Research Article

EFFECT OF USING VIDEO ON THE ABILITY OF EIGHTH GRADE STUDENTS TO UNDERSTAND GRAPHICAL SYMBOLS

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Received: 16.04.2018 *Accepted: 25.09.2018*

ABSTRACT

It is aimed to reveal the level of understanding messages send by graphical symbols and to make a study that would compensate for missing learning of students who study at eighth class. An activity was conducted in which a single group pre-test and post test pattern method was used with 58 students studying in eight class of Alata Secondary School in Erdemli district of Mersin within this context. At the beginning of the process, "Matching Questions for Understanding the Messages of Graphical Symbols Correctly" has been applied as pre-test to the students. A video had been prepared by the researcher and which contains the importance, purpose of using and the meanings of graphical symbols they encounter in their schools and products they buy from school canteen was showed after the test. Finally the matching questions were applied to the students again as post test. In findings, these have been found that the students were not aware of the meanings of all the graphical symbols they already met but the activity based on the prepared video developed the skills of understanding the messages of graphical symbols correctly. It is thought that these study conducted could provide data for those who will research on visual reading, in particular teaching of graphical symbols.

Keywords: Graphical symbol, classroom activity, visual reading.

INTRODUCTION

Information about problematic issues underlying the research, aim and importance of this research is provided in this section.

Problematic Issues

Graphical symbol is a coding system which is used in communication like languages, body signals and sounds. Although it has not yet agreed on as much as others, studies are being carried out for standard usage of these images in public places such as shopping malls, airports, bus stations, parks, hospitals and on product packages or tickets such as clothes, detergents, computer hardware, etc. Because graphical symbols have a useful function as an alternative coding system for individuals who are illiterate or do not know the written/spoken language of the country they've arrived. Also addressing the visual channel it provides fastern and easier perception of graphical symbols. Turkey has performed in a number of official regulations for the standard usage of these symbols as it is in the world. For example traffic signs which are a kind of graphical symbols and often encountered in traffic were started to use standardly in countries that have signed the Road Signs and Signals, the European Agreement in November 8, 1968 in Viana (Department of Traffic Security, 2015). According to this, Republic of Turkey General Directorate of Highways was published Regulation on Traffic Signs under the Road Traffic Law in October 13, 1983 and Official Newspaper No. 18195. Thus it prepared a legal ground for the standard usage of traffic signs throughout the country. In addition, Ministry of Labour and Social Security (MLSS) published Health and Safety Signs Regulation under the Law on Occupational Health and Safety in June 6, 2012 and Official Newspaper No. 28339. The use of graphical symbols which were standardized by Turkish Standards Institution (most of them take part in Internetional Organization for Standardization's standard: ISO 7010) to provide occupational health and security and better current health and safety requirements in workplaces as become compulsory hereunder. Lastly, Ministry of National Education published a circular to applicate graphical symbols which were located in Health and Safety Signs Regulation in all schools across the country in a standardized manner in August 19, 2014. So, as it is in other public spaces, graphical symbols (especially conveys warning, prohibiting, safety condition, fire extinguishing messages) are now necessarily used in schools as well. However there is lack of researches on teaching students to comprehend correctly these symbols in literature. Therefore, it is thought that this study will contribute to teaching of graphical symbols in formal education when considering the cognitive and psychological benefits of using videos in educational activities (Pekdağ, 2010).

Students encounters graphical symbols not only in corridors or schoolyard but also on product packages they purchased from canteens. Inasmuch as Packaging Waste Control Regulation which was published by MLSS in Official Newspaper No. 30283, in December 12, 2017 provides using some graphical symbols in a standardized and compulsory manner on product packages. Given the fact that students encounter so intensely with graphical symbols in schools and on product packages they purchased, it is understandable that their compherending the meaning of the graphical symbols correctly. However, when the curricula of lessons at the

secondary school level are examined no acquisition which represents all of them and associated with the teaching of them directly is found. These acquisitions in Life Science Lesson's curricula for 1, 2 and 3th grades:

> HB.1.4.3. Obey the traffic rules on arrival and departure of the school.
>
> Focus on crossing, walking in and out of sidewalks and visibility measures in traffic as a pedestrian. Handle what to do (under or overpasses, pedestrian crossings, school crossings, places where traffic sign devices with light and traffic cops are located, to do not pass the front and rear of a standing vehicle, etc.) in where there are traffic sign boards (those directly related to the child's life such as stop, go, pedestrian crossing, attention, school crossing, no bicycle) or not (MNEa, 2018: 16)
>
> HB.3.4.1. Introduce traffic signs and sign boards.
>
> Emphasise priority traffic signs and sign boards (pedestrian crossing, school crossing, traffic sign device with light, compulsory pedestrian path, no pedestrian, uncontrolled railway crossing and no bicycle, etc.) for the security of students (MNEa, 2018: 25).

and in Traffic Security curricula for 4th grades:

> TG.4.1.3. Investigates the importance of traffic signs and sign boards.
>
> Emphasize the meaning of the shapes of traffic signs and sign boards (informing, warning and prohibiting). Also emphasize the need to protect traffic signs and sign boards (MNEb, 2018: 11).

are limited to traffic signs.

There is an acquisition according to teaching graphical symbols in Turkish lesson curricula (2018) that is used from 1st to 8th grades. However this acquisition which is encountered in 1, 2, 3, and 4th grades is not seen in 5, 6, 7 and 8th grades:

T.4.3.22. Comprehends the meaning of shapes, symbols and signs (MNEc, 2018: 33).

It is thought that teaching graphical symbols is a vital issue. Because students can not be left to encounter by chance with these symbols. And also it is believed that the compensation of this situation is even more necessary for a lesson such as Turkish lesson which aims to ensure that students have effective communication skills. But when literature review had been done it is seen that despite a great number of studies on individuals' different graphical symbols (on products as farm machines, medicines, chemicals, etc. or in public places as hospitals, universities, etc.) perception based on the importance of this symbols in daily life with the terms of 'pictogram', 'sign' or 'symbol', studies on teaching of graphical symbols are almost non-existent except for those with a learning disabilities in the world as it is in Turkey.

Aim of the Research

From the problematic issues mentioned above and the assumption that instructional activities can not be carried out for teaching graphic symbols without acquisitions, main aim of this research is revealing at what level students know the meanings of the graphical symbols they meet in their schoolyard, corridors, or package

of products they purchased from school canteens and examining the effect of activity which was designed by the researcher.

Depending on this main aim, the answers to the following questions are sought:

1. What are the pre-test results of students according to the 'Matching Quenstions for Understanding Graphical Symbols Accurately'.
2. What is the consciousness level of students' answers to pre-test questions?
3. Is there a significant difference between pre-test and post-test results of students according to the 'Matching Quenstions for Understanding Graphical Symbols Accurately'?
4. What is the consciousness level of students's answers to post-test questions after the experimental process?
5. Is there a significant difference between pre-test and post-test results of students according to the gender?
6. What are the situations in which students respond consciously to pre-test and post-test questions according to gender?

Importance of the Research

It is thought that this research is important in terms of;

- Presenting the situations in which the students in secondary schools correctly comprehend the messages of graphic symbols,
- Revealing the importance of teaching graphical symbols,
- Developing an activity as a suggestion for teaching graphical symbols.

METHOD

Model of the Research

Single group pre-test and post-test patterned method which is also called as "basic experimental method" was used in this quantitative research. Before the experiment, measurements of the group is obtained by pre-test and after this process, they are obtained by pro-test with the same subjects and measuring tools within this pattern (Büyüköztürk et al., 2013). Experimental researches are used to reveal the causation about a topic. It is expressed in literature that the basic experimental method which is conducted with single group will be more effective to watch conceptual changes and developments of students (Trochim, 2001; Çepni, Şahin and Akbulut, 2013; Karslı and Çalık, 2012). Also lack of acquisition in Turkish lesson curricula renewed in 2018 on teaching graphical symbols from 5th grade blocks implementation of experimental method based on experimental-control groups at secondary school level. Trochim (2001) reveals that research design with single

group does not threaten the validity when there is no second group or experiment and control groups can not be randomly assigned. The effect of video based activity on the graphical symbol comprehension skill of experimental group is researched in this study.

Study Group

58 eighth grade students study at Alata Secondary School in Erdemli that is the district of Mersin in 2017-2018 Academic Year are constitute the study group. Because these have been found that the achievements related to the teaching of graphical symbols in the curricula that form the bais of educational activities are insufficient and the relevant achievement of this subject is not included after the fourth class in the curricula of Turkish lesson which aims to train especially individuals as effective communicaters especially. Thus, learning of the meanings of these symbols by the students has been system-free and left the chance from the fifth class onwards. For this reason, it is aimed to reveal the level of understanding messages send by graphical symbols and to make a study that would compensate for missing learning of students who study at the fifth and upper classes.

Specifications of experimental group students are in Table 1:

Table 1. Specifications of Students in Experimental Group That Consist Sample

	Experimental Group
Female	31
Male	27
Sum	58

Teaching Material Used in the Research

In this study, a video[1] which was produced by the researcher and can be watched on smart boards by students was used. The video takes 6 minutes and 15 seconds. Informations on the importance of graphical symbols for humans, intended uses and locations of them was provided at first. After this process, graphical symbols that students can meet in their schools and their meanings was expressed.

Some scenes from the material are below:

[1] The video can be reached at: https://www.youtube.com/watch?v=MoDxZ2eGM40&t=8s

Figure 1. Some scenes from the material

Obtaining Data

Data were obtained from Matching Quenstions for Understanding Graphical Symbols Accurately that developed for pre and post tests. Scores that obtained from this measuring tool was used as pre and post tests scores.

Developing Measuring Tool

The measurement tool named as Matching Quenstions for Understanding Graphical Symbols Accurately was developed according to three learned opinions. Two of them are from Department of Education and one of them is from Depertment of Turkish Education. At the starting of measuring tool development process, acquisitions about teaching graphical symbols in 2018 Turkish Lesson Curricula are examined to build an indicator chart according to the learned opinions. It has been determined that the following acquisitions are related to teaching graphical symbols to secondary school students and questions in the measuring tool were prepared with regard to examining and learned opinions:

- T.5.1.6. / T.6.1.4. / T.7.1.4. / T.8.1.4. Answer questions about what they are listening to/watching. (MNEc, 2018: 36, 40, 44, 48).
- T.5.3.22. / T.6.3.30. / T.7.3.30. / T.8.3.27. Answer questions about images (MNEc, 2018: 38, 42, 46, 50).

Before the activity, developed measuring tool implemented to 48 students and results were examined in SPSS 25 packaget software. As a result of the analysis, the reliability coefficient of the test was calculated as 0.807. Therefore, it can be said that Matching Quenstions for Understanding Graphical Symbols Accurately test is a valid and reliable measuring tool.

Table 2. Reliability Coefficient of Measuring Tool

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,807	,818	21

Experimental Process

At first, pre-test process was conducted in this research on examining the effect of video based activity created by the researcher on students' comprehending the meaning of graphical symbols correctly. Thus, it was determined with the measuring tool how students know the meanings of graphical symbols which existed in the school. Then the video was watched by the students within a lesson. Smart board was used in this process. The classroom environment was lightened and made noise-free so that the smart board can be easily seen and listened. After the video had been watched by the students, in the second lesson, post-test process was conducted with the same measuring tool to determine the learning graphical symbols' meaning level of the students.

Data Analysis

SPSS 25 (Statistical Package For Social Sciences Program) packaged software was used to analyse the data which were obtained from Matching Quenstions for Understanding Graphical Symbols Accurately that used for pre and post tests. It was checked whether normality was provided to determine which statistical operation would apply for the data before testing the difference between arithmetic means:

Table 3. Descriptive Statistics Data Related to the Experimental Group

		Pre-Test	Post-Test
N	Valid	58	58
	Missing	0	0
Mean		15,6379	20,0345
Std. Error of Mean		,40167	,23069
Median		16,0000	21,0000
Mod		16,00[a]	21,00
Std. Deviation		3,05906	1,75685
Variance		9,358	3,087
Skewness		-,954	-2,407
Std. Error of Skewness		,314	,314
Kurtosis		1,485	7,094
Std. Error of Kurtosis		,618	,618
Range		15,00	9,00
Minimum		6,00	12,00
Maximum		21,00	21,00
Sum		907,00	1162,00
Percentiles	25	14,0000	19,0000
	50	16,0000	21,0000
	75	17,0000	21,0000

It is seen that standart deviation (1,756) of experimental group's post-test diminished according to the standart deviation (3,059) of pre-test when Table 3 is examined. This indicates that the experimental group was homogenized in the post-test. However when Skewness and Kurtosis values are looked at, it is understood that pre-test and post-test results are not normally distributed within themselves. Because the indicator of normal distribution are the the arithmetic mean, the mode and the median are equal or close, the skewness and kurtosis coefficients are close to 0 within ± 1 limits and the skewness and kurtosis indices calculated by dividing the skewness and kurtosis coefficients into their standard errors are close to 0 within ± 2 limits, relative exchange coefficient that expresses the ratio of the standard deviation to the mean in percentage is between 20 and 25 (Tabachnick and Fidell, 2013; McKillup, 2012; Wilcox, 2012b; Howitt and Cramer, 2011; Lind et al. 2006). Nonparametric data analysis methods were used in the study for this reason.

FINDINGS

Findings which were obtained after the data analysis is revealed and interpreted in this section.

Pre-Test Results of Students According to the 'Matching Quenstions for Understanding Graphical Symbols Accurately'

Results according to the answers given by students to matching questions are in the following table:

Table 4. Descriptive Results of Pre-Test

	N	Minimum	Maximum	Mean		Standart Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	St. Error	Statistic	Statistic
Pre-Test	58	10,00	21,00	15,7586	,36007	2,74220	7,520

		Frequency	Percent	Cumulative Percent	
Valid	10,00	4	6,9	6,9	
	11,00	2	3,4	10,3	
	12,00	1	1,7	12,1	
	13,00	5	8,6	20,7	
	14,00	5	8,6	29,3	
	15,00	3	5,2	34,5	
	16,00	**13**	**22,4**	**56,9**	
	17,00	**13**	**22,4**	**79,3**	
	18,00	4	6,9	86,2	
	19,00	3	5,2	91,4	
	20,00	3	5,2	96,6	
	21,00	2	3,4	3,4	100,0
	Total	58	100,0	100,0	

Pre-test point means of experimental group cluster around 16 points (15,75) and the lowest score is 10, the highest score is 21 when Table 4 examined. In other words, there are students who know the meaning of all the graphical symbols that are asked in the group. There are 4 students with the lowest test score (10) and 2 students with the highest test score (21). However, when looking at the overall average of the group, there are graphical symbols of which the eighth grade students of the experiment do not yet know the meaning even though they encounter them in the school. Thus, it can be concluded that instruction activities based on 'Comprehends the meaning of shapes, symbols and signs.' acquisition in Turkish lesson curricula that exists from 1st to 4th grades can not bring skill to comprehend the meaning of graphical symbols especially they encounter in their schools correctly.

Descriptive Statistical Results Related to the Consciousness Level of Students' Answers to the Pre-Test Questions

At what level the students answered the pre-test questions consciously was examined before the video based activity. The data collected by the Matching Quenstions for Understanding Graphical Symbols Accurately were analyzed separately for each item in this context.

Table 5. Descriptive Statistical Results Related to the Consciousness Level of Students' Answers to the Pre-Test Questions

	N	Min.	Max.	Mean	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	St. Error	Statistic	St. Error
Item 1 (I1)	58	1,00	4,00	***2,3448***	,200	,314	-,245	,618
Item 2 (I2)	58	2,00	5,00	***3,9483***	-,619	,314	,027	,618
Item 3 (I3)	58	1,00	4,00	***2,9483***	-,910	,314	1,294	,618
Item 4 (I4)	58	3,00	5,00	***4,9655***	-7,616	,314	58,000	,618
Item 5 (I5)	58	3,00	5,00	***3,6897***	,419	,314	-,681	,618
Item 6 (I6)	58	1,00	5,00	***2,8621***	-,151	,314	-,839	,618
Item 7 (I7)	58	3,00	5,00	***4,6034***	-1,046	,314	,135	,618
Item 8 (I8)	58	1,00	4,00	***2,7241***	-,861	,314	,952	,618
Item 9 (I9)	58	2,00	5,00	***3,5000***	,000	,314	-,209	,618
Item 10 (I10)	58	1,00	4,00	***2,8793***	-,660	,314	,847	,618
Item 11 (I11)	58	1,00	4,00	***2,9310***	-,279	,314	,279	,618
Item 12 (I12)	58	1,00	4,00	***2,5862***	-1,209	,314	,338	,618
Item 13 (I13)	58	2,00	5,00	***3,9828***	-,517	,314	,408	,618
Item 14 (I14)	58	1,00	4,00	***2,9828***	-,733	,314	1,721	,618
Item 15 (I15)	58	2,00	5,00	***3,5172***	,128	,314	-,159	,618
Item 16 (I16)	58	3,00	5,00	***4,5690***	-1,166	,314	,335	,618
Item 17 (I17)	58	1,00	4,00	***2,0690***	,478	,314	-,094	,618
Item 18 (I18)	58	1,00	4,00	***3,0690***	-,684	,314	,925	,618
Item 19 (I19)	58	1,00	3,00	***1,8966***	,156	,314	-1,006	,618
Item 20 (I20)	58	1,00	4,00	***2,3793***	-,204	,314	-,600	,618
Item 21 (I21)	58	2,00	5,00	***3,5172***	,185	,314	-,382	,618
Valid N (listwise)	58							

When at what level the students respond consciously to matching questions asking what the meanings of graphical symbols are examined, it is seen that the averages of them are quite low in 11 items (item 1, 3, 6, 8, 10, 11, 12, 14, 17, 19 and 20) and quite high in three items (item 4, 7 and 16). The items and graphical symbols that students answer at the highest level of consciousness (4-5 points) are:

Table 6. Items that students answer at the highest level of consciousness

Item number	Message	Graphical symbol
4	No smoking	
7	Male toilet	
16	Female toilet	

The items and graphical symbols that students answer at the lowest level of consciousness (1-3 points) are:

Table 7. Items that students answer at the lowest level of consciousness

Item number	Message	Graphical symbol
1	Green dot	
3	Emergency assembly point	
6	Emergency exit	
8	Recyclable package	
10	Emergency exit downstairs, on the right side.	
11	Emergency exit is on the right side.	
12	Recyclable package made from pet material	
14	Emergency exit is on the left side.	
17	Recyclable package made from paper/cardboard material	
19	Recyclable package made from glass material	
20	Emergency exit ahead.	

It is understood that students are forced not to decide what the meanings of graphical symbols related to emergency exit and recycling of product packages are according to the Table 7. This shows that they do not have enough knowledge about which product they purchased from the school canteen has a recyclable package or which containers to throw the packages in. Also they can be confused in the event of fire, earthquake, etc. to reach points to keep themselves safe. Graphical symbol teaching is considered necessary to prevent possible loss of life and to provide recycling of wastes and to educate students as individuals with environmental clearance awareness.

Pre-Test and Post-Test Results of Students According to the 'Matching Quenstions for Understanding Graphical Symbols Accurately'

Whether there is a significant difference between the scores of both the pre-test and the final test after the activity is examined in this section.

Table 8. Descriptive Results of the Wilcoxon Signed Sequence Test of Pre-Test and Post-Test Average Scores

	N	Mean	St. Deviation	Min.	Max.
Pre-Test	58	***15,7586***	2,74220	10,00	21,00
Post-Test	58	***20,1552***	1,39927	16,00	21,00

The Wilcoxon Signed Ranking Test was used to determine whether there was a significant difference between the pre-test and post-test total scores of the experiment group. According to Table 4, it is seen that the average (20,15) of the post-test scores of the experimental group is higher than the pre-test average (15,75). In other words, the average score of the students from the post-test has increased compared to the pre-test. In addition, the standard deviation of the post-test is reduced compared to the pre-test. When combined with previous knowledge, it can be said that the students' achievement averages in the post-test are more homogeneous.

Table 9. Wilcoxon Signed Ranking Test Results of Pre-Test and Post-Test Average Scores

		N	Mean Rank	Sum of Ranks
Post-Test - Pre-Test	Negative Ranks	***0***[a]	,00	,00
	Positive Ranks	***56***[b]	28,50	1596,00
	Ties	***2***[c]		
	Total	58		

a. post-test < pre-test
b. post-test > pre-test
c. post-test = pre-test

As seen in Table 5, there are 56 students whose post-test scores increased according to the pre-test, and 2 students who received the same score in both tests. There is no student whose post-test total score is lower than the pre-test.

Table 10. Wilcoxon Signed Ranking Test Stats of Pre-Test and Post-Test Average Scores

Test Statistics[a]	
	post-test - pre-test
Z	-6,532[b]
Asymp. Sig. (2-tailed)	,000
a. Wilcoxon Signed Ranks Test	
b. Based on negative ranks.	

According to Table 6, it is seen that there is a significant difference between the pre-test and post-test total scores of the experimental group in favor of the post-test (Z=-6,532; p<,05). On the basis of findings, it is possible to make an interpretation that prepared video-based graphical symbol activity with experiment group developed the skills of students to correctly comprehend the messages of graphical symbols.

Descriptive Statistics Results Related to the Consciousness Level of Students' Answers to Post-Test Questions After the Experimental Process

Within the experimental process, after video-based activity has been applied, it has been examined whether the level of students' conscious response to post-test questions has increased or not. In other words, it was examined whether the students answered the questions more consciously in the post-test where the meanings of graphical symbols were asked. In this direction, the collected data were analyzed separately for each substance.

Table 11. Descriptive Statistics Results Related to the Consciousness Level of Students' Answers to Post-Test Questions

	N	Minimum	Maximum	Mean	St. Deviation
I1	58	3,00	5,00	***4,7241***	,55545
I2	58	3,00	5,00	***4,8103***	,51151
I3	58	4,00	5,00	***4,8793***	,32861
I4	58	5,00	5,00	***5,0000***	,00000
I5	58	3,00	5,00	***4,6724***	,50914
I6	58	2,00	5,00	***4,5172***	,73129
I7	58	5,00	5,00	***5,0000***	,00000
I8	58	4,00	5,00	***4,6207***	,48945
I9	58	4,00	5,00	***4,8276***	,38104
I10	58	2,00	5,00	***4,2241***	,70195
I11	58	2,00	5,00	***4,4828***	,65538
I12	58	3,00	5,00	***4,3793***	,58722
I13	58	4,00	5,00	***4,6724***	,47343
I14	58	3,00	5,00	***4,4655***	,65469
I15	58	4,00	5,00	***4,8276***	,38104
I16	58	5,00	5,00	***5,0000***	,00000
I17	58	2,00	5,00	***4,1897***	,84722
I18	58	3,00	5,00	***4,8966***	,35981
I19	58	2,00	5,00	***4,1379***	,82607
I20	58	2,00	5,00	***4,4310***	,70368
I21	58	4,00	5,00	***4,8276***	,38104
Valid N (listwise)	58				

When the consciousness level of students' answers to post-test questions that ask what the meanings of graphical symbols are examined according to the Table 11, it is seen that the average of the students is very high in all items (4-5 points range). If the knowledge on the average of the total points they received from the post-test increased compared to the pre-test take into account, the following finding is reached: Students gave more accurate answers about the meanings of graphical symbols in the test. In the other words, their level of conscious decision-making was increased.

Pre-Test and Post-Test Results of Students According to the Gender Variance

Mann-Whitney U test was conducted for examine whether there are significant differences in pre-test and post-test scores according to the gender or not.

Table 12. Mann-Whitney U Test Results of Pre-Test and Post-Test Average Scores According to the Gender

Test Statistics[a]		
	pre-test	post-test
Mann-Whitney U	300,500	325,000
Asymp. Sig. (2-tailed)	***,063***	***,079***

a. Grouping Variable: Gender

It seems that there are no significant differences in pre-test and post-test scores according to the gender when the Table 12 is examined (*p>0,05*). In the other words both female and male scores are similar to each other in pre-test and also pro-test.

Situation of Students' Answering Pre-Test and Post-Test Questions Consciously in Terms of Gender Variance

Whether the levels of students' conscious answers to questions about the meanings of graphical symbols in terms of gender variance differ or not is examined with Mann-Whitney U test. The results of the analysis showed that significant differences were observed in the pre-test with respect to gender in certain graphical symbols. However the gender-related differences in the post-test were avoided and the experimental group was observed to have high averages regardless of gender.

Items showing significant differences according to gender in pre-test scores of students are 3, 6, 10, 11, 14 and 19. The Mann-Whitney U test results related to this are shown in Table 13:

Table 13. Items Showing Significant Differences According to Gender in Pre-Test Scores of the Students

Test Statistics[a]						
	I3	I6	I10	I11	I14	I19
Mann-Whitney U	290,000	299,500	274,500	268,000	288,500	306,500
Asymp. Sig. (2-tailed)	,019	,049	,010	,007	,015	,048

a. Grouped variable: Gender

Tables 14 and 15 show the test results showing no significant differences according to gender in the post test scores:

Table 14. Test results showing that there is no significant variation in gender in the final test scores

Test Statistics[a]										
	I1	I2	I3	I4	I5	I6	I7	I8	I9	I10
Mann-Whitney U	86,00	85,50	95,00	95,00	79,50	93,00	95,00	82,00	81,50	86,00
Asymp. Sig. (2-tailed)	***,490***	***,168***	***1,000***	***1,000***	***,378***	***,910***	***1,000***	***,457***	***,378***	***,643***

Table 15. Test results showing that there is no significant variation in gender in the final test scores (continued)

Test Statistics[a]											
	I11	I12	I13	I14	I15	I16	I17	I18	I19	I20	I21
Mann-Whitney U	89,00	68,50	78,50	74,00	81,50	95,00	68,50	75,00	92,00	62,00	81,50
Asymp. Sig. (2-tailed)	***,740***	***,160***	***,375***	***,263***	***,378***	***1,000***	***,160***	***,125***	***,873***	***,082***	***,378***

a. Grouped variable: Gender

As seen above there is no significant differences on conciousness levels according to gender in the post test scores.

CONCLUSION, DISCUSSION AND SUGGESTIONS

58 eighth grade students (experimental group) did not know all graphical symbol meanings which were asked in test and encountered in the school according to the pre-test mean in this research which aims to reveal fifth and above grade students's correctly comprehension level of graphical symbol meanings and to compensate for the missing learnings (if exist) with a designed activity. This situation shows that within the scope of the Turkish lesson that aims to train highly qualified individuals for effective communication skills, 8th grade students who receive education according to the "Comprehends the meaning of shapes, symbols and signs" acquisition from 1st to 4th grades could not comprehend the messages of all graphical symbols in their schools yet. For this reason, the acquisition should be included in the Turkish lesson curricula at the secondary school level. In addition, since the research is limited to the students at the secondary level, the situation in high-school education should also be examined and the students' knowledge level of the graphical symbols' meanings should be determined at this level.

When the results of descriptive statistics on the level of consciousness of answers given by students to pre-test questions are taken into consideration, it was seen that the averages are quite low at 11 items ('Green dot',

'emergency assembly point', 'emergency exit', 'Emergency exit downstairs, on the right side.', 'Emergency exit is on the left side.', 'Emergency exit is on the right side.', 'Emergency exit ahead.', 'Recyclable package', 'Recyclable package made from pet material', 'Recyclable package made from paper/cardboard material', 'Recyclable package made from glass material'). This shows that students did not have enough information about which product they purchased from their canteens has recyclable packaging and about which containers to throw the packages into. Also this suggest that they may experience confusion in reaching the points where will keep them safe when there is a fire, earthquake, etc. in their schools. Graphical symbol teaching is considered necessary to prevent possible loss of life and to provide recycling of wastes and to educate students as individuals with environmental clearance awareness.

It has been observed that the mean of the total scores of the group increased (20,15) compared to the pre-test (15,75) and the standard deviation decreased (pre-test $\overline{X}$=2,74, post-test $\overline{X}$=1,39) and so homogenization is achieved in the success rate according to results of the post-test which was implemented after audio and video content that designed by the researcher had showed students. These results are compatible with Duchastel vd. (1988) and Kumar (1991) that videos help students keep informations in mind and make it easy to remember important points of the subject they learned. Also using video allows the students to focus on the subject planned to be thought by activating attention (Duchastel vd., 1988). Therefore, the results may have been out this way.

56 students' achievement scores of the post-test was higher than pro-test and only 2 students' achievement scores they got from both tests remained the same. Therefore, there were no students whose achievement score decreases in the post-test.

It was found that there is a significant difference between pre-test and post-test total scores of the experiment group in favor of the post-test (Z=-6,532; p<,05). Accordingly, it is possible to make an interpretation that the graphical symbol activity based on the prepared video, performed by the experiment group, improves the students' ability to understand the messages of graphical symbols.

When the consciousness level of students' answers to post-test questions that ask what the meanings of graphical symbols are examined, it was determined that the average of the students is very high in all items (4-5 points range). If the knowledge on the average of the total points they received from the post-test increased compared to the pre-test take into account, the following finding is reached: Students gave more accurate answers about the meanings of graphical symbols in the test. In the other words, their level of conscious decision-making was increased. As mentioned above, notions of Duchastel vd. (1988) that using video increases the motivations of students and activates attention may effect this state.

Mann-Whitney U test was conducted for examine whether there are significant differences in pre-test and post-test scores according to the gender or not. Both female and male scores are similar to each other in pre-test and also pro-test based on the results obtained from this test.

Whether the levels of students' conscious answers to questions about the meanings of graphical symbols in terms of gender variance differ or not is examined with Mann-Whitney U test once and for all. The results of the analysis showed that significant differences were observed in the pre-test with respect to gender in certain graphical symbols. However the gender-related differences in the post-test were avoided and the experimental group was observed to have high averages regardless of gender.

There are a great number of studies about individuals' different graphical symbols (on products as farm machines, medicines, chemicals, etc. or in public places as hospitals, universities, etc.) perception based on the importance of this symbols in daily life and designing processes of these symbols with the terms of 'pictogram', 'sign' or 'symbol'. But studies on teaching of graphical symbols are almost non-existent except for those with a learning disabilities in the world as it is in Turkey. It is considered that there is a need for further research in this field for a country which has reached necessary standards in daily life and educating conscious citizens who are respectful to the environment and obey the rules.

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