LEARNING STYLE PREFERENCES OF PRIMARY SCHOOL TEACHERS

Raşit ÖZEN *

ABSTRACT

The aim of this study is to examine the learning style preferences of primary school teachers. The subjects of this study were primary school teachers (n=250) working in the city center of Bolu in 2004. The quantitative data were collected by means of 2004 through Learning Style Preferences Inventory (LSPI) developed by Eren (2002). In addition to (LSPI), an open-ended question was asked to the primary school teachers during the study. To analyze the quantitative data collected, SPSS program was used and content analysis technique was used to analyze the open-ended question. Although, the analysis of the LSPI revealed that primary school teachers prefer the reflective learning style, the answers of open-ended question indicated that they prefer the active learning style. T-test results indicated a significant difference in favor of female teachers only in visual learning style preference.

Key Words: Learning, Learning style preferences, Primary education, Primary schools, Primary school teachers

İLKÖĞRETİM OKULU ÖĞRETMENLERİNİN ÖĞRENME STİLİ TERCİHLERİ

ÖZET

Bu çalışmanın amacı ilköğretim okulu öğretmenlerinin öğrenme stili tercihlerinin incelenmesidir. Çalışmanın örneklemini 2004 yılında Bolu il merkezindeki ilköğretim okullarında çalışan ilköğretim okulu öğretmenleri (n=250) oluşturmaktadır. Çalışma sırasındaki nicel veriler 2004 yılında Eren (2002) tarafından geliştirilen Öğrenme Biçimi Tercihleri Envanteri (ÖBTE) ile toplanmıştır. Çalışma sırasında ÖBTE' ye ilave olarak ilköğretim okulu öğretmenlerine açık uçlu bir soru sorulmuştur. Toplanan nicel verilerin analizi için SPSS programı ve açık uçlu sorunun analizi için içerik analizi tekniği kullanılmıştır. İlköğretim okulu öğretmenlerinin ÖBTE' ye verdikleri cevapların analizi öğretmenlerin düşünsel öğrenme stilini tercih etmelerine karşın öğretmenlere sorulan açık uçlu sorunun analizi öğretmenlerin aktif öğrenme stilini tercih ettiklerini göstermiştir. T-testi sonuçları sadece görsel öğrenme stili tercihinde bayan öğretmenler lehine anlamlı bir farklılık olduğunu göstermektedir.

Anahtar Kelimeler: Öğrenme, Öğrenme stili tercihleri, İlköğretim, İlköğretim okulları, İlköğretim okulu öğretmenleri

* Assist. Prof. Dr. Abant İzzet Baysal University, Faculty of Education, Department of Educational Sciences, 14280, Bolu, E-mail: rasitözen@ yahoo.com   Tel: 0374- 254 10 00 /1655; Fax: 0374-253 46 41

1. INTRODUCTION

In recent years most of the studies related to learning styles are matched mostly with the relationship between the learning styles and gender (e.g. Mountford et al.,2006; Sünbül and Sarı, 2005) and /or the relationship between learning styles and the academic achievements of students (e.g. Al -Balhan, 2007; Arslan and Babadoğan,2005) at different grade levels. In addition to this, it is observed that most of these studies are related to the learning styles of preservice teachers or students at different grade levels rather than in-service primary school teachers' learning styles by using different inventories. Even though the literature presents various studies about learning styles both in the national and international contexts dealing with various aspects in relation to learning styles as mentioned above, the present study could be considered as an attempt to examine the learning style preferences of primary school teachers for our national context , in this respect.

Learning styles or learning style preferences are considered as one of the individual differences between and among people. According to Rita Dunn, a person's learning style is the way he or she concentrates on, processes, internalizes, and remembers new and difficult academic information or skill as stated in her interview with Shaughnessy (1998). Wintergerst et al. (2003) , in the meantime, viewed learning styles as learners' customary predispositions towards processing information in a certain manner. Moreover; they (2003) considered learning styles as a part of individual's make up and personality and they (2003) added that the learning style preferences can change over time as a result of exposure to different teaching / learning situations as people's personalities change overtime. On the basis of these, what Wintergerst et al. (2003) and DeCapua and Wintergerst (2005) stated could be accepted as the possible implications of various definitions of learning styles or learning style preferences. According to them, whether as a result of heredity, educational background, situational requirements, age or other factors, learners understand and process information differently. Therefore, it could be said that learning styles are preferable, learner specific, individual characteristics of people that could indicate changes and differences overtime with respect to the nature and the situational characteristics of the context of teaching / learning environment.

When the literature concerning the learning styles is examined, various studies related to the learning styles or learning style preferences of primary and / or secondary school teachers are observed. Marshall (1991) reported that teacher groups in her workshops showed preferences for learning visually in much higher numbers (85 % to 90 %), their secondary preference was consistently auditory and only a few teachers revealed a preference for touching and doing-tactile or kinesthetic learning strengths. On the basis of their study, Lawrance and Veronica (1997) stated that the dominant learning style preference for secondary school teachers was the reflector type with a back-up style preference of theorist and they (1997) pointed out the pragmatist style of learning as the least preferred style of learning. Having analyzed the inventory, Adams (2000) pointed out that the majority of the teachers participated in the INSET were sensing / thinking type learners. In his study Ball (2000) examined the learning style preferences of primary and secondary school teachers. The results of Ball's (2000) study indicated that the learning style preferences of primary school teachers were more introverted (54.5%) than extroverted (45.5%), and more feeling (57.4%) than thinking types (42.7%) and the results of this study also indicated that among the learning style preferences of primary school teachers there was preponderance of sensing types (61.7%) and of judging types (61.7%). In addition to these, according to the results related to the learning style preferences of secondary school teachers in Ball's study (2000), (58%) of these subjects preferred introversion, (52%) of them indicated sensing preference, (53%) of them favored thinking preference and (64%) of them had a judging preference of learning. The study done by

Reed (2001) revealed that most of the middle school technology teachers (over 69% of them) in the random sample of the study were commonsense learners. When the scores of the two groups in Wakefield's (1993) study were examined, it was found that almost three fourths of both groups in the public school teachers and undergraduate and graduate students studying to become teachers preferred the same two of the four styles named as concrete sequential (CS) and abstract random (AR). Wakefield (1993), in the meantime, reported that although the preferred learning style of graduate students was abstract random, the learning style preference of public school teachers was concrete sequential. Having analyzed the questionnaire, Sutherland (1995) reported that primary school teachers were strongly serialist, strategic, conservative in problem solving and rational, and the majority of them were in favor of lateral thinking and a vast majority of primary teachers learned more effectively using a pedagogical model.

The literature in relation to learning styles presents the use of different instruments (e.g. Gregorc's Style Delineator, Kolb's Learning Style Inventory, Myers-Briggs Type Indicator) to measure the learning styles. In line with this fact, when the present study is concerned, in the studies mentioned above, it is seen that different instruments are used to measure the learning style preferences of primary and/or secondary school teachers prepared and developed on the basis of certain learning styles models reflecting various beliefs, perceptions and views in relation to how learning styles are observed and are defined by different theorists as stated by Cassidy, 2004; Coffield et al., 2004; Hall and Mosoley, 2005 ; Zhang and Sternberg ; 2005. As the consequence of this fact, it is seen that different results are obtained. Moreover, the words of Zhang and Sternberg (2005) explain the reason of this situation as "Different theorists emphasize different dimensions of styles in their conceptualizations and place emphasis on different criterion features in their assessments of styles (p: 4)".

2. THE AIM of THE STUDY

In line with the facts mentioned above, it is important to examine primary school teachers' learning style preferences as primary school teachers could recognize individual differences between and among their students in terms of their interests, abilities, needs, preferences and expectations. In line with this fact, they could take the individual differences of their students as a base while making decisions in relation to curriculum and instruction, and teaching and learning process at their classrooms as implied in Ballone and Czerniak,2001; Felder and Henriques,1995;Hyman and Rosoff , 1984 ; Smith and Renzulli , 1984 ; http : // getaccess . westone. wa .gov.au /careers / profile / data / OCC82 .asp. Within this framework, during the present study the learning style preferences of primary school teachers are examined and the effects of gender differences upon their learning style preferences are examined. On the basis of the aim of the present study, the following two research questions shown below are answered in this present study, as:

1. What are the learning style preferences of primary school teachers?
2. Do primary school teachers' learning style preferences differ according to their genders?

3. METHOD
3.1. The participants of the Study

The aim of the present study is to examine the learning style preferences of primary school teachers as mentioned in the introduction and for this purpose during the study the survey method was used. The population of the present study consisted of (n = 882) primary school teachers teaching at 50 various primary schools located in the city center of Bolu in

2004 (The Republic of Turkey, Bolu Governorship, Provincial Directorate of National Education, İLSİS Bureau Data). In order to form the sample of the study, the simple random sampling technique was used and (n=267) primary school teachers formed the sample of this study. During the study as the variance of the population was not exactly known, the ratio of maximum discrimination (.25) was accepted as the population variance. In order to identify the sample size, the deviation level was accepted as (.05) and the confidence level was accepted as (.95) 1. In the meantime, 250 primary school teachers consisted 35 % of the population of the study. For this reason, it could be said that the findings obtained from the present study could be generalized for Bolu. Even though 280 inventories were given to the primary school teachers by the researcher, 250 of the inventories were completed by the primary school teachers and returned. During the analysis of the data, 250 inventories that were completed by the primary school teachers were taken into consideration by researcher. As the consequence of this, the results of this study were based on the learning style preferences of primary school teachers (n=250) who completed the inventory (Çıngı, 1994; Gay, 1996).

Table 1: Sample sizes (S) Required for Given Population Sizes (N)

N	S
700	248
750	254
800	260
850	265
900	269

[1] $$n_0 = \frac{t^2 PQ}{d^2} \; ; n = \frac{n_0}{1 + \dfrac{n_0}{N}}$$

In this regard, the following sample sizes are required for given population sizes (Gay, 1996: 125) (see Table 1). On the basis of this, it could be said that the sample size of the study represented the population of the study.

The participants of this study are the primary school teachers (n=250) who completed the learning style preferences inventory and who were working at various primary schools in the city center of Bolu in 2004. It is observed that 51.6 % (n =129) of the primary teachers were female when their genders are concerned and when years of experience in teaching is focus of attention, it is seen that 46.8 % (n =117) of them were teaching for 20 years and more. In the meantime, 56.8 % (n=142) of them were teaching the grades between 1-5 when the grades they are teaching is concerned. Meanwhile, it is seen that 57.2 % (n=143) of primary school teachers were classroom teachers in terms of their professional status.

3.3. Data Collection Instruments

The Learning Style Preferences Inventory (LSPI) and an open – ended question were used in the study in order to collect the data.

3.3.1. The Learning Style Preferences Inventory (LSPI): The quantitative data were collected by means of The Learning Style Preferences Inventory (LSPI) prepared and developed by Eren (2002) in 2004. It was stated by Eren (2002) that the Learning Style Preferences Inventory (LSPI) was prepared and developed in the form of a 5-point Likert type scale, ranging from (5) "completely appropriate to me" to (1) "not at all appropriate to me".

Eren (2002) added that during the preparation and the development of LSPI, the literature in relation to the subject area (Felder - Silverman Model of Learning, 1988; The Theory of Multiple Intelligences of Howard Gardner, 1983; The Behavioral Aspects of Learning Styles defined by Barbe and Milone, 1981) were taken as a base and the criticisms, the suggestions and the recommendations of 8 subject-specialists were taken into account as it was pointed out by Eren (2002). Concerning the items of LSPI, Eren (2002) pointed out that there are ($k = 60$) items in the Learning Style Preferences Inventory (LSPI), fifteen of which are related to the four dimensions of the learning style preferences as; auditory learning, visual learning, active learning, and the reflective learning style preferences and the following items could be given as the examples of the dimensions of LSPI ,as " people know me as a talkative person " , " I remember best the things that I see ", " while sitting , I frequently change my position"," I try to solve the problems by myself ". The Cronbach alpha reliability of the LSPI was found .91 in Eren's study (2002) and for the present study, the Cronbach alpha reliability value was found .90.When the present study is concerned, the following Cronbach alpha reliability values for the dimensions of the Learning Style Preferences Inventory (LSPI) were found: for the auditory learning dimension .72.0, for the visual learning dimension .73.0, for the active learning dimension .74.4, for the reflective learning dimension .77.2.

In the meantime, the correlations among the dimensions of LSPI were ranging from .64 to .49. This finding indicates that the active, reflective, visual and auditory dimensions of LSPI are related to each other even though they have distinct factors and this fact could be interpreted as the multidimensional characteristic of the LSPI. On the basis of these, it could be said that LSPI consists of almost independent sub dimensions (rather than organized bipolar structure or stages) within itself and any individual could indicate his/her learning style preferences in any dimensions of LSPI depending on the teaching - learning context. In other words, although the primary school teachers, in the present study, highly preferred the reflective learning style, they could either prefer only one of the learning styles or the combinations of the learning styles depending on the nature of the teaching / learning situations due to the multidimensional characteristic of the LSPI.

3.3.2. The Open-Ended Question: In addition to the quantitative data obtained by the Learning Style Preferences Inventory (LSPI), an open-ended question "How do you think you learn best?" was asked to the teachers in order to understand and to examine to what extent they are aware of their learning style preferences and to get their perceptions in relation to their learning style preferences.

3.4. Data Analysis
During the study, in order to analyze the quantitative data collected by the researcher, SPSS for Windows 10.0 program was used. By means of SPSS for Windows 10.0 program, having grouped the answers according to the four dimensions of the LSPI, the mean and the standard deviation scores of each dimension in the inventory were calculated. Meanwhile for the analysis of the data collected through the open -ended question, content analysis technique was used by the researcher. The main objective in content analysis is to find out concepts and relations that will explain the collected data. Data summarized and interpreted in a descriptive analysis are subjected to a deeper process in content analysis and concepts and themes not recognized by a descriptive approach are discovered as a result of this analysis. To this end, the collected data must be primarily conceptualized, and then aligned reasonably with the obtained concepts and finally the themes explaining the data must be determined. The main process in

content analysis is to bring together the similar data in framework of certain concepts and categories (themes) and interpret these by arranging these in a way to be understood by the reader (Yıldırım and Şimşek, 2005). When the present study is concerned, the followings were performed by the researcher; having collected the data through the open-ended question, the answers of teachers were gathered according to the dimensions of LSPI as certain concepts and categories. After this procedure, they were organized and were interpreted in terms of their frequency and percentage values by the researcher. In addition to these, in order to examine the difference according to primary school teachers' learning style preferences and their gender, independent samples t-test was used.

3.5. Limitations of the Study

The results of this study were limited to the perceptions of primary school teachers (n=250) about their learning style preferences who completed the LSPI and who were teaching in 2004 at 50 various primary schools in the city center of Bolu .

4. FINDINGS of THE STUDY

Having analyzed the data collected, as seen in Table 2, the following mean and standard deviation scores of the learning style preferences of the primary school teachers were obtained. When Table 2 is examined, it is observed that the highest mean score was related to the reflective learning style preference ($\bar{x}$= 61.99, sd: 6.06); however, the lowest mean score was related to the active learning style preference ($\bar{x}$= 56.42, sd: 7.63).

Table 2: The Mean and Standard Deviation Scores of Learning Style Preferences

Learning Style Preferences	N	$\bar{X}$	sd
Auditory Learning	250	59.58	6.39
Visual Learning	250	57.84	6.69
Active Learning	250	56.42	7.63
Reflective Learning	250	61.99	6.06

In the meantime, the analysis of the open-ended question, when Table 3 is observed, revealed that 48.0 % (n=120) of primary school teachers believe that their learning style preference is active learning. In addition to this, 24.8 % of them pointed out that their learning style preference is visual learning, 14.8 % of them stated that they prefer the reflective learning style and 12.4 % of them thought that their learning style preference is auditory learning as seen in Table 3.

Table 3: The Analysis of the Open-ended Question

Learning Style Preferences	n	%
Auditory Learning	31	12 .4
Visual Learning	62	24.8
Active Learning	120	48.0
Reflective Learning	37	14.8
Total	250	100.0

T- test results concerning the relationship between the genders of primary school teachers and their learning style preferences are presented in Table 4. When table 4 is examined, no significant difference was found between female and male primary school teachers and their learning style preferences when the active [t (248) = -1.53 , p> .05] , reflective [t (248) = .47, p> .05] and auditory [t (248) = -1.88 , p> .05] learning style preferences are focus of attention. However , when the visual learning style preference is concerned, a significant difference [t (248) = -3.17 , p< .01] was found between the genders of primary school teachers and their learning style preferences in favour of female teachers.

Table 4: T-test Results between Teachers' Learning Style Preferences and their Genders

Learning Style Preferences	Female (n=129)		Male (n=121)		df	t	P
	$\overline{X}$	sd	$\overline{X}$	sd			
Auditory Learning	60.31	6.33	58.80	6.39	248	- 1.88	* .061
Visual Learning	59.11	5.84	56.47	7.26	248	-3.17	**.002
Active Learning	57.13	7.87	55.66	7.32	248	-1.53	.126
Reflective Learning	61.81	5.91	62.18	6.24	248	.47	.633

*P=.061   **P= .01

5. DISCUSSION of THE FINDINGS

The analysis of the data collected indicated that the mean score of the reflective learning preference, as seen in Table 2, was the highest (= 61.99, sd: 6.06); on the other hand, the analysis of the open-ended question, as seen in Table 3, revealed that 48.0 % of the primary school teachers learning style preference was the active learning. Furthermore, a significant difference (t (248) = -3.17 , p< .01) was found between the genders of primary school teachers and their learning style preferences in favour of female teachers (see Table 4) as the result of t-test analysis.

When the literature on the learning style preferences of primary school teachers is examined, various studies are observed by means of using different inventories. When these inventories are examined, it is seen that they have different headings from each other. On the basis of these, it could be said that the findings of the studies done by Reed (2001), Sutherland (1995), Lawrance and Veronica (1997), Adams (2000), Ball (2000) and Wakefield (1993) support the findings of the present study. When the findings of the present study is concerned, the reflective learning type could be related to the common sense learners as in Reed's (2001) study, being serialist, strategic and conservative in problem solving, being lateral in thinking as in Sutherland's (1995) study, preferring concrete sequential learning style as in Wakefield's (1993) study, being reflector as in Lawrance and Veronica's (1997) study, being a sensing / thinking type learner as in Adam's (2001) study, being introvert as in Ball's (2000) study.

Moon (2004) defined reflection as the mulling over ideas that have already been learned - the reorganizing of them - considering of how what has been learned will fit into the patterns of workplace to improve practice and in this regard, "reflection is a natural, and essential, part of the learning process (Hedberg, 2009: 10)." England and Spence (1999), also,

believed that reflection enables learners to create an immediate consciousness concerning what is newly known and what may be applied directly or straightaway. In the meantime, Rodgers (2002) summarized Dewey's concept of reflection and its purposes in four criteria which are: "reflection is a meaning - making process, a systematic, rigorous, disciplined way of thinking, with its roots in scientific inquiry, needs to happen in community in interaction with others and requires attitudes that value the personal and intellectual growth of oneself and of others (p: 845)." According to DCU Learning to learn (2009),

"Reflective learners continually think about: what they are learning, why they are learning it, how they are learning it, how they are using what they are learning, what their strengths and weaknesses in learning are, what their learning priorities are, how they can improve and build upon their learning process, how well they are working towards their short-, medium- and long-term goals (p:3) ."

In addition to these, "Reflective learners consider their motivation, their attitudes and ideas, and changes in these, the skills they need for different components of their study and learning, what (if anything) is blocking their learning, the gaps in their knowledge and skills, and how they might best work towards filling these (DCU Learning to learn,2009:3) ." When these are taken into account, it could be said that reflective learners are considered as deep learners since they process the information as deep learners do. On the basis of these, it could be said that deep learning involves the critical analysis of new ideas, linking them to already known concepts and principles, and leads to understanding and long-term retention of concepts so that they can be used for problem solving in unfamiliar contexts as pointed out in www.engsc.ac.uk /er /theory/ learning. asp. Furthermore, taking the analysis of LSPI as a basis, it could be said that the primary school teachers are considered as deep learners on the basis of what is stated by the literature above.

Dunning et al. (2003) stated that to achieve and to maintain an adequate measure of good life, people must have some insight into their limitations in terms of their knowledge and expertise. According to them (2003), in many social and intellectual domains, people are unaware of their incompetence, innocent of their ignorance and where they lack skill or knowledge, and they greatly overestimate their expertise and talent, thinking they are doing just fine when, in fact, they are doing quite poorly. When the possible implications of what Dunning et al. (2003) pointed out, the followings could be stated for the present study. Although the results obtained from the analysis of the Learning Style Preferences Inventory (LSPI) revealed that primary school teachers mostly prefer the reflective learning style, the results obtained from the analysis of the open-ended question indicated that they mostly prefer the active type of learning. Taking these as a basis, it could be said that primary school teachers are not completely aware of and /or do not know their learning style preferences. As the consequence of this, it could be said that they should be informed and trained about not only the importance of learning styles during their preservice training and also in their inservice period but also under which circumstances and in which or contexts environments they learn. In addition to these, in the present study two different data collection instruments that are different in terms of their forms were used to examine the learning style preferences of primary school teachers as mentioned above. The analysis of these two different data collection instruments revealed two different findings in relation to the learning style preferences of teachers. On the basis of this finding, it could be said that different findings and perceptions are obtained about learning styles when different instruments are used in order to measure learning styles.

When studies concerning the relationship between learning styles and gender are observed, it is seen that most of these studies are related to university students' from different

disciplines, preservice teachers or primary school students. Due to this fact, in this study, the relationship between learning styles and gender of primary school teachers are examined within this framework When the findings in relation to the genders of primary school teachers and their learning style preferences are concerned, as mentioned above no significant difference was found between the genders of teachers and their learning style preferences when auditory, active and reflective dimensions of LSPI are concerned. This may mean that both female and male teachers believed that during their learning, activities that require problem-solving, thinking, learning by doing and hearing are important. In the meantime, it can be said that the findings of the following studies (i.e. Arslan and Babadoğan, 2005; Austin, 2004; Mountford et al., 2006; Thornton et al., 2006; Özen and Arsal, 2006; Shaw and Marlow, 1999; Sünbül and Sarı, 2005) could support the findings of the present study as no significant difference was found in these studies between the learning styles and the genders of the participants.

When the literature is examined, it is seen that various studies (e.g. Heffler, 2001; Honigsfeld and Dunn, 2003; Keri, 2003; Lincoln and Rademacher, 2006; Vermunt, 2005) report significant differences between the males and females in terms of their learning styles and it could be said that the findings of these studies support the finding of the present study in general. However, it could be said that the results of the following studies (i.e. Gabe, 2002; Heffler, 2001; Keri, 2003; Philbin and Meier, 1995) support the findings of the present study in particular. In the present study, a significant difference was found in favour of female primary school teachers when visual learning style preference is focus of attention. This may imply the fact that visual stimuli are more important for female teachers during their learning and they look for and search for these in the learning environment more than other stimuli. They interact with visual stimuli (e.g. pictures, graphs, diagrams and others) in the learning environments as they are important elements for their learning. In the meantime, observation is considered to be an essential element for their learning as they observe all the elements in the learning environment. In addition to this, Russell (2006) listed the characteristics of visual learners, as:

> "Prefers written instructions rather than verbal instructions, prefers to have photographs and illustrations to view when receiving written or visual instructions, prefers a time-line, calendar, or some other similar diagram to remember the sequence of events, observes all the physical elements in the learning environment, carefully organizes their learning materials, remembers and understands through the use of diagrams, charts, and maps, studies materials by reading notes and organizing it in outline form (p:351)."

In line with this fact, while teaching to visual learners, the visual materials should be various in forms and interesting to visual learners, the visual presentations should be well organized, the handouts and written materials should be visually attractive and legible and various technology means should be used as Russell (2006) pointed out.

6. CONCLUSION and RECOMMENDATIONS

As a conclusion, it could be said that the primary school teachers mostly prefer the reflective learning style although they think that they are active type learners. In other words, it could be said that they may be unaware of their learning style preferences. By taking these facts into consideration, the followings could be recommended: Primary school teachers need to be aware of their own learning style preferences and they need to consider their learning style preferences as parts of their own personalities. The awareness of primary school teachers on learning style preferences need to be raised by means of organizing various intensive and continuous in-service training activities (e.g. workshops, seminars, conferences and other training activities) need to be organized when they are in-service and the importance of

learning style preferences need to be emphasized during the training of candidate teachers. Furthermore, primary school teachers need to be aware of the learning style preferences of their students and of their colleagues, with whom they work, share their experiences at schools and they need to plan and need to actualize the instructional activities considering the learning style preferences of their students. During the planning and the application of the in-service training programs for primary school teachers, the learning style preferences of the participants need to be taken into account. Similar studies with large samples of primary school teachers from different regions of Turkey need to be made in order to get more reliable results and to get the picture of the whole country as the results of this study were limited to the perceptions of primary school teachers (n=250) on their learning style preferences who answered the LSPI and who were teaching at 50 various primary schools in the city center of Bolu, Turkey in 2004. Meanwhile, similar studies need to be made to identify the learning style preferences of teachers of vocational teachers, of foreign language teachers, of science and of mathematics teachers. More than these, various data collection instruments and techniques (i.e. questionnaires, interviews, observations, and others) need to be used and need to be implemented for similar studies on the learning style preferences of primary school teachers and / or teachers at different grade levels in order to achieve more reliable results and generalizations.

REFERENCES

Adams, D.M. (2000). Learning and teaching styles: collaborative action research. (ERIC Document Reproduction Service No. ED 446053) .

Al-Balhan , E.M. (2007). Learning styles in relation to academic performance in middle school mathematics. DOMES Digest of Middle East Studies, 16 (1), 42–57.

Arslan, B. and Babadoğan, C. (2005). İlköğretim 7. ve 8. sınıf öğrencilerinin öğrenme stillerinin akademik başarı düzeyi, cinsiyet ve yaş ile ilişkisi (Relationships between learning style preferences and gender, age and success level at 7th and 8th grade). Eğitim Araştırmaları (Eurasian Journal of Educational Research), (21), 35–48.

Austin, Z.(2004). Learning styles of pharmacists: Impact on career decisions, practice patterns and teaching method preferences. Pharmacy Education, 4 (1), 13–22.

Ball, I. (2000). Primary and secondary teachers – alike or different?. Australian Psychological Type Review, 2 (3), 13-14.

Ballone, L.M. and Czerniak, C.M. (2001).Teachers' beliefs about accommodating students' learning styles in science classes. Electronic Journal of Science Education, 6 (2). (December) Retrieved from http : // wolf web .unr.edu/ homepage /crowther /ejse/ balloneetal. pdf . on 11.12.2007.

Cassidy,S.(2004).Learning styles: An overview of theories, models and measures. Educational Psychology, 24(4), 419-444.

Coffield,F., Moseley,D.,Hall, E. and Ecclestone,K. (2004). Learning styles and pedagogy in post-16 learning: A systematic and critical review. Trowbridge, Wiltshire: Cromwell Press Ltd. Retrieved from http:// www.lsda.org.uk / files / pdf/ 1543 .pdf . on 11.12.2007.

Çıngı, H.(1994).Örnekleme Kuramı (Sampling theory) (2.Baskı). Ankara: Hacettepe Üniversitesi Fen Fakültesi Basımevi. Hacettepe Üniversitesi Fen Fakültesi Yayınları Ders Kitapları Dizisi 20.

DCU, Learning to learn. (2009). Reflective learning: Keeping a reflective learning journal. 1-7. Retrieved from http: // www. dcu.ie /ExL /pdfs/ Reflective learning. pdf on 16.02.2009.

De Capua, A. and Wintergerst, A. (2005). Assessing and validating a learning style instrument. System, 33(1), 1-16.

Deep and surface approaches to learning. Retrieved from www. engsc. ac.uk. /ac.uk /er / theory/ learning. asp. on 06.07.2005.

Dunning, D., Johnson, K., Joyce, E. and Kruger, J. (2003). Why people fail to recognize their own incompetence. Current Directions in Psychological Science, 12 (3), 83 – 87.

England, A. and Spence, J.(1999). Reflection: a guide to effective service learning linking learning with life. (ERIC Document Reproduction Service No. ED 430137).

Eren, A. (2002). Fen, Sosyal ve Eğitim Bilimi Alanlarında Öğrenim Gören Üniversite Öğrencilerinin Öğrenme Biçimleri Arasındaki Farklılığın İncelenmesi (Examining the Difference of Learning Styles Between the Undergraduates Who Study in Science, Social and Educational Science Fields) .Yayımlanmamış Yüksek Lisans Tezi (Unpublished M.A.Thesis), Bolu: Abant İzzet Baysal Üniversitesi.

Felder, R.M. and Henriques, E.R. (1995). Learning and teaching styles in foreign and second language education. Foreign Language Annals, 28(1), 21-31.

Gabe, K. (2002). Male and female college students' learning styles differ: An opportunity for instructional diversification. College Student Journal, 36(3), 433–441.

Gay, L.R.(1996). Educational Research Competencies for Analysis and Application (Fifth edition). New Jersey: Merrill Prentice Hall Englewood Cliffs.

Hall, E.and Mosoley, D. (2005). Is there a role for learning styles in personalized education and training?. International Journal of Lifelong Education, 24(3), 243-255.

Hedberg, P. R. (2009). Learning through reflective classroom practice: Applications to educate the reflective manager. Journal of Management Education, 33 (1), 10-36.

Heffler, B.(2001). Individual learning style and the learning style inventory. Educational Studies, 27 (3), 307–316.

Honigsfeld, A. and Dunn, R. (2003). High school male and female Learning-style similarities and differences in diverse nations. Journal of Educational Research, 96(4), 195–206.

Hyman,R. and Rosoff, B. (1984). Matching learning and teaching styles: The jug and what's in it . Theory into Practice, 23(1), 35–43.

Keri, G. (2003). Research report: Correlates of learning styles and counsellor trainees' age and gender. Counselling Psychology Quarterly, 16(4), 349–362.

Lawrance, M and Veronica, M. (1997). Secondary school teachers and their learning style preferences: action or watching in the classroom?. Educational Psychology, 17(1/2), 157-170.

Lincoln, F. and Rademacher, B. (2006). Learning styles of ESL students in community colleges. Community College Journal of Research & Practice, 30 (5/6), 485–500.

Marshall, C. (1991).Teachers' learning styles: how they affect student learning. Clearing House, 64(4), 225 - 227.

Moon, J. (2004).Theoretical foundations using reflective learning to improve the impact of short courses and workshops. The Journal of Continuing Education in Health Professions,24, 4 -11.

Mountford, H., Jones, S. and Tucker, B. (2006). Learning styles of entry-level physiotherapy students. Advances in Physiotherapy, 8(3), 128-136.

Özen, R. and Arsal, Z. (2006). "The learning style preferences of ELT teacher candidates". Paper presented at the second International ELT Conference, on the subject of "ELT Profession: Challenges and Prospects" at Eastern Mediteranaen University, Turkish Republic of Northern Cyprus, May 2nd-5th, 2006.

Philbin,M. and Meier,E.(1995).A survey of gender and learning styles. Sex Roles, 32 (7/8),

485-494.

Primary school teacher. Retrieved from http: // getaccess. westone . wa . gov. au/ careers / profiles / data/OCC82.asp. on 11.12.2007

Reed, P.A. (2001). Learning style and laboratory preference: a study of middle school technology education teachers in Virginia. Journal of Technology Education, 13 (1), 59-71.

Rodgers, C. (2002). Defining reflection: another look at John Dewey and reflective thinking. Teachers College Record, 104 (4), 842-866.

Russell,S.S.(2006). An overview of adult- learning processes. Urologic Nursing, 26(5), 349-370

Shaughnessy,M.F. (1998). An interview with Rita Dunn about learning styles. Clearing House, 71(3), 141-145.

Shaw, G. and Marlow, N. (1999). The role of student learning styles, gender, attitudes and perceptions on information and communication technology assisted learning. Computers & Education, 33(4), 223-234.

Smith, L.H and Renzulli,J.S. (1984) . Learning style preferences: A practical approach for classroom teachers. Theory into Practice, 23(1), 44–50.

Sutherland, P. (1995). An investigation into Entwistlean adult learning styles in mature students. Educational Psychology, 15 (3), 257-271.

Sünbül, A.M. and Sarı, H.(2005). "An analysis of high school students' learning strategies and styles in Turkey". In Nikos P.Terzis (ed.). Quality in Education in the Balkans. Thessaloniki – Greece : Kyriakidis Brothers s.a. pp:535-563.
The Republic of Turkey, Bolu Governorship, Provincial Directorate of National Education , İLSİS Bureau Data.

Thornton, B, Haskell, H., and Libby, L. (2006). A comparison of learning styles between gifted and non -gifted high school students. Individual Differences Research, 4(2), 106–110.

Vermunt, J. D.(2005). Relations between student learning patterns and personal and contextual factors and academic performance. Higher Education, 49(3), 205–234.

Yıldırım, A.and Şimşek, H. (2005). Sosyal Bilimlerde Nitel Araştırma Yöntemleri (Qualitative Research Methods in Social Sciences) (5th Ed.) . Ankara: Seçkin Yayıncılık San. ve Tic. A.Ş.

Wakefield, A.P. (1993). Learning styles and learning dispositions in public schools: some implications of preference. Education, 113(3), 402-406.

Wintergerst, A.C., DeCapua, A.and Verna, M.A. (2003).Conceptualizing learning style modalities for ESL / EFL students. System, 31(1), 85-106.

Zhang,L. and Sternberg, R.J. (2005). A threefold model of intellectual styles. Educational Psychology Review, 17(1), 1-53.