

Assessing Uses of Motivated Strategies by Middle School Students Based on Their Learning Styles

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Abstract

In this study, middle school students' motivated strategies for learning were compared based on their learning styles. Four hundred fifty-one senior middle school students participated in this study. The sample comprised 52.3% female students and 47.7% male students. According to the results of the present study, the Concrete Experience and Reflective Observation learning preferences generally exhibit a negative correlation with the motivated strategies for learning whereas the Abstract Conceptualization and Active Experimentation learning styles mostly display a positive correlation with the motivated strategies for learning. Moreover, the students who have the Accommodating and Converging learning styles use motivated strategies for learning more frequently than the students who have the Diverging and Assimilating learning styles.

Key words: *learning style; learning strategy; middle school student; MSLQ.*

Introduction

Today, with the development of new technologies and information sources, the amount of information and the number of skills students must possess have increased. To adapt to this change, individuals should possess certain skills, such as critical thinking, problem solving, decision-making (Adeneye, 2014; Arikan & Unal, 2015; Davis, 2014). It is believed that the development of these skills is achievable in a learning environment where students are active during the learning process, assume responsibility for their own learning, and construct concepts in their minds, according to their preliminary knowledge as well as their learning preferences as proposed by

the constructivist approach (Jaworski, 1994; Marlow & Page, 1998; Von Glasersfeld, 1995; Woolfolk, 2004). In this way, it is possible to raise individuals who have learned to learn. These individuals can choose and use the appropriate learning strategies to achieve effective learning as they are familiar with their own learning characteristics (Özer, 1998). There are many factors that affect learning. When individuals learn, some of their characteristics in which they differ from one another, such as intelligence and personality, are revealed. Apart from these, they may exhibit variations in terms of physical, social, socio-economic, and cultural characteristics. Nevertheless, the same teaching methods and techniques are applied to all students in the classroom, and similar tools and instruments are used. This situation may cause the learning efforts of the majority of the students to end in failure.

One of the most important goals of the educational activities based on contemporary approaches has been to offer students the learning environment they deserve. An approach that focuses on the students' individual differences is adopted in the studies conducted to this end. In this sense, many educational programs aim to determine individual differences in the students' learning performances and prepare activities based on these differences (Ergin, 2004). Planning the education process by taking into consideration the students' different individual characteristics, such as the speed of learning, readiness level, interests, and learning styles, will improve the students' self-regulation, problem-solving, communication, and metacognitive skills during the learning process and provide each student with an opportunity for success (Heacox, 2002; Tomlinson, 2001). According to the relevant literature, learning styles and learning strategies, which are among the students' individual characteristics, come into prominence as important variables that affect their success (Bailey, Onwuegbuzie, & Daley, 2000; Belbase, 2013; Busato, Prins, Elshout, & Hamaker, 1999; Busato, Prins, Elshout, & Hamaker, 2000; Diseth, 2011; Komarraju, Karau, Shcmeck, & Avdic, 2011; Liem, Lau, & Nie, 2008; Schwinger, Steinmayr, & Spinath, 2009).

Learning Styles

Keefe (1979) defines learning styles as the composite of characteristic cognitive, affective, and physiological factors that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment. The learning style is the way in which each learner begins to concentrate, process, absorb, and retain new and difficult information (Dunn & Dunn, 1992). Gregorc (1985) suggests that 95% of individuals have specific learning style preferences. Some of these preferences are so deeply embedded that individuals cannot adapt to meet alternative style requirements posed by different learning situations.

Various different definitions of styles have been provided in the literature. Riding and Cheema (1991) found more than 30 terms specifically used to refer to the areas of style, while Coffield et al. (2004) described 71 different schemes of style employment. In addition to this, many classifications of styles have been proposed, including

the onion model by Curry (1983). Curry organized the learning styles as follows. Learning behavior is fundamentally controlled by the central personality dimension, translated through the middle strata information-processing dimension, and given a final twist by means of the interaction with the environmental factors encountered in the outer strata. As one moves from the innermost stratum to the outermost one, the observability and variability of these characteristics increase (Sadler-Smith, 2001). The outermost of these strata, which is easily observable, is named the Instructional Preference and reflects mostly the preferences related to the learning environment. The classifications made by Dunn and Dunn (1978), Reichmann and Grasha, (1974), and Renzulli and Smith (1978) can be included in this stratum. Another stratum is known as the Information Processing Style. In contrast to Curry's Instructional Preference, the Information Processing Style does not involve the learning environment directly. Measures of this style are more stable measures of the individual. However, the Information Processing Style is influenced by learning strategies. Styles related to the information processing process, included in the second stratum of the onion model, are mostly concerned with the learning processes. This category includes Kolb's (1984) model of the experiential learning cycle and the associated learning styles (converger, diverger, accommodator, and assimilator) or the related learning styles proposed by Honey and Mumford (1992) (activist style, reflector style, theorist style, and pragmatist style), MacCarthy's (1982) 4MAT model, and Gregorc's (1982) Mental Style definitions. The third stratum, described as the core in the onion model, is known as the Cognitive Personality Style. This dimension cannot be observed directly and is inferred from the individuals' interactions with the environment. It describes the internalization and accommodation of information, and its turning into behavior (Cassidy, 2004). The classification related to this stratum involves styles, such as field dependence and field independence styles (Witkin et al., 1977), and the wholist-analytical and verbaliser-imager dimensions of the cognitive style (Riding, 1991). Kolb's model is one of the most widely used models among the learning style classifications in these strata (D'Amore, James, & Mitchell, 2012; Pashler, McDaniel, Rohrer, & Bjork, 2009).

Kolb's Experiential Learning Theory

The most important and fundamental principle of this theory states that learning is a result of experiences (Kolb, 2000). Another important principle of this theory is based on the idea that individuals do not always learn in the same manner. To explain learning as a process that involves four steps, Kolb points out that individuals have some concrete experiences as a natural consequence of the environment where they live, and they observe and reflect these experiences in different ways. In addition to this, he emphasizes that reflective observations effectively help create abstract conceptualizations, and form principles and generalizations. In the end, individuals use these generalizations during their later activities and advanced level learning. Thus,

this process continues in the form of a cycle – new experiences are gained and these experiences play a guiding role in their later learning (Kolb, 1984).

There are four ways of learning according to Kolb's model. These are Concrete Experience, Reflective Observation, Abstract Conceptualization, and Active Experimentation. These ways of learning constitute four learning styles. Kolb called these styles Diverging, Assimilating, Converging, and Accommodating, and developed an inventory to determine the learning styles that consist of the mentioned learning ways. Kolb's Learning Style Inventory assesses how a learner emphasizes the importance of each of the four stages in relation to the other ones. According to Kolb, there are four types of people based on their learning styles: divergers, assimilators, convergers, and accommodators. The divergers take information concretely and process it reflectively. They generalize from what they see. The assimilators, according to Kolb, start with an idea or abstraction, and process it reflectively. They think and observe. The convergers take in experience abstractly and process it actively. They begin with an idea and then test it experimentally. The accommodators perceive experience concretely and process it actively. They are sensor feelers and achievers (Kolb, 1984).

Learning Strategies

Learning strategy can be defined as a set of one or more practices that individuals acquire to facilitate performance on a learning task. Strategies vary based on the nature of the task (Riding & Rayner, 1998). There are some important features of the learning strategies (Schmeck, 1988). First, the learning strategies consist of the conscious choice needed to implement a set of skills. Second, they are employed when a task is perceived as one which demands learning. To analyze the different uses of the strategies by students in the classroom, it is important to recognize individual differences in the use of the learning strategies which are linked to the perceptions of the control level of their learning. Moreover, learning strategies enable individuals to be literate, productive, and independent learners throughout their lives. In addition, learning strategies help students put confidence in their thoughts, understand that there is more than one way to perform a task, recognize and correct their mistakes, evaluate their learning and behavior, strengthen their memory, increase their level of learning, know how to learn, develop their learning process, and assume more responsibility for their learning (Beckman, 2002).

Numerous classifications have been proposed regarding learning strategies. Researchers have classified the learning strategies on the basis of the situations they are found in, their contribution to the components in the information processing procedure, and the students' developmental characteristics. Gagne and Driscoll (1988) divided the learning strategies, according to the information processing procedure, into five groups: 1) attention strategies, 2) strategies that increase storage in short-term memory, 3) strategies that increase encoding, 4) strategies that facilitate recovery and 5) monitoring strategies. Weinstein and Mayer (1986) developed another classification frequently used in the relevant literature. They classified the learning strategies into

the Interpretation, Organization, Repetition, Comprehension Monitoring Strategies, and Affective Strategies. Pintrich, Smith, Garcia, and McKeachie (1993) developed another classification of strategies based on self-regulation which is used in this study. Pintrich et al. (1993) developed a model to discover factors that affect university students' academic achievements and increase their achievements by bringing these variables under control. It was stated that joint evaluation of the cognitive and affective fields, as important dimensions of learning, would contribute to the students' learning to learn. In this model, the learning strategies were subsumed under the titles of the cognitive, metacognitive, and resource management strategies, whereas motivation was divided into the value, expectations, and affective components. The structure that dealt with the scope of this model reveals the points where students are successful and where they need assistance. When learning strategies are defined as procedures that students use to learn by themselves, these students, who perform their learning using these strategies, are given names, such as "strategic learners", "independent learners", and "self-regulated learners" (Arends, 1997).

Learning Strategies and Learning Styles

In the relevant literature, another concept which is believed to be linked to the learning processes but is often mistaken for learning strategies concerns the learning styles (Cleaton, 2000). It is clear that the concepts of style and strategy are different from each other. While biological factors come to the forefront in the concept of style, social dimensions like planning, taking precautions, and finding ways of problem solving are more predominant in the concept of strategy. The style an individual uses may be considered a more permanent dimension of that individual, while strategies are the means employed to perform in various conditions. In other words, styles are fixed and stay as an indigenous characteristic of an individual. Strategies are not stationary and may be developed to manage different circumstances. Considering these characteristics, strategies are the ways of using styles to make the most of a condition for which they are ideally suitable. Therefore, if individuals know which learning style they possess, it will help them to know which strategies they will use while they are learning and apply them. Therefore, learning styles play a key role in the individuals' use of the learning strategies (Givan, 1997). When individuals are aware of the learning styles they have during the learning process, this enables them to adapt their learning strategies to suit different learning tasks in particular contexts. Learners can take advantage of their learning styles by matching learning strategies with their styles; similarly, learners can compensate for the disadvantages of their learning styles to balance their learning by adjusting the learning strategies they use (Nisbet & Shucksmith, 1986; Oxford, 1993).

Since most middle school students can be easily taught some critical skills by virtue of their developmental period, this period gains significance for the researchers. The development of the skills used to understand the learning strategies and use

the appropriate learning strategies seems important (Ataman, 2004; Mayer, 1987; Özer, 2001; Senemoğlu, 2007). There are many studies in the literature regarding the teaching of the learning strategies to middle school students to enable their effective learning (Aydın, 2010; Baş, 2012; Çalışkan & Sünbül, 2011; Dikbaşı & Hasarcı, 2008; Ektem & Sünbül, 2007; Nunn, 1995; Ülger, 2003; Yorulmaz, 2001). However, knowing learning strategies alone is not sufficient for students to perform effective learning during this period. For effective learning to take place, students are obliged to know and use the learning strategies that are in accordance with the learning styles they possess (Güven, 2004).

The present study was intended to investigate the learning strategies middle school students use in accordance with the learning styles they have acquired. Thus, if the learning strategies that middle school students use in accordance with their learning styles can be determined, their awareness can be raised at an early age and they can take a more effective part in their own learning processes. This may help middle school students to overcome their learning difficulties and realize their own independent learning. The students' use of the learning strategies which are in harmony with their learning styles could reflect positively on the learning outputs (Gencel, 2006; Hasırcı, 2005; Li & Qin, 2006; McNeal & Dwyer, 1999; Nunn, 1995; Oxford, 1989; Özbek, 2006). In this framework, middle school students' motivated strategies for learning were compared based on the learning styles they possess. Thus, the following research questions were answered:

1.a Is there a significant correlation between the studied middle school students' learning preferences and their motivated strategies for learning?

1.b Is there a significant correlation between the studied middle school students' learning preferences and their learning strategies?

2.a Are the studied middle school students' motivated strategies for learning significantly different based on their learning styles?

2.b Are the studied middle school students' learning strategies significantly different based on their learning styles?

Methods

Participants

This study was conducted with 451 senior middle school students. 52.3 % (n=236) were female students, while 47.7 % (n=215) were male students. These students ranged from 13 to 14 years in age. The data was collected in the spring semester of the academic year 2012/2013. The participants were randomly selected from different schools located in the city center. Participation in this study was voluntary.

Research Instruments

Learning Styles Inventory: The learning styles inventory, developed by Kolb (1999), consists of 12 completion items. The inventory was adapted to the Turkish language

by Gencel (2006). According to Kolb's classification, there are four learning styles — Converging (CO), Diverging (DI), Assimilating (AS), and Accommodating (AC). These learning styles form the basis for the following four learning preferences: Concrete Experience (CE), Reflective Observation (RO), Abstract Conceptualization (AB), and Active Experimentation (AE). In the learning styles inventory, four choices for each item are scored from 1 to 4. Therefore, the lowest possible score is 12 and the highest possible score is 48. After this scoring, the two combined scores are calculated. One of the combined scores is obtained by subtracting the CE score from the AB score, whereas the other one is obtained by subtracting the RO score from the AE score. The combined scores obtained as a result of these calculations range between -36 and +36. A positive score obtained as a result of AB-CE indicates that learning is abstract, whereas a negative score shows that learning is concrete. On the other hand, the scores obtained as a result of AE-RO demonstrate that learning is active or reflective. The combined scores are placed on a coordinate system developed by Kolb. The score obtained as a result of the AE-RO operation is placed on the horizontal axis, while the score obtained from the AB-CE operation is placed on the vertical axis. The area where these two scores overlap indicates the learning style. The reliability coefficient value was calculated as 0.76 for the concrete experience dimension of the inventory, 0.73 for the reflective monitoring dimension, 0.83 for the concrete conceptualization dimension, and 0.78 for the active experience dimension.

Motivated Strategies for Learning Questionnaire: The Motivated Strategies for Learning Questionnaire, developed by Pintrich, Smith, Garcia and McKeachie (1993), consists of a total of 71 items and involves a 7-point Likert-type scale. This questionnaire has also been adapted to the Turkish language (Karadeniz, Büyüköztürk, Akgün, Çakmak, & Demirel, 2008). According to the results of the confirmatory factor analysis, it is composed of the dimensions of the Motivation and Learning Strategies. The Motivation dimension includes the sub-dimensions of intrinsic goal orientation, extrinsic goal orientation, task value beliefs, control of learning beliefs, and self-efficacy. The Learning Strategies dimension involves rehearsal, organization, elaboration, critical thinking, metacognition, help-seeking, effort regulation, peer learning, and time and study management. In this study, the obtained reliability coefficient values were .85 for the motivation dimension of the questionnaire and .93 for the learning strategies dimension. The Motivated Strategies for Learning Scale was used for Mathematics, Science and Turkish courses in this study. These courses are the mainstream education courses that all students have to take.

Data Analysis

Correlation coefficients were calculated to determine the students' learning preferences and learning strategies utilized. MANOVA was used in the comparison of the students' motivation levels, and the learning and resource management strategies were used according to their learning styles. Scheffé's multiple comparison test was

utilized to identify the differences among the encountered styles according to the MANOVA results. Eta-squared value (η^2) was calculated to determine the effects of the motivation level and learning strategies on the learning styles. The eta-squared value takes values between 0 and 1. In the case of $\eta^2 \leq .01$, it can be said the effect is small, whereas $\eta^2 \leq .06$ indicates a medium effect and $\eta^2 \leq .14$ points to a large effect (Büyüköztürk, 2007).

Results

Kolb's classification of learning styles is made on the basis of the learning preference scores. Therefore, the relationship between the students' learning preference scores, and their motivation levels and learning strategies was investigated and findings related to this are presented in Table 1. According to the findings obtained from the correlation analysis, the Concrete Experience learning preference score has a negative correlation with the three sub-dimensions of motivation and the two

Table 1

The Relationship between the Motivation and Learning Strategies and Learning Preferences

Scales	Subscales	Learning Preferences			
		Concrete Experience	Reflective Observation	Abstract Conceptualization	Active Experimentation
Motivation	Intrinsic Goal Orientation	-.101*	-.137**	.089	.133**
	Extrinsic Goal Orientation	-.097*	-.075	.025	.108*
	Task Value	-.106*	-.100*	.047	.159**
	Control of Learning Beliefs	-.055	-.024	.063	.033
	Self-Efficacy for Learning and Performance	-.086	-.191**	.057	.174**
	Test Anxiety	-.061	.097*	.063	-.059
Learning Strategies	Rehearsal	-.093*	-.091	.02	.123**
	Elaboration	-.047	-.113*	.006	.118*
	Organization	-.117*	-.128**	.102*	.108*
	Critical Thinking	-.081	-.144**	.161**	.038
	Metacognitive Self-Regulation	-.08	-.160**	.136**	.096*
	Time and Study Environment Management	-.023	-.105*	-.003	.143**
	Effort Regulation	.028	.031	-.045	.001
	Peer Learning	.023	-.108*	.064	.008
Help Seeking	-.085	-.184**	.08	.134**	

* $p < .05$; ** $p < .01$.

sub-dimensions of learning strategies. For example, it was observed that students who used the Concrete Experience learning preference more frequently used the Organization strategy less ($r=-.117$). The Reflective Observation learning preference score is significantly correlated with some dimensions of the motivation and learning strategies. The Reflective Observation learning preference score is positively correlated only with test anxiety ($r=.097$). In other words, students who used the Reflective Observation learning preference more frequently experience higher test anxiety. The Abstract Conceptualization learning preference score is positively correlated only with some learning strategies. Students who used the Abstract Conceptualization learning preference more frequently also used the Organization ($r=.102$), Critical Thinking ($r=.161$) and Metacognitive Self-Regulation ($r=.136$) strategies more often. On the other hand, the Active Experimentation learning preference score is significantly correlated with some variables from the motivation and learning strategies field. Students who used the Active Experimentation learning preference more frequently also used the Self-Efficacy for Learning and Performance strategy more often ($r=.174$).

In this study the learning style scores were calculated by using the Concrete Experience, Reflective Observation, Abstract Conceptualization, and Active Experimentation learning preference scores. Whether the students' motivation and learning strategy scores differed significantly or not according to their learning styles was investigated by means of data comparisons. The results of the MANOVA test conducted for the required comparisons are provided in Table 2.

Table 2

MANOVA Results for the Motivation and Learning Strategies According to the Learning Styles

Variable (Effect)	Wilks' Lambda Value	F	Hypothesis df	Error df	η^2	p
Motivation scales (Learning Styles)	.86	3.37	21	1266.86	.039	<.01
Learning strategies scales (Learning Styles)	.88	2.13	27	1282.75	.042	<.01

As shown in Table 2, the participating students' motivation and learning strategy scores exhibit significant variation according to their learning styles. Moreover, each motivation and learning strategy had a medium-level effect on the learning styles. One-Way ANOVA and Scheffé tests were conducted to determine which dimensions showed differences. The findings obtained are presented in Table 3.

When students' motivation levels are examined according to their learning styles, it is observed that the students with the AC and DI learning styles have higher Intrinsic Goal Orientation, Extrinsic Goal Orientation, Task Value, Control of Learning Beliefs, and Self-Efficacy for Learning and Performance than the students with the AS and CO learning styles, whereas their Test Anxiety is lower. The students with the AC and DI learning styles have higher Intrinsic Goal Orientation and Task Value than the students with the AS learning style, whereas they have higher Self-Efficacy for Learning and

Table 3
ANOVA Results for Motivation, Learning and Resource Management Strategies According to Learning Styles

Scale	Style	N	Subscales																									
			Intrinsic Goal			Extrinsic Goal			Task Value			Control of Learning			Self-Efficacy			Test Anxiety										
			Mean	F	DI	Mean	F	DI	Mean	F	DI	Mean	F	DI	Mean	F	DI	Mean	F	DI								
Motivation	AC	75	22.15			16.93			28.65			16.92			27.79			21.39										
	DI	129	21.55	AC-AS; 7.75**	DI-AS	17.27			28.59	AC-AS; 6.60**	DI-AS	16.76	.96		27.56	AC-AS; 12.09**	AC-CO; DI-AS;	20.78	2.73*	DI-CO								
	AS	128	19.27			16.15	1.72	-	25.38			16.25			23.46		DI-CO	22.13										
	CO	119	20.51			16.74			27.23			16.93			24.53			23.09										
Learning strategies	Rehearsal	Mean	F	DI	Mean	F	DI	Mean	F	DI	Mean	F	DI	Mean	F	DI	Mean	F	DI	Mean	F	DI						
			AC	75		20.27				19.99					32.72	AC-AS;		27.14				58.32			15.99			
			DI	129		19.95	2.86*		AC-AS	19.88		3.16*	AC-CO		31.85	6.39**		DI-AS	25.55		6.93**	AC-AS;	55.77	6.43**	AC-AS;	15.67	3.81*	AC-AS
			AS	128		18.44				18.4					28.85				23.8				52.38		AC-CO	14.44		
	CO	119	19.3			18.32			30.87			24.84			54.26			14.8										
	Effort Regulation	Mean	F	DI	Mean	F	DI	Mean	F	DI	Mean	F	DI	Mean	F	DI	Mean	F	DI	Mean	F	DI						
			AC	75		17.28				12.87					32.67				32.67				32.67			32.67		
			DI	129		17.54	.87		-	12.78		.70	-		31.98	9.88**		AC-AS;	31.98				31.98			31.98		
			AS	128		18.17				12.23					28.89				28.89				28.89			28.89		
	CO	119	17.78			12.28			30.65			30.65			30.65			30.65										

*p<.05; **p<.01; DI: Difference.

Performance than the students with both AS and CO learning styles. Moreover, the students with the CO learning style experience higher Test Anxiety than the students with the DI learning style.

When the learning strategies the participating students use are examined according to their learning styles, it is seen that the students with the AC and DI learning styles use the Rehearsal, Elaboration, Organization, Critical Thinking, and Metacognitive Self-Regulation strategies more frequently than the students with the AS and CO learning styles. The students with the AC learning style use the Critical Thinking and Metacognitive Self-Regulation strategies more frequently than the students with both AS and CO learning styles, whereas they use the Rehearsal and Organization strategies more frequently than the students with only the AS learning style, and they use the Elaboration strategy more frequently than the students with only the CO learning style. Moreover, it is understood that the students with the DI learning style use the Organization strategy more frequently than the students with the AS learning style.

The students with the AC and DI learning styles use the Time and Study Environment Management, Effort Regulation, Peer Learning, and Help Seeking strategies more intensively than the students with the AS and CO learning styles. In addition, the students with the AC learning style use the Help Seeking strategy more frequently than the students with both AS and CO learning styles, whereas they use the Time and Study Environment Management strategy more frequently than the students with only the AS learning style. On the other hand, the students with the DI learning style use the Time and Study Environment Management strategy more frequently than the students with the AS learning style.

Discussion

When differences between the strategies are examined on the basis of the learning styles, it is seen that the students with the AC and DI learning styles generally use learning strategies more frequently than the students with the AS and CO learning styles. There are similar studies in the relevant literature that investigate the learning strategies used according to the AC, DI, AS, and CO learning styles (Beydoğan, 2009; Çelenk & Karakiş, 2007; Güven, 2004; Kosower & Berman; Yılmaz, 2011). Güven (2004) stated that students with the AS learning style use the comprehension monitoring strategy more frequently than the students with the AC and DI learning styles. On the other hand, Yılmaz (2011) demonstrated that students with the CO learning style use the attention, short-term memory, and interpretation strategies more frequently than students with the AS learning style, whereas they use the recovery strategy more frequently than the students with the DI learning style. Çelenk and Karakiş (2007) found that the students with the AC, DI, AS, and CO learning styles use the Attention, Repetition, Interpretation, Storing in Memory, Remembering, and Cognition Management strategies “often”, whereas the students with the AC, DI, and CO learning styles use the Affective Strategies “sometimes,” while the students with the AS learning

style use the Affective Strategies “often”. Beydoğan (2009) investigated the strategies that high school students used in accordance with their learning styles during the reading-comprehension process. According to the results of his study, the strategies used according to the learning styles exhibited variation. For example, the “having a look at the headings and sub-headings of a text” strategy was used more often by the students with the AS learning style, whereas the “determining the type and structure of the text” strategy was used more often by the students with the AC learning style.

There are studies in the literature that have investigated the relationship between the learning styles and learning strategies, and that have arrived at different conclusions (Arsal & Özen, 2007; Ehrman & Oxford, 1995; Gülerci & Oflaz, 2010; Halaçoğlu, 1999; Keane, 1993; Kosewer & Berman, 1996; Li & Qin, 2006; Shih et al., 1998). Some of these studies discovered a certain relationship between the learning styles and the learning strategies used, which varied according to the learning styles (Arsal & Özen, 2007; Beydoğan, 2009; Güven, 2004; Keane, 1993; Li & Qin, 2006; Liu & Reed, 1994; Shih et al., 1998; Tinajero & Paramo, 1998; Yilmaz, 2011). On the other hand, there are also studies, though few in number, that reported finding no specific relationship between the learning styles and the learning strategies or that the learning strategies used did not vary according to the learning styles (Cabi & Yalcinalp, 2012; Ehrman & Oxford, 1995; Gülerci & Oflaz, 2010; Halaçoğlu, 1999).

In this study, Kolb’s classification of learning styles (1999) was used. There were also studies which investigated differences in the learning strategies by taking into consideration different learning styles (Arsal & Özen, 2007; Akdemir & Koszalka, 2007; Cesur & Fer, 2011; Chen, 2009; Liu & Reed, 1994; Naimie, Abuzaid, Siraj, Shagholi, & Hejaili, 2010; Tinajero & Paramo, 1998; Wong & Nunan, 2011). For example, one of the most commonly used style classifications in these studies involves field-dependent and field-independent learning styles as defined by Witkin et al. (1977). In their study conducted on higher education students, Liu and Reed (1994) found that students with a field-dependent learning style used the repetition, interpretation, and affective strategies more extensively, whereas students with a field-independent learning style used the organization, metacognitive, and affective strategies more intensively. Tinajero and Paramo (1998) reported that field-dependent students used cognitive strategies more frequently, while field-independent students used the strategies aimed at the knowledge of cognition and self-regulation more often. Naimie et al. (2010) discovered that students with a field-independent learning style used the metacognitive, cognitive, social, compensatory, and affective learning strategies more often than students with a field-dependent learning style. On the other hand, field-dependent students used the memory learning strategy more often than the students with the field-independent learning style. When the findings from this study and the various studies found in the literature are assessed together, it is observed that the use of the learning strategies varies according to the learning styles. Therefore, it is clearly seen that learning styles present an important variable for establishing individual differences in the teaching of different learning strategies.

In this study, motivational differences were also studied in relation with the learning styles. Generally, the students with the DI and AC learning styles have a higher level of motivation than the students with the AS and CO learning styles. There are studies in the literature that have investigated motivational differences according to the learning style (Azizoğlu & Çetin, 2009; Coutinho & Neuman, 2008; Denizoğlu, 2008; Önder & Tan, 2011; Srichanyachon, 2012). For example, Denizoğlu (2008), who used Kolb's classification of learning styles, found that motivation levels in the students with the AS and CO learning styles were higher than those in the students with the DI and AC learning styles. This result is in accord with the findings of the current study.

One of the most important motivational variables, whose relationship with the learning styles was investigated and included in the study, is the Self-Efficacy for Learning and Performance. Also, performance in different disciplines is related to self-efficacy (Campbell & Smith, 2013; Yurt, 2014; Yurt & Sunbul, 2013). Self-Efficacy is an individual's judgment of him/herself about the extent he/she can be successful in overcoming the challenges he/she may encounter in the future (Bandura, 1986). The individuals with high self-efficacy spend more efforts to overcome a problem, they are more persistent, and have more perseverance (Senemoğlu, 2007). In particular, this study found a negative and significant correlation between the Reflective Observation learning preference and Self-Efficacy. On the other hand, when learning styles are taken into consideration, the Self-Efficacy for Learning and Performance in students with the AS and CO learning styles is lower than in the students with other learning styles. Therefore, some steps can be considered for developing self-efficacy in those individuals whose Reflective Observation learning preference is predominant or who have the AS and CO learning styles. For example, approaches such as cooperative learning (Senemoğlu, 2007; Ural, Umay & Argün, 2008), creative drama (Yenilmez & Uygan, 2010), peer learning (Schunk, 2003), differentiated instruction (Yabaş & Altun, 2009), and portfolio evaluation (Bahçeci & Kuru, 2008) can be used to increase these students' confidence in their self-efficacy.

Another important variable used in this study is test anxiety. In this study, it was observed that the students with the Reflective Observation learning preference had higher test anxiety. Moreover, the students with the CO learning style have higher test anxiety than the students with other learning styles. In the literature, test anxiety was defined as one of the important variables that affect an individual's success (Chapell et al., 2005; McDonald, 2001; Sansgiry, Bhosle, & Dutta, 2005; Üredi & Üredi, 2005). Some techniques that stand out in the literature can be used to reduce test anxiety of students whose Reflective Observation learning preference is predominant and have the CO learning style. These techniques are usually listed as physical, mental, and behavioral techniques (Alyaprak, 2006; Baltaş & Baltaş, 1987; Özer, 1990). When the findings from this study and the studies in the literature are considered together, it is seen that the students' motivational levels may differ according to their learning styles. Therefore, learning styles should be taken into consideration as a variable of individual difference to increase students' motivational levels.

Conclusions

In this study, motivation levels and learning strategies of middle school students were compared according to their learning styles. To this end, relationships between the participants' learning preference scores, which constitute learning styles, and their learning strategies were investigated. According to these, the motivation and learning strategies generally exhibit a positive correlation with the Abstract Conceptualization and Active Experimentation learning preference scores, and a negative correlation with the Concrete Experience and Reflective Observation learning preference scores. Moreover, the students with the AC and CO learning styles generally have higher motivation than the students with the DI and AS learning styles, and use learning strategies more frequently. When the findings from this study are taken into consideration, it is concluded that all students may have different learning styles, and the levels of motivation and strategy use required for effective learning may vary from student-to-student.

The findings from this study indicate that it is beneficial for teachers to know the learning styles their students possess and the learning strategies they use. Taking this into consideration, learning styles may enable effective planning of course programs, teaching preferences, and evaluation and guidance activities (Curry, 1990). Therefore, teachers can use appropriate methods, techniques, and tools in their classes by taking into consideration their students' learning styles. As can be understood from the findings of this study, teachers may have students, especially those with the DI and AS learning styles, engage in the activities aimed to increase their motivation and improve the level of their use of learning strategies.

The students with the AS learning style can work with abstract concepts and ideas, and derive pleasure from developing conceptual models (Kolb, 1984). To increase these students' motivation, keep their learning motivation, and improve their learning strategies, teachers can develop activities to share abstract concepts and ideas, test the models they have formed, and learn by doing and experimenting. In this way, students can become aware of the learning strategies they can use by taking a more active part in the learning environment and learn effectively through higher motivation.

The students with the DI learning style can easily become aware of different values and meanings and establish meaningful relationships between variables. The organizational and intellectual abilities of these students can be regarded as positive qualities. However, it is observed that students with the DI learning style have difficulty in implementing their ideas into practice (Kolb, 1984). This situation may restrict these students' levels of understanding and using learning strategies. In this framework, teachers should create environments where students with the DI learning style can express their ideas and emotions freely and thus encourage them to share their ideas. Consequently, students will have higher motivation and use learning strategies more effectively.

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Ispitivanje uporabe voljnih strategija učenika viših razreda osnovnih škola na temelju njihovih stilova učenja

Sažetak

U ovome su istraživanju uspoređene voljne strategije učenja kojima se na temelju svojih stilova učenja koriste učenici viših razreda osnovnih škola. U istraživanju je sudjelovao četiri stotine pedeset i jedan učenik, od kojih su 52,3% bile djevojčice, a 47,7% dječaci. Rezultati su pokazali da učenici koji pokazuju sklonosti prema načinima učenja utemeljenima na konkretnom iskustvu i reflektivnom promatranju postižu negativnu korelaciju s voljnim strategijama, a da učenici koji se koriste stilovima apstraktne konceptualizacije i aktivnoga eksperimentiranja pokazuju pozitivnu korelaciju s voljnim strategijama učenja. Uz to, učenici koji se koriste akomodirajućim i konvergentnim stilom učenja koriste se voljnim strategijama učenja češće od učenika koji primjenjuju divergentan i asimilirajući stil učenja.

Ključne riječi: *stil učenja; strategija učenja; učenik višega razreda osnovne škole; Upitnik o voljnim strategijama učenja.*

Uvod

U modernom se dobu, s razvojem novih tehnologija i izvora informacija, povećala i količina podataka, kao i broj vještina koje učenici moraju usvojiti. Kako bi se prilagodili takvoj promjeni, oni moraju razviti vještine kritičkoga mišljenja, rješavanja problema, donošenja odluka i sl. (Adeneye, 2014; Arikan i Unal, 2015; Davis, 2014). Vjeruje se da se te vještine mogu razviti kad su učenici aktivni tijekom procesa učenja u okolini u kojoj uče, kad preuzimaju odgovornost za svoje učenje i u svojem umu stvaraju koncepte koji su u skladu s njihovim prethodnim znanjem i sklonostima prema određenim stilovima učenja, sve to u svjetlu konstruktivizma (Jaworski, 1994; Marlow i Page, 1998; Von Glasersfeld, 1995; Woolfolk, 2004). Na taj je način moguće odgojiti pojedince koji znaju kako učiti. Oni su upoznati s karakteristikama svojega učenja i u stanju su izabrati i upotrijebiti primjerene strategije učenja s ciljem postizanja učinkovitoga učenja (Özer, 1998). Mnogi čimbenici utječu na učenje. Pri učenju postaju vidljive neke osobne karakteristike po kojima se pojedinci međusobno

razlikuju, kao što su inteligencija i osobnost. Osim toga, oni mogu ispoljiti i razlike u smislu tjelesnih, društvenih, društveno-ekonomskih i kulturoloških karakteristika. Pa ipak se iste nastavne metode i tehnike primjenjuju na sve učenike u razredu i u radu sa svima njima koristi se ista oprema. Na taj se način učenje većine učenika lako može osuditi na propast.

Jedan od najvažnijih ciljeva obrazovnih aktivnosti utemeljenih na suvremenim pedagoškim pristupima jest osigurati učenicima okolinu za učenje kakva im je najprimjerenija. Studije koje se provode s tim ciljem usredotočuju se na individualne razlike između učenika. Tako mnogi obrazovni programi, kako bi pripremili aktivnosti utemeljene na navedenim razlikama, streme utvrđivanju individualnih razlika u učenju različitih učenika (Ergin, 2004). Planiranje obrazovnoga procesa pri kojem se u obzir uzimaju individualne karakteristike učenika poput brzine učenja, razine spremnosti, zanimanja i stilova učenja unaprijedit će učeničku samoregulaciju, sposobnost rješavanja problema, sposobnost komunikacije i metakognitivne vještine tijekom procesa učenja i omogućiti svakom učeniku priliku za postizanje uspjeha (Heacox, 2002; Tomlinson, 2001). Relevantna literatura navodi da se stilovi i strategije učenja koji se ubrajaju u individualne karakteristike učenika ističu kao važne varijable koje utječu na njihovo postizanje uspjeha u učenju (Bailey, Onwuegbuzie, i Daley, 2000; Belbase, 2013; Busato, Prins, Elshout, i Hamaker, 1999; Busato, Prins, Elshout, i Hamaker, 2000; Diseth, 2011; Komarraju, Karau, Shcmeck, i Avdic, 2011; Liem, Lau, i Nie, 2008; Schwinger, Steinmayr, i Spinath, 2009).

Stilovi učenja

Keefe (1979) navodi da se stilovi učenja sastoje od karakterističnih kognitivnih, afektivnih i psiholoških čimbenika koji predstavljaju prilično stabilne indikatore načina na koje učenici percipiraju i reagiraju na okolinu u kojoj uče i s kojom su u interakciji. Stil učenja predstavlja način na koji učenik postiže koncentraciju te procesira, upija i pamti nove i zahtjevne podatke (Dunn i Dunn, 1992). Gregorc (1985) smatra da 95% pojedinaca ima posebne sklonosti prema nekom osobitom načinu učenja. Neke od tih sklonosti tako su duboko usađene da se osobe nisu u stanju prilagoditi kad je potrebno ispuniti potrebe alternativnih stilova učenja u različitim situacijama učenja.

U literaturi nalazimo različite definicije stilova. Riding i Cheema (1991) navode više od 30 različitih pojmova koji se koriste za opis stilova, a Coffield i sur. (2004) opisuju 71 shemu primjene stilova učenja. Osim toga, predložene su mnoge klasifikacije stila. U svojem modelu Curry (1983) organizira stilove učenja na sljedeći način. Ponašanje pri učenju kontrolira središnja dimenzija ličnosti koja se mijenja dok prolazi kroz međuslojeve dimenzije procesiranja informacija te dobiva svoj konačni oblik u interakciji s okolnim čimbenicima koji se nalaze u vanjskim slojevima modela. Kretanjem kroz te slojeve povećava se uočljivost i varijabilnost navedenih karakteristika (Sadler-Smith, 2001). Krajnji vanjski, lako uočljiv sloj jest sloj sklonosti

prema određenom načinu poučavanja (engl. Instructional Preference) pa on pretežno odražava sklonosti koje se odnose na okolinu u kojoj se uči. U taj se sloj mogu uvrstiti klasifikacije koje predlažu Dunn i Dunn (1978), Reichmann i Grasha, (1974) Renzulli i Smith (1978). Stil procesiranja informacija (engl. Information Processing Style) predstavlja drugi sloj spomenutoga modela. Za razliku od Curryjeva sloja sklonosti određenom načinu poučavanja, stil procesiranja informacija nije izravno povezan s okolinom u kojoj se uči. Mjere toga stila stabilnije su. No, na stil procesiranja informacija utječu strategije učenja. Stilovi koji su vezani uz proces prenošenja informacije te se nalaze u drugom sloju Curryjeva modela većinom se bave procesima učenja. Toj kategoriji pripadaju Kolbov (1984) ciklički model iskustvenoga učenja i uz njega vezani stilovi učenja (konvergentni, divergentni, akomodirajući i asimilirajući), kao i stilovi koje predlažu Honey i Mumford (1992), a prema kojima se učenici dijele na aktiviste, interpretatore, teoretičare i pragmatičare. Na kraju, tu su i MacCarthyjev (1982) 4MAT model i Gregorcove (1982) definicije mentalnoga stila. Treći, središnji sloj toga modela, jest kognitivni stil ličnosti (engl. Cognitive Personality Style). Tu se dimenziju ne može izravno promatrati te se o njoj zaključuje na temelju pojedinačne interakcije s okolinom. Tim se stilom opisuju internalizacija i akomodacija informacija koje uvjetuju ponašanje (Cassidy, 2004). Klasifikacija koja se veže uz taj sloj uključuje stilove kao što su stilovi ovisnosti i neovisnosti percepcije o polju (Witkin i sur., 1977), holističko-analitički i verbalno-imaginarni stil (Riding, 1991). Kolbov je model jedan od najčešće korištenih modela u klasifikaciji stilova učenja u navedenim slojevima (D'Amore, James, i Mitchell, 2012; Pashler, McDaniel, Rohrer, i Bjork, 2009).

Kolbova Teorija iskustvenoga učenja

Najvažnije temeljno načelo na kojem počiva ta teorija jest da je učenje rezultat iskustva (Kolb, 2000). Drugo važno načelo te teorije temelji se na ideji da osobe ne uče uvijek na isti način. U svojoj interpretaciji učenja kao procesa koji obuhvaća četiri koraka Kolb ističe činjenicu da pojedinci posjeduju neka konkretna iskustva koja proizlaze iz okoline u kojoj žive te da promatraju ta iskustva i o njima promišljaju na različite načine. Uz to Kolb naglašava da refleksivno promatranje učinkovito pomaže u stvaranju apstraktnih konceptualizacija i generalizacija. Naposljetku pojedinci se koriste danim generalizacijama u svojim kasnijim aktivnostima i naprednim razinama učenja. Stoga se navedeni proces nastavlja ciklički – stječu se nova iskustva koja imaju vodeću ulogu u daljnjem učenju (Kolb, 1984).

Prema Kolbovu modelu postoje četiri načina učenja koji se temelje na konkretnom iskustvu (engl. Concrete Experience), refleksivnom promatranju (engl. Reflective Observation), apstraktnoj konceptualizaciji (engl. Abstract Conceptualization) i aktivnom eksperimentiranju (engl. Abstract Experimentation). Navedeni načini učenja uključuju četiri stila učenja. Kolb ih je nazvao divergentnim (engl. Diverging), asimilirajućim (engl. Assimilating), konvergentnim (engl. Converging) i akomodirajućim (engl. Accomodating) te je razvio popis stilova učenja koji obuhvaćaju

spomenute načine učenja. S pomoću Kolbova Popisa stilova učenja (engl. Learning Style Inventory) procjenjuje se način na koji učenik naglašava važnost sve četiri faze u njihovim međudodnosima. Prema Kolbu, razlikujemo četiri vrste ljudi s obzirom na njihove stilove učenja: divergentni, asimilirajući, konvergentni i akomodirajući. Osobe s divergentnim stilom promišljaju o konkretnim informacijama. One generaliziraju na temelju onoga što vide. Osobe s asimilirajućim stilom počinju od zamisli ili apstrakcije koju procesiraju refleksivno. One razmišljaju i promatraju. Osobe s konvergentnim stilom apstraktno iskustvo procesiraju na aktivan način. One započinju s nekom zamisli koju potom eksperimentalno testiraju. Osobe s akomodirajućim stilom percipiraju konkretno iskustvo koje aktivno procesiraju. Njihove su emocije utemeljene na osjetu. To su uspješne osobe (Kolb, 1984).

Strategije učenja

Strategija učenja definira se kao skup jednog ili više postupaka koje pojedinci stječu i njima se koriste kako bi si olakšali učenje. Strategije se razlikuju s obzirom na prirodu zadatka (Riding i Rayner, 1998). Nekoliko je važnih karakteristika strategija učenja (Schmeck, 1988). Prvo, one se sastoje od svjesnog odabira implementacije skupa vještina. Drugo, one se koriste u radu na zadacima za koje osoba procijeni da su zadatci učenja. Kako bi se analizirale različite uporabe strategija učenja u razredu, potrebno je prepoznati individualne razlike u uporabi strategija učenja koje su povezane s percepcijom kontrole razine učenja. Osim toga, strategije učenja omogućuju pojedincima da postanu i ostanu pismene, produktivne i samostalne osobe koje uče tijekom cijeloga života. One im također pomažu da se pouzdaju u svoje misli, da shvate da postoji više od jednog načina obavljanja zadatka, da prepoznaju i isprave svoje pogreške, ocijene svoje učenje i ponašanje, učvrste svoje pamćenje, povećaju razinu učenja, nauče kako učiti, razviju osobni proces učenja te preuzmu odgovornost za svoje učenje (Beckman, 2002).

Predložene su brojne klasifikacije strategija učenja. Istraživači su klasificirali strategije učenja na temelju situacija u kojima se one nalaze, njihovu doprinosu elementima od kojih se sastoji procedura prenošenja informacija, kao i razvojnim karakteristikama učenika. Gagne i Driscoll (1988) podijelili su strategije učenja prema proceduri prenošenja informacija i to u pet skupina: 1) strategije usmjeravanja pažnje, 2) strategije koje povećavaju kapacitet kratkoročnog pamćenja, 3) strategije kojima se pospješuje kodiranje informacija, 4) strategije kojima se olakšava dosjećanje i 5) kontrolne strategije nadzora. Weinstein i Mayer (1986) razvili su klasifikaciju koja se često koristi u relevantnoj literaturi. Njihova klasifikacija obuhvaća strategije interpretacije, organizacije, ponavljanja, kontrolne strategije nadzora razumijevanja i afektivne strategije. Još jednu klasifikaciju strategija učenja utemeljenu na samoregulaciji kojom se koriste i autori ovoga rada razvili su Pintrich, Smith, Garcia i McKeachie (1993). Oni su razvili model za otkrivanje čimbenika koji utječu na akademska postignuća sveučilišnih studenata. Kontrolom tih čimbenika mogu se

pospješiti studentski rezultati. Smatra se da bi se zajedničkom procjenom kognitivnih i afektivnih polja, koja predstavljaju važne dimenzije učenja, učenicima moglo pomoći da nauče učiti. U ovome su modelu strategije kategorizirane kao kognitivne strategije, metakognitivne strategije i strategije upravljanja osobnim resursima, a voljne su strategije (motivacija) podijeljene u vrijednosne komponente, komponente očekivanja i afektivne komponente. U ovome su modelu vidljive točke (trenutci) u kojima su učenici uspješni i točke u kojima im je potrebna pomoć. Kad se strategije učenja definiraju kao procedure kojima se učenici koriste za samostalno učenje, ti učenici koji uče s pomoću navedenih strategija nazivaju se „strateškim učenicima“ (engl. “Strategic Learners”), „samostalnim učenicima“ (engl. “Independent learners”) i „učenicima koji zauzimaju strateški pristup učenju“ (engl. “Self-regulated learners”) (Arends, 1997).

Strategije i stilovi učenja

U relevantnoj literaturi nalazimo još jedan pojam koji se povezuje s procesima učenja, ali se često brka sa strategijama učenja. Radi se o pojmu stilova učenja (Cleeton, 2000). Jasno je da se pojmovi stila i strategije razlikuju. Dok se u definiciji pojma stila biološki čimbenici nalaze u prvom planu, u definiciji pojma strategije dominiraju društvene dimenzije poput planiranja, provođenja mjera opreza i pronalaženja načina rješavanja problema. Individualni stil pojedinca može se smatrati trajnijom dimenzijom te osobe, a strategije predstavljaju sredstva kojima se osoba koristi u različitim uvjetima. Drugim riječima, stilovi su fiksni i ne mijenjaju se jer predstavljaju urođene karakteristike pojedinca. Strategije nisu fiksne i mogu se razviti za potrebe upravljanja različitim situacijama. S obzirom na navedene karakteristike strategije predstavljaju načine uporabe stilova kako bi se osoba najbolje nosila s uvjetima u kojima ih je primjereno koristiti. Stoga, ako osobe znaju koji je njihov dominantan stil, to će im znanje pomoći u odabiru i primjeni strategija učenja. Dakle, stilovi učenja utječu na način na koji se pojedinci koriste strategijama učenja (Givan, 1997). Spoznaja o tome koji je njihov dominantan stil učenja, učenicima će omogućiti prilagodbu njihovih strategija učenja različitim zadacima u pojedinačnim kontekstima. To znanje učenici mogu upotrijebiti i tako što će uskladiti odgovarajuće strategije učenja sa svojim stilovima učenja pa će na sličan način, prilagodbom strategija učenja kojima se koriste, moći nadomjestiti nedostatke svojih stilova učenja (Nisbet i Shucksmith, 1986; Oxford, 1993).

S obzirom na to da mnogi učenici mogu lako naučiti neke ključne vještine tijekom svojeg razvojnog razdoblja, upravo je to razdoblje njihova života istraživačima zanimljivo. Važnim se čini proučavanje razvoja vještina razumijevanja strategija učenja i njihove primjerene uporabe (Ataman, 2004; Mayer, 1987; Özer, 2001; Senemoğlu, 2007). Mnoga se istraživanja bave poučavanjem strategija učenja učenika viših razreda osnovnih škola sa svrhom postizanja učinkovitog učenja te populacije (Aydın, 2010; Baş, 2012; Çalıřkan i Sünbül, 2011; Dikbař i Hasarçı, 2008; Ektem i Sünbül, 2007;

Nunn, 1995; Ülger, 2003; Yorulmaz, 2001). No, poznavanje strategija učenja nije dostatno za postizanje učinkovitog učenja tijekom spomenutoga razdoblja. Za to učenici trebaju znati i koristiti se strategijama učenja koje su u skladu s njihovim dominantnim stilovima učenja (Güven, 2004).

Cilj je ovoga rada bio istražiti strategije učenja kojima se učenici viših razreda osnovnih škola koriste u skladu sa svojim dominantnim stilovima učenja. Ako je moguće utvrditi strategije učenja kojima se ta populacija koristi u skladu sa svojim stilovima učenja, već se u ranoj dobi može razviti njihova svijest o stilovima i strategijama učenja kako bi im se omogućilo da učinkovito sudjeluju u svojem procesu učenja. Time se učenicima viših razreda osnovnih škola može pomoći da svladaju poteškoće koje imaju u učenju i da uče samostalno. Uporaba strategija učenja koje su u skladu s učeničkim stilovima učenja može imati pozitivan utjecaj na rezultate učenja (Gencel, 2006; Hasırcı, 2005; Li i Qin, 2006; McNeal i Dwyer, 1999; Nunn, 1995; Oxford, 1989; Özbek, 2006). U ovom teorijskom okviru voljne strategije učenja učenika viših razreda osnovnih škola uspoređene su na temelju njihovih dominantnih stilova učenja. Odgovoreno je na sljedeća istraživačka pitanja:

1.a Postoji li značajna korelacija između sklonosti određenim načinima učenja proučavanih učenika i njihovih voljnih strategija učenja?

1.b Postoji li značajna korelacija između sklonosti određenim načinima učenja proučavanih učenika i njihovih strategija učenja?

2.a Postoji li statistički značajna razlika između voljnih strategija učenja proučavanih učenika koja bi se temeljila na njihovim dominantnim stilovima učenja?

2.b Postoji li statistički značajna razlika između strategija učenja proučavanih učenika koja bi se temeljila na njihovim dominantnim stilovima učenja?

Metoda

Sudionici

Istraživanje je provedeno na uzorku od 451 učenika viših razreda osnovnih škola u dobi od 13 do 14 godina. 52,3% uzorka činile su djevojčice, a 47,7% dječaci. Podatci su prikupljeni u ljetnom semestru akademske godine 2012./2013. Ispitanici su odabrani metodom slučajnoga odabira, a pohađali su različite škole smještene u gradskoj jezgri. Učenici su dobrovoljno sudjelovali u istraživanju.

Instrumenti

Popis stilova učenja: Kolbov Popis stilova učenja (1999) sadrži 12 čestica. Gencel je 2006. godine prilagodio Kolbov popis za uporabu na turskom jeziku. Prema Kolbovoj klasifikaciji postoje četiri stila učenja – konvergentni (CO), divergentni (DI), asimilirajući (AS) i akomodirajući (AC). Ti stilovi učenja temelj su sljedećim sklonostima određenim načinima učenja: konkretno iskustvo (KI), refleksivno promatranje (RP), apstraktna konceptualizacija (AK) i aktivno eksperimentiranje (AE). Prema popisu stilova učenja četiri se odabira po čestici ocjenjuju ocjenom od

1 do 4, tako da je najniži ukupan mogući rezultat 12, a najviši 48. Nakon ocjenjivanja izračunavaju se kombinacije dvaju rezultata. Jedna kombinacija rezultata dobiva se oduzimanjem KI rezultata od AK rezultata, a druga oduzimanjem RP rezultata od AE rezultata. Kombinirani rezultati koji su dobiveni s pomoću navedenoga izračuna kreću se između -36 i +36. Pozitivan rezultat dobiven izračunom AK – KI označava apstraktno učenje, a negativan rezultat dobiven istim izračunom označava konkretno učenje. Rezultati izračuna AE – RP pokazuju je li učenje aktivno ili refleksivno. Udruženi se rezultati smještaju na koordinatni sustav koji je razvio Kolb. Rezultat AE – RP operacije ucrtava se na horizontalnu os, a rezultat operacije AK – KI ucrtava se na vertikalnu os. Mjesto na kojemu se ta dva rezultata preklapaju označava stil učenja. Vrijednost koeficijenta pouzdanosti bila je 0,76 za dimenziju konkretnoga iskustva, 0,73 za dimenziju refleksivnog nadzora, 0,83 za dimenziju konkretne konceptualizacije i 0,78 za dimenziju aktivnoga iskustva.

Upitnik o voljnim strategijama učenja (engl. Motivated Strategies for Learning Questionnaire): Upitnik o voljnim strategijama učenja, koji su razvili Pintrich, Smith, Garcia i McKeachie (1993), sadrži ukupno 71 česticu, a procjenjuje se s pomoću petodijelne skale Likertova tipa. Taj su upitnik za uporabu na turskom jeziku prilagodili Karadeniz, Büyüköztürk, Akgün, Çakmak i Demirel (2008). Prema rezultatima konfirmatorne faktorske analize, sastoji se od dimenzija voljnih strategija i strategija učenja. Voljna dimenzija sastoji se od poddimenzija intrinzične orijentacije prema postizanju cilja, ekstrinzične orijentacije prema postizanju cilja, mišljenja o vrijednosti zadatka, kontrole mišljenja o učenju i osobnoj učinkovitosti u učenju. Dimenzija strategija učenja obuhvaća ponavljanje, organizaciju, razradu, kritičko promišljanje, metakogniciju, traženje pomoći, regulaciju napora, vršnjačko učenje, upravljanje vremenom i učenjem. U ovome su istraživanju postignute vrijednosti koeficijenta od 0,85 za voljnu dimenziju upitnika i 0,93 za dimenziju strategija učenja. Skala voljnih strategija učenja upotrijebljena je na predmetima matematike, prirodnih znanosti i turskoga jezika. To su temeljni predmeti koje turski učenici pohađaju tijekom svojega obrazovanja.

Analiza

Izračunati su korelacijski koeficijenti s ciljem određivanja učeničkih sklonosti određenim načinima učenja. MANOVA je upotrijebljena za usporedbu učeničkih razina voljnih strategija, a strategije upravljanja resursima i učenjem upotrijebljene su u skladu s učeničkim stilovima učenja. Schefféov test višestrukih usporedbi upotrijebljen je za utvrđivanje razlika između stilova dobivenih na temelju rezultata MANOVE. Izračunat je kvadrat eta-koeficijenta (η^2) kako bi se utvrdili učinci razine voljnih strategija i strategija učenja na stilove učenja. Vrijednosti eta-koeficijenta kreću se između 0 i 1. U slučaju kad je $\eta^2 \leq 0,01$, može se reći da je učinak slab, $\eta^2 \leq 0,06$ označava srednje jak učinak, a $\eta^2 \leq 0,14$ snažan učinak (Büyüköztürk, 2007).

Rezultati

Kolbova klasifikacija stilova učenja temelji se na rezultatima sklonosti određenim načinima učenja. Stoga je istražen odnos između sklonosti učenika prema određenim načinima učenja i razine njihove motivacije. Rezultati analize prikazani su u Tablici 1. Analiza korelacija pokazala je da je rezultat sklonosti učenika prema učenju utemeljenom na konkretnom iskustvu u negativnoj korelaciji s tri poddimenzije voljnih strategija i dvije dimenzije strategija učenja. Primjerice, primijećeno je da se učenici koji su skloni učenju utemeljenom na konkretnom iskustvu rjeđe koriste organizacijskom strategijom ($r = -0,117$). Sklonost učenju utemeljenome na refleksivnom promatranju u značajnoj je korelaciji s nekim dimenzijama voljnih strategija i strategija učenja. Rezultat sklonosti učenju utemeljenome na refleksivnom promatranju pozitivno korelira samo sa strahom od testiranja ($r = 0,097$). Drugim riječima, učenici koji se pri učenju češće služe refleksivnim promatranjem imaju veći strah od testiranja. Rezultat sklonosti učenju utemeljenom na apstraktnoj konceptualizaciji pozitivno korelira samo s nekim strategijama učenja. Učenici koji se češće služe apstraktnom konceptualizacijom češće se koriste i organizacijskom strategijom ($r = 0,102$), strategijom kritičkog mišljenja ($r = 0,161$) i strategijom metakognitivne samoregulacije ($r = 0,136$). Nasuprot tome, rezultat sklonosti učenju utemeljenom na aktivnom eksperimentiranju značajno korelira s nekim varijablama iz polja voljnih strategija i strategija učenja. Učenici koji se češće služe aktivnim eksperimentiranjem češće se koriste i strategijo osobne učinkovitosti u učenju i izvedbi ($r = .174$).

Tablica 1.

Rezultati su dobiveni izračunom vrijednosti ocjena sklonosti učenju utemeljenom na konkretnom iskustvu, refleksivnom promatranju, apstraktnoj konceptualizaciji i aktivnom eksperimentiranju. Istraženo je postojanje statistički značajnih razlika između rezultata voljnih strategija i strategija učenja u odnosu na stilove učenja učenika. Rezultati MANOVA testa provedenoga u navedene svrhe prikazani su u Tablici 2.

Tablica 2.

Kao što je prikazano u Tablici 2, rezultati voljnih strategija i strategija učenja pokazuju značajnu varijaciju u odnosu na njihove stilove učenja. Osim toga, svaka voljna strategija i strategija učenja ima srednje intenzivan učinak na stilove učenja. Jednosmjerna ANOVA i Schefféov test upotrijebljeni su da bi se utvrdilo koje su se dimenzije razlikovale na MANOVA analizi. Rezultati su prikazani u Tablici 3.

Vidljivo je da učenici s AC i DI stilovima učenja posjeduju višu razinu intrinzične orijentacije prema postizanju cilja, višu razinu ekstrinzične orijentacije prema postizanju cilja, više mišljenje o vrijednosti zadatka, višu razinu kontrole mišljenja o učenju, osobne učinkovitosti u učenju i izvedbi i nižu razinu straha od testiranja od

učenika u kojih su dominantni AS i CO stilovi učenja. Učenici s AC i DI stilovima učenja posjeduju višu razinu intrinzične orijentacije prema postizanju cilja i više mišljenje o vrijednosti zadatka od učenika s dominantnim AS stilom učenja. Učenici s AC i DI stilovima učenja također posjeduju višu razinu osobne učinkovitosti u učenju i izvedbi od učenika s AS i CO stilovima učenja. Učenici s CO stilom učenja posjeduju višu razinu straha od testiranja od učenika s DI stilom učenja.

Kad se pogledaju strategije učenja kojima se koriste učenici iz uzorka te se usporede s njihovim stilovima učenja, vidljivo je da se učenici s AC i DI stilovima učenja koriste strategijama ponavljanja, razrade, organizacije, kritičkog promišljanja i metakognitivnog samoreguliranja češće od učenika s AS i CO stilovima učenja. Učenici s AC stilom učenja koriste se strategijama kritičkog promišljanja i metakognitivnog samoreguliranja češće od učenika koji posjeduju i AS i CO stil učenja. Učenici koji posjeduju i AS i CO stil učenja češće se koriste strategijama ponavljanja i organizacijskim strategijama od učenika s AS stilom učenja, a učenici s AS stilom učenja koriste se strategijom razrade češće od učenika koji posjeduju samo CO stil učenja. Osim toga, jasno je da se učenici s DI stilom učenja koriste strategijom organizacije češće od učenika s AS stilom učenja.

Učenici s AC i DI stilovima učenja koriste se strategijama upravljanja vremenom i okolinom učenja, regulacije napora, vršnjačkoga učenja i traženja pomoći češće od učenika koji imaju AS i CO stilove učenja. Osim toga, učenici s AC stilom učenja češće se koriste strategijom traženja pomoći od učenika koji imaju i AS i CO stilove učenja. Učenici koji imaju i AS i CO stilove učenja koriste se strategijom upravljanja vremenom i okolinom učenja češće od učenika koji imaju samo AS stil učenja. Nasuprot tome, učenici koji imaju DI stil učenja koriste se strategijom upravljanja vremenom i okolinom učenja češće od učenika koji imaju AS stil učenja.

Tablica 3.

Rasprava

Kad se pogledaju razlike između strategija dobivene na temelju odnosa prema stilovima učenja, vidljivo je da se učenici koji imaju AC i DI stilove učenja općenito češće koriste strategijama učenja od učenika s AS i CO stilovima učenja. Relevantna literatura donosi slična istraživanja strategija učenja s obzirom na AC, DI, AS i CO stilove učenja (Beydoğan, 2009; Çelenk i Karakış, 2007; Güven, 2004; Kosower i Berman; Yılmaz, 2011). Güven (2004) piše da se učenici koji imaju AS stil učenja koriste strategijom kontrole nadzora razumijevanja od učenika s AC i DI stilovima učenja. Za razliku od navedenoga, Yılmaz (2011) je pokazao da se učenici koji imaju CO stil učenja koriste strategijama usmjeravanja pažnje, strategijama koje povećavaju kapacitet kratkoročnog pamćenja i strategijama interpretacije češće od učenika koji imaju DI stil učenja. Çelenk i Karakış (2007) izvještavaju da se učenici s AC, DI, AS i CO stilovima učenja „često“ koriste strategijama usmjeravanja pažnje, ponavljanja, interpretacije, pohrane u pamćenju, dosjećanja i strategije upravljanja kognicijom,

učenici s AC, DI i CO stilovima učenja koriste se afektivnim strategijama „ponekad“, a učenici s AS stilom učenja afektivnim se strategijama koriste „često“. Beydoğan (2009) je istražio strategije kojima se, u skladu sa svojim stilovima učenja, koriste učenici srednjih škola pri procesu čitanja s razumijevanjem. Rezultati istraživanja pokazuju varijaciju u uporabi strategija u odnosu na stilove učenja. Primjerice, strategijom „kratkog pregleda naslova i podnaslova teksta“ češće su se koristili učenici u kojih je AS stil učenja bio dominantan, a strategijom „određivanja tipa i strukture teksta“ češće su se koristili učenici s dominantnim AK stilom učenja.

U nekim je istraživanjima istražen odnos između stilova učenja i strategija učenja pa su autori došli do različitih zaključaka (Arsal i Özen, 2007; Ehrman i Oxford, 1995; Gülerci i Oflaz, 2010; Halaçoğlu, 1999; Keane, 1993; Kosewer i Berman, 1996; Li i Qin, 2006; Shih i sur., 1998). Neki od njih utvrdili su određen suodnos stilova učenja i strategija učenja, koji je varirao ovisno o stilovima učenja (Arsal i Özen, 2007; Beydoğan, 2009; Güven, 2004; Keane, 1993; Li i Qin, 2006; Liu i Reed, 1994; Shih i sur., 1998; Tinajero i Paramo, 1998; Yılmaz, 2011). Nasuprot tome, neki, doduše rijetki, autori u svojim istraživanjima nisu pronašli nikakav poseban suodnos stilova učenja i strategija učenja, ili su izvijestili o tome da strategije učenja nisu varirale u skladu sa stilovima učenja (Cabi i Yalcinalp, 2012; Ehrman i Oxford, 1995; Gülerci i Oflaz, 2010; Halaçoğlu, 1999).

U ovome se istraživanju koristila Kolbova (1999) klasifikacija stilova učenja. Autori nekih istraživanja proučavali su razlike u strategijama učenja uzimajući u obzir različite stilove učenja (Arsal i Özen, 2007; Akdemir i Koszalka, 2007; Cesur i Fer, 2011; Chen, 2009; Liu i Reed, 1994; Naimie, Abuzaid, Siraj, Shagholi, i Hejaili, 2010; Tinajero i Paramo, 1998; Wong i Nunan, 2011). Primjerice, jedna od najčešće korištenih klasifikacija stilova u navedenim istraživanjima obuhvaća stilove ovisnosti i neovisnosti percepcije o polju (Witkin i sur., 1977). U njihovu istraživanju, provedenome na uzorku sveučilišnih studenata, Liu i Reed (1994) su utvrdili da se studenti sa stilom neovisnosti percepcije o polju češće koriste strategijama ponavljanja, interpretacije i afektivne strategije, a studenti sa stilom ovisnosti percepcije o polju više se koriste strategijama organizacije, metakognitivne i afektivne strategije. Tinajero i Paramo (1998) izvještavaju da se studenti sa stilom ovisnosti percepcije o polju više koriste kognitivnim strategijama, a studenti sa stilom neovisnosti percepcije o polju češće se koriste strategijama kognicije i samoregulacije. Naime i sur. (2010) su ustanovili da se studenti sa stilom ovisnosti percepcije o polju češće koriste metakognitivnim, kognitivnim, društvenim, kompenzacijskim i afektivnim strategijama učenja od studenata koji posjeduju stil neovisnosti percepcije o polju. Nasuprot tome, studenti sa stilom ovisnosti percepcije o polju više se koriste strategijama pamćenja od studenata sa stilom neovisnosti percepcije o polju. Kad se usporede rezultati ovoga i drugih istraživanja, vidi se da uporaba strategija učenja varira s obzirom na dominantne stilove učenja koje učenici posjeduju. Jasno je da stilovi učenja predstavljaju važnu varijablu u utvrđivanju individualnih razlika u poučavanju različitih strategija učenja.

U ovome su radu također istražene motivacijske razlike učenika u odnosu na njihove stilove učenja. Općenito gledano, učenici s DI i AC stilovima učenja posjeduju viši stupanj motivacije od učenika koji imaju AS i CO stilove učenja. U nekim prethodnim istraživanjima proučene su razlike u motivaciji učenika s obzirom na njihove stilove učenja (Azizoğlu i Çetin, 2009; Coutinho i Neuman, 2008; Denizoğlu, 2008; Önder i Tan, 2011; Srichanyachon, 2012). Primjerice, Denizoğlu (2008), koji se koristio Kolbovom klasifikacijom stilova učenja, utvrdio je da su razine motivacije učenika s AS i CO stilovima učenja više od onih učenika s DI i AC stilovima učenja. Taj je rezultat u skladu s rezultatima ovoga rada.

Jedna od najvažnijih motivacijskih varijabli čiji je suodnos sa stilovima učenja ispitan u ovome istraživanju jest strategija osobne učinkovitosti u učenju i izvedbi. Izvedba je u mnogim disciplinama u suodnosu s osobnom učinkovitošću (Campbell i Smith, 2013; Yurt, 2014; Yurt i Sunbul, 2013). Osobna se učinkovitost odnosi na procjenu pojedinca o sebi i svojoj sposobnosti u savladavanju izazova s kojima se u budućnosti može susresti (Bandura, 1986). Osobe koje posjeduju visoku razinu osobne učinkovitosti više se trude savladati probleme, upornije su i ustrajnije (Senemoğlu, 2007). U ovome je istraživanju utvrđena negativna i značajna korelacija između sklonosti prema učenju utemeljenome na refleksivnom promatranju i osobnoj učinkovitosti. No, kad se u obzir uzmu stilovi učenja, sposobnost osobne učinkovitosti u učenju i izvedbi niža je u učenika s AS i CO stilovima učenja od učenika koji imaju druge stilove učenja. Stoga treba poduzeti određene korake kako bi se razvila sposobnost osobne učinkovitosti učenika u kojih prevladava sklonost učenju utemeljenome na refleksivnom promatranju i učenika koji posjeduju AS i CO stilove učenja. S tim je ciljem moguće koristiti se pristupima poput suradničkoga učenja (Senemoğlu, 2007; Ural, Umay i Argün, 2008), kreativne uporabe drame u nastavi (Yenilmez i Uygan, 2010), vršnjačkoga učenja (Schunk, 2003), diferencirane nastave (Yabaş i Altun, 2009) i uporabe portfolija u učenju (Bahçeci i Kuru, 2008) s ciljem povećanja vjere učenika u osobnu učinkovitost.

Još jedna važna varijabla koja se promatra u ovome radu jest strah od testiranja. Primijećeno je da učenici koji su skloni učenju utemeljenome na refleksivnom promatranju posjeduju višu razinu straha od testiranja od ostalih učenika. Osim toga, učenici s CO stilom učenja pokazali su veći strah od testiranja od učenika koji imaju ostale stilove učenja. Poznato je da strah od testiranja predstavlja važnu varijablu koja može utjecati na uspjeh pojedinca (Chapell i sur., 2005; McDonald, 2001; Sansgiry, Bhosle i Dutta, 2005; Üredi i Üredi, 2005). U literaturi nalazimo savjete o uporabi određenih tjelesnih, mentalnih i biheviorističkih tehnika (Alyaprak, 2006; Baltaş i Baltaş, 1987; Özer, 1990) kojima je cilj umanjivanje straha od testiranja učenika koji su skloni učenju utemeljenome na refleksivnom promatranju te posjeduju CO dominantan stil učenja. Kad se uzmu u obzir rezultati ovoga i prethodnih istraživanja, vidljivo je da se razine motivacije učenika mogu razlikovati s obzirom na njihove stilove učenja. Stoga se stilovi učenja moraju uzeti u obzir kao varijabla individualnih razlika kojima se mogu povisiti razine motivacije učenika.

Zaključci

U ovome su istraživanju uspoređene razine motivacije i strategije učenja učenika viših razreda osnovnih škola s obzirom na njihove stilove učenja. Kako bi se to postiglo, istraženi su suodnosi između rezultata sklonosti učenika prema određenim načinima učenja, u koje su bili uključeni i njihovi stilovi učenja, kao i strategije učenja kojima se ti učenici koriste. Rezultati su pokazali da voljne strategije i strategije učenja koreliraju pozitivno s njihovom sklonosti učenju utemeljenoj na apstraktnoj konceptualizaciji i aktivnom eksperimentiranju, a negativno s njihovom sklonosti učenju utemeljenoj na konkretnom iskustvu i refleksivnom promatranju. Osim toga, pokazalo se da učenici s AC i CO stilovima učenja općenito posjeduju višu razinu motivacije od učenika s DI i AS stilovima učenja i da se češće koriste strategijama učenja. Rezultati ovoga istraživanja pokazuju da učenici mogu posjedovati različite stilove učenja, a razine njihove motivacije i uporabe strategija koje su im potrebne za učinkovito učenje mogu varirati.

Rezultati ovoga istraživanja također pokazuju da je informacija o stilovima učenja koje učenici posjeduju i strategijama učenja kojima se koriste nastavnicima vrlo korisna. Ta informacija nastavnicima pomaže u učinkovitom planiranju nastavnih satova i odabiru načina poučavanja i aktivnosti vrednovanja i vođenja (Curry, 1990). Imajući u vidu stilove učenja svojih učenika, nastavnici će u svojoj nastavi znati upotrijebiti primjerene metode, tehnike i alate kojima će pospješiti učenje. Rezultati ovoga istraživanja pokazuju da nastavnici mogu uključiti učenike s DI i AS stilovima učenja u aktivnosti s pomoću kojih se povećava njihova motivacija i unapređuje njihovo korištenje strategijama učenja.

Učenici s AS stilom učenja mogu raditi s apstraktnim konceptima i zamislama te uživaju razvijajući konceptualne modele (Kolb, 1984). Kako bi zadržali i povećali njihovu motivaciju za učenjem, kao i unaprijedili njihove strategije učenja, nastavnici mogu pripremiti aktivnosti razmjene koncepata i ideja, testiranja izrađenih modela i aktivnosti u kojima se eksperimentira i uči putem rada. Na taj će način učenici postaju svjesni strategija učenja kojima se mogu služiti jer će biti aktivni u okolini u kojoj uče i postići višu razinu motivacije za učenje pa stoga i učinkovitije učiti.

Učenici koji posjeduju DI stil učenja lako postižu svijest o različitim vrijednostima i značenjima i u stanju su stvoriti smislene odnose između varijabli. Pozitivne kvalitete koje ti učenici posjeduju njihove su organizacijske i intelektualne sposobnosti. No, poznato je da učenici koji posjeduju DI stil učenja imaju poteškoće s provođenjem svojih zamisli u praksu (Kolb, 1984). Zbog toga takvi učenici mogu posjedovati ograničenu razinu razumijevanja i uporabe strategija učenja. U tom slučaju nastavnici trebaju pripremiti takvu okolinu za učenje u kojoj učenici s DI stilom učenja mogu slobodno izraziti svoje zamisli i osjećaje, čime će ih se ohrabriti da svoje zamisli podijele s vršnjacima. Tako će ti učenici biti motiviraniji te će se učinkovitije služiti strategijama učenja.