

Full Length Research Paper

The effectiveness of education and schooling activities with respect to learning styles on the learning of abstract and tangible concepts of social studies by students

Mustafa SEKER

Yıldız Technical University, Faculty of Education, Istanbul, Turkey.

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This research reviews the effects of education and schooling activities that are conducted with respect to different learning styles on the success of teaching abstract and tangible concepts of 6th Grade Social Studies, and researches whether the demographic variables (age, gender) of the students had any effect on this success levels. To do so, 2 different groups from a school in the Umraniye District of Istanbul were addressed and these groups were separated as experimental and control groups. In this research; “learning styles measures” and “abstract/tangible concepts success test” was used and the obtained data was analyzed and interpreted by using the SPSS 15.0 Package Software. In the experimental group, it was observed that the education and schooling activities done within the framework of learning styles program were effective on the abstract and tangible concepts that are found in the 6th Grade Social Studies course books, and that the learning environments and processes that were designed with respect to individual differences were effective on the learning success for abstract/tangible concepts. Furthermore, it was observed that in the control group in which the regular education-schooling program was conducted and the learning styles program was not applied, there had been no differentiation in the learning levels for abstract/tangible concepts. Also, according to the obtained findings; it was determined that the age and gender variables of the students had no effect on this learning success.

Key words: Social Studies, learning styles, concept, abstract concept, tangible concept.

INTRODUCTION

Individuals having different personality traits, different learning formats and styles, result in them processing information differently and preferring to use different sources of information results in a differentiation in their learning requirements (Riding and Rayner, 1998).

Learning styles that are based on learning theories and which have three dimensions, namely cognitive, affective and physiologic, resulted in a variety of models with respect to their natures and determination methods

(Ekici, 2003). According to According to Kolb (1984) and Felder (1996), learning style is defined as the individual mentality differences in obtaining and processing information and it can be explained as the individual strategic choices in collecting, assorting, thinking over and interpreting information. Dunn and Dunn (1992) state that learning for students occur in visual, audial and kinesthetic ways. Therefore, in learning, the students can differentiate into visual, audial, and kinesthetic learning

styles. According to Searson and Dunn (2001), students that have audial learning styles are sensitive against sound and adopt methods of sound levels, talking, listening and telling, and it was observed that they prefer and recognize a poetic method. On the other hand, kinesthetic students prioritize touching, learning via dough and clay, using tools and especially doing by touching with their hands and producing something tangible. Sitting and partaking as the listener during courses mean boredom for the students in this group. In explaining the individual's objective world, it was stated that the surrounding people, rules, traditions, economic and societal institutions are effective in his/her learning. In expressing the subjective world, it was stated that there are internal and personally unique psychological situations that define the personality.

When the abovementioned expressions are considered, there are several elements that are of effect in the learning process of an individual. Especially for individuals with different learning styles, it may be benevolent to devise suitable learning strategies to ensure a complete learning process. Before providing education with respect to learning styles, it is required to determine the students' learning styles. Developing suitable inventories for this is imperative.

In the globalizing world, through the social studies course that aims at assisting young people in developing information based, rational decision making skills for the public weal as citizens of a democratic society with cultural differences (NCSS, 1992); developing individuals' skills in obtaining information regarding his/her position in the past, present and future, provide individuals with the required skills in structuring information, developing individuals' skills in interpreting their current values, ensuring the individuals and the society has democratic attitude, values and emotions and providing individuals, within the frame of effective social participation, the skill of applying information (Barth, 1991; Barth and Demirtas, 1997; Ozturk, 2006; Paykoc, 1991). As stated by Demirel (2000); through conducted education activities, it is expected to observe changes in the attitude and behavior of the individual. This should be supported with education strategies that are suitable with the education activities. In the Social Studies course, the difficulties in obtaining the expected success, positive behavior and attitude properties include: having a teacher based education approach instead of a student based one, lacking education strategies that are suitable with the learning strategies and disregard for the learning specialties (styles) of the students.

As the content of the learning process can be differentiated, it can also change with respect to the quality of the topic to be learned. One of the elements that is imperative in a quality learning process is the concepts that are the building stones of the formed sentences. Ulgen (2001) and Cin (2004) define concept as the structuring way of an object event or a process

that have distinctive and changing common properties in the human mind. These concepts that ensure understanding the social world and establishing a healthy connection with it are crucial for the thinking process. Understanding concepts is required to understand principles, solving problems and understanding the world (Senemoglu, 2007).

According to Simsek (2006), tangible concepts are defined as concepts that are in a similar category due to their specifications which are either observable or physically perceived through the five senses, e.g. books, computers, cars and other similar concepts. Concepts with specifications which are not directly observable or not physically perceived via the five senses, which are rather of intellectual or definitional qualities are abstract concepts, e.g. love, peace, democracy. Tangible concepts are learned informally by the individual himself/herself while abstract concepts require education methods (Senemoglu, 2007).

Topics of social studies comprise concepts that belong to social study disciplines such as history, geography, economy and law. Therefore, it is possible to have tangible and abstract concepts belonging to these disciplines throughout the learning process. For example; within the frame of topics in the history discipline, there may be abstract concepts such as "conquest concept" and tangible concepts such as "spoils of war" involved. Previous researches (Seker, 2010) show that social studies education-schooling activities which are done in accordance with learning styles yield positive results.

METHODOLOGY

Research model

The research is a field research and was conducted in a single sample. According to Kurtulus (1996), when the subject of the research is observed without being altered or modified in its own environment and conditions, it falls into the exploratory research category with respect to statistical methods. Within the scope of this model, the fundamental aim of the research was determined and questionnaire and test methods were used to reach this goal. The content of the questions and the measures used in this research were limited. Exploratory research is a research done to reveal something which has no clear source. Since no work in this subject was found during the conducted literature review, this work was based on an exploratory and descriptive research models (Churchill, 1995). This research is a quantitative research. It is expected that this research which has a profile quality that aims obtain and discover information will make contributions to future works.

Population and sample

Target population of this research was determined in accordance with purposeful sampling, one of the improbable sampling types. Purposeful sampling which is also referred to as judgment sampling, uses its own judgment in choosing the participants and takes the ones who are most suitable to the purpose of the research as sample (Balci, 2005). The foundation of this sampling

is to purposefully obtain one or several sub segments of the population as examples instead of a representative population sample. In other words, purposeful sampling is to subject the most suitable part of the population to observation (Sencer, 1989). Therefore, the population and sample of our research is the middle schools of the Umraniye District of the City of Istanbul.

Data collection methods and techniques

This research was conducted by using quantitative (learning styles measure, tangible/abstract concept test) research techniques and the research also includes dependent and independent variables. The independent variables of the research are the students' learning styles and demographic variables (age, gender) and the methods applied to created experimental/control groups. There had been special emphasis on the administration of the test which was used in finding out about the learning styles of the test subjects. The dependent variable is the variable that is the effect in a cause and effect relation. The dependent variable in this work is the unit concepts in the 6th grade Social Studies course and these concepts have abstract and tangible specialties. This is the result of the analysis of the success obtained following the last-test, which was used after the practice of the values from the preliminary test of the Social Studies course "abstract/tangible concepts success tests".

Data collection tools

Determination of individuals' learning styles is only possible via using measurement tools that had been developed in accordance with scientific standards. This measure used in the determination of learning styles is called the learning styles measure.

Information regarding the validity and confidence analysis for the learning styles measure, which comprise 28 articles and were used with the permission granted by Gokdag (2004), one of the researchers from Dokuz Eylul University. According to Gokdag (2004), when the learning styles measure was being developed, firstly a literature review was conducted and a total of 92 students studying in two schools with a middle socio-economical level were asked to write a composition which is about "how they prefer to study". Following the review of these compositions and the literature, a "Learning Styles Measure" which comprise 70 articles was created and were presented to the review of specialists (n=10) (Appendix 1). This created trial form were applied to 800 students studying the 6th, 7th and 8th grades in various schools in the Karsiyaka and Buca districts of the city of Izmir. The forms that were not completely filled or were randomly marked were excluded from the study and for the analysis that were conducted over the answers from a total of 673 students, the "Cronbach's Alpha Reliability Coefficient" of 0.74 was calculated. Items that had a factor load above 0.40 as a result of the factor test that was conducted with respect to OSO trial application points were chosen. The measure was combined to 3 factors as per the factor analysis. The Cronbach's Alpha, Split-Half Reliability coefficients and item measure correlations for the sub measures created by these factors are as follow: item number for visual learning style is 13, with Cronbach's Alpha Reliability Coefficient of 0.58. Item number for audial learning style is 5, with Cronbach's Alpha Reliability Coefficient of 0.52. Item number for kinesthetic learning style is 10, with Cronbach's Alpha Reliability Coefficient of 0.52.

Validity and reliability analysis

35 abstract/35 tangible concepts that were projected to be emphasized in the "Social Studies 6th Grade Teacher's Handbook" that is created by the approval of the Turkish Education Board, and

thus had established its external validity were deducted to 31 abstract concepts and 29 tangible concepts after the expert's evaluation. Expert evaluation of first degree concepts were done by 4 academic members from Yıldız Teknik University and Marmara University, which are specialized in this field. In accordance with the findings obtained from the pilot application of the test, both the visual validity was evaluated and the validity was attempted to be enhanced by making certain additions and removals from the concepts.

The pilot work was conducted in 2 different private schools in the Umraniye district of the city of Istanbul. For the errors that might arise from the measured group, it was explained that the purpose of the test is not grading but to reveal current knowledge and thus decrease the anxiety levels. Later, regarding the 31 abstract/29 tangible concepts, the students were first asked to "say what they know about these concepts", then in the second stage to answer "what is the name of the concept that fits the given description" and finally they were asked to write about "at least give concepts that are the closest to the given concept with respect to meanings". As a result of the pilot application, certain concepts were removed; some were removed due to the item difficulty level of the test and having low distinctive characteristics, and some were removed due to "insufficient understandability and having insufficient attraction/attention level", thus reducing the number of abstract concepts to 21 and tangible concepts to 18. Finally, it was decided to have equal numbers of abstract and tangible concepts, so both were finalized at 18. Later, in the research stage, preliminary test and final test works for the test questions were conducted and the collected findings were analyzed. Furthermore, the "concept test items" used in the study comprise the Social Studies 6th grade topics. The concepts used in the research were composed from the concepts provided in the "Teacher's Handbook and Course Book" of Ministry of Education. The success test for the abstract/tangible concepts that were created by the researcher in a manner that comprises Social Studies course book units consisted a total of 18 abstract and 18 tangible concepts. The reliability coefficient of the concept success test was calculated to be 0.87.

Analysis of the data

The analysis of the quantitative data was done in a computer using SPSS 15 software and descriptive statistics was used. Descriptive statistics is a type of statistics that is commonly used in psychology and education and is used to define the individual, group or the institution that the data was derived from. Descriptive statistics serves to make very complex, unsystematic and random data understandable (Ozguven, 1994). All statistical analysis of the research data was used via the SPSS (Statistical Package for the Social Science) packaged software and the data obtained in the research via quantitative techniques were compared and interpreted to reach certain outcomes.

FINDINGS

In Table 1, the learning styles for the Middle School A the research was done in are as follow: for the experimental group students: number students with kinesthetic learning styles was 5 (20.84%), number students with visual learning styles was 6 (25%), and number students with audial learning styles was 13 (54.17%). For control group students: number students with kinesthetic learning styles was 13 (50%), number students with visual learning styles was 9 (34.62%), and number students with audial learning styles was 4 (15.38%). According to these

Table 1. Distribution of the experimental and control group students with respect to their learning styles.

	Group	Learning styles	\bar{x}	σ	%	f
Middle School A	Experimental group	Kinesthetic	14.01	2.177	20.84	5
		Visual	14.05	2.198	25	6
		Audial	15.42	1.012	54.17	13
		Total	14.10	2.215	100	24
Middle School A	Control group	Kinesthetic	15.42	1.012	50	13
		Visual	14.010	1.241	34.62	9
		Audial	13.170	1.774	15.38	4
		Total	14.225	2.014	100	26

Table 2. Independent group T test results that show the distribution of students with respect to experimental/control groups

Group	F	Mean difference	Std. Error	T-test		
				T	Df	P
Experimental/ Control Groups	.217	-.5231 -.5001	2.1174 2.1174	-.447 -.447	100 100	.507

Table 3. Distribution of the gender variable of the experimental/control groups with respect to the age variable for the students.

	Group	Gender category	Age category	12 years old	13 years old	14 years old	Total		
Middle School A	Experimental group	Female	f	0	13	0	13	24	100
			%	0	54.2	0	54.2		
		Male	f	1	9	1	11		
	%		4.2	37.5	4.2	45.8			
	Control group	Female	f	1	15	0	16	26	100
			%	3.8	57.7	0	61.5		
Male		f	1	8	1	10			
	%	3.8	33.3	3.8	38.5				

results, the distribution of learning styles for students in both experimental and control groups were similar to each other. Following this, the significance of the learning styles of the students in the experimental and control groups were tested and the results of these tests are presented in Table 2.

As shown in Table 2, in this study, the hypothesis for whether the variance for the two distribution was homogenous or not was tested for the learning styles using Levene's Test, and it was understood that the variances were homogenous ($P > .05$) and it was observed that the experimental/control groups do not show a significant difference as per the results of an "independent t-test" ($t = -0.447$; $P > 0.05$). Accordingly, in the analysis of the data from the preliminary test/final test work on different groups, "conjugated dual T-Test" was applicable. Within this frame, the research groups having close levels to

each other are important in obtaining objective results.

Table 3 presents the distribution of the age variable with respect to the gender category. Generally speaking; it was observed that in the Middle School A, female students in the experimental group comprise 13 students and is the highest gender group with a ratio of 54.2%, and in the control group, they comprise 16 students and is once again the highest gender group with 61.5% ratio. According to this data, in both gender groups and in total, it was observed that students in the 13 years old category has the most distribution compared to other age categories. Furthermore, when the "age" category of the participating 6th grade students is considered, it can be said that the high distribution in the "13 years old" category is in line with the school starting age. Following this, in Table 4, the one-way variance analysis (ANOVA) between the learning styles and gender and age variables

Table 4. Results of the One-way Variance Analysis (ANOVA) between the learning styles and gender and age variables for the *experimental/control* group students.

Groups	Gender/ Age	\bar{x}	Std. error	95% Con. Int. of the Dif.		p	
				Lower	Upper		
Gender	Experimental Group	Female	3.112	.129	1.128	1.998	.139
		Male	2.0012	.114	1.091	1.566	
	Control Group	Female	1.087	.214	.998	1.004	.080
		Male	1.258	.188	1.117	1.301	
Age	Experimental Group	12	2.238	.178	1.334	1.660	.133
		13	2.667	.107	1.662	1.779	
		14	3.478	.381	1.551	2.997	
	Control Group	12	4.118	.443	2.002	2.339	.20
		13	4.339	.380	2.997	3.019	
		14	5.009	.779	2.661	2.710	

Table 5. Analysis of the values from preliminary tests on experimental/control groups regarding the learning level of *tangible/abstract concepts* using Shapiro-Wilk-W test

	Concept	Age	Shapiro-Wilk		
			Statistic	df	p
Learning level preliminary tests (experimental and control groups)	Tangible concepts	12	1.210	37	.112
		13	1.633	82	.557
		14	1.096	21	.210
	Abstract concepts	12	1.457	22	.090
		13	1.997	54	.101
		14	1.119	13	.071

for the experimental/control group students is presented.

In Table 4, the significance of the gender and age variables according to the learning styles for the experimental/control group students is observed. One-way Variance Analysis (ANOVA) results show that; data belonging to both gender and age variables of the students in the experimental/control groups shows no significant difference on the learning styles the students have, and that they are normally and homogeneously distributed ($P > 0.05$). According to these results, the learning styles of the students in the experimental/control groups are independent from gender and age variables. These findings, the status of the experimental/control groups' preliminary test results for tangible and abstract concept was researched and the obtained findings are presented in Table 5.

In Table 5, experimental and control groups' preliminary test values for learning tangible/abstract concepts and "age" variable show no significant differentiation and the distribution between the variances is normal and homogenous ($P > 0.05$) was shown by using Shapiro-Wilk-

W Test. Thus, it can be said that the data obtained from the experimental and control group students' preliminary information regarding tangible/abstract concepts is independent from the "age" variable. After these results, last-test values of the experimental and control groups regarding tangible/abstract concepts distribution with respect to the age variable was handled and the findings were presented in Table 6.

As can be seen in Table 6, as a result of the one-way variance analysis (ANOVA) conducted to see whether the last test data for learning level of tangible/abstract concepts show any significant difference with respect to the "age" variable or not; the difference between the arithmetical average of these variables were not found to be statistically significant ($P > 0.05$). Accordingly; it can be said that student outcomes in the tangible/abstract concepts success test are independent from the "age" variable.

Table 7 shows whether the preliminary test values for experimental/control groups' learning level of tangible/abstract concept shows any difference with respect to the

Table 6. Analysis of the last test values for the tangible concepts in experimental/control groups with respect to the age variable with Shapiro-Wilk-W test

	Concept	Age	\bar{x}	Std. error	95% Con. Int. of the Dif.		p
					Lower	Upper	
Learning level preliminary tests (experimental and control groups)	Tangible	12	2.631	.719	2.387	4.029	.663
	Concepts last	13	2.997	.441	2.997	3.778	
	Test	14	1.457	.813	1.112	3.227	
	Abstract	12	2.448	1.339	1.550	3.330	.097
	Concepts Last	13	3.014	1.110	1.990	2.479	
	Test	14	2.147	2.119	1.227	2.019	

Table 7. Analysis of the preliminary test values for experimental/control groups' learning level of tangible/abstract concepts with respect to the gender variables using the Shapiro-Wilk-W test

	Concept	Gender	Shapiro-Wilk		
			Statistic	df	p
Learning level preliminary tests	Tangible concept	Female	.335	21	.425
		Male	.417	33	.127
	Abstract concept	Female	1.110	17	.997
		Male	1.298	28	.072

gender variables or not.

In Table 7, experimental and control groups' preliminary test values for learning tangible/abstract concepts and "gender" variable show no significant differentiation and the distribution between the variances is normal and homogenous ($P > 0.05$) was shown by using Shapiro-Wilk-W Test. Thus, it can be said that the data obtained from the experimental and control group students' preliminary information regarding tangible/abstract concepts is independent from the "gender" variable.

The last-test values of the experimental and control groups regarding the learning levels for tangible/abstract concepts distribution with respect to the gender variable is presented in Table 8.

As can be seen in Table 8, the results of the one-way variance analysis (ANOVA) with respect to the gender variable conducted on the last test data for learning level of tangible/abstract concepts show that the difference between the arithmetical average of these variables were not found to be statistically significant ($P > 0.05$). Accordingly; it can be said that student outcomes obtained from the last test on students' level of learning the tangible/abstract concepts in the social studies course are independent from the gender variable.

Following the findings obtained above, it was considered via a multiple variance analysis whether the findings regarding the students' tangible/abstract concept levels were independent from the effects of age/gender variables or not, and the results were presented in

Table 9.

The Partial Eta Squared (μ) value table provided in Table 9 shows the magnitude of the effects the independent variables have on dependent variables. The obtained Partial Eta Squared show that the data belonging to the "age, gender" variables affect the point values obtained from the social studies course tangible/abstract concepts success test as such; for tangible concepts 0.098 and for abstract concepts 0.20, that the effect of the "age, gender" common variables fall below the normal value (0.60) over the success levels of the students in both abstract and tangible concept in social studies and is ineffective and the success levels are independent of the demographic variables defined in this study.

Following these evaluations, in accordance with the data obtained from preliminary test and final test of the groups, the "abstract/tangible concept success levels" were considered.

As shown in Table 10, for the preliminary test results of the tangible/abstract concept success of experimental and control groups, the hypothesis of whether the variances for both distributions were homogenous or not was tested via Levene's Test, it was determined that the variances were homogenous and the preliminary test distributions between the experimental/control groups was observed to be normal. Following this, the difference between the averages was tested. As per the independent group T test results, regarding the preliminary

Table 8. One-Way Variance Analysis (ANOVA) results of the final test values for experimental/control groups' learning level of tangible/abstract concepts with respect to the gender variables

	Concept	Gender	\bar{x}	Std. error	95% Con. Int. of the Dif.		p
					Lower	Upper	
Learning level final test	Tangible concept	Female	9.157	2.559	6.745	10.258	.097
		Male	8.119	2.007	7.227	8.297	
	Abstract concept	Female	3.879	1.997	3.337	5.477	.119
		Male	2.127	1.380	4.141	4.449	

Table 9. Multiple variance analysis that shows the effect of "age. gender" variables of the experimental/control group students on the tangible/abstract concepts

Affect	df		F		p		μ	
	Tangible	Abstract	Tangible	Abstract	Tangible	Abstract	Tangible	Abstract
Age	3	5	.578	.91	.611	.903	.109	.392
Gender	1	2	.210	.409	.440	.607	.39	.11
Age* Gender*	5	7	.901	.997	.833	.937	.098	.20

Table 10. Tangible/abstract concepts experimental/control groups preliminary test independent group t test results

Group	Concept	F	Mean difference	Std. error	t-test		
					t	df	p
Experimental and control groups preliminary test	Tangible concepts	1.972	-2.788	1.119	-2.227	92.01	.095
			-2.788	1.119	-2.227	99.28	
	Abstract concepts	2.008	-1.997	1.001	-1.092	78.80	.10
			-1.997	1.001	-1.092	84.212	

tangible/abstract test success, there were no significant differentiation between the experimental and control groups and the levels of the groups were close to each other (for tangible concept: $t = -2.227$; $P > 0.05$; for abstract concept: $t = -1.092$; $P > 0.05$). Therefore, using "conjugated dual T test" was observed to be possible in the analysis of the data. In this frame, the close levels of the sample groups is important in obtaining objective results and it was observed that preparing a program in accordance with learning skills have no drawbacks with respect to the groups.

The data obtained from the control group regarding tangible/abstract concepts learning levels and the relevant analysis are shown in Table 11.

In Table 11, we can see the results of the work that was conducted about the control group students' learning levels of the tangible/abstract concepts. Accordingly, it was observed that there was no significant differentiation towards neither preliminary test nor final test for the learning levels of tangible/abstract concepts learning levels (tangible concepts: $t = -5.447$; $P > 0.05$; abstract

concepts: $t = -6.155$; $P > 0.05$). Accordingly, the level of learning tangible/abstract concepts and the success status in the control group where education is done without applying the learning styles program did not significantly change.

After this study with the control groups, the experimental groups were handled and the relevant data and analysis results are provided in Table 12.

As can be seen in Table 12, the preliminary test and final test data obtained from experimental group students that were subjected to learning styles program were reviewed, and consequently a positive differentiation on behalf of experimental group students' final tests in both tangible and abstract concepts was observed (Tangible Concepts: $t = -11.196$; $P < 0.05$; Abstract Concepts: $t = -17.188$; $P < 0.05$). Thus, according to the final test data obtained from experimental group for tangible and abstract concepts; the learning styles program applied to the students was successful on behalf of the experimental group, that this program which is applied to the students was concluded positively and it was determined

Table 11. Tangible/abstract concepts learning levels for control group preliminary test/final test paired group T test results

Concepts	Groups	n	\bar{x}	σ	Std. error	t-test		
						df	t	p
Tangible concepts	Control group preliminary test	26	29.11	9.128	4.441	27	-5.447	.106
	Control group final test	26	33.98	8.997	4.217			
Abstract concepts	Control group preliminary test	26	16.25	14.258	5.359	47	-6.155	.099
	Control group final test	26	22.36	13.930	5.009			

Table 12. Tangible/abstract concepts learning levels for experimental group preliminary test/final test paired group T test results

Concepts	Groups	n	\bar{x}	σ	Std. error	t-test		
						df	t	p
Tangible concepts	Experimental group preliminary test	24	21.587	5.173	2.288	27	-11.196	.022
	Experimental group final test	24	49.007	7.209	2.633			
Abstract concepts	Experimental group preliminary test	24	37.222	4.193	3.109	50	-17.188	.017
	Experimental group final test	24	48.196	6.697	3.490			

Table 13. Tangible/abstract concepts learning levels for experimental/control groups final test independent group T test results

Concepts	Groups	n	\bar{x}	Mean difference	Std. error	t-test		
						df	t	p
Tangible concepts	Control group final test	26	32.01	12.118	3.557	98.24	4.578	.002
	Experimental group final test	24	58.60	12.118	3.557	96.93	4.578	
Abstract concepts	Control group final test	26	15.155	19.369	5.211	78.12	6.697	.009
	Experimental group final test	24	32.098	19.369	5.211	78.12	6.697	

that the education actions about “tangible/abstract concepts” conducted in accord with the learning styles concept showed successful results.

Next, the final test values for the research groups included in the test were compared and the relevant data is presented in Table 13.

In Table 13, the final test data obtained from experimental group students that were subjected to learning styles program and control group students that were not subjected to the program were tested for significance using “independent Group T Test”, and consequently a significant differentiation between the final test results of experimental and control group students was observed; this differentiation was on behalf of experimental group students’ final tests (Tangible Concepts: $t = 3.572$; $P < 0.05$; Abstract Concepts: $t = 6.697$; $P < 0.05$). Thus, according to the final test data obtained from both groups which show higher success values for experimental group in “tangible and abstract concepts”; “the learning

styles program” applied to the experimental group had a positive effect on the success status of the students, that the education activities conducted in line with the learning styles concept yielded successful results.

DISCUSSION AND CONCLUSION

The level of “tangible and abstract concept” success in Middle School 6th Grade Social Studies course students that received education in accordance with learning styles approach was analyzed with respect to “age and gender” variables. Accordingly, between the learning styles of the Middle School 6th grade students in experimental/control groups, it was observed that there was no significant differentiation for the benefit of any group and the distribution of the research groups with respect to learning styles was homogenous and normal. Between the students in the research groups, with

respect to their demographic variables (gender, age), it was observed that there was no significant differentiation for the benefit of any group and the distribution of the research groups with respect to demographic variables was homogenous and normal. Accordingly; it can be said that the levels of the research groups were very close to each other and it was of no inconvenience in creating experiment and control groups for the research and the obtained results proved to be objective. In this study, it can be said that there is no significant relationship between the learning styles and demographic variables (age, gender) of the experimental and control group students, that the students' learning styles are independent from the effects of their demographic variables and the age and gender variables have no effect on the education-schooling activities that were organized with respect to the learning styles.

With respect to the preliminary tests on the 'abstract and tangible concept success', it was observed that the education-schooling activities in accordance with learning styles had no significant differentiation for the benefit of any group and the distribution between the experimental and control groups was homogenous and normal and the levels of the groups were equal. The final test study that was conducted later showed that the education-schooling activities in accordance with learning styles were effective on the "abstract and tangible concept success", and it was determined that the successful results were independent from the effects of the "age and gender" variables. Accordingly, it can be said that the achieved outcome is the success of the education-schooling activities that were organized with respect to the learning styles.

With respect to "Abstract and Tangible Concept", it was observed that the preliminary test values of the research groups were close to each other and the distribution of the groups was homogenous and normal, and later as a result of the learning styles program applied to the experimental group, the students achieved significant success in "abstract and tangible concept success levels". And it was determined that in the control group that the learning styles program was not applied to and the normal program was continued, there was no significant change. Accordingly, with respect to "abstract/tangible concept success values", it was understood that the experimental group that the learning styles program was applied to was more successful compared to the control group that the learning styles program was not applied to, and the education-schooling activities that were organized with respect to the learning styles had a positive effect on both the abstract and tangible concept success of the students. Accordingly, it can be said that the positive result on behalf of the experimental group was an outcome of the education-schooling activities that were organized with respect to the learning styles. Furthermore, the results obtained in the study show that, considering individual differences in teaching concepts,

organizing suitable learning environments and creating education strategies by considering the students' learning styles is as important as choosing content, and it can be said that in education environments that are created by considering these cultivate more successful individuals (Lambert and Balderstone, 2000).

Although the perception regarding learning styles is different, there is a widespread view that the learning style is effective on the learning itself. This effect, as stated above, is also proven by the finding of this research (Costu et al., 2007; Bayraktar, 2000; Morgan, 1996; Yazici and Samanci, 2003; Miller, 1993; Ergur, 1998). According to Seker (2010), today an education approach that emphasizes individual differences, in which the students enjoy learning and they are provided ways to access information and opportunities to doing and experiencing to learn is spreading rapidly. Therefore, using the student centric, modern education approaches in which the individual differences are not disregarded, doing serious works in this direction and its application in our country is an important development. It is believed that providing a learning environment that takes the strong and weak ways of the students are taken into account, in which the students have an active approach that they have the learning responsibility on themselves will yield more successful results.

Based on the research findings, the following suggestions are made. When preparing the education programs, the research conducted towards the learning styles of the students should be used more, and more effort should be spent in ensuring the created course materials should be in accordance with the learning styles. Furthermore, experts should provide in-service training to teachers in determining the learning styles of the students and learning strategies suitable with the characteristics of the style, as well as in developing said strategies (Seker, 2010).

Accordingly, in order to increase academic success in social studies courses, considering the fact that the students show differences with respect to learning specialties, the education activities should be arranged in accordance with learning styles and the education environments should be arranged through considering the learning differences of the students. Furthermore, having social studies teachers using more visual and auidal tools and have them encourage the students in creating their own materials that will enable their tactile/kinesthetic styles and make them feel as a part of the process may be beneficial in learning. Hence, putting efforts in using visual, auidal and kinesthetic materials in learning may be benevolent for an effective learning process. Because, as Piaget stated, the child is the architect of its own learning process (Driver, 1989).

The students should be given opportunities outside the classroom as well as inside, the importance of their learning styles in realizing themselves should never be disregarded, opportunities to work solo and in groups

should be provided and in addition, the course books and other similar materials should inform the student regarding efficient and planned studying technics.

From the perspective of individuals who have just passed tangible concepts stage or who is not yet ready for abstract concepts may encounter difficulties in learning abstract concepts. As stated by Gezer (2006), imageries should be frequently used in teaching abstract concepts. Since it is very difficult to express and teach abstract concepts via definitions, classifications, generalizations and other similar methods. Therefore, to permanently implement an abstract concept in our minds, the imagery to be used should have an active form. Because if the imagery has an active form, imagination will be used and we will be using both hemispheres of our brain. Therefore, permanent learning will be accomplished.

In teaching abstract/tangible concepts in social studies courses, technology can be used as well. Especially creating concept maps and using suitable strategies can bring success in the learning process. Cooperated learning increases the importance of conceptual mapping which is an effective learning strategy. These positive effects of cooperative learning should be explained to the teachers, the teachers should be encouraged in using cooperated learning technic activities in the Social Studies courses. Teachers should be trained in creating concept maps and should do in-service studies for this. Concept maps should be colored or illustrated in an attention grabbing way that is suitable with the level of the class when required, and concept maps should be placed in course books. But for concept maps, the elements of information technology that will be used should be suitable with the pedagogical requirements and levels of the students. Determining the materials that will be created and presented to the student through the views of experts and receiving assistance from specialists may be crucial. Because, as stated by Kog and Baser (2011), for the education software used to ensure efficient learning, it should be created from gains that are suitable with the education program. Since the software is not usually developed by educators, the educational dimension of visual materials may be insufficient. Materials that do not have the suitable qualities visually or from an educational perspective, that are missing or ineffective causes conceptual mistakes and misunderstanding in mathematical concepts and topics instead of making the learning process easier. Therefore, especially the computer assisted visual materials should be prepared in cooperation with software specialists, educator and field experts (Kog and Baser, 2011).

To encourage teachers in developing methods that place the student in the center as the explorer and configurator of knowledge, that increase the concept learning success of students, that is based on discussions and group work as in cooperative learning method may be very important in improving quality in education, especially in teaching concepts. To do so, all educators,

primarily the teachers should be regularly informed in the configuration of knowledge. For Social Studies courses, it may be beneficial for the students to provide opportunities to students in visualizing the subject in their minds. Social Studies teachers should provide some experience about a concept to their students before they teach it to them. Because this ensures easier establishment of relations between the concept and the students, and creates an understanding in the student about where and how this concept will be used by him/her. To do so, it may be benevolent for the Social Studies teachers to give examples from their lifestyles and establishing a connection between Social Studies related concepts and the daily life. As stated by Bruner (1966), the student should start the teaching job by attracting the interest of the students and by encouraging them. Furthermore, the students may be able to determine the structure of the learning element.

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APPENDIX 1. Abstract And Tangible Concepts

Abstract Concepts

- 1 Freedom
 - 2 Art Appreciation
 - 3 Independence
 - 4 Government Policy
 - 5 Love Of Country
 - 6 Fatah Appreciation
 - 7 Settlement Policy
 - 8 Equality
 - 9 Jihad Appreciation
 - 10 Democracy
 - 11 Personality
 - 12 Tradition
 - 13 Responsibility
 - 14 National Sovereignty
 - 15 Freedom
 - 16 Justice
 - 17 Management Approach
 - 18 Tolerance
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Tangible Concepts

- 1 Individual
 - 2 Booty
 - 3 Environmental Pollution
 - 4 Natural Resources
 - 5 Economic Activity
 - 6 Art Work
 - 7 Padishah
 - 8 Agricultural Product
 - 9 Miniature
 - 10 Motif
 - 11 Darussifa
 - 12 Army
 - 13 Headworker
 - 14 Visual Material
 - 15 Merchant
 - 16 Map
 - 17 Trade Route
 - 18 Cavalry
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