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Full Length Research Paper

Learning styles of teacher candidates: A sample of Firat University

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The aim of the present study is to detect the learning styles of teacher candidates who receive training in the Faculty of Education at Firat University in Turkey. The study is conducted on 446 teacher candidates who are in the first and fourth years in the departments of Primary School Education, Social Studies, Science Education, Art Education, Turkish Language Teaching and Computer and Instructional Technologies Education in the academic year 2008 - 2009. The Kolb Learning Style Inventory was used as the data collection tool in order to detect the learning styles of teacher candidates. Following the analyses, it was found that there is a relation between the classrooms where they receive training and their learning styles. Additionally, it was found that there is not a significant relation between gender, the department of university, alma mater, of the determination of learning styles in advance, the time they started to use computer technology and dominant learning styles.

Key words: Learning styles, Kolb's learning style, classroom environment.

INTRODUCTION

Before examining the learning styles and models, it is necessary to explain "What is the key concept in learning style?" and "What does style mean?" Style is a concept used in the fields of fashion, art, sports and media. From this point of view, individual's preferences are central. When this concept is considered in educational content, it is seen that every student has his/her own learning style. These differences (personality, perception, ability, intelligence) affect students' motivation and attitudes towards the lessons. As a result, these differences affect the effectiveness of the lesson. Beside those, the student's gender, intelligence and personal characteristics influence the learning style as well (Erden and Altun, 2006). As the learning style is related to individual characteristics and preferences, learning styles reflect the students' preferences on how they perceive the environment, interact with this environment, react and experience learning in this process. When individual learning styles are determined, both the kind of the teaching environment they need to be in and the way to precisely determine the issues to be learned inside and outside of the class may be raised (Özbek, 2007). When the lessons are taught by taking into consideration the individuals' learning styles; their interests and successes increase considerably. What is important here is that learning styles are neither better nor worse than each other. If a teacher keeps this matter in mind, he/she can turn this difference into an advantage. To achieve this purpose, studies have been conducted over the past 40 years. In this regard, after emphasizing the concept of learning style, this section examined the conceptual and applied researches that can explain the effects of learning styles on the processes of education and learning. The general aim of the study is to detect the learning styles of teacher candidates. In accordance with this general aim, it is analyzed whether or not there is a significant relation between the learning styles of teacher candidates and their genders, departments, year in the university the regions they come from, their alma maters, the determination of their learning styles in advance, their use of computer technologies.

Learning styles

Learning styles were classified by a great number of scientists. It is not important what kind of classification it is; knowing these styles will help teachers develop

programmes which may be more effective for all students (Smith, 2002). Learning style classifications which are encountered most frequently in the literature are discussed here. These studies are shown in Table 1. In the formation of this table, a classification is made by analysing variables that different authors have used in defining learning styles. Selected authors are grouped according to years and also the similarities of the variables they use.

McCarthy (2000) described "learning styles" as the individual's perception and use of the knowledge." McCarthy takes the fundamental of the learning style model from Kolb's learning style. McCarthy categorizes learning styles into four groups. The learners of the first group are the imaginative learners, of the second group are the analytical learners, of the third group are the common sense learners and the forth group are the dynamic learners.

According to Kaplan and Kies (1995), the learning style is an inborn characteristic which does not easily change during the lifetime, but can change and be developed during the life of the individual through the experiences. This affects the individual while walking, lying, sitting, speaking, playing and writing. Actions are made according to these characteristics (Boydak, 2001). Besides this, learning style has an important place in learning how to study (Carroll, 2001).

Grasha (1996) developed another model based on the importance of preferences in learning. He describes "learning style" as the collective experience of learning during the process of gaining knowledge (Diaz and Cartnal, 1999). Gregorc thinks that being aware of yourself helps in determining your real learning style.

According to Butler (1988) who is much influenced by Gregorc, learning style is a general concept which highlights the learning differences like the quality of an umbrella. Every individual has a different style. This can be in clothes worn, the music listened and the colors selected by the friends and social groups of the individuals. Those different individual styles help the individual to identify a learning style.

According to Allport (1961), learning style is defined as perception, thought, remembering or problem-solving of the individual in the way that s/he is used to do. It is assumed that these definitions include cognitive processes and the individuals use the learning style that they are used to (im ek, 2004). Allport, in his study of learning styles, used the style concept in 1930 and then in 1961. He also concentrated on the individual differences among students (Peavler, 2007).

By taking advanced cognitive processes, Keefe (1987) has explained lasting cognitive, affective and physiological characteristics after researching how the student perceived the environment and how s/he interacted with his/her learning environment. He has also stated that the individual with these aforementioned style characteristics is under the influence of the genetic code, personal development and strong environmental adaptation. According to him, learning styles has cognitive, affective and environmental aspects.

Numerous studies have investigated the impact of learning styles in community college courses. Few studies to date have evaluated the students' perceptions of learning styles and blended learning environments. The studies about learning styles mostly focus on the success of learners in traditional learning environments, attitudes towards learning environments or the rate of involvement in learning environments. One of the most popular learning style inventories and one that is often used in distance learning and for adult research is the Kolb's Learning Style Inventory (Akkoyunlu and Soylu, 2008).

Kolb's Experiential Learning Theory constitutes the basis of the Kolb learning style model. Experiential learning which differs from other cognitive learning theories explores the use of experiences in the learning process (Hasırcı, 2006). With this start, he has developed his studies following on Lewin's experiential learning theory. As a result, a learning style model has been developed. Kolb defines learning as the process of being in harmony with the social and physical environment. He has proceeded to define "learning" and differentiate it from knowledge. According to Kolb, learning is a process and knowledge is the transformation of the experience (Butler, 1988; Felder and Brent, 2005; Kolb, 1984).

When Kolb realized the classification in the Table 1, he made use of Jung's Psychological Types Theory. That is, the "concrete-abstract" domain in Kolb's learning style resembles with the "perceptual-intuitive" domain in Jung's Model. It is possible to come up in daily life with the terms focused on in Kolb's Learning Style. As people have various learning styles and points of view in the life, some people learn through feeling, thinking, watching and doing. Kolb has further elaborated his ideas. The individuals who have an abstract style try to comprehend the real world through relating this approach to events. While a concrete style works through feeling, a reflective style works through watching and besides these an active style works through doing and experiencing (Adler, Whiting and Williams, 2004). On the other hand, the "active-reflective" domain takes part in both models (Veznedaro lu and Özgür, 2005). Taking a different approach to that of Jung, Kolb has classified the learning styles, ways and manners in Figure 1. Kolb has defined four types of learning styles. These are:

1. Accommodator: Planning and carrying out decisions characterize the individual who has this kind of learning style. They adjust to changes since they are open-minded in the learning environment. The learning occurs by doing and experiencing actively. They are always in a state of invention.

Table 1. Different learning styles and some basic variables.

Person	Year	Description	Basic variables
Keefe	1979	Learning styles are cognitive, affective and psychological characteristics that learners use as constant determinants to some extent in their perception, interaction and reaction styles.	Some research, has handled the learning styles as a specific learning manner, personal and distinguishing characteristic show how thestudent will begin to act and how s/he will behave in the learning environment. Learning style is different and distinct for each student. Learning style is defined as the total of the learner's characteristics according to the generating in the origin of the individual differences in learning environment.
Dunn and Dunn	1993	Learning style is a way of getting and processing the knowledge starting with the learners' dealing with new and difficult information.	
Dunn and Dunn	1978	Learning style is comprised of 18 elements which are designed according to four basic stimuli having relationswith the person's adequacy in assimilating and acquiring a subject. The coherence and variation of these components show that few people learn in the same way.	
Keefe	1987	Learning style is all of the cognitive, affective and psychological characteristics which reflect the individual's perceptions on his/her environment.	
Reinert	1976	The learning style of an individual is the style s/he aims at learning actively, it is the style which the individual uses and develops ways to take in, retain the new information, put it for later use.	Learning style is a kind of inner program that shapes our behavior. This program differs from one person to another and it takes individuality into account. Those four terms(temperament, general education, general tendency, harmony) affect the consistency and the coherence in meaningful amount
Entwistle	1981	Learning style is the tendency to absorb a special strategy.	
Kolb	1984	Learning styles are measured by a self-announced scale, known as LSI and LSI. Differences in learning ways are based on the four kinds of learning processes in relation to each other.	
Schmeck	1983	Learning style is a student's own tendency to absorb a special learning strategy independent from the environment.	
Della-Doraand Blanchard	1979	Learning style is a personal and preferred way in assimilating the knowledge and the experience in the learning situation independent from the context.	Some research suggests that the individual's tendency to act in a specific way can be counted as "preferences" which are highly related to the differences of individuals.
Jonassen and Grabowski	1993	Learning styles consist of the learner's preferences in different educational and instructional activities. These are the general tendencies which are preferred in processing data in different ways.	
Legendre	1998	Learning style is the person's style in learning, solving a problem, thinking and the style s/he likes reacting in within an educational situation.	
Felder and Silverman	1988	Learning style is the characteristic difficulties and preferences in the process of an individual's acquiring knowledge, holding and processing it.	

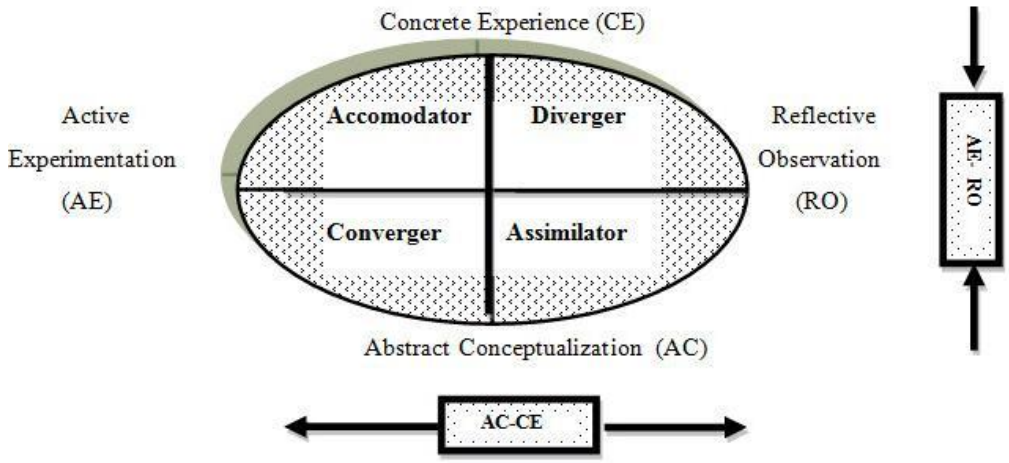

Figure 1. Kolb's learning Styles (Kolb, 1984).

2. Assimilator: Creating conceptual models and reflective observations are their specific characteristics. In other words, creating conceptual models, focusing on abstract concepts and ideas during the learning process are their specific characteristics.

3. Converger: The characteristic of this learning style is that individuals rely on abstract conceptualization and concrete experience. So they need to perceive the whole and moving from the whole to the parts.

4. Diverger: Thinking, being aware of values and meanings, concrete experience and learning through reflective observation are the main characteristics. They adjust by observing concrete situations from different angles. They construct their ideas patiently, objectively and carefully in the learning process. But they avoid action while taking their ideas into consideration, and at the same time they are aware of their own feelings and ideas. The reason why this learning style is called diverger is that individuals bring different ideas together and they show a better performance when desired.

Dunn and Dunn have taken some developmental characteristics into consideration while determining learning styles. These are biological and individual developmental characteristics. Because of the differences coming from these biological and individual developmental characteristics, some ways can be found to make instruction appropriate. In other words, some students learn through hearing, some through experiencing and some primarily through watching. According to Dunn and Dunn, the important thing is that teacher has to determine the ways by which the student learns in the process (Çaycı and Ünal, 2007; Dunn and Dunn, 1978; 1993).

As a result, there are many compelling reasons why learning styles must be kept in mind in the education and training process. These can be summarized and itemized as follows:

When an individual's learning style is known, it means that every individual can be perceived as different from the others. That is, the individual will create his/her own learning style. As perception frequencies of the brain differ, individuals interpret stimuli, drawing on sensory memory. When characteristics like age and gender are known, their differences are recognized. A teacher who is aware of his/her students' learning styles is the one who will serve the objectives of the education.

Recognizing the student's learning style contributes to effectiveness. The effectiveness will decrease if the student learns in an environment, incompatible with his/her learning style.

Although education is student-centered today, some tendency towards a teacher- centered education commitment of the past still exists. As a consequence of this, student's interests, expectations and needs are ignored. But something that must be kept in mind in the education process is the idea that every individual behaves according to his/her personal needs and that s/he is responsible for his/her learning. However, it is because of the fact that learning is a personal process. This is one of the reasons demanding that learning styles should be taken into consideration in the education and teaching process.

The purpose of multiple intelligences theory and constructivism recently applied in education and the aim of teaching is to encourage the students to acquire knowledge according to their own learning styles by giving them a variety of work and projects. As seen in Figure 2 and explained in the theory of multiple intelligences, individuals have different intelligences. Individual learns according to his/her dominant type of intelligence. The important thing for the teacher is to do activities in the class according to the dominant type of intelligence in the student's learning style. In this way, the student will be more active in the class since these activities are

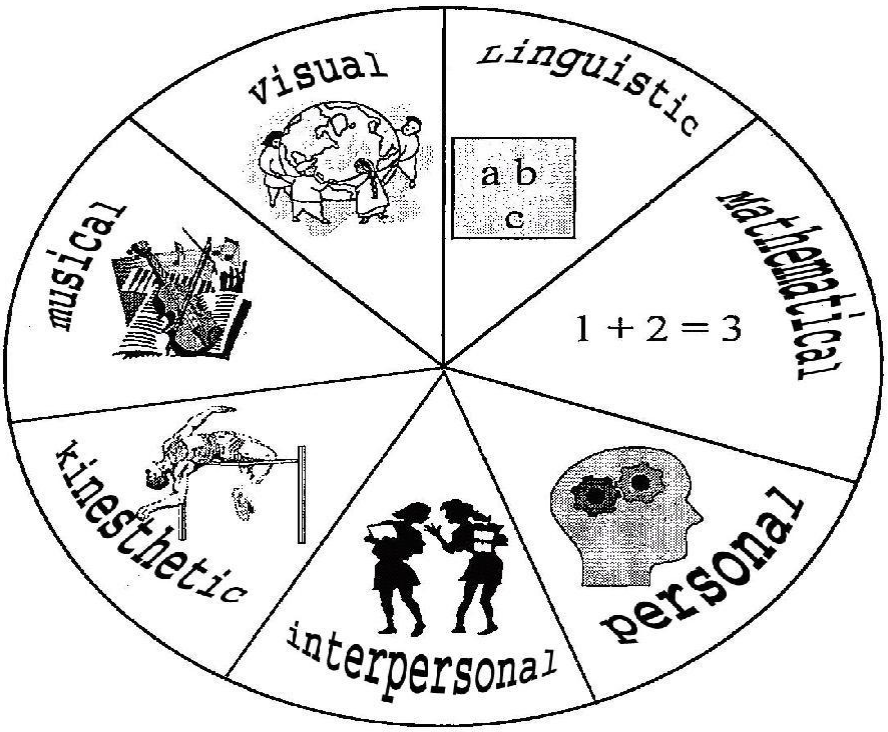

Figure 2. Intelligences in the theory of multiple intelligences.

activities are appropriate to his/her learning style.

As the realization that the student cannot learn comprehensively in an environment in which "teacher" is the only active person and the student is always passive one, the awareness of learning styles in the education and teaching process has become much more important.

The majority of the students cannot be reached when ordinary and monotonous methods and techniques which do not handle a learning unit with different learning teaching approaches are used in the class. It must be kept in mind that each individual is different from the others and learns through different methods and techniques. The abovementioned points are listed to demonstrate the importance of learning styles in education and in teaching process. Thus, it may be understood that learning styles have become a very important field of research. This study is a part of this awareness.

Why is learning style important?

It is very important for an individual to know his/her learning style. The reason is that one of the most significant issues in learning to learn, or in becoming effective in the process of learning, is an individual's taking the responsibility for his/her own learning. For this purpose, the individuals should know what their own learning styles are and what characteristics this style has and they should thereby behave according to this style. In this way, the individual can acquire the constantly changing and increasing amount of information without need for the assistance of others (Coffield, 2004).

When the learner takes the responsibility of his/her own learning, s/he attributes meaning to the process of learning. S/he develops an understanding of his/her own form of learning style and becomes much more satisfied with the environment s/he interacts with. Every opportunity for learning is a chance for him/her. It is in the learner's hand to use different ways and develop the learning styles to some extent.

Learning style is important for many reasons; however, there are three vital ones. First of all, people's learning styles will vary because everyone is different from one another naturally. Secondly, it offers the opportunity to teach by using a wide range of methods in an effective way. Sticking to just one model unthinkingly will create a monotonous learning environment, so not everyone will enjoy the lesson. In other words, learning and teaching will be just words and not rooted in reality. Thirdly, we can manage many things in education and communi-cation if we really recognize the groups we are called to. Of course, we may not know every detail; however, being aware of our students' learning styles, psychological qualities and motivational differences will help us regulate

Table 2. Teacher candidates' demographic properties.

Variable	N	%
Gender		
Man	226	50.67
Woman	220	49.33
Department		
Primary School Education	91	20.40
Computer and Instructional Technical Education	81	18.16
Science Education	78	17.49
Art Education	49	11.00
Social Studies	67	15.02
Turkish Language Teaching	80	17.93
Grades		
First	240	53.81
Fourth	206	46.19
Region		
Eastern Anatolia	261	58.52
Southeastern Anatolia	124	27.80
Central Anatolia	9	2.02
Black Sea	6	1.35
Mediterranean	41	9.19
Aegean	2	0.45
Marmara	1	0.22
Abroad	2	0.45
		F
Total	446	100.00

our lessons appropriately and according to the conditions (McCarthy, 1987; Coffield, 2004; Felder and Silverman, 1988; Della-Dora and Blanchard, 1979; Entwistle, 1981).

METHODOLOGY

The present study is a descriptive study which was designed as a scan model in order to detect the learning styles of students. The target population of the study was composed of teacher candidates who receive training in the Faculty of Education at Firat University in Turkey. The sample was composed of 617 teacher candidates who are in the first and fourth year in the departments of Primary School Education, Social Studies, Science Education, Art Education, Turkish Language Teaching and Computer and Instructional Technologies Education. Due to the faulty and wrong completion of the inventory, only 446 inventories were put into the process. The Kolb Learning Style Inventory was used as the data collection tool. The inventory was developed by Kolb in 1985 and validity and reliability studies were made. Percentile, frequency and chi square were used for the analysis of the acquired data.

FINDINGS AND DISCUSSION

Findings are presented and interpreted in Table 2 according to data which was acquired from the Kolb Learning Style Inventory. According to the analysis of the Table 2, 50.67% of the participants were males and 49.33% were females. Of these, 20.40% were receiving training in the Department of Primary Education, 18.16% in the Computer and Instructional Technologies Education 17.49% were in Science Education, 11.00% in Art Education, 15.02% in Social Sciences and 17.93% in the department of Turkish Language Teaching. Since more contingents are allocated for the department of primary, this situation is effective on these figures. While the percentage of teacher candidates who were in the first year was 53.81%, the percentage of students who were in the fourth year was 46.19%. According to the regions of the teacher candidates, the biggest percentage belonged to the Eastern Anatolia Region, with 58.52%. Teacher candidates who lived in the Southeastern

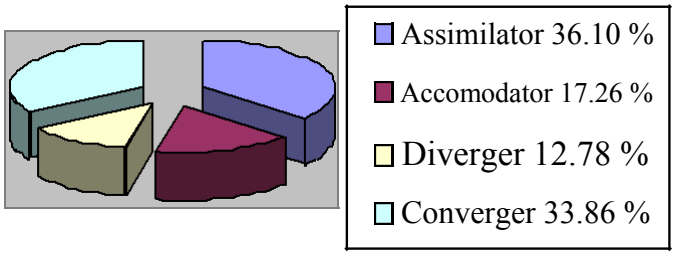

Figure 3. Percentages of teacher candidates' dominant learning styles.

Anatolia Region were ranked second with a percentage of 27.80%. Findings on the learning styles of the participants are presented in Figure 3.

In the light of the Kolb Learning Style Inventory results, 36.10% of the participants had an assimilator learning style, 33.86% had a converger learning style. While the percentage of participants with an accommodator learning style was 17.26%, the percentage of participants with a diverger learning style was 12.78%. They had the lowest percentage. Accordingly, a majority of the teacher candidates had assimilator and converger learning styles. Taking the characteristics of the assimilator and converger learning styles, it can be said that the majority of the participants are logical and systematic individuals with decision making abilities. The study called "*The Relation between Learning Styles of Primary Education Teacher Candidates with Different Variables*" by Çaycı and Ünal (2007) indicated that the majority of the participants have an assimilator learning style, with a percentage of 59.80%. Considering the characteristics of the individuals with an assimilator learning style, it can be stated that those teacher candidates have abilities such as abstract thinking, successful synthesizing, and the capability for developing multi-dimensional perspectives and for analytical thinking.

The values of the following Table 3 indicate there was not a significant relation between the gender of teacher candidates and learning styles ($p = 0.69 > 0.05$). Considering the distribution of learning styles according to gender, 37.73% of the females had assimilator learning styles, 33.18% had converger learning styles, 15.45% has accommodator learning styles and 13.64% had diverged learning styles. The percentage of assimilator and converger learning styles was 34.51% in male participants. The percentage of accommodator learning styles was 19.03% and the percentage of diverger learning styles was 11.95%. Accordingly, the majority of the male and the female teacher candidates had assimilator learning styles. However, the percentage of converger learning styles was equal to assimilator learning styles in the male teacher candidates. The percentage of diverger learning styles was low for both genders. The study of Demir (2008) could find no relation between the genders of the students and their learning styles. Furthermore, the study assessed that both the majority of female and male teacher candidates have converger learning styles.

As shown in Table 4, there was not a relation between the learning styles of the teacher candidates and their departments. Thus, it can be deduced that the departments of the participants was not efficient in determining their dominant learning styles. In the light of the distribution of learning styles according to the departments of the participants, the majority of the teacher candidates who received training in the Department of Primary Education (46.15%), the Department of Computer and Instructional Technologies Education (34.57%), the Department of Art Education (36.73%) and the Department of Social Sciences (37.32%) had assimilator learning styles. On the other hand, teachers candidates who receive training in Science (43.75%) generally had converger learning styles at a higher level when compared with the other departments of teacher candidates. Furthermore, the lowest percentage for an accommodator learning style was in Art Education and the diverger learning style had the lowest percentage in all departments except for that of Art Education. The study by Demir (2008) on teacher candidates in Turkish language teaching detected that the dominant learning style was that of the converger learning style; the findings of that study support those of the present study. However, the present study revealed that teacher candidates in the departments of primary education, social sciences, computer education and instructional technology and art education have assimilator learning styles. The study of Çaycı and Ünal (2007) indicated that the majority of teacher candidates in the department of primary school education had assimilator learning styles. Furthermore, the study of Tuna (2008), "Learning Styles of Art Education Students", found that the dominant learning style of art education students is the assimilator learning style. The results of both studies support the results of the present study. Accordingly, it can be declared that teacher candidates in the departments of Turkish language teaching and science education are theorists, unsystematic, but broadminded and deduction-oriented. Teacher candidates who receive training in assimilator-dominant departments display characteristics such as abstract thinking, regularity, the developing of different perspectives. Furthermore, these teacher candidates prefer the induction method.

There was a significant relation between the year in the university of participants and their learning styles ($p=0.00<0.05$). The condition of the first and fourth year became effective in the determination of their dominant learning styles. According to Table 5, of the teacher candidates who were in the first year, 45.42% had assimilator learning styles, 30.00% had converger learning styles, 12.50% had diverger learning styles and 12.08%

had accommodator learning styles. According to the table, of the teacher candidates who were in the fourth year, 38.30% had converger learning styles, 25.24% had assimilator learning styles, 23.30% had accommodator learning styles and 13.11% had diverger learning styles. Accordingly, the dominant learning style of the majority of the teacher candidates who were in the first year was that of assimilator, the dominant learning style of the teacher candidates who were in the fourth year was that of converger. Considering the distribution of learning styles according to classroom, the lowest percentage was in the accommodator leaning style in the first year (12.08%) and in the diverger in the fourth year (13.11%). It can be stated that the learning experiences of teacher candidates in the Faculty of Education are effective in forming learning styles. The teacher candidates who are in the first year a tendency towards abstraction and they are not action-oriented. The teacher candidates who are in the fourth year have advanced abilities for problem solving and decision making.

There was not a relation between the alma mater and the learning styles of teacher candidates ($p=0.30>0.05$). In the light of the findings, the highest percentage of graduates from vocational high schools had converger learning styles, at 33.30%. The majority of teacher candidates who graduated from high schools (36.78%), multi-program high schools (42.50%) had the accommodator learning style. Furthermore, the lowest percentage in all secondary education institutions belonged to the diverger learning style (Table 6).

According to Table 7, it can be suggested that the circumstances of the determination of learning styles in advance is not crucial to the determination of learning styles ($p=0.06>0.05$). Of those surveyed 48.39% of teacher candidates who declared that they had determined their learning styles in advance had an assimilator learning style, 22.58% had diverger learning styles, 16.13% had converger and 12.90% had accommodator learning styles. The majority of the teacher candidates who indicated that they did not determine their learning style in advance had assimilator and converger learning styles. The percentages of both learning styles were equal (35.18%) . Furthermore, 17.59% of the teacher candidates who did not determine their learning style in advance had accommodator learning styles and 12.05% had diverger learning styles. Teacher candidates who determined their learning style and did not have those determined, mostly have a dominantly assimilator learning style. However, the percentages of converger learning styles and assimilator learning styles are equal in teacher candidates who did not determine their learning styles in advance.

The analysis revealed that the time at which teacher candidates started to use computer technology was not effective in the determination of their dominant learning styles ($p=0.69>0.05$). According to Table 8, the majority of the teacher candidates who declared that they had started to use computer technology in primary education, secondary education and higher education had the assimilator learning style.

According to the results of the present study there is not a significant relation between gender, the department of the university, the type of high school they graduated from, the circumstances of the determination of their learning styles in advance, the time they started to use computer technology and their dominant learning styles. In other words, it can be suggested that these variables are not effective in the detection of the learning styles of teacher candidates. However, there is a significant relation between the classrooms where they receive training and their learning styles.

Conclusion

While learning style has been discussed mostly on an academic level in Turkey, many developed countries use it to improve the quality of education. We need to make improvements to reach that point. The aim should be to identify individuals learning styles and to provide more effective learning.

People responsible for the education of students need to follow these developments. For example, Özbek's (2007) study "determining learning styles of primary school students" -one of the studies conducted on this issue- suggests that when teachers need information about the learning styles of the students, they can get results by applying a learning style inventory and with these results they can choose instruction models and obtain the necessary materials. Teachers can share the results with parents and inform them about how they can help their children learn at home. Another study by Çelenk and Karakı (2007), *The Level of the Students Attending Universities and Having Different Learning Styles* states that students are concentrated on the converger learning style. The main feature of it is reflective observation and abstract conceptualization. The teacher has to realize that:

He/she has to plan the lesson according to different learning styles and concentrate on students having different learning styles equally.
Even if learning levels differ, the preferences of students about learning styles do not change.

Teachers have to work to provide a high-quality education by heeding the results of the studies and explanations above. The research studies will assist the teachers in remembering what needs to be done. The research repeatedly emphasizes that the classroom environment at every educational level should be organized according to learning styles.

Table 3. Differences of teacher candidates' dominant learning styles according to gender

Gender		Learning styles				Total
		Assimilator	Accomodator	Diverger	Converger	
Woman	N	83	34	30	73	220
	%	37.73	15.45	13.64	33.18	100.00
Man	N	78	43	27	78	226
	%	34.51	19.03	11.95	34.51	100.00
Total	N	161	77	57	151	446
	%	36.10	17.26	12.78	33.86	100.00

X^2=1.45; SD=3; p=0.69>0.05.

Table 4. Differences of teacher candidates' dominant learning styles according to departments.

Department		Learning styles				Total
		Assimilator	Accomodator	Diverger	Converger	
Primary School Education	N	42	12	9	28	91
	%	46.15	13.19	9.89	30.77	100.00
Computer and Instructional Technical Education	N	28	16	10	27	81
	%	34.57	19.75	12.35	33.33	100.00
Science Education	N	25	16	9	28	78
	%	32.05	20.51	11.54	35.90	100.00
Art Education	N	18	7	11	13	49
	%	36.73	14.29	22.45	26.53	100.00
Social Studies	N	25	13	9	20	67
	%	37.32	19.40	13.43	29.85	100.00
Turkish Language Teaching	N	23	13	9	35	80
	%	28.75	16.25	11.25	43.75	100.00
Total	N	161	77	57	151	446
	%	36.10	17.26	12.78	33.86	100.00

X^2=14.52; sd=15; p=0.49>0.05.

Table 5. Differences of teacher candidate dominant learning styles according to grades.

Grades		Learning styles				Total
		Assimilator	Accomodator	Diverger	Converger	
First	N	109	29	30	72	240
	%	45.42	12.08	12.50	30.00	100.00
Fourth	N	52	48	27	79	206
	%	25.24	23.30	13.11	38.35	100.00
Total	N	161	77	57	151	446
	%	36.10	17.26	12.78	33.86	100.00

X^2=22.89; SD=3; p=0.00<0.05.

Table 6. Differences of teacher candidate dominant learning style according to type of secondary school education

Type of Secondary Education School		Learning styles				Total
		Assimilator	Accomodator	Diverger	Converger	
High School	N	135	59	45	128	367
	%	36.78	16.08	12.26	34.88	100.00
Multi-Program High School	N	17	9	4	10	40
	%	42.50	22.50	10.00	25.00	100.00
Vocational High School	N	9	9	8	13	39
	%	23.08	23.08	20.51	33.33	100.00
Total	N	161	77	57	151	446
	%	36.10	17.26	12.78	33.86	100.00

X^2=7.22; SD=6; p=0.30>0.05.

Table 7. Differences of teacher candidate dominant learning style according to the circumstances of the determination of learning styles in advance.

The determination of learning styles		Learning styles				Total
		Assimilator	Accomodator	Diverger	Converger	
Yes	N	15	4	7	5	31
	%	48.39	12.90	22.58	16.13	100.00
No	N	146	73	50	146	415
	%	35.18	17.59	12.05	35.18	100.00
Total	N	161	77	57	151	446
	%	36.10	17.26	12.78	33.86	100.00

X^2=7.35; SD=3; p=0.06>0.05

Table 8. Differences of teacher candidate dominant learning style according to the time they started to use computer technologies

Time they started to use computer technology		Learning styles				Total
		Assimilator	Accomodator	Diverger	Converger	
Primary Education	N	42	21	11	36	110
	%	38.18	19.09	10.00	32.73	100.00
Secondary Education	N	86	39	28	83	236
	%	36.44	16.53	11.86	35.17	100.00
Higher Education	N	33	17	18	32	100
	%	33.00	17.00	18.00	32.00	100.00
Total	N	161	77	57	151	446
	%	36.10	17.26	12.78	33.86	100.00

X^2=3.91; SD=6; p=0.69>0.05

In both pre-service and in-service education, it is vital that teacher candidates be educated as being aware of the learning styles. The students should also think wisely and, with the about guidance of teachers, apply their knowledge. They need to be critical and creative in learning how to learn. This kind of awareness not only supports learning but also improves the student's self-confidence.

To increase the efficiency of learning styles in learning process, firstly, it may be beneficial to explain illustratively how students benefit from learning styles. In addition, methods -techniques and materials taking the learning styles of students into consideration can be used by the tea-chers. Teachers can also guide the parents in providing learning conditions suitable for the students' learning styles.

The presence of dominant learning styles does not imply the absence of other learning styles. In this regard, studies which enable coexistence of other learning styles with dominant learning styles should be focused on.

The learning styles of teacher participants in all years of a university: in this regard, the dominant learning styles can be assessed each year and the scope of effects of the year on the dominant learning styles can also be assessed.

Studies could be conducted in order to assess the relation between the learning styles and the use of the computer technologies which occupy such an important place in today's education.

Dominant learning studies of teacher candidates from different universities can be detected in order to detect the relation between the regions and the dominant learning styles of the teacher candidates.

The programs of the Faculty of Education could be devised so as to take into account the different learning styles of teacher candidates.

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