioğlu & Uzuntiryaki-Kondakçı, 2014), the relationship between the learning strategies that students apply to in chemistry course and their achievement goal orientations were examined. Therefore, it can be said that studies determining the relationship between the learning strategies and achievement goal orientations of high school students are lacking. In high school education, which is the last level of education before the university and which is critical in these aspects, it is thought that determining the relationship between learning strategies and achievement goal orientations will contribute to the educational process in order to better understand the reasons for students' success/failure.

The aim of this research is to determine the learning strategies used by high school students, their achievement goal orientations, and the relationship between the learning strategies and achievement goal orientations. For this purpose, answers to the following questions have been sought:

- 1- What is the level of high school students' use of learning strategies?
- 2- Does the level of high school students' use of learning strategies differ significantly depending on gender and the type of high school?
- 3- What is the level of achievement goal orientations of high school students?
- 4- Does the achievement goal orientations of high school students differ significantly depending on gender and the type of high school?
- 5- Is there a significant relationship between the learning strategies and the achievement goal orientations of high school students?

METHODS

Research Model

This research was conducted in relational screening model from quantitative research models. Relational scanning models are models that try to determine the relationship between two or more variables and the level of that relationship (Karasar, 2014). In this study, as the relationship between the learning strategies of high school students and the achievement goal orientations is tried to be determined it can be said that it is in accordance with this model.

Universe and Sampling

The universe of this research is the students studying in high schools located in Hakkari province in the 2017-2018 academic year. In order to determine the sampling of the study, different types of high schools (Anatolian High School, Science High School, Imam Hatip High School and Vocational High School) were determined in accordance with the cluster sampling method. 642 students reached as a result of the application constitute a sample of the research. Demographic characteristics of the sample group is provided in Table 1.

Table 1. Demographic characteristics of the sample group

Demographic Characteristics		N	%
Gender	Female	228	35.5
	Male	414	64.5
Grade	1st	181	28.2
	2nd	158	24.6
	3rd	155	24.1
	4th	147	22.9
High School Type	Anatolian High School	181	28.2
	Vocational High School	79	12.3
	Imam Hatip High School	183	28.5
	Science High School	198	30.8

As seen in Table 1, 228 of the students in the sample group are female and 414 are male. In terms of class level, 181 of them are first class, 158 of them are second class, 155 of them are third class and 147 of them are fourth class. When the distribution of the students is examined

according to the type of high school, it is seen that 181 study at Anatolian High School, 79 study at Vocational High School, 183 study at Imam Hatip High Schools and 198 study at Science High School.

Data Collection Tools

"Learning Strategies Scale" and "Individual Achievement Goal Orientation Scale" were used as data collection tools. Below is detailed information about the data collection tools.

Learning Strategies Scale

In the study "Learning Strategies Scale" developed by Güven (2008) was used to determine students' learning strategies. Scale composes of 39 statements, including 6 articles related to rehearsal strategies, 11 articles related to elaborative strategies, 7 articles on organizational strategies, 9 articles related to comprehension monitoring strategies, and 6 articles related to affective strategies. These substances are rated as "perfectly suited for me," "quite appropriate for me," "a little good for me," "not very good for me," and "it's not for me at all." The Cronbach alpha reliability coefficient of the scale was found to be .90. The reliability coefficients for the dimensions of the scale were respectively .61, .74, .64, .73 and .64 (Güven, 2004). In this study, the reliability value for the sum of the scale was found as .91. On the basis of sub-scales, reliability values were reached respectively 61, .74, .75, .73, and .55.

Individual Achievement Goal Orientation Scale

The five point likert scale developed by O'Malley et al. (1998) and adapted to Turkish by Çıkrıkçı-Demirtaşlı (2005) with a study conducted with secondary school students. The revised form of the scale consists of three sub-scales (individual mastery goal orientation, individual performance approach goal orientation, individual performance avoidance goal orientation) and 14 items. The scale was adapted to high school students by Kalay (2009). In the study conducted by Kalay (2009), performance-approach and performance-avoidance goal orientations were collected under one factor and resulted in a scale consisting of two sub-scales (mastery goal orientation, performance goal orientation). In the adaptation study, the reliability coefficient for the scale was determined as .87, while the two sub-scales were .89. In this study, the reliability coefficient for the scale was determined as .86; .80 for the subscale of mastery goal orientation; performance goal orientation has been identified as .87. These results show that the data obtained from the scale is reliable.

The data of the research were collected in accordance with the official permission given by Hakkari provincial Directorate of Education. With the official permission obtained, visits were made to the schools determined by the researchers and the administrators and teachers were informed about the study. Applications were carried out in classrooms with the supervision of administrators or teachers in schools. Prior to the application, students were informed about the study and volunteering was based on participation in the study.

Data Analysis

The SPSS package program was used in the analysis of the data. Descriptive statistics (mean and standard deviation) were used to determine students' learning strategies and achievement goal orientations. Students' level of use of learning strategies was interpreted by taking into account "1-1.80= Never", "1.81-2.60= Rarely", "2.61-3.40= Sometimes", "3.41-4.20= Frequently" and "4.21-5.00= Always".

Parametric tests were used because the corresponding scores showed a normal distribution. Independent samples t-test, one-way ANOVA was used to determine the difference scoring by gender and type of high school. Scheffe test was used in determining the source of the difference as a result of ANOVA. Pearson Correlation Coefficient was used to determine the relationship between students' learning strategies and achievement goal orientations. The level of significance in the interpretation of the findings was accepted as .05.

RESULTS

Descriptive statistics were used to determine the level of students' use of learning strategies and the findings were presented in table 2.

Table 2. *Descriptive statistics of the learning strategies used by high school students*

Learning Strategies (LS)	N	Mean	SD
Rehearsal	642	3.85	.69
Elaboration	642	3.56	.65
Organizational	642	3.22	.80
Comprehension monitoring	642	3.71	.70
Affective	642	3.87	.69

When the means of high school students' learning strategies are examined in Table 1, it is seen that the mean of the rehearsal strategies is 3.85, the mean of the elaboration strategies is 3.56, the mean of the organizational strategies is 3.22, the mean of the comprehension monitoring strategies is 3.71 and the mean of affective strategies is 3.87. Accordingly, it has been observed that students use "sometimes" organizational strategies, which are the strategies they use the least. When comparing other learning strategies they used "frequently", it was determined that the most commonly used strategies were respectively affective, rehearsal, comprehension monitoring and elaboration strategies.

The results of the independent samples t test to determine whether the learning strategies of high school students vary by gender are shown in table 3.

Table 3. *Independent samples t test results for high school students' learning strategies in terms of gender*

LS	Gender	N	Mean	SD	df	t	p
Rehearsal	Female	228	4.04	.67	640	5.36	.000
	Male	414	3.74	.69			
Elaboration	Female	228	3.73	.67	640	5.12	.000
	Male	414	3.46	.63			
Organizational	Female	228	3.32	.83	640	2.25	.025
	Male	414	3.17	.78			
Comprehension monitoring	Female	228	3.92	.72	640	5.67	.000
	Male	414	3.60	.66			
Affective	Female	228	4.07	.68	640	5.38	.000
	Male	414	3.77	.67			

As seen in Table 3, the scores obtained by the students from all strategies differed significantly in terms of gender ($p < .05$). Female students' scores from rehearsal, elaboration, organizational, comprehension monitoring and affective strategies were found to be statistically significantly higher than male students. Accordingly, it can be said that female students use the learning strategies more effectively.

ANOVA results applied to examine learning strategies in terms of high school type are presented in table 4.

Table 4. ANOVA results for high school students' learning strategies in terms of high school type

LS	High School Type	N	Mean	SD		Sum of Squares	df	Mean Square	F	p
Rehearsal	1. Anatolian	181	3.99	.67	Between groups	5.43	3	1.81	3,800	.010
	2. Profession	79	3.76	.63	Within groups	303.33	637	.476		
	3. Imam Hatip High School	183	3.77	.68	Total	308.76	640			
	4. Science	198	3.81	.73						
Elaboration	1. Anatolian	181	3.70	.64	Between groups	8.73	3	2.91	6,985	.000
	2. Profession	79	3.41	.63	Within groups	265.45	637	.417		
	3. Imam Hatip High School	183	3.43	.63	Total	274.18	640			
	4. Science	198	3.60	.65						
Organizational	1. Anatolian	181	3.45	.79	Between groups	13.54	3	4.51	7,265	.000
	2. Profession	79	3.09	.65	Within groups	39.75	637	.621		
	3. Imam Hatip High School	183	3.12	.77	Total	409.29	640			
	4. Science	198	3.16	.84						
Comprehension monitoring	1. Anatolian	181	3.81	.66	Between groups	9.02	3	3.01	6,253	.000
	2. Profession	79	3.55	.67	Within groups	306.23	637	.481		
	3. Imam Hatip High School	183	3.57	.67	Total	315.25	640			
	4. Science	198	3.81	.73						
Affective	1. Anatolian	181	3.96	.64	Between groups	7.58	3	2.53	5,421	.001
	2. Profession	79	3.66	.73	Within groups	296.71	637	.466		
	3. Imam Hatip High School	183	3.78	.65	Total	304.29	640			
	4. Science	198	3.94	.71						

When Table 4 is examined, it is seen that the scores obtained from the sub-scales of rehearsal, elaboration, organizational, comprehension monitoring and affective strategies differ significantly in terms of the high school type ($p < .05$).

The results of the post-hoc Scheffe test to determine the source of these differences are given in table 5.

When the table is examined, it is seen that the difference in the rehearsal strategies arises between Anatolian High School and Imam Hatip High School in favor of Anatolian High School ($p < .05$). When the results of the elaboration strategies were examined, it was determined Anadolu High School students had significantly higher scores than Vocational High School and Imam Hatip High School students ($p < .05$). When the scores obtained from the organizational strategies were examined, it was found there was a significant difference between the students studying at Anatolian High School and other students in favor of Anatolian High School students ($p < .05$). Accordingly, it can be said that students studying at Anatolian High School use the organizational strategies more than students in other high schools. In terms of comprehension monitoring strategies, it was found that Anatolian High School and Science High School students had higher scores than Imam Hatip High School students; while they had higher scores than Vocational High School students in terms of affective strategies ($p < .05$). Based on these findings, it can be said that Anatolian High School and Science High School students use the learning strategies more intensively than other students.

Table 5. Scheffe test results for high school students' learning strategies in terms of high school type

LS	(I) High school	(J) High School	Mean Difference (I-J)	Standard Error	p
Rehearsal	Anatolian High School	Vocational HS	.22313	.09305	.126
		Imam Hatip HS	.21937*	.07234	.028
		Science HS	.17077	.07096	.123
	Vocational High School	Imam Hatip HS	-.00376	.09290	1,000
		Science HS	-.05236	.09183	.955
	Imam Hatip High School	Science HS	-.04860	.07076	.925
Elaboration	Anatolian High School	Vocational HS	.28933*	.08705	.012
		Imam Hatip HS	.26945*	.06767	.001
		Science HS	.09730	.06638	.543
	Vocational High School	Imam Hatip HS	-.01988	.08690	.997
		Science HS	-.19203	.08590	.173
	Imam Hatip High School	Science HS	-.17215	.06619	.081
Organizational	Anatolian High School	Vocational HS	.35720*	.10629	.011
		Imam Hatip HS	.33204*	.08263	.001
		Science HS	.29287*	.08106	.005
	Vocational High School	Imam Hatip HS	-.02516	.10611	.997
		Science HS	-.06433	.10489	.945
	Imam Hatip High School	Science HS	-.03917	.08083	.972
Comprehension monitoring	Anatolian High School	Vocational HS	.25317	.09349	.063
		Imam Hatip HS	.23413*	.07268	.016
		Science HS	-.00215	.07130	1,000
	Vocational High School	Imam Hatip HS	-.01904	.09334	.998
		Science HS	-.25532	.09227	.055
	Imam Hatip High School	Science HS	-.23628*	.07110	.012
Affective	Anatolian High School	Vocational HS	.30625*	.09203	.012
		Imam Hatip HS	.18181	.07155	.092
		Science HS	.02256	.07019	.991
	Vocational High School	Imam Hatip HS	-.12444	.09188	.608
		Science HS	-.28368*	.09082	.021
	Imam Hatip High School	Science HS	-.15924	.06998	.160

Descriptive statistics on students' achievement goal orientations are given in Table 6.

Table 6. Descriptive statistics of high school students' achievement goal orientations

Achievement Goal Orientations	N	Mean	SD
Mastery Goal Orientation	642	4.27	.79
Performance Goal Orientation	642	3.39	1.06

When the Table is examined, it is seen that the mean of mastery goal orientation is 4.27 and the mean of performance goal orientation is 3.39. In addition, it was found that 500 of the students in the sample group had a higher mastery goal orientation score than the performance goal orientation score, and the remaining 142 had a higher performance goal orientation score. These findings show that students are more mastery goal-oriented.

The analysis to determine whether the achievement goal orientations of high school students vary by gender is given in Table 7.

Table 7. Independent samples *t* test results for high school students' achievement goal orientations in terms of gender

Achievement Goal Orientation	Gender	N	Mean	SD	df	t	p
Mastery Goal Orientation	Female	228	4.45	.72	640	4,417	.000
	Male	414	4.17	.81			
Performance Goal Orientation	Female	228	3.17	1.13	640	-4,014	.000
	Male	414	3.51	.99			

As shown in the Table, there is a significant difference in the dimensions of mastery goal orientation and performance goal orientation in terms of gender ($p < .05$). When the means of male and female students in both dimensions are examined, it is seen that there is a significant difference in favor of female students in the mastery goal orientation dimension; while there is a significant difference in favor of male students in performance goal orientation dimension.

The analysis to determine whether the achievement goal orientations of high school students vary by high school type is given in Table 8.

Table 8. ANOVA results for high school students' achievement goal orientations in terms of high school type

		High School Type	N	Mean	SD		Sum of Squares	df	Mean Square	F	p
Mastery Goal Orientation	1. Anatolian	181	4.34	.67	Between groups	7.88	3	2.62	4.29	.005	
	2. Vocational	79	4.00	.92	Within groups	389.54	637	.61			
	3. Imam Hatip	183	4.23	.78	Total	397.42	640				
	4. Science	198	4.33	.82							
Performance Goal Orientation	1. Anatolian	181	3.65	1.02	Between groups	63.87	3	21.29	20.87	.000	
	2. Vocational	79	3.43	.88	Within groups	649.65	637	1.02			
	3. Imam Hatip	183	3.61	.95	Total	713.53	640				
	4. Science	198	2.93	1.10							

When Table 8 is examined, it is observed that students' mastery goal orientation and performance goal orientation scores differ significantly depending on the type of high school they are studying ($p < .05$). The results of the post-hoc Scheffe test to determine the source of these differences are given in Table 9.

Table 9. Scheffe test results for high school students' achievement goal orientations in terms of high school type

		(I) High school	(J) High School	Mean Difference (I-J)	Standard Error	p
Mastery Goal Orientation	Anatolian High School		Vocational HS	.34664*	.10545	.013
			Imam Hatip HS	.11420	.08198	.585
			Science High School	.01281	.08042	.999
	Vocational High School		Imam Hatip HS	-.23244	.10527	.182
			Science HS	-.33383*	.10406	.017
		Imam Hatip High School	Science HS	-.10139	.08019	.660
Performance Goal Orientation	Anatolian High School		Vocational HS	.22946	.13618	.418
			Imam Hatip HS	.04542	.10587	.980
			Science HS	.72689*	.10385	.000
	Vocational High School		Imam Hatip HS	-.18404	.13595	.608
			Science HS	.49743*	.13439	.004
		Imam Hatip High School	Science HS	.68147*	.10356	.000

As a result of the post-hoc Scheffe test for binary comparisons, the means of Anatolian and Science High School students in the direction of mastery goal orientation are significantly higher than vocational high school students ($p < .05$). In terms of performance goal orientation, it was found that Science High School students had a significantly lower average than the other high school students ($p < .05$).

Pearson correlation analysis results, which was applied to determine whether there is a significant relationship between students' learning strategies and achievement goal orientations, are presented in Table 10.

Table 10. *The relationship between students' learning strategies and achievement goal orientations*

	Mastery Goal Orientation	Performance Goal Orientation
Rehearsal strategies	.425**	.231**
Elaboration strategies	.429**	.189**
Organizational strategies	.305**	.245**
Comprehension monitoring strategies	.499**	.217**
Affective strategies	.492**	.149**

** $p < .01$

As a result of the examinations conducted in Table 10, students' mastery goal orientation and learning strategies are moderate in a positive way ($.30 < r < .70$), a weak positive correlation ($r < .30$) was found between performance goal orientation and learning strategies.

DISCUSSION and CONCLUSIONS

In this study, which examines the relationship between learning strategies and achievement goal orientations of high school students, the frequency of students' using the learning strategies is affective, comprehension monitoring, rehearsal, elaboration and organizational strategies. It was revealed that the students *sometimes* used organizational strategies and the remaining learning strategies *frequently*. This result shows that students have no significant problems in focusing attention, motivating, evaluating themselves and regulating their learning. In addition, this result shows students use rehearsal strategies enabling superficial learning more than elaboration and organizational strategies enabling meaningful and organized learning (Demirel, 2015; Özer, 2004, 2008; Somuncuoğlu & Yıldırım, 1998). While students' frequent use of learning strategies is a positive result, the elaboration and organizational strategies that provide opportunities for more meaningful and organized learning are the least used strategies is an issue to consider. In particular, it can be said that the level of use of organizational strategies (Özer, 2002) that require the student to edit and configure the new information he/she encounters is not sufficient. This result shows that students prioritize memorization. However, the use of organizational and elaboration strategies in the learning process significantly increases academic success (Belet & Yaşar, 2007; Cebesoy, 2009; Chularut & DeBacker, 2003; Snead & Snead, 2004; Şahin & Çakar, 2011; Yardımoğlu, 2007). The reason that students use some learning strategies less may be because of these strategies itself or because students do not know these strategies (Aydın, 2011). As a matter of fact, strategy training shows that students have provided a significant increase in the level of using these strategies (Monahan, Ognibene & Torrisi, 2000; Radloff, 1997).

When the relevant field is examined, it is seen that there are similar and different results expressed above. In the study conducted by Şahin and Çakar (2011) with preservice teachers, it was concluded that the least used strategies were organizational strategies, similar to the results of this study. Durukan's (2013) study with preservice teachers revealed that the most widely used learning strategies were rehearsal and the least used learning strategies were organizational strategies. Aydın's (2011) high school students, Arsal and Özen (2007) with preservice teachers in their studies with the most used learning strategies were determined to be organizational

strategies. In the studies conducted by Güven (2004) and Çelik (2016), high school students use their elaboration and comprehension monitoring strategies extensively; it has been found that they use less rehearsal, organizational and affective strategies. These results show that there is a difference in the level of students of different ages using their learning strategies.

According to the results of the study, female students use the learning strategies more than male students. This result is consistent with the results of various studies in the literature (Arsal & Özen, 2007; Aydın, 2011; Ghiasvand, 2010; Güven, 2004; Özkal & Çetingöz, 2006). In these studies, it was concluded that female students use the learning strategies more intensively and effectively than male students. In various studies with preservice teachers (Buluş, Duru, Balkis & Duru, 2011; Güven & Gökdağ-Baltaoğlu, 2017; Saracaloğlu & Karasakaloğlu, 2011; Şahin & Çakar, 2011) were also found to use the learning strategies of female preservice teachers more than male. In the study conducted by Çelik (2016), it was concluded that female students used organizational strategies more intensely than male, and it was concluded that rehearsal, elaboration, comprehension monitoring, and affective strategies were used more frequently by male than female. In the study, in which Çelikkaya and Kuş (2010) examined the learning strategies of seventh grade students, female students used their attention strategies more than male students; again, it was concluded that the levels of using interpretation and social-affective strategies did not differ significantly according to gender. These results generally show that individuals with female gender use the learning strategies more intensively at different levels of education.

As a result of the research, it was observed that Anatolian High School and Science High School students used the learning strategies more than students studying at Imam-Hatip High School and Vocational High School. This result shows that students studying in higher entrance points use the learning strategies more than students studying in other high schools. Additionally, this result shows that it is important to use a learning strategy to succeed. However, when viewed in terms of rehearsal, elaboration and organizational strategies, it is seen that the strategies that students studying in all types of high school use most are rehearsal strategies that provide more superficial learning. In the study conducted by Canıdemir (2013), it was found that industrial vocational high school students adopted a superficial learning approach and students studying in other high schools adopted a deep learning approach. Similarly, the study conducted by Güven (2004) found that students studying at vocational-technical high schools use the rehearsal strategies more intensively than students studying at science high schools. Saracaloğlu and Karasakaloğlu (2011) conducted a study with classroom preservice teachers and found that the study and learning strategies of the preservice teachers did not differ according to the type of high school they graduated from.

As a result of the research, it was found that high school students were more mastery goal-oriented than performance goal-oriented. This result, which is consistent with the results of the study conducted by Canıdemir (2013), can be considered as a positive result for the students. Because Pastor et al. (2007) stated that mastery goal-oriented individuals strive to succeed in developing their own skills and becoming more competent in their work. In performance goal orientation, the main goal is to look successful or not to appear unsuccessful to others. There are other research results consistent with the results of this research. In the study conducted by Kadioğlu and Uzuntiryaki-Kondakçı (2014), it was observed that the students were most oriented towards mastery-approach, and least oriented towards mastery-avoidance goals. In the study conducted by Karataş, Güleş and Aypay (2014) with university students, it was determined that students were driven to learn more with intrinsic goals. In the study conducted by Galliger (2009), the achievement goal orientation of students studying in secondary schools that teach in accordance with the traditional and constructivist approach was compared and, similar to the result of this study, students were revealed to be more mastery goal-oriented. Another important result of the same study is that there is a difference in favor of students in traditional schools in terms of performance goal orientation. Considering that the group participating in this study underwent an education in which the constructivist approach was adopted, it can be said the positive result that the students were more oriented towards mastery goal may be related to the constructivist approach.

Another conclusion reached in the study was in favor of female students in the dimension of mastery goal orientation; there is a significant difference in favor of male students if performance is in the dimension of goal orientation. Akın's (2006) study results also show that female students are mastery-oriented more than male students. Oral (2012) in his study has found a significant difference in favor of females in the direction of mastery goal; and in approaching performance has found a significant difference in goal orientation in favor of males. In the study conducted by Canidemir (2013), it was determined that both male and female students were more mastery-oriented, but the rate at which female students adopted the mastery goal orientation was higher than male students. İzci and Koç (2012) found that in their work with prospective teachers there was no significant difference in goal orientations according to gender. The fact that female students are more mastery-oriented than male students shows that they perform better in order to acquire and internalize the information.

In terms of high school types, Anatolian High School and Science High School students were found to have more mastery goal-oriented than Vocational High School and Imam-Hatip High School students. Similarly, in Canidemir's (2013) study, 90.6% of students studying at Science High School and 83.9% of students studying at Anatolian High School were mastery goal-oriented; it was found that 52.7% of the students studying at Industrial Vocational High School were mastery goal-oriented and that showed there were significant differences in this regard. In the study conducted with students who received pedagogical formation education by İzci and Koç (2012), it was concluded that the achievement goal orientation of the students did not differ significantly according to the type of high school they graduated from. The results of this study may be an indication of why students studying in vocational high schools have failed in university exams compared to students studying in other high schools (Berberoğlu & Kalender, 2005). As a matter of fact, in the study conducted by Coutinho (2007), it was concluded that there was a moderately meaningful relationship between mastery goal orientation and academic achievement, and that there was no significant relationship between performance goal orientation and academic success.

One of the important issues discussed in this study is the relationship between learning strategies and achievement goal orientations. Because although it depends on many factors that students are able to make the necessary use of their teaching activities; it may also related to whether they want to learn or not, and if they want to know, why they want to know (Arslan, 2011). As a result of the analyzes, the students' learning strategies and mastery goal orientation were moderate; and concluded that there is a low level of significant relationship between performance goal orientation. This result shows that learning goal-oriented students use the learning strategies more than performance-oriented students, but they also use their both mastery and performance-oriented learning strategies. On other words; it was determined that students who want to acquire the information taught in school in real terms or who want to master the information transferred to them use the learning strategies more. However, it has been determined that performance-oriented individuals who aim to get themselves to accept others also use learning strategies, albeit lower than mastery goal-oriented students. Similarly, in the study conducted by Duman and Güler (2014), learning goals are moderate and positive with learning strategies; performance-approach and performance-avoidance have shown that the objectives are poorly and positively related to learning strategies. The study by Howell and Watson (2007) also found that there were moderate and low significant relationships between achievement goal orientations and learning strategies. As a matter of fact, in the study conducted by Ames and Archer (1988), it was concluded that there was a moderately meaningful relationship between mastery goal orientation and academic achievement, and that there was no significant relationship between performance goal orientation and academic success. In the study conducted by Kadioğlu and Uzuntiryaki-Kondakçı (2014), it was found that the performance-approach and mastery-approach goals were meaningful fatigues in estimating the learning strategies used by the students. Therefore, it can be said that both the results achieved in the current study and the related research results demonstrate the existence of a relationship between learning strategies and achievement goal orientations.

The following recommendations can be made in line with the results of the study:

- Students can be given training on learning strategies, especially to make them more effective use of their organizational and elaboration strategies. In order to do this, it can be ensured that teachers are adequate in teaching learning strategies through in-service training.
- Vocational High School and Imam Hatip High School students may be encouraged to be informed about their learning strategies and to use these strategies in the learning process.
- This study is limited to investigating the relationship between students' level of success, goal orientation and using learning strategies. Studies can be carried out to determine the variables that predict the students' achievement goal orientations and learning strategies.

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